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ASSESSMENT ON THE IMPLEMENTATION OF THE MEDITERRANEAN STRATEGY FOR SUSTAINABLE DEVELOPMENT (MSSD) FOR THE PERIOD 2005 – 2010

FULL REPORT

Assessment on the implementation of the Mediterranean strategy for sustainable development (MSSD) for the period 2005 – 2010

Report
May 2011

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Acronyms

CDM	Clean Development Mechanism
CGE	Computational General Equilibrium
CEDARE	Centre for Environment and Development for the Arab Region
CIHEAM	Centre international de hautes études agronomiques méditerranéennes
CO	carbon monoxide
CPMF	Collaborative Partnership on Mediterranean Forests
CO ₂	carbon dioxide
DAC	Development Assistance Committee
EBRD	European Bank for reconstruction and development
EEA	European Environment Agency
EIB	European Investment Bank
EMSDP	Environmental Mediterranean Sustainable Development Program
EMWIS	Euro-Mediterranean Information system on the know – how in the water sector
ENPI	European Neighborhood and Policy Instrument
EU	European Union
FAO	Food Agriculture Organization
FIBL	Research institute for organic agriculture
GDP	Gross domestic Product
GFNMI	Global Footprint Network Mediterranean Initiative
GHGs	Greenhouse Gas emissions
GNI	Gross National Income
GWPM	Global Water Partnership Med
ICZM	Integrated Coastal Zone Management Protocol
IDB	Islamic Development Bank
IEA	International Energy Agency
IOM	International Organization of Migration
IPM	Integrated Pest Management
IUCN	International Union for Conservation of Nature
LPG	Liquefied petroleum gas
MAP	Mediterranean Action Plan
MCSD	Mediterranean Commission for Sustainable Development
MDGs	Millennium Development Goals
MEDA	Euro – Mediterranean Partnership
MED REP	Mediterranean Renewable Energy Program
MENA	Middle East and North Africa
MCGI	Mediterranean Climate Change Initiative
MED EUWI	Mediterranean Component of the European Union Water Initiative
METAP	Mediterranean Environment Technical Assistance Program
MIO–ECSDE	Mediterranean Information Office for environment, culture and sustainable development
MSPHT	IDB merit scholarship program for High Technology
MSSD	Mediterranean Strategy for Sustainable Development
NGO	Non-governmental Organization
NSSD	National Strategy for Sustainable Development
NGV	Natural Gas Vehicle
NOX	Nitrogen oxide
OECD	Organization for economic cooperation and development
PPP	Purchase Parity Power
RACs	Regional Activity Centers
R&D	Research and Development
REEEP	Renewable Energy & Energy Efficiency Partnership
REMEP	Rome Mediterranean Energy Platform
RIPMP	Regional integrated pest management Program in the Near East
SAP BIO	Strategic Action Programme for the conservation of biodiversity
SEMECP	SIDA – EBRD municipal environment and climate program in Eastern Europe

SMAP	Short and medium term priority environmental action
SWMDM	Sustainable Water Management and De-pollution of the Mediterranean
SWIM	Sustainable Water Integrated Management Mechanism
TRECs	Tradable Renewable Energy Certificates
UfM	Union for Mediterranean
UNDP	United Nations Development Program
VOC	Volatile organic compound
WB	World Bank
WHO	World Health Organization
WGPAS	Water Governance Program for Arab States
WRI	World Resource Institute

1. Introduction and overview

At the 12th meeting of the Parties the Contracting Parties of the Barcelona Convention decided to prepare a Mediterranean Strategy for Sustainable Development (MSSD). The MSSD is a framework strategy which aims to adapt international commitments to regional conditions, to guide national sustainable development strategies and to initiate a dynamic partnership amongst countries party to the Convention. The Strategy aims to promote sustainable development which includes progress in economic, social and environmental areas as well as in governance.

The purpose of this report is to evaluate the work done so far and to provide the members of the Mediterranean Commission for Sustainable Development (MCSD) and the Contracting Parties with an Assessment Document showing the level of implementation of the MSSD since 2005 and ways to improve it and update it with a particular focus on environment/development issues. In particular the project aims to:

- Suggest amendments of the MSSD on the basis of the changes in the context in which the MSSD operates and of the problems related to the MSSD implementation over the period 2005 - 2010;
- Suggest new emerging priorities which should be incorporated in the revised version of the MSSD (aim 2); and
- Suggest actions to improve the implementation of the MSSD.

The work which is being undertaken from October 2010 to May 2011 is organized around three main tasks:

- Task 1. Desk study and review during which we had the opportunity to collect papers on the activities undertaken by UNEP/MAP and complementary activities undertaken by other international organizations in the relevant area.
- Task 2. Interviews based on a questionnaire to MCSD members, RACs and other interested stakeholders concerning UNEP/MAP activities;
- Task 3. Analytical Assessment Report (this report).

The report is structured as follows. Section 2 presents a gaps analysis, which aims to provide information on whether the objectives and indicators set have been achieved. Section 2.1 discusses the methodology and Section 2.2 provides a detailed overview of the path of MSSD indicators over the period 2005 – 2010. Section 2.3 discusses a set of new indicators, whereas the section 2.4 undertakes a critical assessment of actions, orientations and objectives contained in the document. In section 3 we provide a brief analysis of the current UNEP/MAP institutional framework (section 3.1), discuss other actors in the field which could help with the implementation of MSSD objectives (section 3.2) and compare the MSSD vis à vis the NSSDs. Appendices A and B provide information on consultation undertaken in the project. Appendix C contains results of the Computational General Equilibrium (CGE) modeling exercise, whereas Appendix D contains a brief description of initiatives, programs and partnerships showing interesting synergies with the MSSD activities.

2. The gaps between MSSD objectives and performance

2.1. Methodology

A gaps analysis compares the actual performance with its potential or expected performance. At its core are two questions: "Where are we?" and "Where do we want to be?". The analysis can be done for indicators, organizations and other units. It can be done at the strategic or operational level of an organization. If a company is not making the best use of its current resources, then it may be producing or performing at a level below its potential. Such an analysis may help to provide the organization with insight into areas which could be improved.

In the case of the MSSD, expectations and potential of Mediterranean countries are clearly stated in the MSSD document (p. 56 Annex I - Table of synergies). Whereas in the company case the performance is strongly related to output or revenue, the application of a gaps analysis on the MSSD is more complex as the performance is related to different objectives organized according to a set of priorities.

Table 1. MSSD objectives and priorities and specific environment/development indicators and targets

Objectives/priorities	Water	Energy and climate change	Transport	Tourism	Agriculture	Urban development	Sea and coastal zones
Economic development	Increase agriculture value added of cubic meter of water	1) Enhance the potential of Mediterranean renewable energy (7% of demand by 2015) 2) Reduce energy dependency	1) Develop sustainable transport systems 2) Reduce growing congestion costs	1) Promote sustainable tourism 2) Enhance value of Mediterranean assets 3) Increase added value of tourist economy	1) Enhance Mediterranean diversity: typical products etc. 2) Diversify rural economy	1) Promote sustainable urban economy 2) Create added value for the historical, cultural and landscape heritage	1) Develop sea related activities (aquaculture etc.)
Reduce social disparities	1) Halve the population (2015/1990) without access to safe drinking and sanitation	1) Halve the population without access to electricity	1) Reduce the growth of transport costs in household budget 2) Stabilize or reduce road traffic share	Develop tourism to help promoting social cohesion	1) Reduce rural poverty 2) MDGs	1) Reduce social inequalities 2) Integrate informal settlements 3) Reduce the share of slum housing	1) Preserve the social and cultural added value of traditional coastal activities (fishing, salt production, agriculture,...).
Sustainable economy and management of natural resources	1) Stabilize water demand. 2) Protect water resources	1) Energy efficiency improvements 2) Control, reduce or stabilize GHG emissions 3) Reduce vulnerability of sensitive areas to climate change	1) Stabilize or reduce road traffic share 2) Low polluting collective urban transport systems	1) Reduce tourist pressures in environmental hot spots 2) Better temporal and spatial management of tourist flows	1) Reduce desertification 2) Protect biodiversity 3) Prepare agriculture for climate change	1) Promote Mediterranean model of mixed and compact towns 2) Reduce air pollution 3) Increase share of clean fuels	1) Avoid linear coastal urbanisation 2) Reduce land based pollution 3) Prevent pollution

						4) Reduce growth of municipal waste generation 5) Increase recycling and share of sanitary landfills	from ships
Governance	1) Water demand policies 2) Integrated water resource management 3) Promote local participation and partnership	1) Economic tools. 2) Awareness campaigns. 3) Implementation Kyoto Protocol flexibility mechanisms	1) Economic tools 2) Investments 3) Euro – Med sustainable transport network	Euro-Mediterranean approach. Sustainable agricultural and rural development policies, programmes, regional parks, biosphere reserves. (17) Strengthen local communities governance, promote women.	Sustainable agriculture and rural development policies	1) Articulate spatial and transport planning 2) Strengthen capacities of local authorities 3) Promote local agenda 21, urban renewable programmes 4) Public-private partnerships 5) Decentralized cooperation networks	1) Regional and sub regional cooperation 2) Protected areas network (10%) 3) Local governance enforcement

Source: MSSD Annex I

Beyond these indicators, for each priority the MSSD also contains a series of orientations expressed in quantitative targets that Mediterranean countries should satisfy over the period 2015-2020, and actions with the indication of the year by which they should have been undertaken. We identify some of these indicators and concrete actions here:

1. A desirable target for reducing the intensity of energy consumption per unit of gross domestic product by 2015 could be in the range of 1-2% per year;
2. Develop synergies with the Mediterranean Renewable Energy Programme (MED REP), the Rome Mediterranean Energy Platform (REMPE) and the Euro Mediterranean Energy Policy.
3. Encourage economic mechanisms such as Tradable Renewable Energy Certificates;
4. Develop before 2010 a sustainable Euro-Mediterranean transport framework, taking into account the objectives of the EU Sustainable Development Strategy and other relevant regional initiatives;
5. Explore the possibility of extending to non-EU Mediterranean countries the benefits of the Marco Polo Programme for the development of road-sea modal transfers.
6. A desirable objective by 2015 would be to scale down the road share to 75% of total traffic for both the number of passengers and volume of freight.
7. Develop clean fuels. A desirable objective for 2015-2020 would be to raise the share of clean fuel (LPG, NGV, bio fuel) and the share of electric and hybrid vehicles up to 30% and to manage to eliminate lead contained in gasoline.
8. As soon as possible but no later than 2010, draw up 10-year promotional framework programme for the Mediterranean together with the Ministries concerned, the private sector,

and sustainable tourism professionals and promoters, highlighting the assets of the Mediterranean cultural and environmental heritage, with a view to developing a "Mediterranean tourism quality label".

9. A desirable target would be to decrease by at least one-third the current rates of loss of agricultural land through erosion, salinization, desertification, urban and other forms of development and abandonment by 2015.
10. A desirable goal for biodiversity is to put an end to the loss of continental biodiversity in the EU Member States and to reduce it substantially in other Mediterranean countries by 2010.
11. Expand protected areas through the allocation of sufficient resources to obtain the commitment of local communities. A desirable target by 2010 would be for 10% of all Mediterranean land ecosystems to be under the status of a protected area.
12. The reduction of urban air pollutants such as CO, NOx, VOC, particulate matter and lead, through appropriate vehicle standards, urban traffic policy, the strengthening of public transport networks, the diversion of heavy traffic and the use of clean fuels. A suitable objective would be to achieve a 30% share of clean fuels, such as LPG, NGV bio-fuels, electric and hybrid vehicles, and ultimately to ban leaded gasoline, by 2015/2020.
13. Suitable objectives by 2015 would be to dissociate the increase in waste generation and GDP growth so as to reduce the current growth rate in waste generation by around 50%, double recycling rates and transform at least half of unregulated waste dumps into sanitary landfills.
14. Invite all Mediterranean urban areas, especially large cities, to launch local Agenda 21 type processes, strategies, planning and urban renewal programmes involving inhabitants, associations and businesses in joint urban renewal projects and public/private partnerships before 2015.
15. Adopt a Protocol for the Integrated Management of Mediterranean Coastal Zones and implement the related regional strategy by 2007.
16. Increase the number of protected areas throughout the Mediterranean significantly, to cover at least 10% of coastal and marine habitats with forms of protection that meet the criteria of the IUCN.

In some cases orientations are not expressed as specific quantitative variables, but they have been associated to specific indicators by official documents. For example the orientation (p. 23): "Invite Mediterranean countries to cooperate in the implementation of the United Nations Framework Convention on Climate Change and flexibility mechanisms of its Kyoto Protocol, to prepare for the post-2012 phase and direct towards the region investment designed to reduce greenhouse gas emissions has been translated by the UNEP/MAP Plan Bleu technical document (2010) as (p. 4): "Amount financed in the framework of the Kyoto Protocol flexibility mechanisms by the annex 1 countries to the benefit of other Mediterranean countries" representing one of the follow up indicators included in the Annex 2 (p. 58).

The analysis of some of these indicators/actions will complement those explicitly included in the MSSD table of indicators. It should be noted that the analysis has its limitations, e.g.:

- a. In many cases data are not available up to 2010 and for this reason we will need to consider just data over a more limited time horizon. Moreover in many cases data are not available for all countries.
- b. Only in a few cases the MSSD document explicitly indicates specific targets. In many cases it just indicates a desirable path (e.g. a reduction of greenhouse gas emissions).

So in this case we will consider the target to be met if a country follows the path as indicated in the MSD document.

- c. The indicators can be imprecise and cannot be easily translated into specific indicators. An example is the indicator contained in the MSSD appendix "Promote sustainable urban economy" for which it is not easy to identify appropriate target indicators.
- d. In our analysis we often aggregate countries' data to investigate trends for sub regions and in particular we adopt the distinction between South Europe, North Africa and Middle East. Because of data availability these groups will not be homogenous for each indicator, so we will clarify the composition of the group through appropriate notes.

Governance indicators concern qualitative evaluations such as the existence of water resource management policies, the promotion of economic tools etc. In other words an evaluation of the MSSD governance indicators requires the analysis of the impact of the influence of MSSD on the governance at national level. A full analysis of the influence of the MSSD on national policies has already been implemented through and is contained in the UNEP(DEC)/MED WG. 339/Inf. 3 (2009). The above observations suggest it is important to review and possibly revise the MSSD indicators. We will concentrate on the gaps analysis and on the analysis of the progress reached by Mediterranean countries. The next section provides an overview of our findings.

2.2 . Results of the gaps analysis

As explained above, the gaps analysis identifies discrepancies between targets set in the strategy and the current level of implementation. In order to map progress against the implementation of the MSSD, we collected data on the indicators listed at p. 56 of the MSSD document, and reported in Table 1. We then compared the more recent data with the indicator target, to assess to what extent the MSSD sustainable development objectives have been achieved. For all indicators, we considered the period 2005 - 2010. If data were not available for all the years of interest, we analyzed the most recent years. In a few cases, only pre-2005 data were accessible. In this case, we compared the latest available year with previous ones, to identify trends.

It is worth noting that for some indicators available information is not up-to-date or is missing for some countries. For some themes we found evidence from the early 1990s to 2009. But for others the data are patchy (i.e. information is available for some countries, but not for all), and caution is recommended in interpreting these results.

The results are detailed below, divided according to the seven essential issues identified in the MSSD main report: water, energy, transport, coastal protection, urban development, agriculture and rural development, tourism.

2.2.1. Water

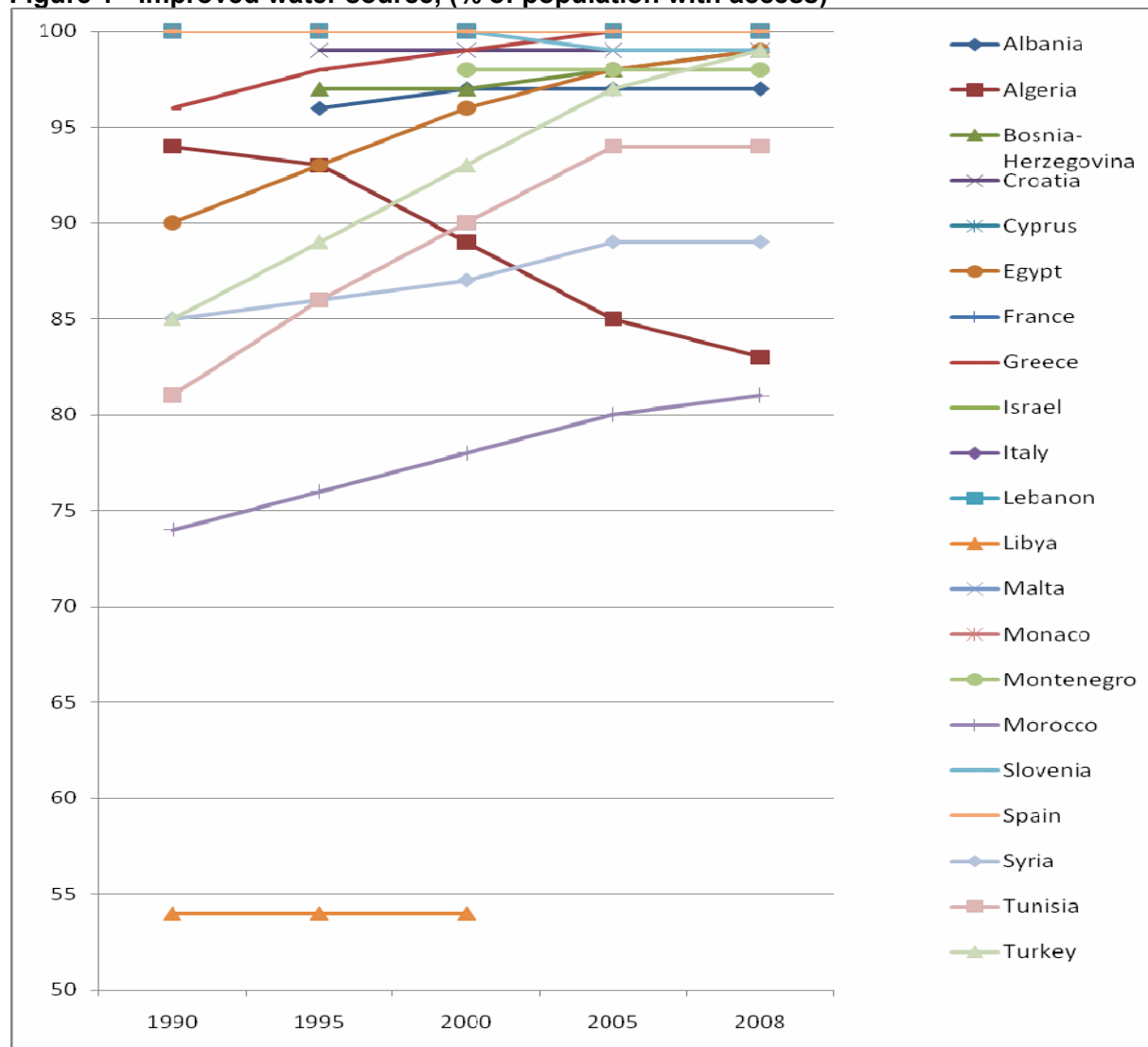
Water resources protection and access to water are amongst the key objectives of the MSSD strategy. Access to clean water and sanitation is also one of the objectives of the Millennium Development Goals.

With respect to access to water, many countries (Cyprus, France, Greece, Israel, Italy, Lebanon, Malta, Monaco and Spain) have a complete (100%) coverage. In other countries

(Albania, Montenegro, and Tunisia) access to clean water is above 90%, and some show a 99% coverage (Bosnia-Herzegovina, Croatia, Egypt, Slovenia and Turkey) as Figure 1 shows. Libya is an outlier, with a coverage of 55%.

With regards to sanitation, similar trends can be identified. In some countries access to sanitation exceeds 80%. Details can be found in Figure 2. It is worth noting that the main progress has been obtained in the decade between 1995 and 2005, for most countries.

Figure 1 - Improved water source, (% of population with access)



Source: WHO

The trends sketched above suggest that the objective of guaranteeing access to water and sanitation in Mediterranean countries has been met. From a sustainable development point of view, ensuring water resources protection is crucial for sustained economic growth and adequate standards of living in the coming decades, especially if one considers the effects of climate change on water resources availability.

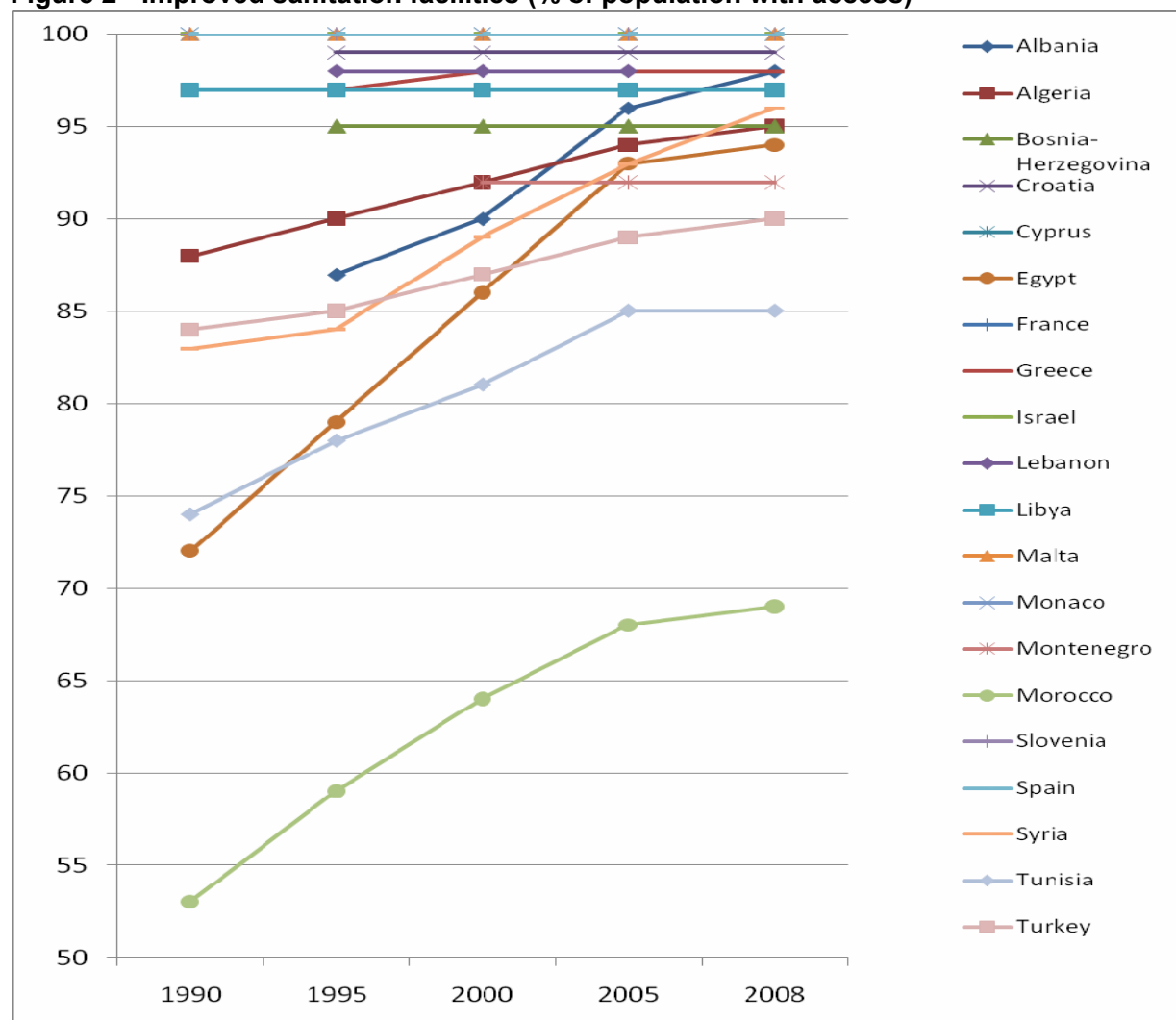
To understand current pressures on water resources, a good indicator to refer to is the water exploitation index (defined as the percentage of available water resource abstracted each year).

These countries can be classified into three groups according to this index (see

Figure 3):

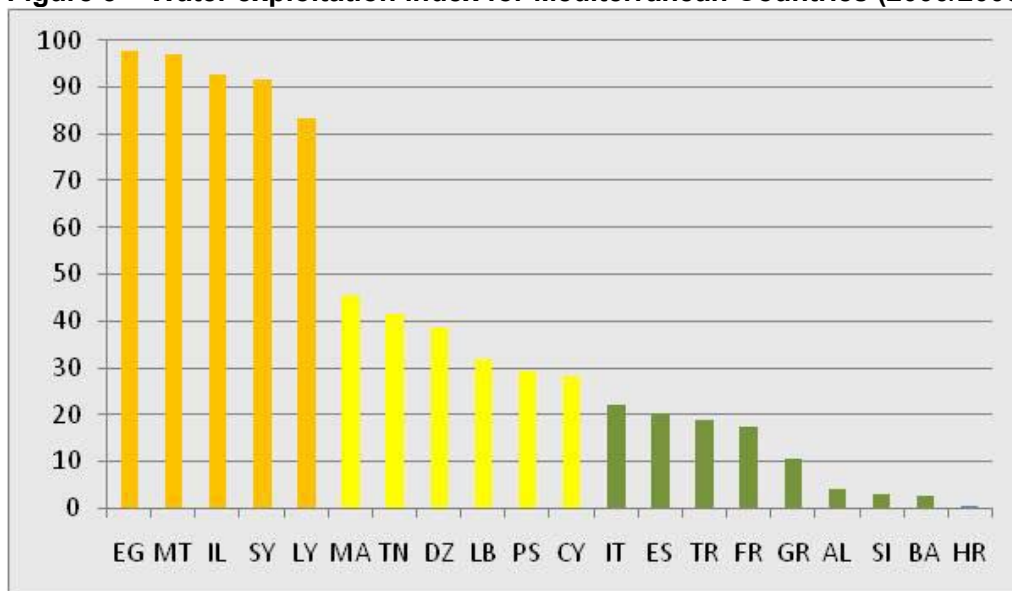
- Those whose index is greater than 75% (Egypt, Malta, Israel, Syria and Libya), which already exploit their water resources intensively and are likely to develop non-conventional sources to meet future water demands
- Those having an index between 25% and 50%, which are likely to have localized water problems (Morocco, Tunisia, Algeria, Lebanon and Cyprus)
- Finally, those having an index smaller than 25%.

Figure 2 - Improved sanitation facilities (% of population with access)



Source: WHO

Figure 3 – Water exploitation index for Mediterranean Countries (2000/2005)



Source: UNEP/MAP Plan Bleu



Source: UNEP/MAP Plan Bleu

Iglesias et al. (2010) clearly describe the current pressure on water resources in Mediterranean countries. They point out that in Mediterranean countries rainfall and water resources are limited. In many Mediterranean countries, demand largely exceeds the available water resources. The potential water availability per capita and year considering the total freshwater resources in southern Mediterranean countries is less than 1,000 m³. Water use in the region is mainly for agriculture, accounting for more than 50% of total water use in all countries except France. Irrigation technologies have increased water productivity up to 30 or 40% and this has given a competitive advantage to many Mediterranean crops in European markets. A common

problem of aquifers in the Mediterranean region is the degradation of the groundwater quality due to multiple stresses: excessive pumping in relation to average natural recharge, return flow from irrigation water with intense use of agrochemicals or leakage from urban areas.

Table 2. Total freshwater resources, available resources, use, and water availability in selected Mediterranean countries

Country	Total area (km ²) [Population (million)]	Rainfall (mm year ⁻¹)	Total [Internal] renewable water resources (km ³ year ⁻¹)*	Total water use (% Renew-able)	Potential total renewable water resources per capita (m ³ capita ⁻¹ year ⁻¹)	Agricultural value added/GDP (%)	Irrigation/cropland (%) 2006 (1961)
Algeria	2,381,740 (32)	89	14.32 (13.90)	40	473	13.3	6.8 (3.2)
Egypt	1,001,450 (72)	51	58.30 (1.80)	106	859	15.1	100 (100)
France	551,500 (60)	867	203.70 (178.50)	17	3,439	2.7	13.3 (2.4)
Greece	131,960 (11)	652	74.25 (58.00)	11	6,998	6.9	37.2 (11.6)
Israel	22,000 (6.5)	435	1.67 (0.75)	103	254	1.3	45.8 (34.3)
Italy	301,340 (57)	832	191.30 (182.50)	22	3,325	2.7	24.9 (15.4)
Libyan Arab J.	1,759,540 (6)	56	0.60 (0.60)	954	113	n.a.	21.9 (6.1)
Morocco	446,550 (31)	346	29.00 (29.00)	42	971	16.8	14.5 (12.6)
Spain	505,990 (41)	636	111.50 (111.20)	32	2,794	3.3	20.2 (9.4)
Syrian Arab R.	180,000 (18)	252	26.26 (7)	100	1,403	23.5	24.6 (8.7)
Tunisia	163,610 (10)	313	4.56 (4.15)	57	482	12.1	7.8 (2.4)
Turkey	770,000 (71)	593	213 (227)	18	2,800	12.1	18.3 (5.2)

* The values refer to both regulated and unregulated water. Real available water resources in all cases are a fraction of these values

Source: Iglesias et al. 2010 elaborating FAO data (2008)

The abstraction of freshwater was increasing in North Africa and Middle East, but decreasing in Southern Europe over the period 2003-2007. The abstraction of freshwater appears particularly massive in North Africa.

Table 3. Total gross abstraction of freshwater in South Europe, North Africa and Middle East (millions m³ per year)

	2003	2007	% difference 2007/2003
South Europe ¹	47499	43346	- 8%
North Africa ²	66400	69884	+ 5%
Middle East ³	18372	20953	+ 12%

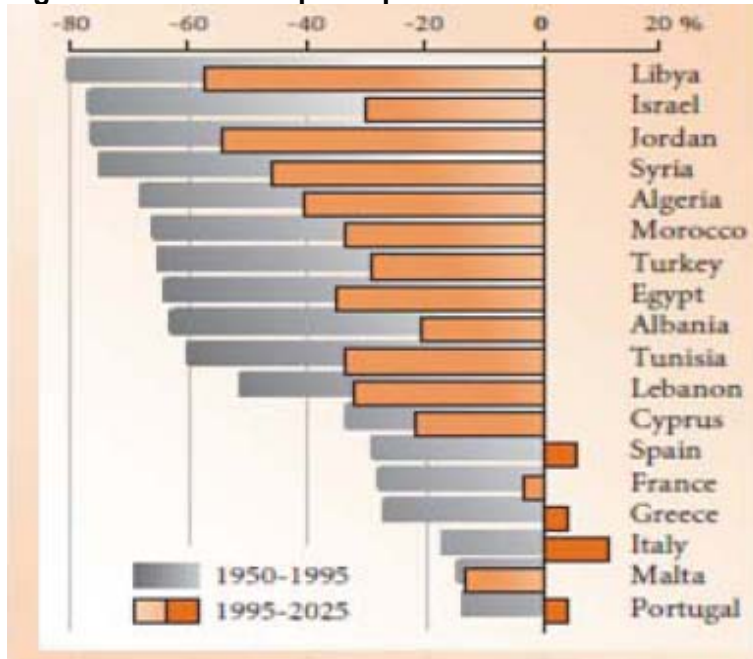
For most of the countries included in these groups the current and future trend is a reduction of per capita water resources.

¹ This group of countries includes Greece, Spain, Cyprus, Malta, Slovenia.

² This group of countries includes Algeria, Egypt and Tunisia

³ This group of countries includes Israel and Syria.

Figure 4. Variation in per capita water resources 1950 - 2025

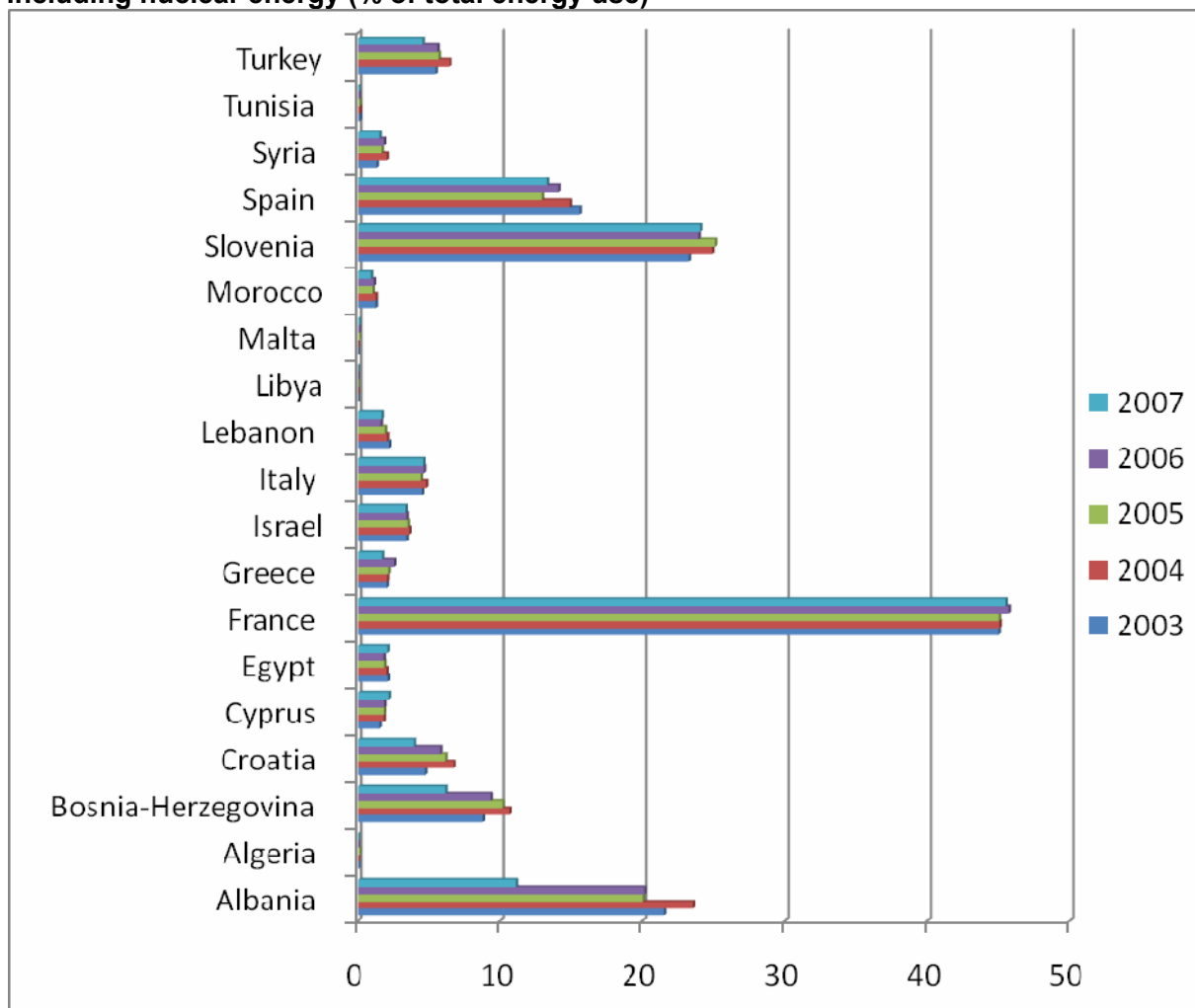


Source: CIHEAM

2.2.2 Energy

The MSSD states that 7% of energy demand should be met by renewable sources by 2015. IEA data suggest that in 2007 only France, Spain, Albania and Slovenia attained this target. The data for France is particularly striking (around 45%) as it derives from the strong nuclear power industry representing the largest source of electricity in the country. It is worth noting that Bosnia Herzegovina's share of 6.5% is not far from the MSSD target. Other countries such as Italy and Cyprus show some progress (although their share is around 2-4% only). However, many others, such as Algeria, Malta, Morocco and Tunisia, cover less than 1% of their energy use from renewable sources.

Figure 5 - Share of renewable energy excluding combustible renewables and waste⁴ and including nuclear energy (% of total energy use)⁵



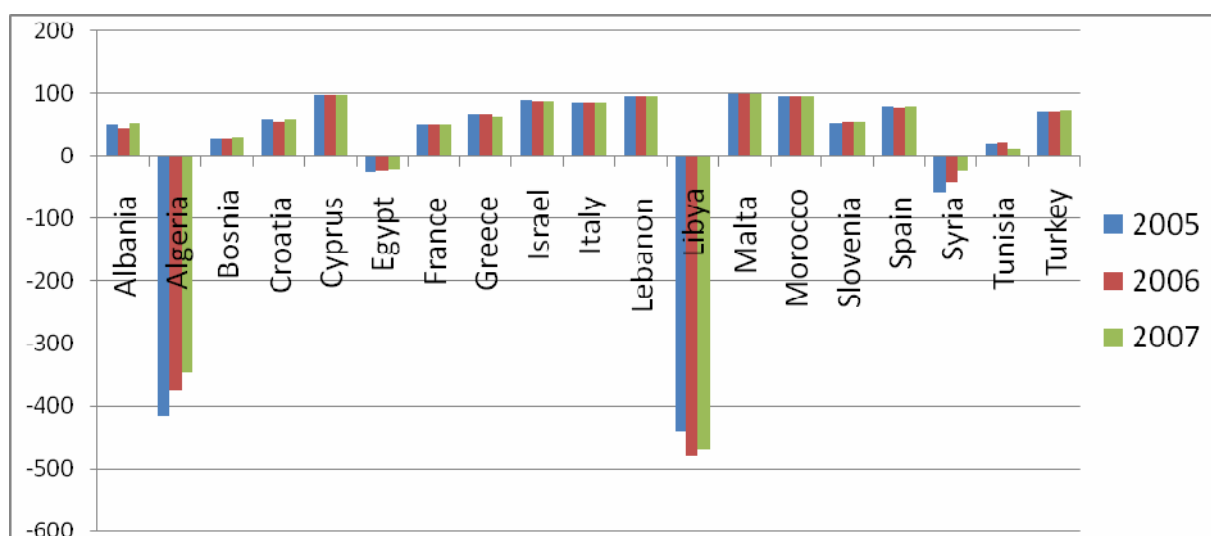
Source: OECD/IEA

Concerning energy dependency, it is worth noting that, although most countries import a significant proportion of their energy consumption, Libya and Algeria are net exporters. In particular, Libya exports almost five times the amount of its energy use (of course before the current situation).

Figure 6 - Energy imports, net (% of energy use)

⁴ Combustible renewables and waste comprise solid biomass, liquid biomass, biogas, industrial waste, and municipal waste, measured as a percentage of total energy use.

⁵ The UNEP/MAP Plan Bleu technical description of indicators (UNEP/MAP Plan Bleu 2006) does not include nuclear power as renewable energy. In this report we apply the definition of renewable energy adopted by the World Bank.



Source: OECD/IEA

A projection of UNEP/MAP Plan Bleu (2009) towards 2025 confirms the trends emerging from the figure 6 with Algeria and Libya being the main energy exporting countries.

Table 4 A UNEP/MAP Plan Bleu forecast of energy dependence in 2025 (%)

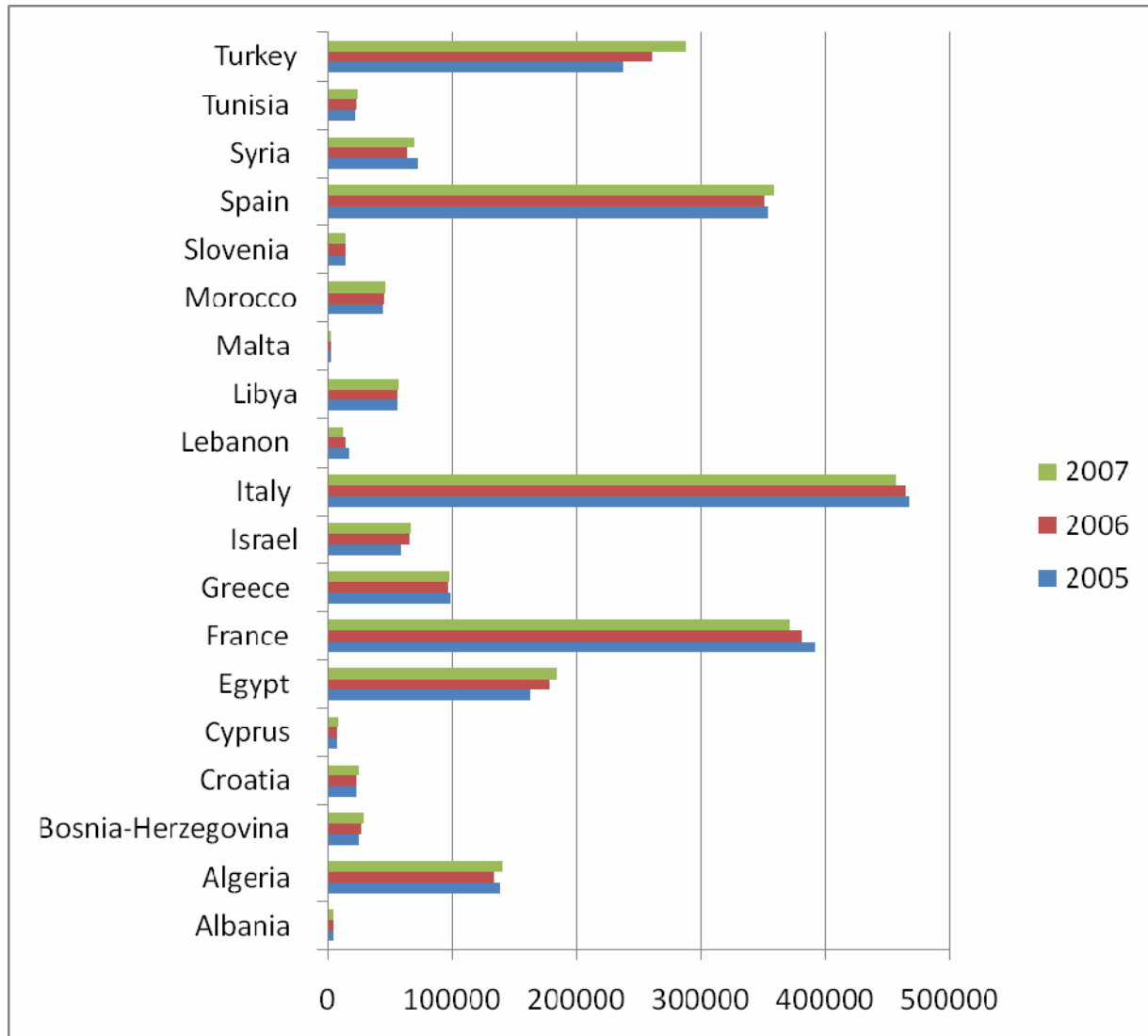
South Europe			North Africa		Middle East	
Spain	78		Egypt	7	Turkey	78
France	58		Libya	-551	Syria	64
Italy	89		Tunisia	72	Lebanon	98
Greece	76		Algeria	-373	Palestina	100
Cyprus	97		Morocco	93	Israel	92
Malta	100					
Slovenia	54					
Croatia	81					
Bosnia	51					
Albania	43					

Source: UNEP/MAP Plan Bleu (2009)

In terms of reducing social disparities, another objective is to halve the population without access to electricity by 2015 (with respect to 1990 levels). According to IEA most countries are considered to have access to electricity rates (i.e. % of population with access to electricity) close to 99%. The only exceptions are Morocco (97%, i.e. one million people without access to electricity) and Syria (92.7%, 1.6 million).

The majority of countries considered show an increasing trend in CO₂ emissions in 2007 with respect to 2005, with the exception of France, Italy, Syria, Greece and Albania which experienced a slight decrease from 2005 onwards. This trend does not match the MSSD target requiring a decreasing path of emissions. Lebanon shows the greatest percentage drop (-24%). Turkey increased its CO₂ emissions considerably (+22%), followed by Bosnia-Herzegovina, Egypt and Israel (+13%).

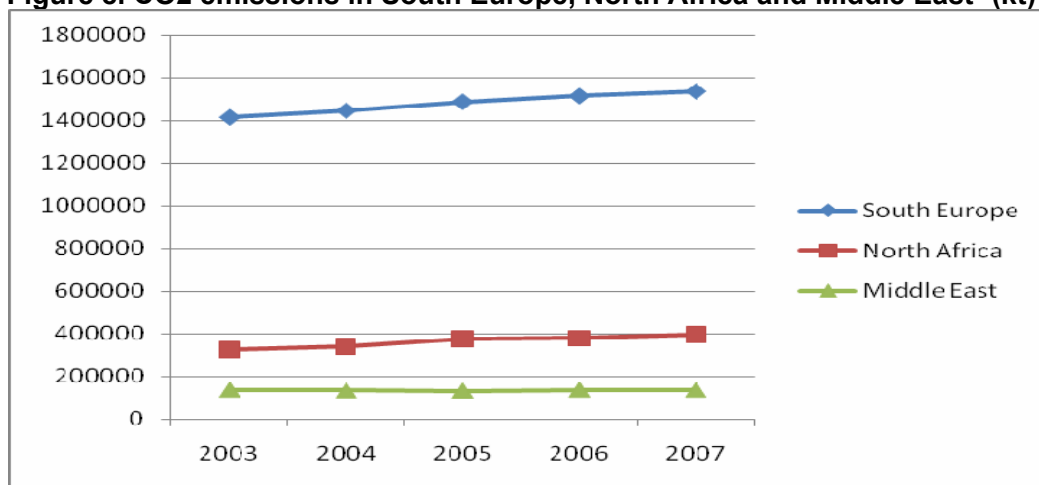
Figure 7 - CO₂ emissions (kt)



Source: World Bank

As expected, the production of CO₂ is particularly relevant in South Europe corresponding to twice the level of CO₂ emissions in North Africa and Middle East. In spite the scientific evidence agrees on the fact that tight emissions reductions will be feasible by including rich and developing countries, the graph confirms the recent evidence showing that rich countries are currently most responsible for climate change and this situation will unlikely change in the next few years. Recent academic evidence shows that to be effective in the short term, emissions reduction policies should primarily focus on rich countries (Cantore N. 2011). This finding calls for differentiated climate change policies in the Mediterranean area demanding an immediate effort of emissions cuts in Southern Europe and a smooth process towards decarbonization in North Africa and Middle East.

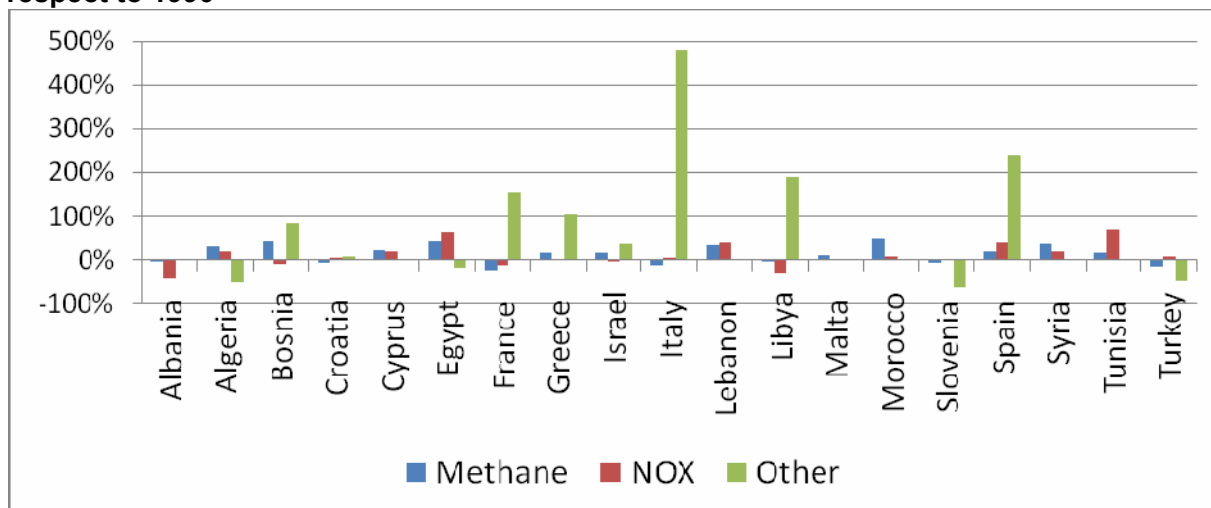
Figure 8. CO₂ emissions in South Europe, North Africa and Middle East⁶ (kt)



Source: World Bank

With regards to other GHGs, trends are mixed. Methane emissions rose considerably in Morocco (+46%), Bosnia-Herzegovina (+43%) and Egypt (+42%), whereas they fell in France (-23%) and Turkey (-14%). NO_x emissions increased in Tunisia (+70%), Egypt (+64%) and Lebanon (+38%), whilst they decreased in Albania (-41%) and Libya (-28%). Other GHGs (HFC, PFC and SF₆) surged in Italy (+481%), France (+151%), Spain (+239%) and Greece (+105%), whilst they fell in Slovenia (-64%), Algeria (-52%) and Turkey (-48%).

Figure 9 – GHG emissions (methane, NO_x and other gases) - 2005, % difference with respect to 1990



Source: World Bank

Energy efficiency (measured as GDP per unit of energy use) also has improved since 2005. All countries for which we have data show a positive variation of energy efficiency, except for Algeria (-8%), Turkey (-6%) and Syria (-2%). Lebanon (+46%), Albania (+18%) and Slovenia

⁶ In this graph South Europe includes Bosnia, Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, Spain, North Africa includes Algeria, Egypt, Morocco, Libya, Tunisia and Middle East includes Israel, Lebanon, Syria, Turkey.

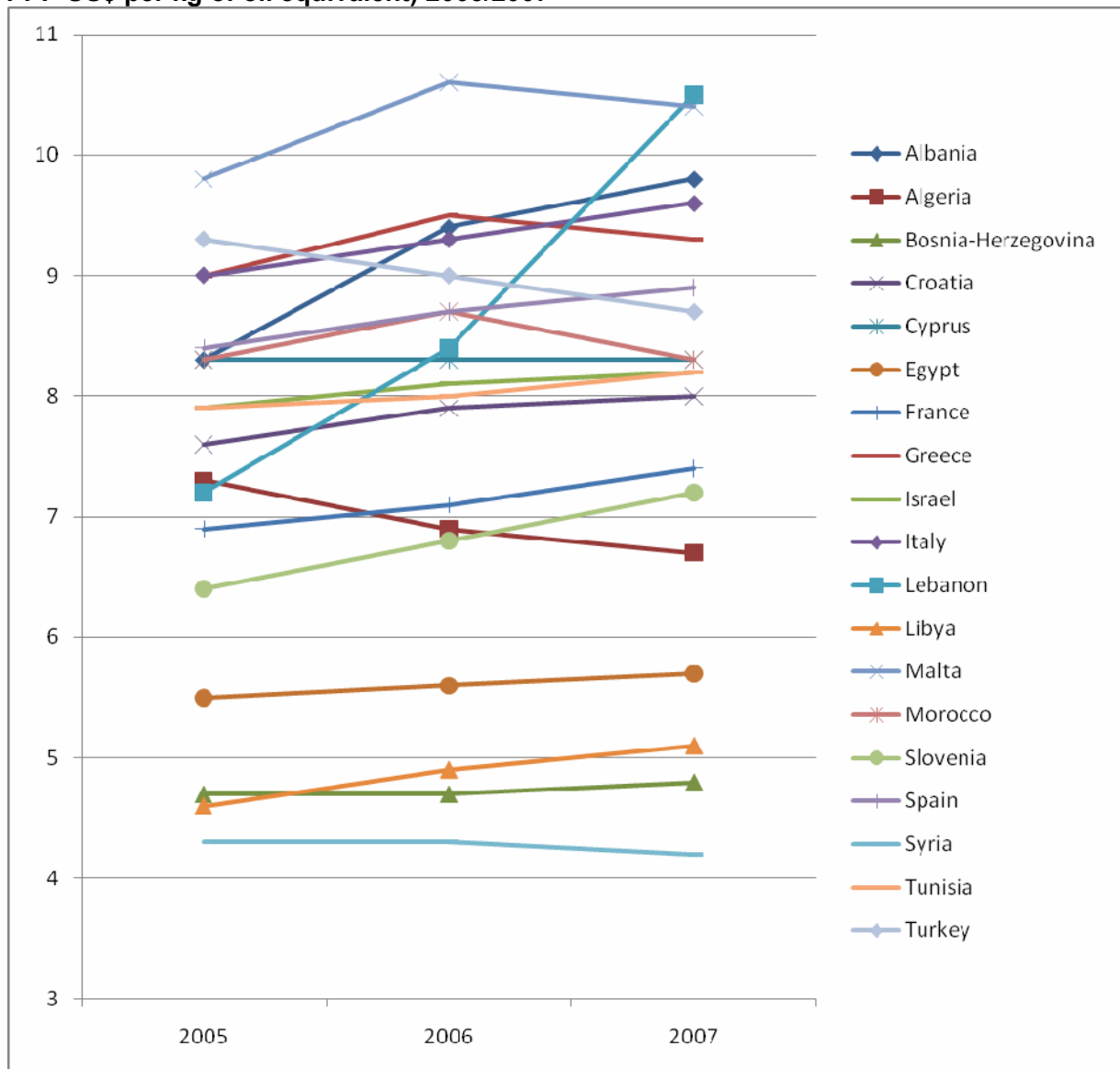
(+13%) show the greatest improvements. An orientation contained in the MSSD is that “A desirable target for reducing the intensity of energy consumption per unit of gross domestic product by 2015 could be in the range of 1-2% per year”. The following table shows that variations of the energy intensity per year are much less uniform than the MSSD orientation suggests and that orientations indicating the modalities by which energy intensity levels should reduce over time, are not necessary.

Table 5. Annual energy efficiency (% change y-o-y)

	2005-2006	2006-2007
Albania	13.25	4.26
Algeria	-5.48	-2.90
Bosnia-Herzegovina	0.00	2.13
Croatia	3.95	1.27
Cyprus	0.00	0.00
Egypt	1.82	1.79
France	2.90	4.23
Greece	5.56	-2.11
Israel	2.53	1.23
Italy	3.33	3.23
Lebanon	16.67	25.00
Libya	6.52	4.08
Malta	8.16	-1.89
Morocco	4.82	-4.60
Slovenia	6.25	5.88
Spain	3.57	2.30
Syria	0.00	-2.33
Tunisia	1.27	2.50
Turkey	-3.23	-3.33

Source: our elaboration from World Bank data

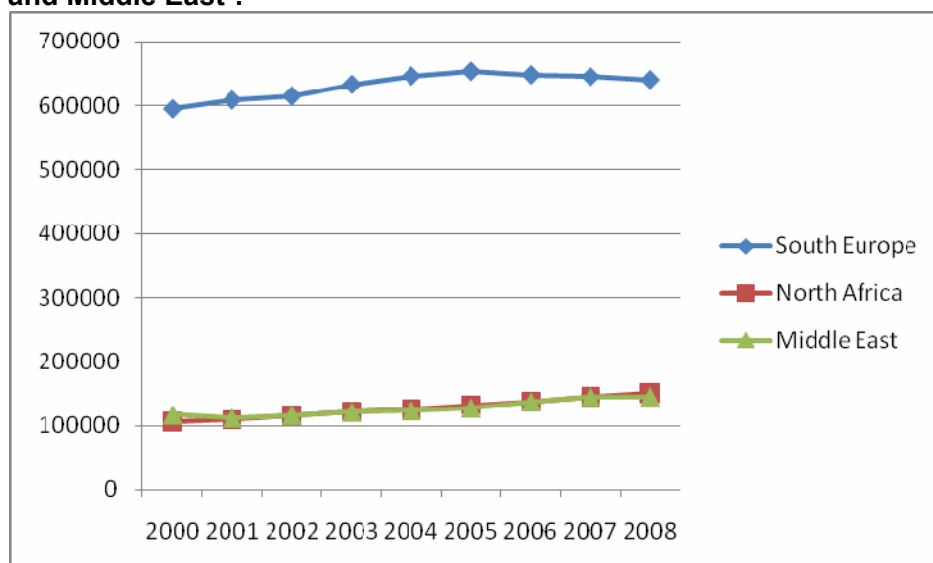
Figure 10 – Energy Efficiency expressed as GDP/energy use consumption ratio (Constant PPP US\$ per kg of oil equivalent) 2005/2007



Source: World Bank

However the decrease of energy intensity in the vast majority of Mediterranean countries was not induced by a decrease of energy consumption. As showed by the next figure in Southern Europe, North Africa and Middle East energy consumption slightly increased over the period 2000 – 2008.

Figure 11. Energy consumption (kg of oil equivalent) in Southern Europe⁷, North Africa⁸ and Middle East⁹.



Source: World Bank

About the follow up MSSD indicator “Amount financed in the framework of the Kyoto Protocol flexibility mechanisms by the annex 1 countries to the benefit of other Mediterranean countries”, there are currently 6147 CDMs projects in 84 host countries. Unfortunately the projects hosted by Mediterranean countries only represent about 1.5% out of the total as expressed in the following table.

Table 6. Clean Development Mechanisms funded in Mediterranean countries

	Southern Europe		North Africa		Middle East	
	Albania	3	Egypt	15	Israel	32
	Cyprus	9	Morocco	17	Lebanon	1
	Malta	1	Libya	1	Syria	4
			Tunisia	4		
Total		13		37		37

Source: UNEP Risøe (2008)

In terms of public finance the amount of Official Development Assistance received by Mediterranean countries for climate change purposes has been quite heterogenous across countries and across time as showed by the following table.

⁷ The South Europe group includes Albania, Bosnia, Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, Spain.

⁸ The North Africa group includes Tunisia, Morocco, Algeria, Libya, and Egypt.

⁹ The Middle East group includes Israel, Lebanon, Syria and Turkey.

Table 7. Official Development Assistance (millions of USD) in Mediterranean countries and portion of ODA used for climate change issues (%)

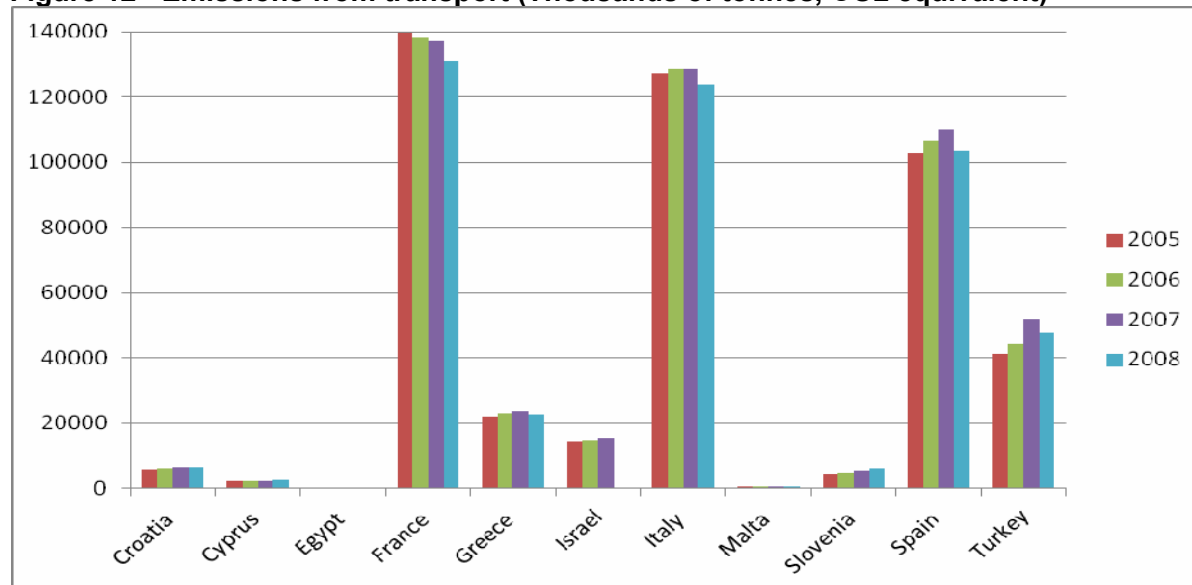
		2006	2007	2008	2009
Albania	ODA	438.1	304.80	533.70	288.50
	ODA (only climate change)	2.66	10.08	20.57	0.67
Algeria	ODA	482.81	446.43	254.80	295.84
	ODA (only climate change)	0.31	0.25	0.00	1.08
Croatia	ODA	240.53	259.11	385.51	240.49
	ODA (only climate change)	3.33	0.00	18.73	0.50
Montenegro	ODA	87.06	109.41	110.37	125.50
	ODA (only climate change)	1.49	7.59	4.71	4.46
Morocco	ODA	1232.50	1262.50	2701.90	1514.80
	ODA (only climate change)	10.01	0.12	5.74	13.38
Tunisia	ODA	477.81	700.78	1064.63	800.87
	ODA (only climate change)	10.72	23.73	1.98	21.75
Libya	ODA	36.74	17.71	75.02	20.88
	ODA (only climate change)	0.00	0.00	0.00	0.00
Egypt	ODA	1595.06	1696.46	1722.05	1059.41
	ODA (only climate change)	10.98	9.90	7.51	3.30
Palestine	ODA	965.54	1437.09	2308.83	2813.85
	ODA (only climate change)	0.04	1.37	1.04	0.33
Syria	ODA	149.31	230.69	341.06	411.10
	ODA (only climate change)	0.94	0.56	0.03	17.00
Lebanon	ODA	647.62	788.08	1129.27	435.47
	ODA (only climate change)	0.09	1.87	0.01	2.27
Turkey	ODA	1113.18	942.91	1625.92	1348.33
	ODA (only climate change)	5.67	0.88	23.25	5.98

Source: OECD creditor reporting system

1.1.1. Transport

Evidence for transport indicators provides a mixed picture. Considering emissions from transport, some countries see a decrease in emissions, whilst in others emissions increase slightly. In general, emissions from transport decreased in all countries in 2008.

Figure 12 - Emissions from transport (Thousands of tonnes, CO2 equivalent)



Source: Eurostat

In terms of developing more sustainable transport systems, it is worth noting that the road freight share increased in almost all countries over the period 2000-2009. Cyprus and Malta have 100% of their inland freight transport on road. The lowest shares are found in Croatia (73.7%), France (81%) and Slovenia (84%). For passengers the lowest road share is in Turkey in 2008 (51%). We note that the MSSD explicitly states that “A desirable objective by 2015 would be to scale down the road share to 75% of total traffic for both the number of passengers and volume of freight” (p. 27). These data show that in the sample of countries for which data are available only for Turkey (for passengers) and Croatia (for freight) are currently below the MSSD target.

Table 8. Passenger and freight car share in Mediterranean countries

MSSD road target = 75% by 2015		
	Passenger	Freight
	2008	2009
European Union (27 countries)	83.3	77.5
Greece	80.8	97.8
Spain	80.1	96.6
France	84.2	81
Italy	82.4	91
Cyprus	:	100
Malta	:	100
Slovenia	86.2	84
Croatia	82.2	73.7
Turkey	51.0	:

Source: Eurostat

However the rail traffic of passengers has increased in all the Mediterranean regions over the period 2004 – 2007 especially in Middle East driven by a wide expansion of the Israeli rail system. In North Africa the growth of rail passengers was very weak. South Europe is the region showing the widest movement of rail passengers.

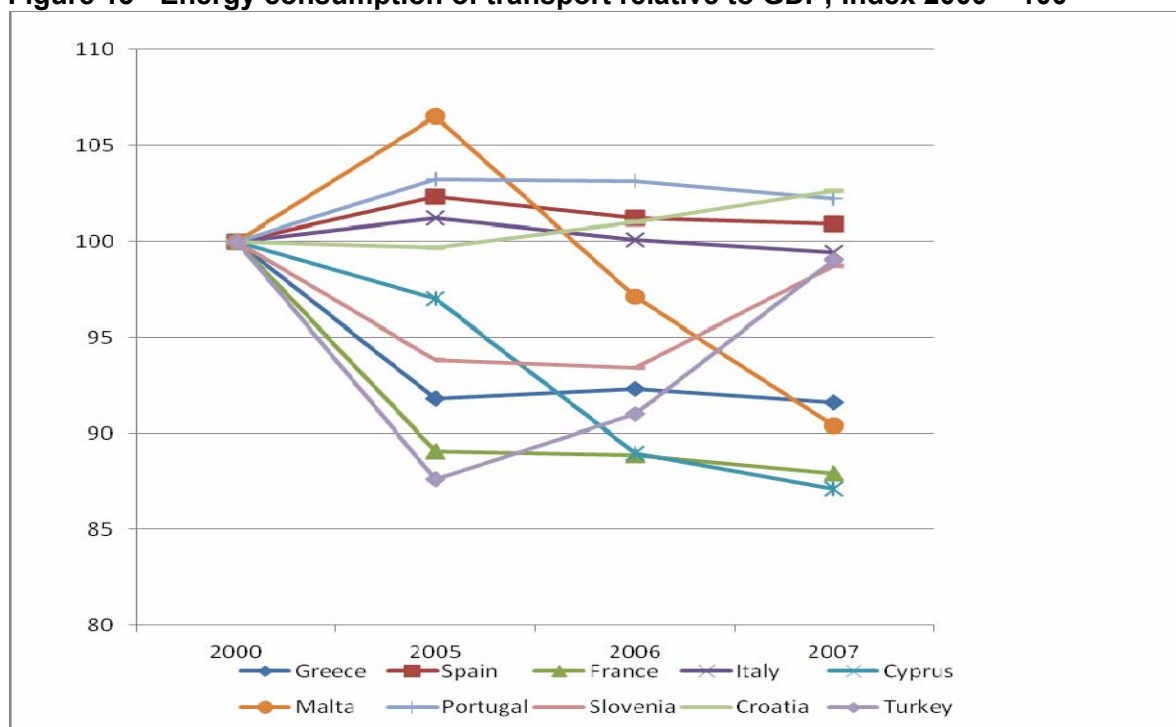
Table 9. Total rail passenger traffic (thousands) over the period 2004 – 2007 in Southern Europe¹⁰, North Africa¹¹ and Middle East¹² Mediterranean countries

Region	2004	2007	% difference 2007 - 2004
South Europe	2403463	2633708	+9.58%
North Africa	500447	502006	+0.31%
Middle East	34283	25201	+26.41%

Source: Eurostat

With regards to energy consumption of transport, the following figure shows that most countries decreased their energy consumption, except Croatia, Slovenia and Spain.

Figure 13 - Energy consumption of transport relative to GDP; Index 2000 = 100



Source: EUROSTAT

¹⁰ The South Europe group includes Greece, Spain, France, Italy, Slovenia, Croatia, Turkey.

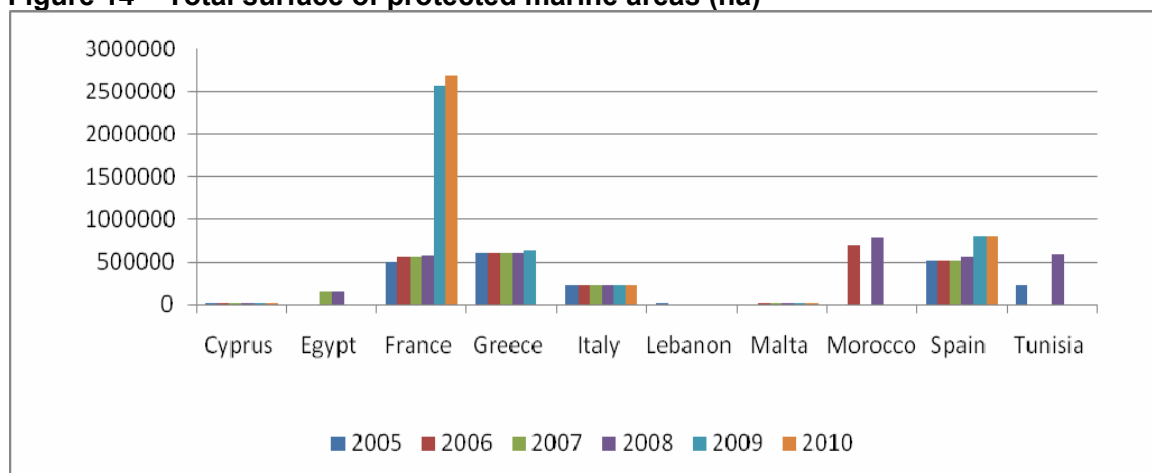
¹¹ The North Africa group includes Algeria, Egypt, Morocco and Tunisia.

¹² The Middle East group includes Israel and Syria

2.2.4. Coastal protection

The MSSD strategy includes an objective regarding the protection of the coastal ecosystem, with a target for protected areas throughout the Mediterranean to cover at least 10% of coastal and marine habitats. Data on coastal protected area are patchy, and suggest a slight increase in total protected areas between 2005 and 2010 (Eurostat).

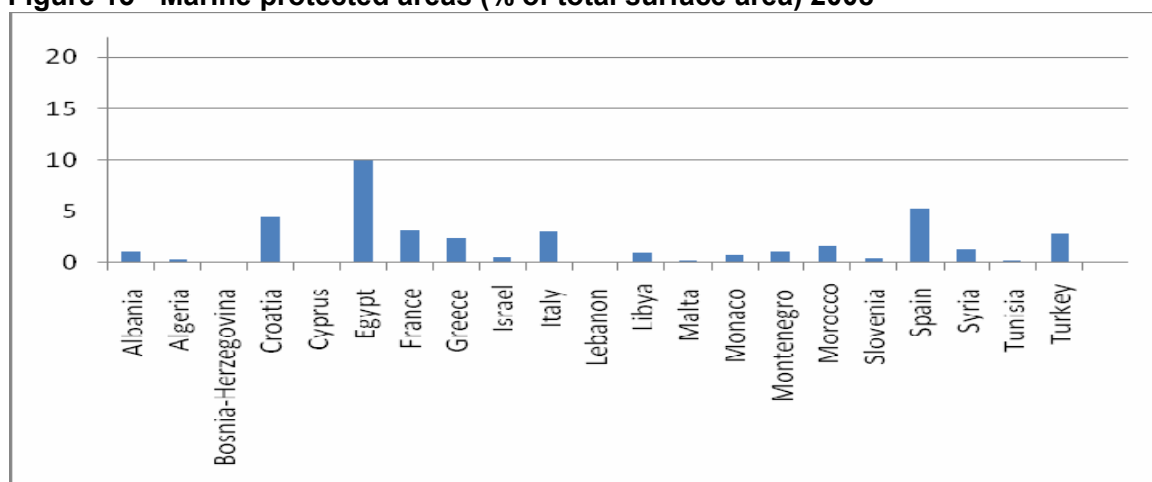
Figure 14 – Total surface of protected marine areas (ha)



Source: Eurostat

Examining individual countries, World Bank data for 2008 suggest that marine protected areas covered less than 3% of total surface area in most countries, with the exception of Egypt (9.9%), France (3.2%), Italy (3.1%) and Spain (5.3%).

Figure 15 - Marine protected areas (% of total surface area) 2008

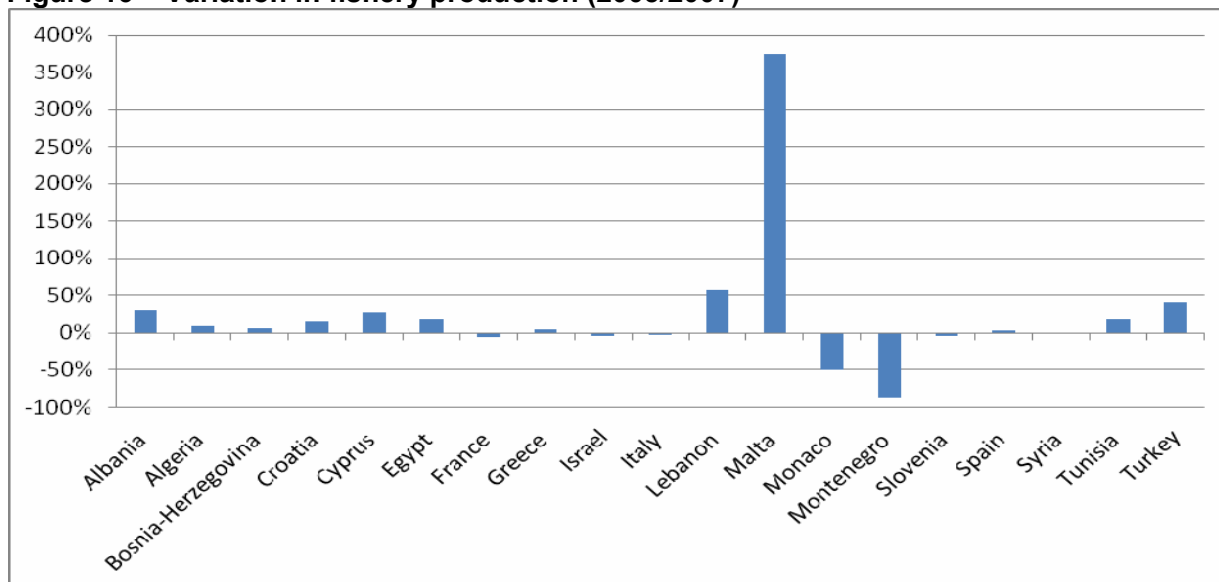


Source: World Bank

With regards to total fishery production, some countries show an increase in produce between 2005 and 2007 (see figure below). Lebanon and Malta experienced the most significant

increase (57% and 375%, respectively), whereas Monaco and Montenegro's produce dropped by 50% and 87%, respectively.

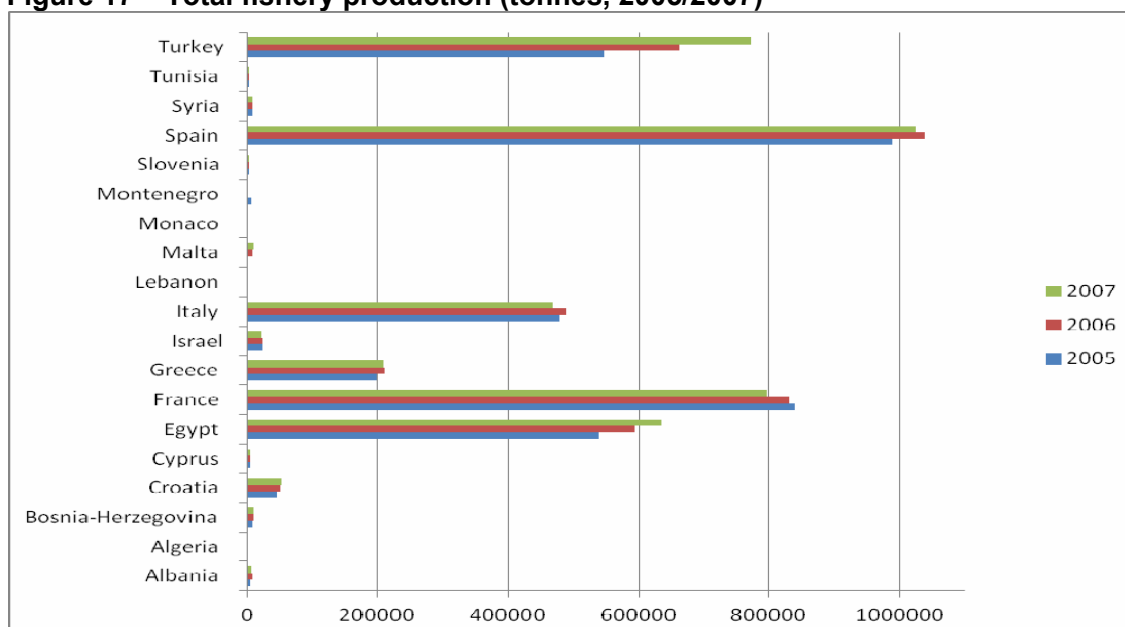
Figure 16 – Variation in fishery production (2005/2007)



Source: Own elaboration on Eurostat data.

In terms of total catch, total fishery production in 2007 is summarized in the figure below. Spain and France are the main producers, followed by Turkey and Egypt.

Figure 17 – Total fishery production (tonnes, 2005/2007)



Source: Eurostat

South European countries also represent the main aquaculture producers, but the trend is decreasing over the period 2004 – 2007. Conversely North African countries showed a strong

production increase.

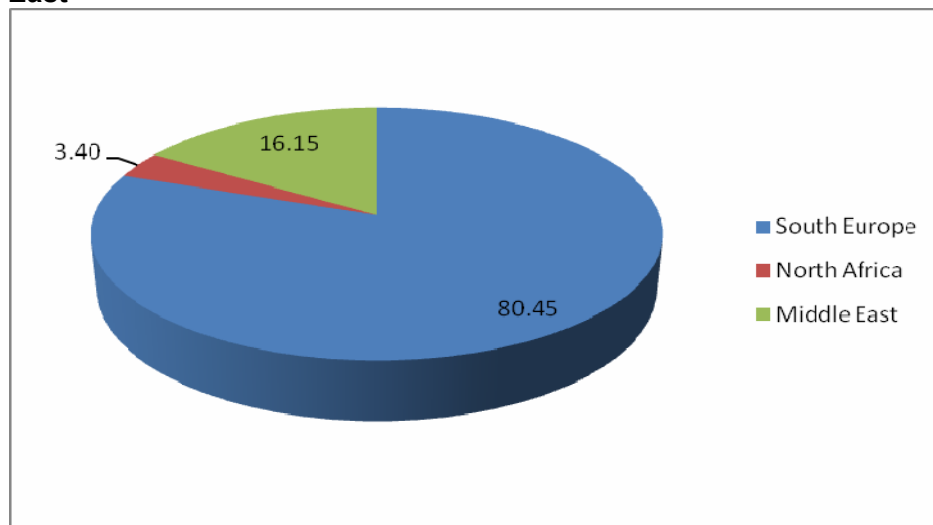
Table 10. Aquaculture production in Southern Europe¹³, North Africa¹⁴ and Middle East¹⁵ (tons)

	2004	2007	% difference 2007/2004
Southern Europe	1050492	993303	-5
North Africa	474700	639372	+35
Middle East	31695	30944	-2%

Source: Eurostat

A sound policy of sustainable coastal tourism will need to be implemented by taking into account sub – regional characteristics within the Mediterranean area. South European countries cover more than 80% of the value added from coastal tourism. For these countries the priority will be to consolidate the sector and to shift coastal tourism activities towards sustainable practices (less intrusiveness of tourism infrastructure in coastal zones, reduction of the ecological footprint etc.). For Northern African countries the challenge will be the planning and implementation of policies to introduce sustainable tourism and to reduce the gap with Southern Europe in terms of infrastructure, marketing, skills etc.

Figure 18. % of coastal tourism value added in South Europe¹⁶, North Africa¹⁷ and Middle East¹⁸



Source: Our elaboration from UNEO/MAP Plan Bleu (2010)

¹³ The South Europe group includes Greece, Spain, France, Spain, Italy, Cyprus, Malta, Slovenia.

¹⁴ The North Africa group includes Algeria, Egypt and Tunisia

¹⁵ The Middle East group includes Israel, Lebanon and Syria.

¹⁶ South Europe countries include Albania, Bosnia, Cyprus, Croatia, France, Greece, Italy, Malta, Monaco, Montenegro, Slovenia, Spain.

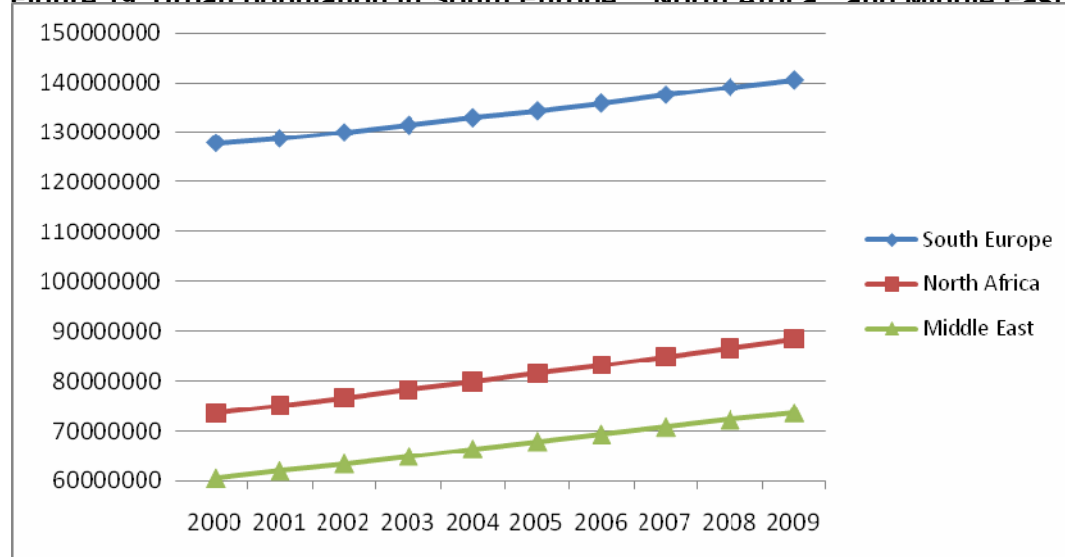
¹⁷ North Africa includes Morocco, Algeria, Tunisia, Libya and Egypt

¹⁸ Middle East includes Syria, Lebanon, Palestinian Territories, Israel, Turkey.

2.2.5. Urban development

Urban development still remains a priority for the Mediterranean area, as all Mediterranean sub regions are experiencing a monotonic growth of urban population over time.

Figure 19. Urban population in South Europe¹⁹, North Africa²⁰ and Middle East²¹.



Source: World Bank

Urban air pollution is causing health problems in many ways, with both short-term and long-term effects. Examples of short-term effects include irritation to the eyes, nose and throat, and upper respiratory infections such as bronchitis and pneumonia. Long-term health effects can include chronic respiratory disease, lung cancer, heart disease, and even damage to the brain, nerves, liver, or kidneys. Reducing exposure to air pollution is one of the indicators considered by the MSSD strategy to map progress in urban development.

For the period 2005/2008, all countries considered show a downward trend in exposure to ozone, except Greece, whose inhabitants experienced an increase in exposure (+25%). Unfortunately, for this indicator we only have EEA data, which include European Countries only (Greece, France, Italy, Malta, Slovenia and Spain).

With regards to PM, from a wider sample of the World Bank dataset of indicators, all countries for which we have data show a decrease in exposure (from -17% in Egypt to -0.6% in Algeria) over the period 2005 – 2008.

¹⁹ The South Europe group includes Albania, Bosnia, Croatia, Cyprus, France, Greece, Italy, Liechtenstein, Malta, Monaco, Montenegro, Slovenia and Spain.

²⁰ The North Africa group includes Algeria, Egypt, Libya, Morocco, and Tunisia.

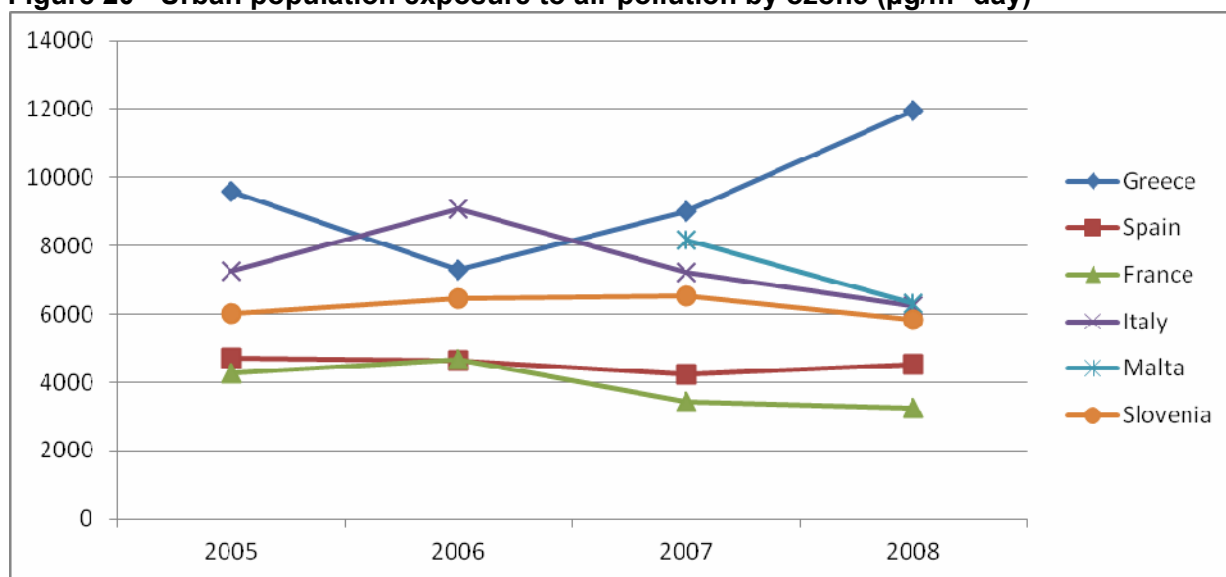
²¹ The Middle East group includes Israel, Syria, Lebanon and Turkey.

Table 11. PM 10 in Mediterranean countries

	2005	2008	% difference 2008/2005
Albania	49.02	46.45	-5.23
Algeria	69.68	69.25	-0.62
Bosnia and Herzegovina	19.41	18.85	-2.91
Croatia	29.24	26.52	-9.31
Cyprus	40.17	33.65	-16.25
Egypt, Arab Rep.	116.70	96.86	-17.00
France	14.39	12.94	-10.05
Greece	36.20	32.00	-11.60
Israel	32.26	27.57	-14.52
Italy	27.07	23.33	-13.82
Lebanon	37.32	35.58	-4.66
Libya	90.95	76.04	-16.39
Morocco	29.41	27.36	-6.97
Slovenia	29.99	29.03	-3.19
Spain	33.12	27.56	-16.79
Syrian Arab Republic	73.97	69.27	-6.36
Tunisia	30.65	25.94	-15.37

Source: World Bank

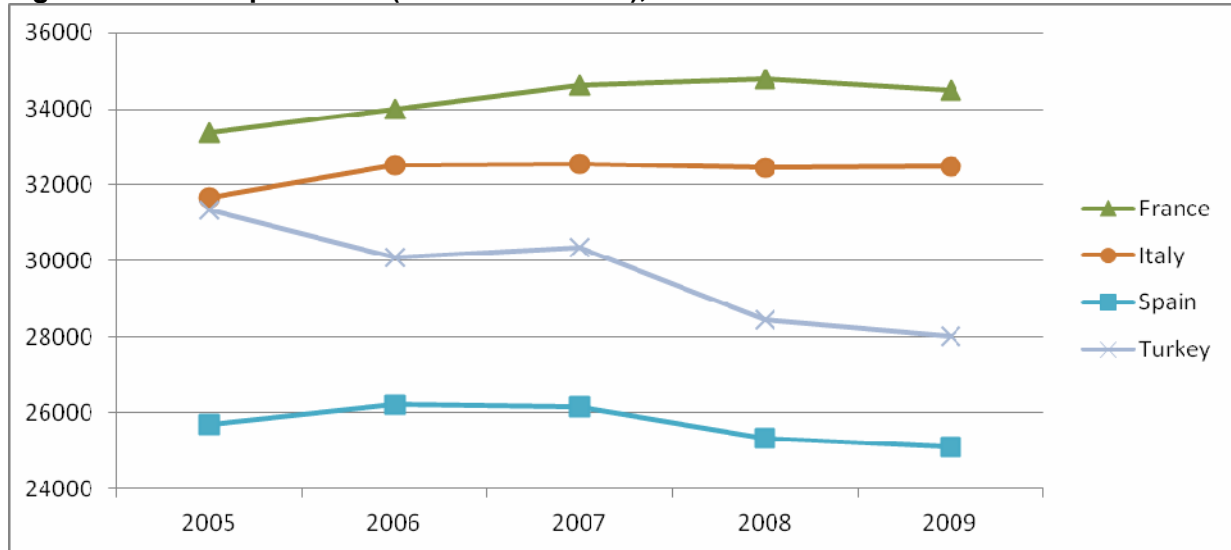
Figure 20 - Urban population exposure to air pollution by ozone ($\mu\text{g}/\text{m}^3\cdot\text{day}$)



Source: EEA

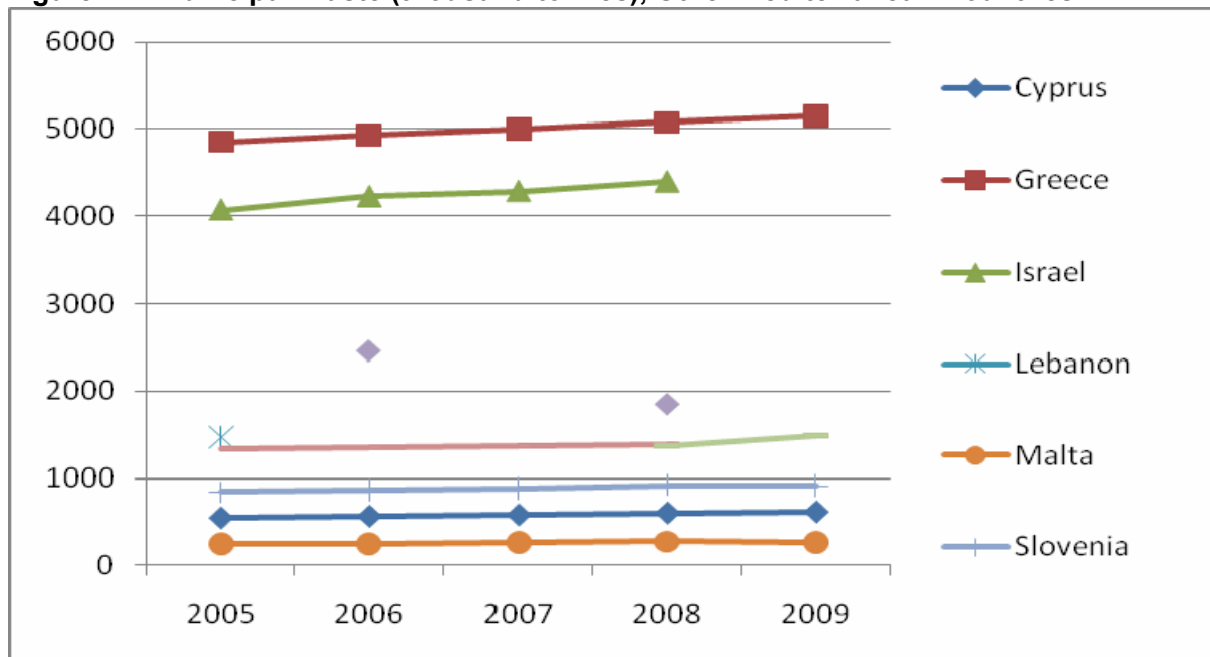
Another objective for achieving urban development is the reduction of municipal waste generation. In absolute terms, France, Italy, Spain and Turkey generate five times more waste than Southern Mediterranean Countries (except Egypt, whose total municipal waste amounts at 16 million tonnes).

Figure 21 - Municipal Waste (thousand tonnes), Northern Mediterranean Countries



Source: Eurostat

Figure 22 - Municipal Waste (thousand tonnes), Other Mediterranean Countries



Source: Eurostat

The MSSD states: "Suitable objectives by 2015 would be to disassociate the increase in waste generation and GDP growth so as to reduce the current growth rate in waste generation by around 50%". Data show that for the majority of countries the growth rate of municipal waste decreased or turned from positive to negative. Only Greece and Cyprus show a stable growth rate of municipal waste over time.

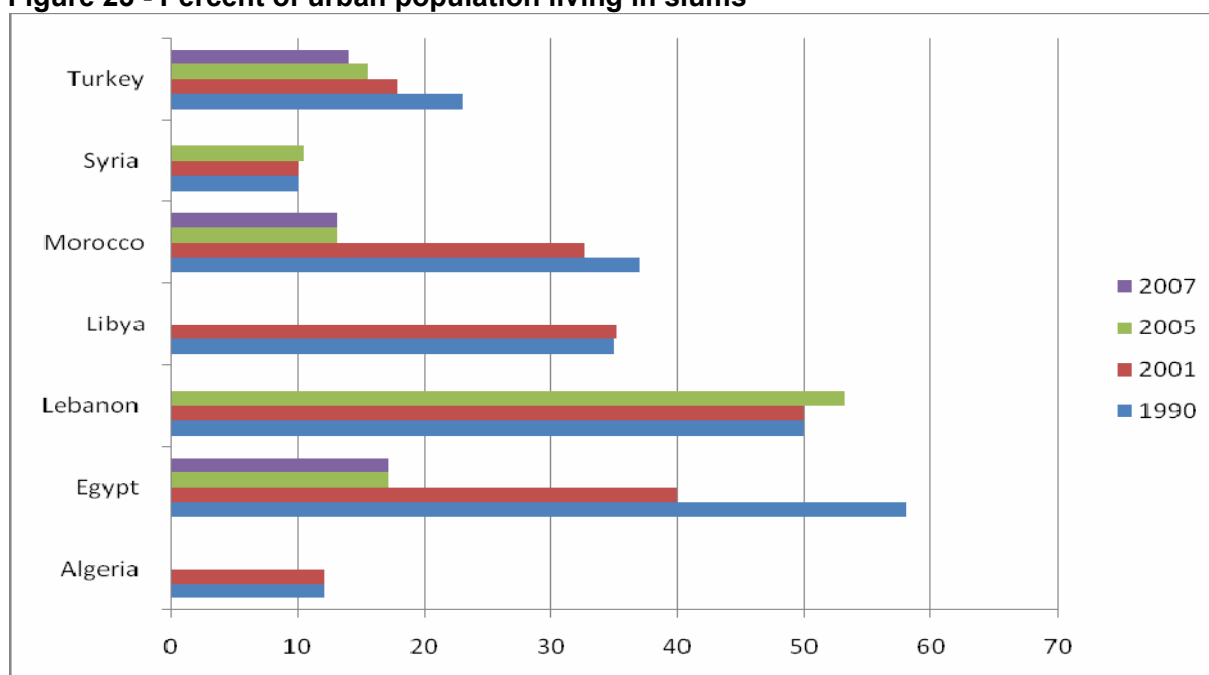
Table 12. Growth rate of municipal waste. A comparison 2004-2005 vs 2008-2009.

Sustainable development MSSD target: 50% reduction of the municipal waste growth rate		
	2004-2005	2008-2009
Greece	1.51	1.52
Spain	-0.24	-0.90
France	2.84	-0.77
Italy	1.65	0.09
Cyprus	2.41	1.97
Malta	0.40	-2.90
Slovenia	1.44	-1.08
Turkey	5.43	-1.57

Source: Eurostat

Finally, considering the urban population living in slums, with respect to 1990 some countries made important progress on improving urban living conditions, as the percentage of people living in slums dropped by 71% in Egypt, 65% in Morocco and 33% in Turkey. The following figure gives details for other countries.

Figure 23 - Percent of urban population living in slums

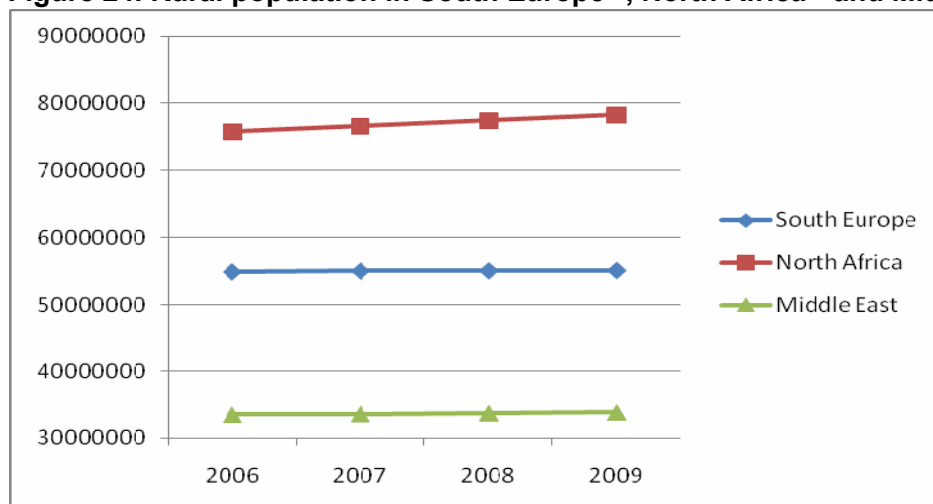


Source: UN Habitat

2.2.6. Agriculture and rural development

Rural population still continues to grow in Mediterranean countries. By examining data extracted from the World Bank dataset we find that the number of rural population is slightly increasing in all the Mediterranean sub regions including developed South European countries, but the increase is much lower than that appearing in the figure 19 with urban population.

Figure 24. Rural population in South Europe²², North Africa²³ and Middle East²⁴



Source: World Bank

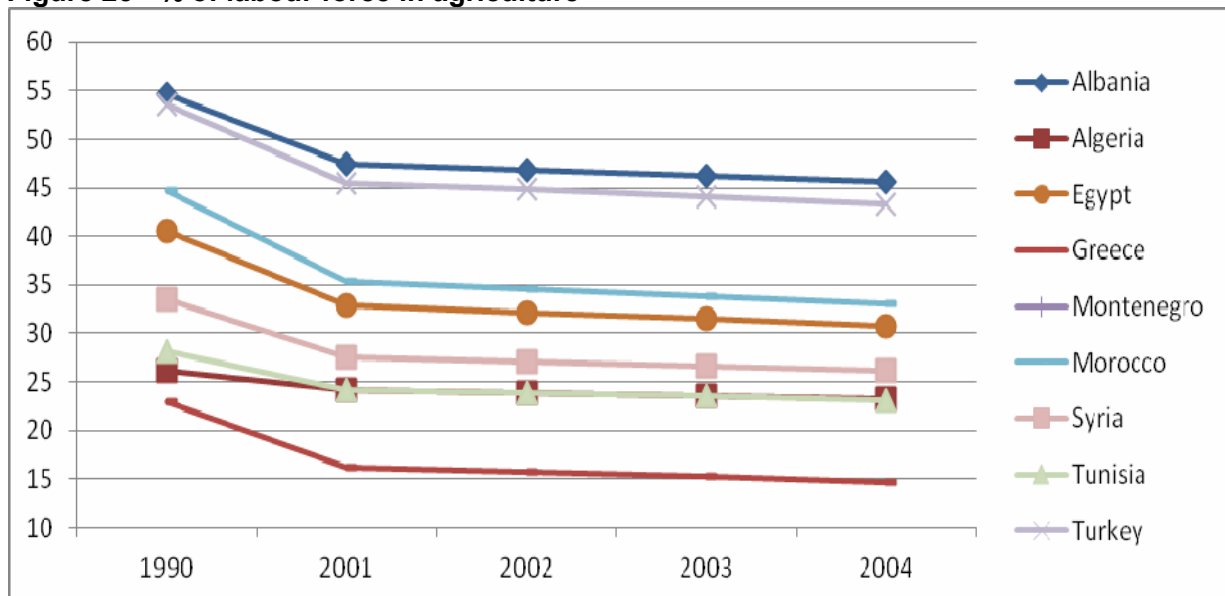
Examining people working in the agriculture sector, the percentage of employees has dropped in all countries considered; although in Albania, Egypt, Morocco and Syria, Tunisia and Turkey it remains above 20%. Further details can be found in the following figures (for clarity, we separated countries with a labour force in agriculture higher or lower than 10%).

²² The South Europe group includes Albania, Bosnia, Croatia, Cyprus, France, Greece, Italy, Malta, Montenegro, Slovenia, Spain.

²³ The North Africa group includes Algeria, Morocco, Libya, Tunisia and Egypt

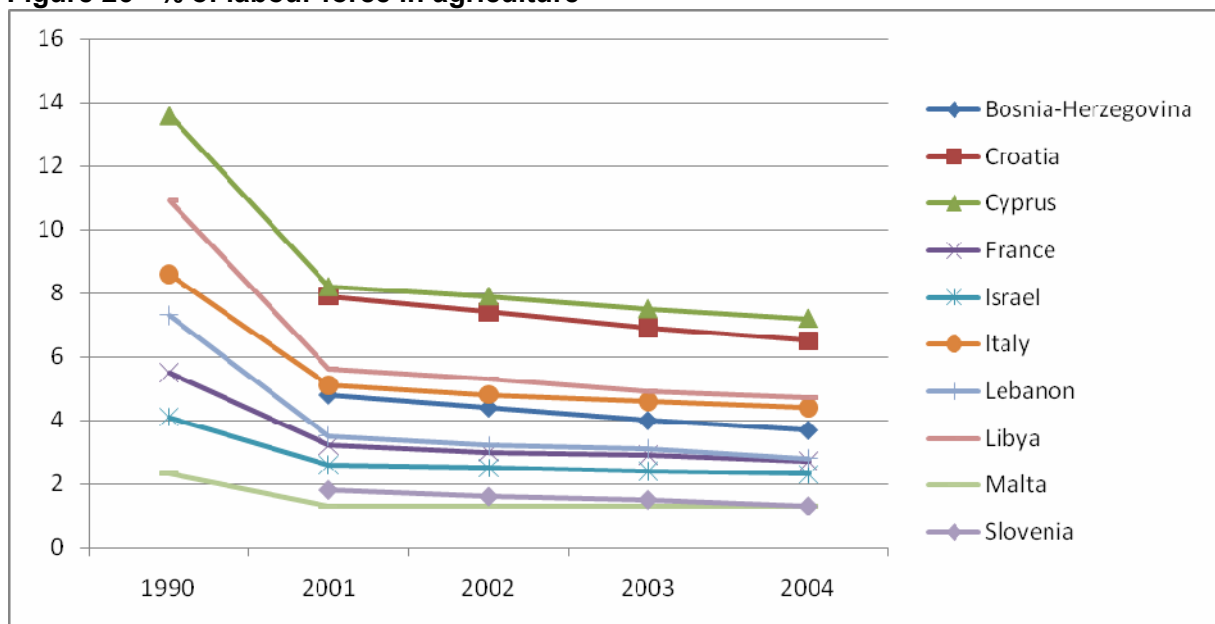
²⁴ The Middle East group includes Israel, Lebanon, Syria and Turkey.

Figure 25 - % of labour force in agriculture



Source: WRI

Figure 26 - % of labour force in agriculture



Source: WRI

Considering the value added per rural worker, most countries considered show an increase in value added produced, with the exception of Greece (-17%) and Cyprus (-4%). The greatest increase in added value has been experienced in Bosnia-Herzegovina (45%), Croatia (32%) and Slovenia (30%).

In terms of crops production, all the Mediterranean sub regions (Southern Europe, North Africa

and Middle East) show an increasing trend over the period 2004 – 2007, especially in North Africa and Middle East.

Table 13 Value of crops production in Southern Europe²⁵, North Africa²⁶ and Middle East²⁷ (millions of €)

	2004	2007	% difference 2007/2004
South Europe	21601	23490	+ 8.75%
North Africa	9187	11328	+23.31%
Middle East	2359	2801	+18.75%

Source: Eurostat

The increase in area covered by organic farming is another objective of the MSSD strategy. On average, in most countries organic farming does not exceed 2% of total agricultural land area. Italy, Slovenia and Spain show the greatest shares (9%, 6% and 5%, respectively).

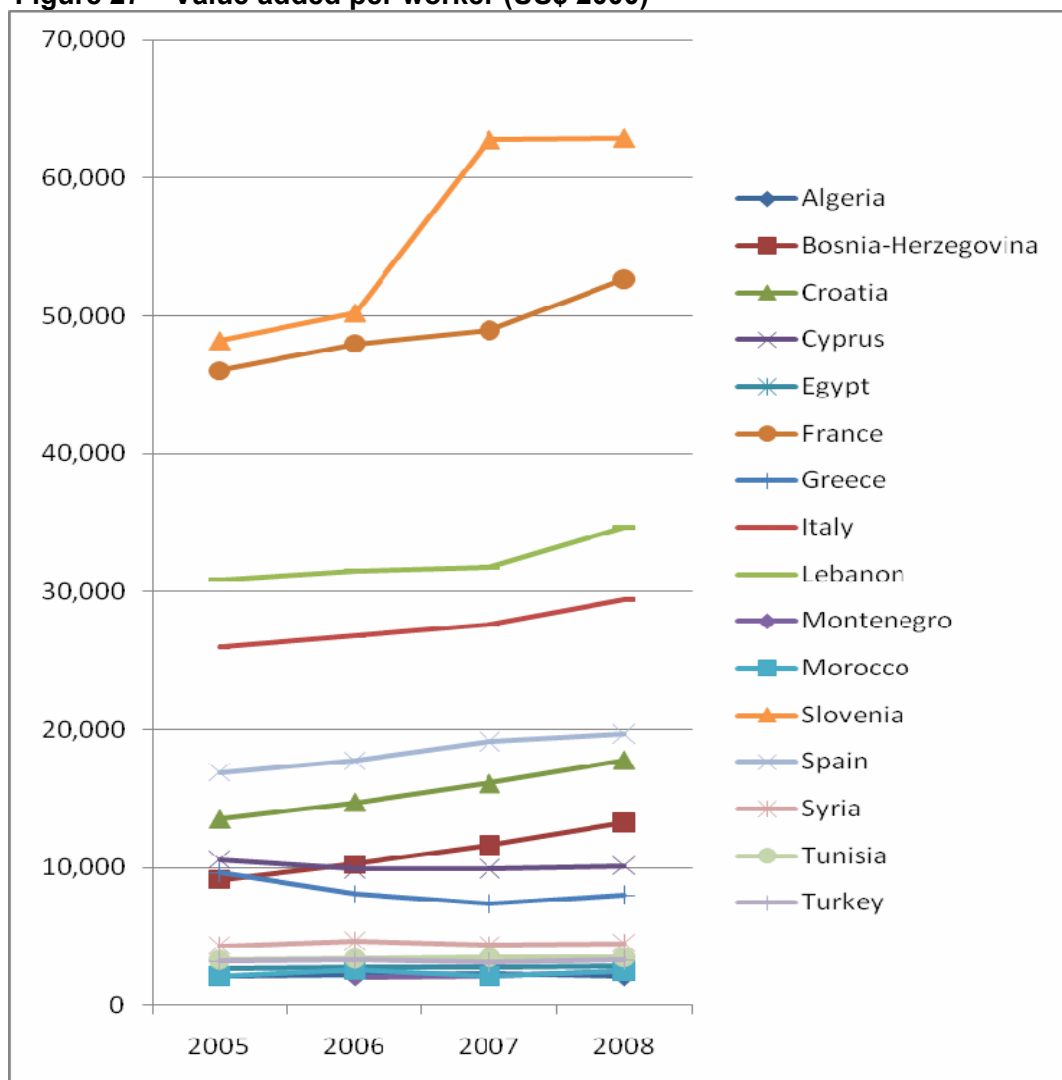
The trend in organic land area as a percent of total agricultural area is shown in Figure 28. Although Montenegro, Algeria and Albania show a significant drop in area covered by organic farming (-81%, 61% and 30%, respectively), all other countries have increased their coverage, since 2005. In particular, the greatest increases can be seen in Turkey (473%), Croatia (+320%), and Morocco (+238%).

²⁵ The South Europe group includes Greece, Spain, Italy, Malta, Cyprus, Malta, Slovenia, Croatia.

²⁶ The North Africa group includes Algeria and Morocco.

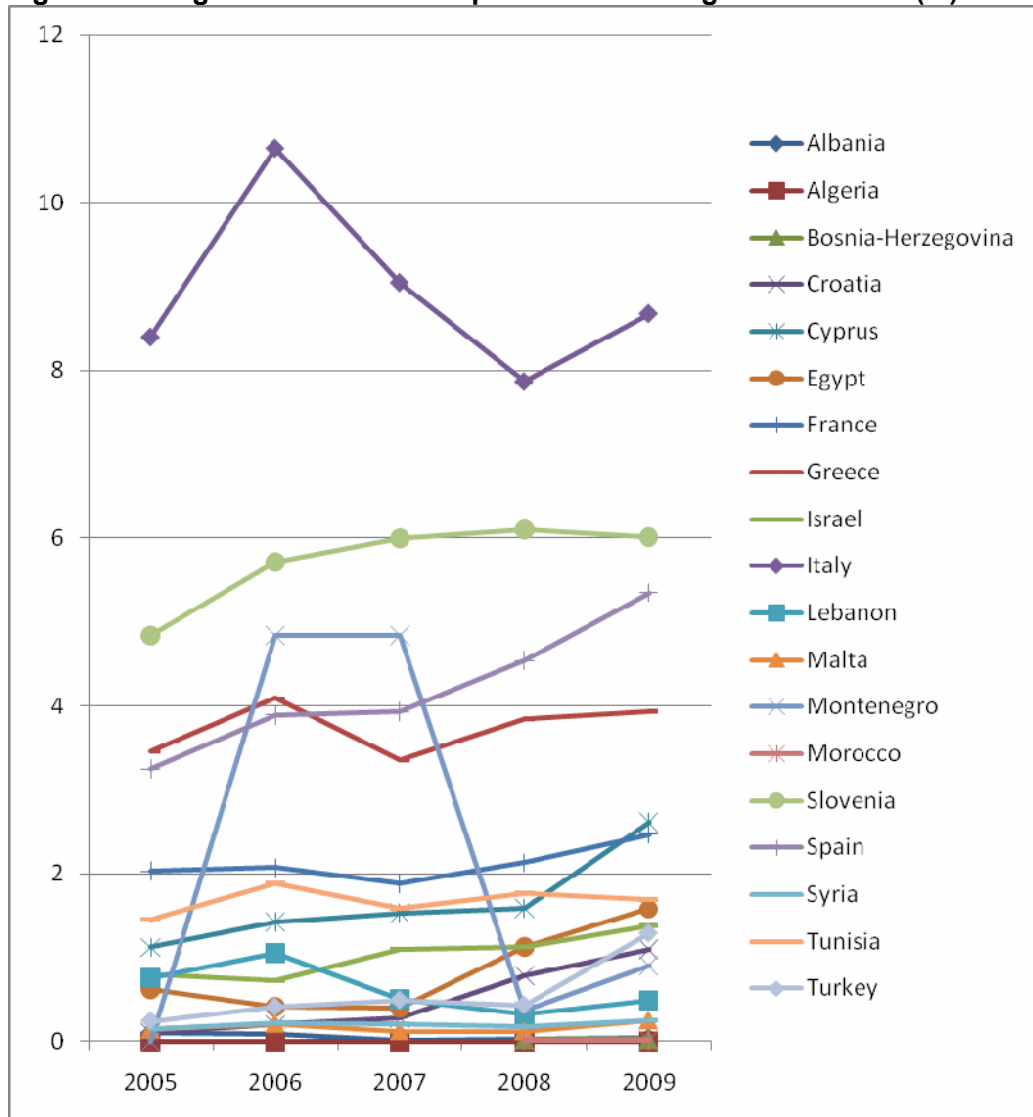
²⁷ The Middle East group includes Israel and Palestinian Territories.

Figure 27 – Value added per worker (US\$ 2000)



Source: WRI

Figure 28 - Organic land area as a percent of total agricultural area (%)



Source: FIBL

There is a large variability across Mediterranean countries in terms of degraded land. Whereas Morocco shows a 39% share of population living on degraded land, the percentage is Lebanon is just 1%.

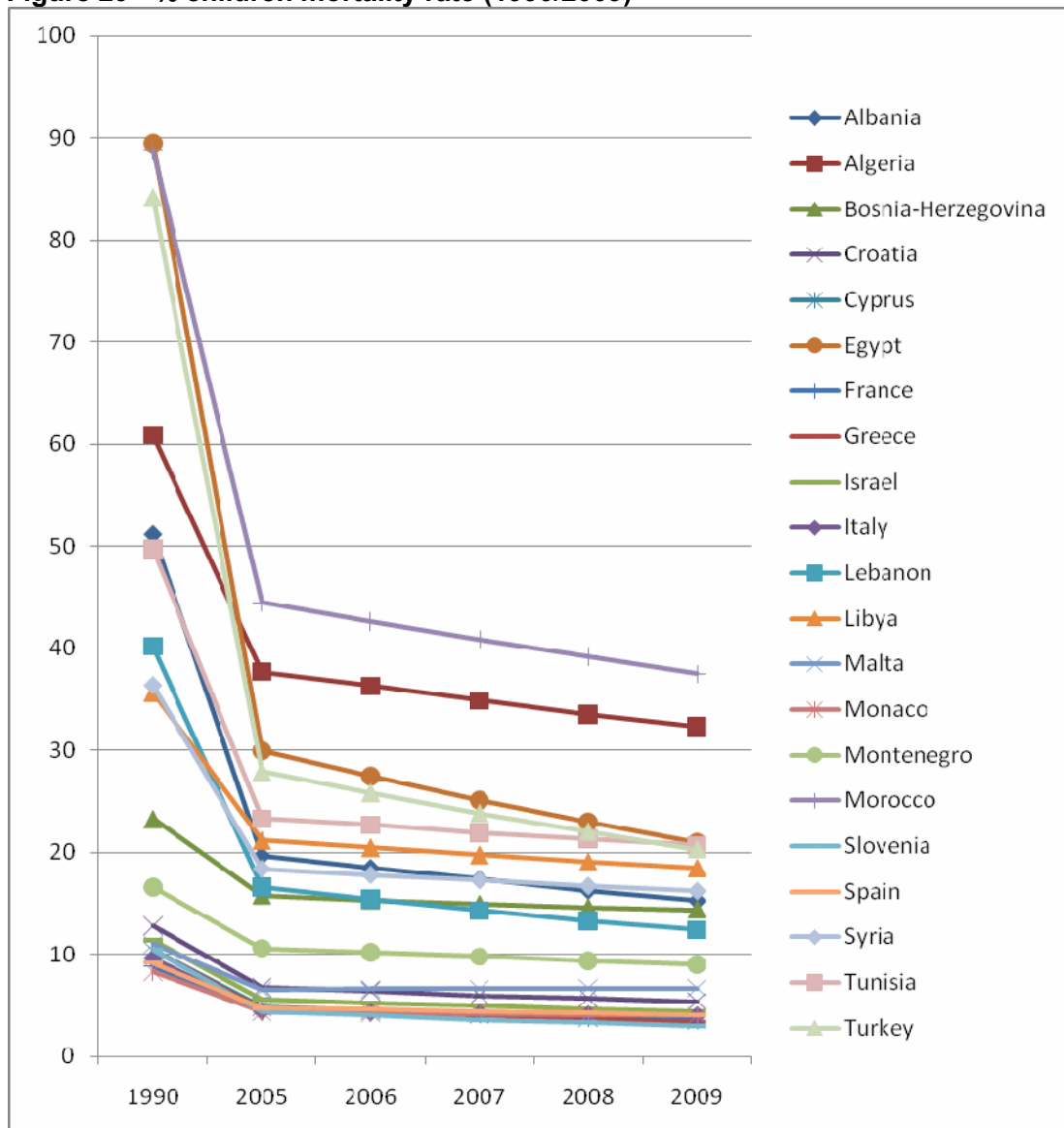
Table 14. % of people living on degraded land in 2010

Country	%
Albania	6
Algeria	29
Bosnia-Herzegovina	6
Croatia	18
Cyprus	11
Egypt	25
France	4
Greece	1
Israel	13
Italy	2
Lebanon	1
Montenegro	8
Morocco	39
Slovenia	8
Spain	1
Syria	33
Tunisia	37

Source: Human Development Report 2010

With regards to rural disparities, and child mortality in particular, all countries considered have made significant progress, although much of the improvement occurred before 2005, as the following figure clearly shows. In particular, the greatest reductions are seen in Egypt (-76%), Turkey (-76%) and Slovenia (-71%).

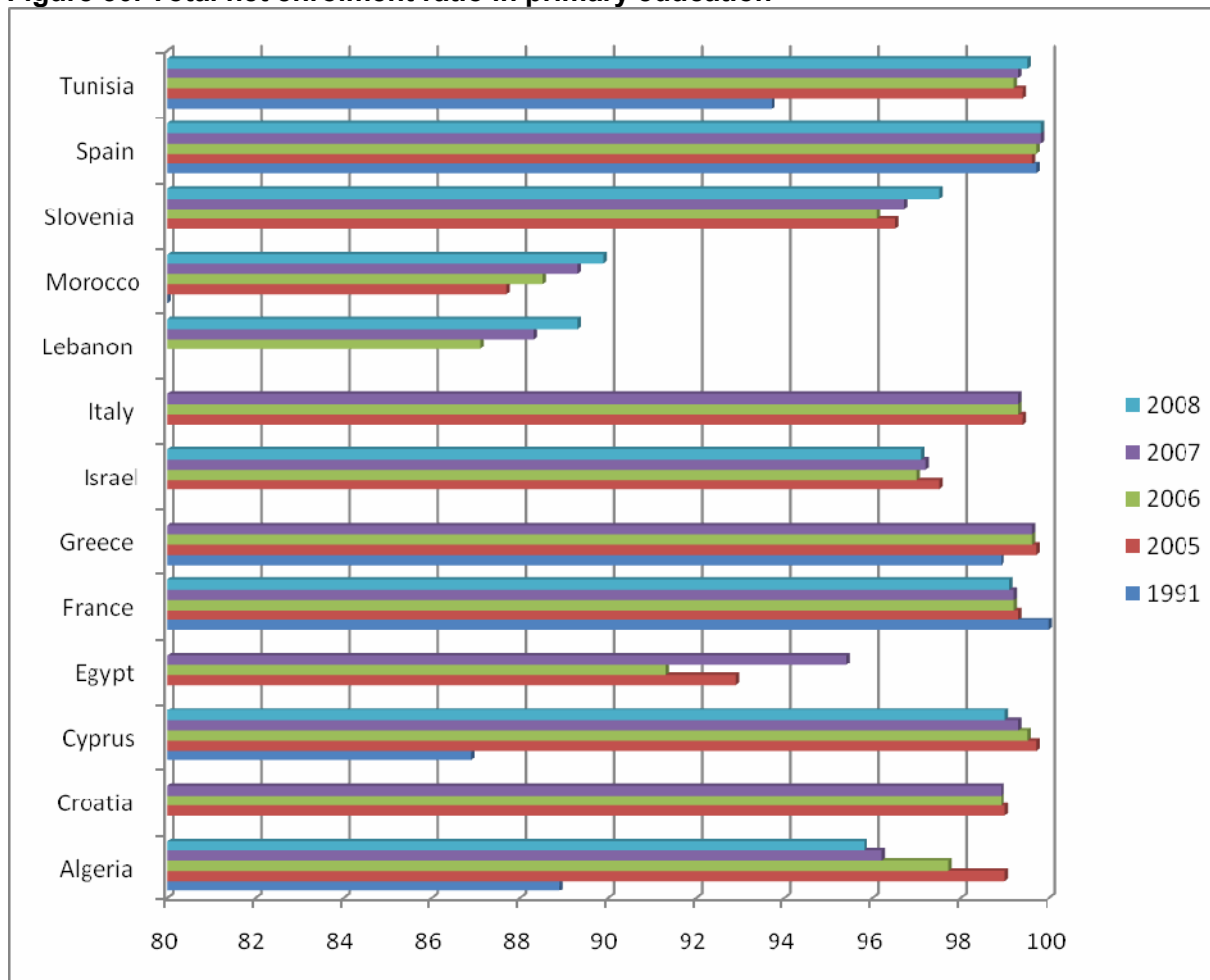
Figure 29 - % children mortality rate (1990/2009)



Source: UNSTAT Millennium Indicators

The situation in Mediterranean countries is also very positive in terms of the Millennium Development Goal 3 which advocates universal education and 100% of children enrolled in primary school. The figure illustrates that except for Morocco and Lebanon most of the Mediterranean countries show a percentage of children attending primary education higher than 90%. Although Morocco is still below this percentage it is worth noting that this country experienced a 30% increase in the last 20 years.

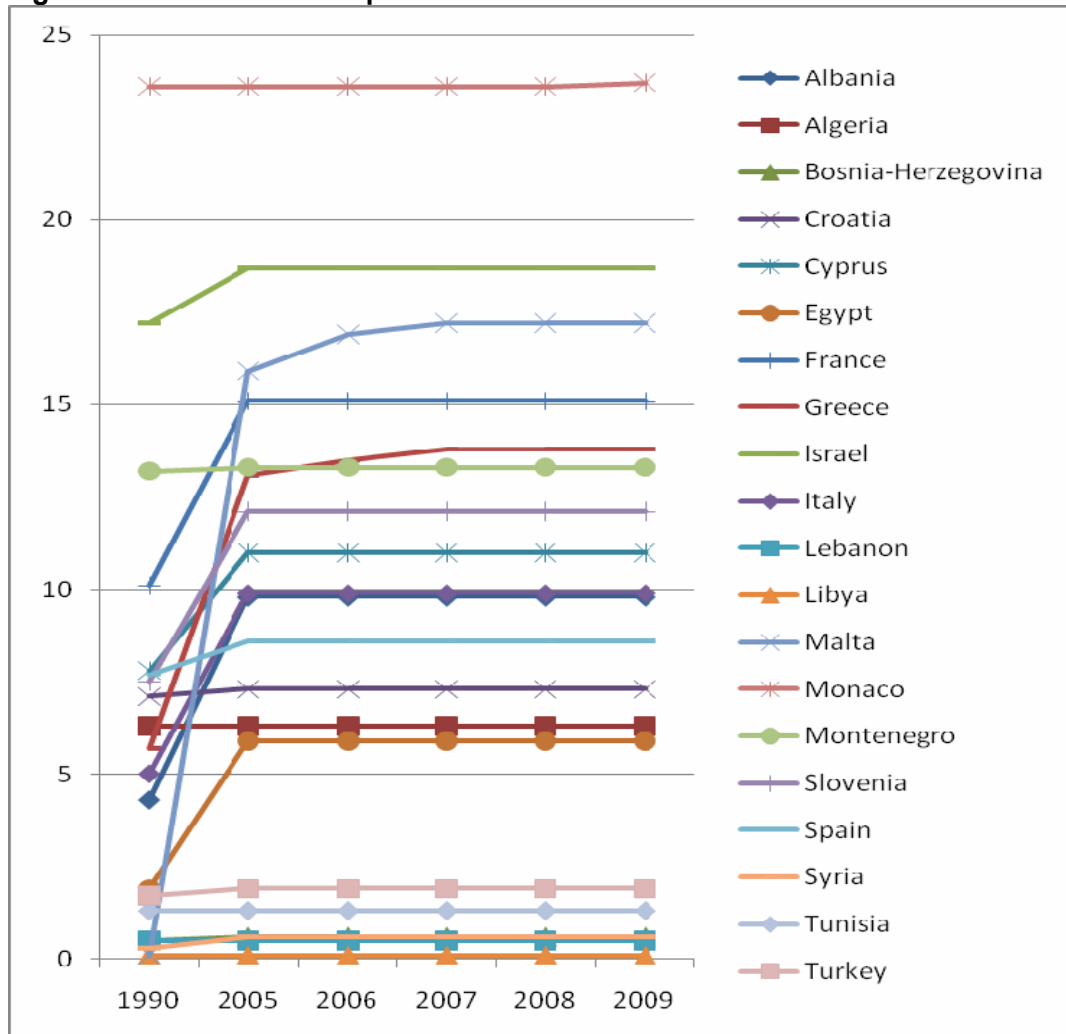
Figure 30. Total net enrolment ratio in primary education



Source: UNSTAT Millennium Indicators

Finally, looking at the percentage of protected areas, all countries considered show an increase in protected land coverage. In particular, Malta went from 0.1% to 17.2% coverage from 1990 to 2009. Further details can be found in Figure 31. In spite of the MSSD orientation (p. 34): “A desirable target by 2010 would be for 10% of all Mediterranean land ecosystems to be under the status of a protected area”, we notice that in 2009 just 8 out of 21 Mediterranean countries overcame the 10% threshold.

Figure 31 - % of terrestrial protected areas



Source: World Bank

However the good news is that all the Mediterranean sub-regions (South Europe, North Africa and Middle East), the surface of forests was increasing over the 2005 – 2010 time period.

Table 15. Surface of forests in South Europe²⁸, North Africa²⁹ and Middle East³⁰ (square metres)

	2005	2010	% difference 2010/2005
South Europe	523473	540290	3.21
North Africa	78250	79160	1.16
Middle East	114930	121160	5.42

Source: Eurostat

2.2.7. Tourism

Mediterranean tourism currently is currently experiencing a strong growth in all the Mediterranean sub regions (Southern Europe, North Africa and Middle East)³¹ with a relevant increase of the tourism arrivals over the period 2004 – 2007. South Europe represents the area showing the highest yearly presence of tourists.

Table 16. Number of tourists in South Europe³², North Africa³³ and Middle East³⁴

	2004	2007	% difference 2007/2004
South Europe	72176805	80092721	10
North Africa	15336000	195960080	28
Middle East	9022500	11216800	24

Source: Eurostat

The MSSD strategy emphasizes the importance of tourism in promoting economic growth, but recognizes that this should benefit local communities and enhance cultural diversity. We considered two indicators for tourism: total (US\$ billions) and share (%) of added value produced by tourism.

²⁸ The South Europe group includes Albania, Bosnia, Croatia, Cyprus, France, Greece, Italy, Malta, Montenegro, Slovenia, Spain.

²⁹ The North Africa group includes Algeria, Egypt, Libya, Morocco and Tunisia.

³⁰ The Middle East group includes Israel, Lebanon, Syria, Turkey.

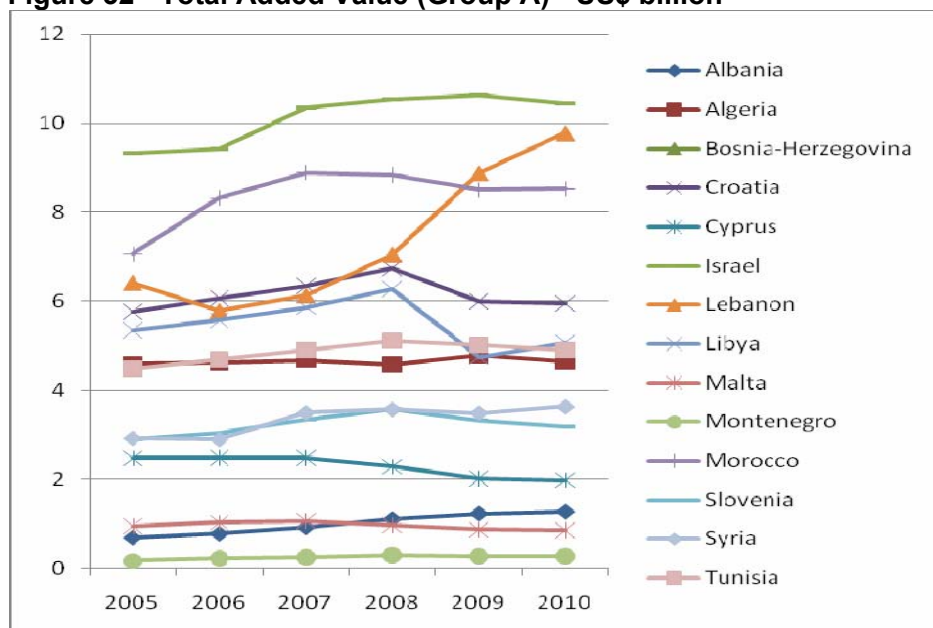
³¹ Data cover the period 2004 – 2007. It is likely that the current political instability in North Africa and Middle East will generate negative consequences for the sector in those areas.

³² The South Europe group includes Greece, France, Spain, Italy, Cyprus, Slovenia, Croatia.

³³ The North Africa group includes Algeria, Egypt, Tunisia.

³⁴ The Middle East group includes Israel, Lebanon and Syria.

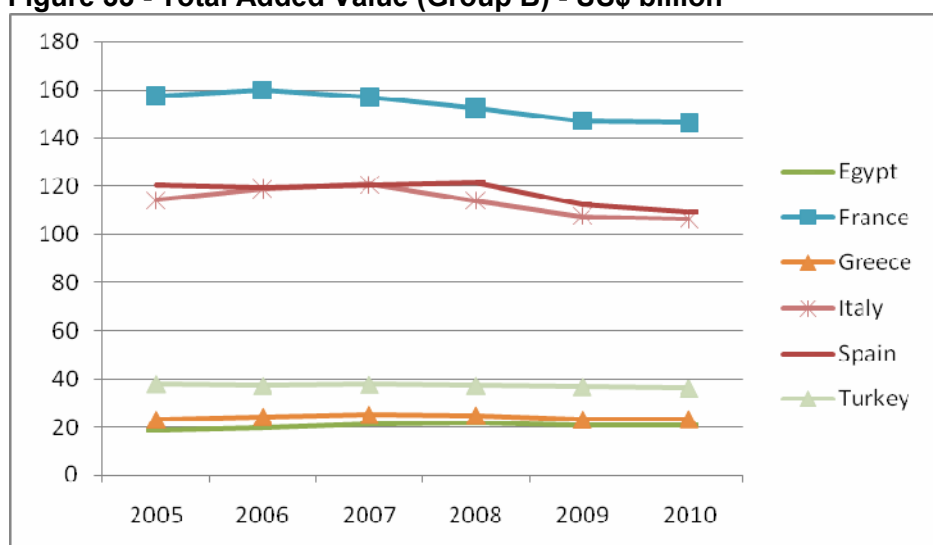
Figure 32 - Total Added Value (Group A) - US\$ billion



Source: World Travel and Tourism Council

Considering the value added due to tourism, we identified two groups: countries whose added value due to tourism is greater than US\$15 billion (group A), and those having a total added value smaller than US\$15 billion (group B). All countries in group A are in European countries, with the exception of Egypt. Looking at the period from 2005 till 2010, in the last two years the majority of Mediterranean Countries experienced a decline in total value added (France, Italy, Greece, Croatia, and Spain show the sharpest decrease). Interestingly, Lebanon's GDP increased considerably (+40%).

Figure 33 - Total Added Value (Group B) - US\$ billion

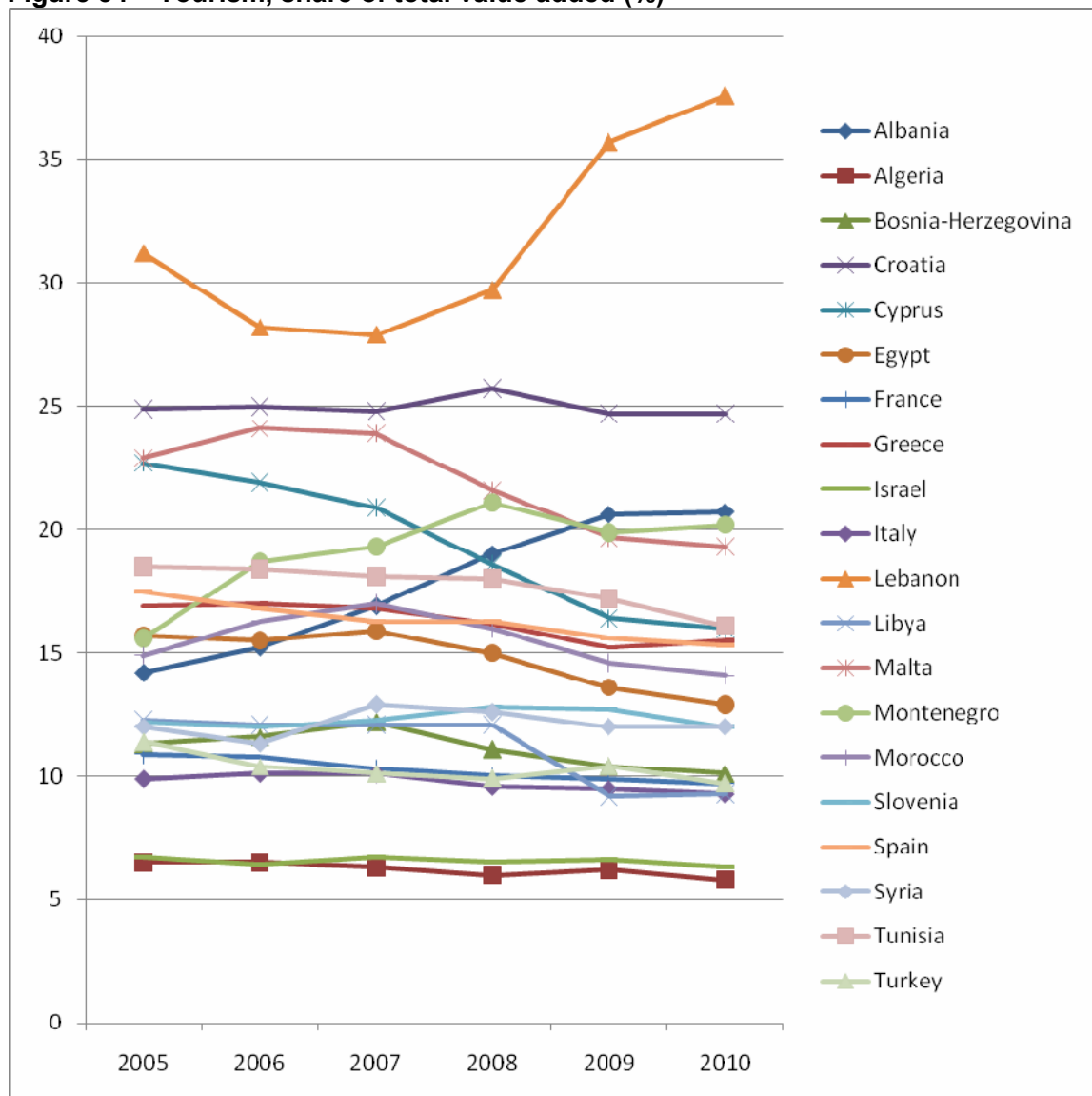


Source: World Travel and Tourism Council

The tourism sector contribution to total GDP varies from 6% (Israel and Algeria) to 37%

(Lebanon). Due to the global economic recession, its shares declined in the last two years in all the countries considered, with the exception of Lebanon (+27% from 2008 to 2010) and Albania (+9%). Libya shows the greatest decrease (-23% from 2008 to 2010).

Figure 34 – Tourism, share of total value added (%)



Source: World Travel and Tourism Council

An evaluation of the progress of the MSSD implementation for tourism is included in the proceedings of the regional workshop: "Promoting sustainable tourism in the Mediterranean", held in Sophia Antipolis in 2008 and containing case studies for Croatia, Malta, Morocco, Spain, Tunisia, and Turkey. As showed by the next table a common problem for Mediterranean countries which is causing delays in the implementation of the MSSD is the absence or the problematic application of appropriate laws.

Table 17. Snapshots of the country case studies about the MSSD implementation progress for tourism.

Country	Citation
Croatia	The situation concerning the sustainable tourism in Croatia is peculiar if compared to the other Mediterranean countries, because Croatia is currently engaged to join the European Union. This process encouraged the adoption of many laws of sustainable tourism, but their application is very difficult because of the huge number of laws and practices which must become operational in the short term.
Malta	The introduction of environmental impact evaluations led many projects to protect the cultural and environmental resources. However rules about the safeguard of beaches do not exist yet...Specific laws would allow strengthening the protection of beaches and would induce prudence during the decision procedures about buildings and constructions.
Morocco	A law about the littorals has been written and contains wise responses to dangerous threats. However the delays concerning the promulgation of these laws are unconceivable.
Spain	Laws have become so different in different places and the typologies have so become numerous that they are now incomprehensible.
Turkey	It is clear that without the restructuring of the Turkish administration system, it will be very difficult to promote and manage the development of tourism according to the principles of sustainable development. In spite the government has recognised this necessity and has prepared a new law to grant more power to the local authorities, the promulgation of this law met a strong political opposition.

Source: Proceedings of the regional workshop "Promoting sustainable tourism in the Mediterranean" (2008)

In terms of actions included in the MSSD, up to now only the Integrated Coastal Management Zone Protocol has been signed (at the beginning of 2008). We have not found evidence about the development of a "Mediterranean tourism quality label"³⁵, the Euro-Mediterranean transport framework and the extension to non-EU Mediterranean countries of the benefits of the Marco Polo Programme for the development of road-sea modal transfers. Concerning the synergies of the MSSD with the Mediterranean Renewable Energy Programme (MED REP), the Rome Mediterranean Energy Platform (REMEDI) and the Euro Mediterranean Energy Policy, we have found that there are currently 6 projects in North Africa managed by MED REP (focal point of REEEP Renewable Energy & Energy Efficiency Partnership) representing about 10% of all the projects currently run by REEEP all over the world. A judgment about the construction of a Euro

³⁵ There are some example of national tourism quality labels related to the Mediterranean such as the Croatia touristic national label (MAP 2008).

Mediterranean energy policy has been provided by a recent report of the Association of Mediterranean Regulators for Electricity and Natural Gas (March 2011) explicitly stating that: "The Rome Euro-Mediterranean Energy Platform (REMEP) launched in 2003 by the EuroMed Energy Ministers has not fulfilled its objectives of integrating the electricity markets of Maghreb countries, creating a single gas market of Mashreq countries, and facilitating the energy exchanges between Israel and the Palestinian Authority".

About TRECs, the REEEP annual report 2007-2008 claims that for several years, the Italian Government had expressed a desire to import Tradable Renewable Energy Certificates (TRECs) from North Africa. The project was meant to build on existing initiatives in the Mediterranean region, such as the Mediterranean Renewable Energy Project, which encourage private sector involvement and the use of financial instruments to achieve their aims of increasing the provision of sustainable energy services as well as mitigating the effects of climate change. The project was based on political support for piloting TREC trade between Italy and North Africa by establishing the institutional framework for a national TRECs system in Tunisia, establishing links to potential TREC buyers in Italy, and piloting the trade in TRECs between the two countries, with the aim of supporting growth in renewable energy development within Tunisia. The main purpose of this project was to improve the economics of renewable energy projects within North Africa, as TRECs could bring additional finance to stimulate the development of renewable energy projects within the region. The project experienced a delay in implementation. Extensive negotiations with the major Tunisian stakeholders took place and a number of Tunisian organizations as well as stakeholders from other North African countries (Morocco, Egypt, Libya) expressed interest in the project. Nevertheless, no further actions have been taken to spread the initiative to other Mediterranean areas.

2.2.8. Summary synthesis

Synthesis matrix of the performance of Mediterranean countries in relation to the MSSD targets: illustrative examples

	Water (1)	Water (2)	Water (3)	Energy (1)	Energy (2)	Energy (3)	Transport (1)	Transport (2)	Transport (3)	Tourism (1)	Tourism (2)	Tourism (3)	Agriculture (1)	Agriculture (2)	Agriculture (3)*	Urb. development (1)	Urb. development (2)	Urb. development (3)	Sea (1)	Sea (2)	Sea (3)
Albania		😊		😊	😊	😊				😊			NA	😊			NA	NA			
Algeria		😊			😊									😊				NA			
Bosnia		😊			😊								😊	😊			NA	NA			
Croatia		😊			😊				😊				😊	😊	😊		NA	NA			
Cyprus		😊			😊									😊			NA				
Egypt		😊			😊									😊				NA			😊
France		😊		😊	😊									😊			NA				
Greece		😊			😊									😊			NA				
Israel		😊			😊								NA	😊			NA	NA			
Italy		😊			😊									😊			NA				
Lebanon		😊			😊	😊				😊				😊				NA	😊		
Libya					😊								NA	😊				NA	NA		
Malta		😊			😊								NA	😊			NA	😊	😊		
Mont.		😊		NA	😊	NA								😊			NA	NA			
Morocco														😊	😊			NA	NA		
Slovenia		😊		😊	😊								😊	😊			NA	😊			
Spain		😊		😊	😊									😊			NA				
Syria		😊												😊				NA			
Tunisia		😊			😊									😊			NA	NA			
Turkey		😊			😊				😊					😊	😊		😊	😊			

1 = economic development priority
2 = social disparities priority
3 = sustainable production priorities
NA = Data not available for a specific country

*The MSSD generically mentions MDGs as an indicator for priority AGRICULTURE and objective REDUCTION OF SOCIAL DISPARITIES. In our report for reasons of data availability data are given for just two MDG indicators: child mortality and education.

In the previous table the symbol 😊 is attributed on the basis of the following criteria:

WATER (1) - ECONOMIC DEVELOPMENT	Missing data about agricultural value added of cubic meter of water, so not filled out
WATER (2) - SOCIAL DISPARITY	Access to water and sanitation close to 100%
WATER (3) -SUSTAINABILITY	No filled out. Missing data for "Reduction of water losses", and no clear indicators for "Prevent natural risks" and "Protect water resources".
ENERGY (1) – ECONOMIC DEVELOPMENT	Countries with a % of renewables higher than 7%
ENERGY (2) – SOCIAL DISPARITY	Access to electricity close to 100%
ENERGY (3) - SUSTAINABILITY	Countries with the highest decrease of CO2 emissions
TRANSPORT (1) - ECONOMIC DEVELOPMENT	No filled out. Missing data about "Transport congestions costs", and no clear indicators for "Develop more competitive and sustainable Euro-Mediterranean transport systems"
TRANSPORT (2) - SOCIAL DISPARITY	No filled out. Missing data for "Transport costs in household budgets".
TRANSPORT (3) -SUSTAINABILITY	Countries with the lowest share of road passengers and freight
TOURISM (1) – ECONOMIC DEVELOPMENT	Countries with the highest % increase of tourism value added
TOURISM (2) – SOCIAL DISPARITY	No filled out. No clear indicators for "Develop tourism to help promoting social cohesion and cultural values,
TOURISM (3)- SUSTAINABILITY	No filled out. No clear indicators for "Tourist pressures in environmental hot spots" and "Temporal and spatial management of tourist flows", so not filled out
AGRICULTURE (1) – ECONOMIC DEVELOPMENT	Countries with the highest growth of value added per worker
AGRICULTURE (2)– SOCIAL DISPARITY	Countries with a decreasing child mortality rate
AGRICULTURE (3) - SUSTAINABILITY	Countries with the highest growth of organic farming
URBAN DEVELOPMENT (1) – ECONOMIC DEVELOPMENT	No filled out. Missing data for "Value added of cultural, historical and landscape heritage" and no clear indicator for "sustainable tourism".
URBA DEVELOPMENT (2) – SOCIAL DISPARITY	Countries with the highest reduction of people living in slums
URBAN DEVELOPMENT (3) - SUSTAINABILITY	Countries with the highest reduction of municipal waste
SEA (1) – ECONOMIC DEVELOPMENT	Countries with the most significant increase in fish

	production
SEA (2)– SOCIAL DISPARITY	No filled out. No clear indicator for “Preserve the social and cultural added value of traditional coastal activities”.
SEA (3) – SUSTAINABILITY	Countries with the highest % of marine protected areas

As evident from the previous table, we only analyzed 20 out of the 28 targets expressing the synergies between objectives and priorities and contained in the Annex I of the MSSD. This is mainly due to the lack of appropriate data (e.g. no data on the weight of transport costs in households’ budget representing the indicator expressing the synergy between the transport priority and the social disparity reduction objective) and to the difficulty in translating the targets into concrete indicators (e.g. not easy to find clear indicators expressing the target “Promote sustainable urban economy” representing the indicator expressing the synergy between the urban development priority and the economic development objective). In spite of these limits we could identify a clear messages deriving from the elaboration of data.

Conclusion 1. The current performance of the Mediterranean region vis a vis MSSD indicators is heterogeneous across indicators and countries. Whilst for some indicators such as sanitation and access to electricity the targets are almost reached for most countries, much has to be done for priorities such as climate change, energy intensity, water, and sustainable tourism.

2.3. Suggestions for the improvement of the MSSD list of indicators

2.3.1 A revised table of indicators

As we did in the previous section, an examination of MSSD objectives can be used as a useful tool to verify progress of Mediterranean countries towards sustainability and development objectives. However, we acknowledge that improvements and updates could be made to the checklist for several reasons:

1. The international political and economic context has changed and new and different indicators might be needed to capture new and emerging trends;
2. The evaluation of MSSD progress allows us to examine in depth the extent to which in Mediterranean countries MSSD indicators have a big gap compared to the target: we assume that for those indicators for which the gap is very small, they no longer represent a priority;
3. There is a growing need to monitor the implementation of the strategy, and for this reason some indicators may be better than others in expressing quantitative and objective variables.

In the following table we present some suggestions for improvements. In the majority of cases we suggest a replacement of existing indicators with others, and we also include suggestions for new indicators. We operate only on a subset of indicators for which we find inconsistencies, lack of clarity or limited operational functionality. The table includes only indicators that we suggest to be eliminated and replaced, or just eliminated (in this latter case we do not suggest replacements). The MSSD indicators which have not been included in the table do not present particular problems.

Table 18. Suggestions for an updated set of MSSD indicators

Existing indicator	Reason for removing	New indicator	Reason for inclusion
WATER			
Halve the population (2015/1990) without access to safe drinking water and sanitation	Mediterranean countries are now well placed to reach the objectives for this indicator	Water consumption per capita	The focus on volume rather than simple access would stimulate policies for water conservation
Protect water resources (quantity and quality)	The indicator is imprecise.	1) Water pollution 2) Water exploitation index ³⁶	Water pollution better explains the lack of water quality. The water exploitation index provides a suitable quantitative indicator for quantity.
Prevent natural risks	Not an indicator		
ENERGY AND CLIMATE CHANGE			
Halve the population without access to electricity (2015/1990).	Mediterranean countries are now well placed to reach the objectives for this indicator		
Enhance the potential of Med. renewable energies: (7% of demand by 2015)	Why 7%?	Enhance the potential of Med. Renewable energy penetration consistent to the most recent existing scientific evidence ³⁷	The % of renewable energy penetration should reflect the agreed global emissions reduction policy target ³⁸ .
Rational use of energy (energy efficiency).	Energy intensity reductions may not generate reductions of CO2 emissions (less energy intensity does not always mean less emissions)	Reduction of energy consumption	This indicator would stimulate policy makers to increase growth with the same level of input use (correct concept of efficiency) through policies such as carbon tax, international environmental agreements etc.
Control, reduce or stabilize GHG emissions	This indicator needs a more precise definition	Reduce emissions by taking into account specific international standards.	Some European countries or other Mediterranean countries could be involved in post Kyoto international agreements. The MSSD

³⁶ The water exploitation index is already included in the MSSD Annex II list of follow up indicators. A discussion of both Annex I and Annex II indicators is included in the paragraph 2.3.3.

³⁷ The current scientific literature indicates a world 2 deg C temperature limit principle by 2050.

³⁸ As in general renewable energy is more costly than fossil fuels the exact % of renewable energy penetration in Mediterranean countries could be set according to an equity principle. For example on the basis of a "polluter pays principle" the % of renewable energy and the relative additional cost in Mediterranean countries should be set according to the % of Med countries in global emissions. Within Med countries the costs burden could be shared according to the same principle.

Existing indicator	Reason for removing	New indicator	Reason for inclusion
			should incorporate the international political evolution.
Reduce vulnerability of sensitive areas to climate change.	Useful indicator ³⁹ but the calculation of monetary impacts to climate change could represent very useful complementary information	Reduce vulnerability of sensitive areas to climate change and monetary climate change damages	Ideally calculation of monetary damages reduction could provide much more precise information about the extent and scale of climate change impacts
TRANSPORT			
Develop more competitive and sustainable Euro-Mediterranean transport systems	Not clear what is meant by competitive.	Increase investment in transport infrastructure	Investments should be made to improve the modernity of infrastructure and consequently the impact on sustainable growth.
Transfer traffic from road to rail and sea.	This is not an indicator. Rather it is a policy that could be useful to affect the other indicator "Stabilize or reduce road traffic share".		
TOURISM			
Promote sustainable tourism	This indicator would fit better the "Sustainability priority"		
Develop tourism to help promoting social cohesion and cultural values	This is not an indicator		
Better temporal and spatial management of tourist flows	Not clear indicator. What does it mean exactly "better temporal and spatial management tourist flow?"	Decrease tourism carbon footprint expressing the quantity of carbon generated by each passenger for each travel.	Easy to calculate and meaningful indicator.
AGRICULTURE			
Enhance Mediterranean diversity and quality	Not a clear quantitative target	Increase the % of organic farming to 10%	Currently just Italy shows a 8% penetration of organic farming which is the highest % across Med countries.
Millennium Development Goals (MDG)	It is not clear why this indicator is just introduced in the Agriculture priority section.		
Prepare agriculture for climate change	Imprecise and not clear, it does not stimulate	Implement action to reduce loss of	This indicator would be quantifiable and would

³⁹ For a comprehensive discussion of vulnerability indicators see Eriksen and Kelly (2006).

Existing indicator	Reason for removing	New indicator	Reason for inclusion
	clear policy actions.	agricultural productivity from climate change	stimulate policies to improve adaptation. Concrete actions could include terraces, agro – forestry to reduce soil erosion according to the country specific characteristics.
Protect biodiversity and landscape	Imprecise and not clear, it does not stimulate clear policy actions	1) Reduction of deforestation 2) Increase of agro-forestry areas 3) Decrease of threatened vegetal and animal species	These are quantifiable variables that can be easily monitored
URBAN DEVELOPMENT			
Promote sustainable urban economy	Imprecise	Increased energy efficiency and use of renewable energy, increased investment in green economy sectors	It would involve clear and quantifiable indicators clearly stimulating urban policies towards green growth.
Create added value from the cultural, historical and landscape heritage	This indicator would fit better in the tourism priority		
SEA AND COASTAL ZONES			
1) Develop activities (tourism, aquaculture,...) integrating natural fragilities. 2) Protect and promote the unique value of coasts, sea resources, landscapes	These indicators should express the synergy between the sea and coastal zone priority and the economic development objective but they are not unambiguously related to economic development. Moreover they are not easy to express by quantitative variables.	Increase the aquaculture and fishing production	Clear and quantifiable indicator, it stimulates policies aimed at improving the performance of the whole sea and coastal zones economic sectors. Well fitting with the economic development objective.
		Migration	There are not currently indicators related to migration included in MSSD. In particular the link between climate change, sustainability and migration (number of emigrants dues to climate change issues) would be an important

Existing indicator	Reason for removing	New indicator	Reason for inclusion indicator to monitor ⁴⁰
ADDITIONAL INDICATOR			
Additional comments			
1) GDP per capita remains a crucial indicator to demonstrate a sustainable development path of countries. Our advice is to also consider indicators not strictly related to the seven priorities but which can be of strong interest for countries.			
2) Alternative measures of GDP could also be considered for non priority specific indicators such as the Green GDP, genuine savings etc. implemented by the World Bank.			
3) The recent definition of national strategies such as the one of France and Montenegro emphasizes priorities which can also be of interest for the whole Mediterranean area such as health (no indicators in the current version of the MSSD document) and participatory approaches for the definition of widely agreed policies.			

In some cases indicators contained in the Annex I would deserve a more elaborated technical discussion of the rationale, methodology of implementation. An example is that the indicator "Increase added value of tourist economy for local communities in developing countries" is strongly related to the discussion about leakage. In almost all tourist destinations, some of the benefits of tourism 'leak' out of the destination economy, typically in the form of imported food or drink or foreign workers (Mitchell and Ashely 2007). Therefore an increase of value added for local communities in developing countries could be expressed by a target indicator expressing the reduction of this "leakage effect".

A UNEP/MAP Plan Blue technical document (2006) fully discusses these issues for follow up indicators contained in the Annex II, but a similar exercise would be needed for indicators contained in the Annex I. Moreover it is very important that all the MSSD indicators are chosen across those for which data are fully available and easily accessible.

Recommendation 1: The MSSD contains a number of indicators which can be updated according to the current context or which cannot be clearly used to monitor the MSSD progress. We recommend updating the list of indicators on the basis of the suggestions included in the table 18.

Recommendation 2. All MSSD indicators should be amended in order to include those for which data are available and fully discussed in terms of methodology, rationale and purposes.

2.3.2 New emerging areas

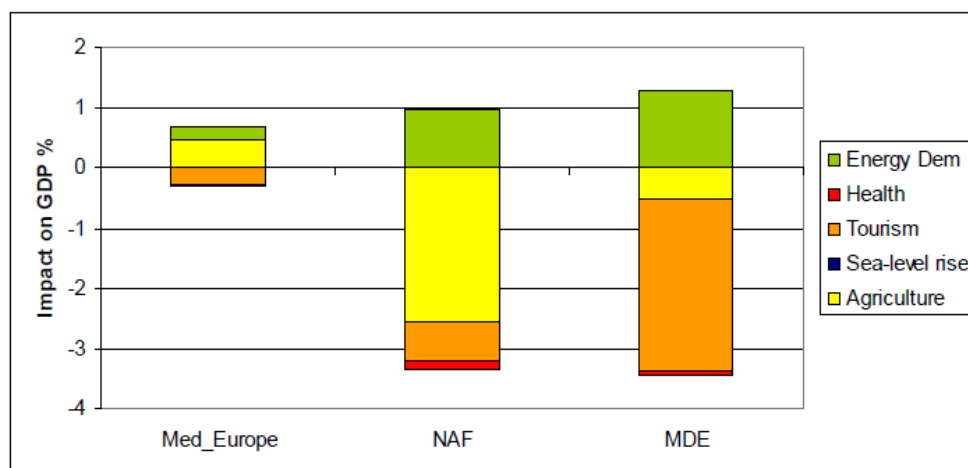
The previous table provides suggestions to improve the potential of indicators to be expressed as clear quantitative variables that can more easily be monitored or which are consistent to the current evolution of policy (eg climate change global goals) or which are consistent to the corresponding objectives/issues. Moreover we also include a series of indicators expressing new emerging issues which were not fully considered in the period when the MSSD was elaborated. The recent scientific evidence confirmed by our consultations show that adaptation to climate change, green economy and migration represent priorities which would deserve full

⁴⁰ For a full discussion of the climate change and migration issues please see the IOM report (2008).

attention in the amended version of the MSSD.

A recent presentation from Massetti (2011) shows that in particular North Africa and Middle East are likely to suffer severe impacts from climate change.

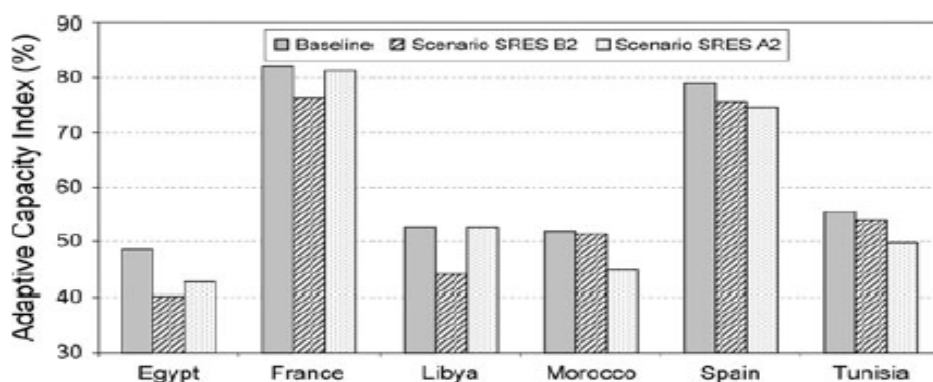
Figure 35. Climate change impact (3.1 deg C, reference year 2050).



Source: Massetti 2011. NAF = North Africa, MDE = Middle East

North Africa risks a tight reduction of agricultural production and the worrying message is that according to a recent study from Iglesias et al. 2010, North African countries are those showing the lowest adaptive capacity to cope with agricultural climate change losses in agriculture across Mediterranean countries on the basis of an index depending on economic capacity, natural capacity, human capacity and technological innovation.

Figure 36. Adaptive capacity index for the agriculture sector in selected Mediterranean countries (values range from 0 (lowest adaptive capacity) to 100 (highest adaptive capacity))



Source: Iglesias et al. (2010)

Moreover as reported by Massetti (2011) many of the countries that face the Southbound of the Mediterranean (MENA region) are large exporters of fossil fuels, the main cause of climate change. Any serious climate change policy that will reduce the consumption of fossil fuels will impose dramatic consequences on these countries and require deep adaptation of their

economies. Adaptation should be a top priority for the MSSD.

The green economy is another hot topic that should be incorporated in the MSSD which implies a broader perspective than the simple climate change issue. Green economy is not explicitly mentioned in the MSSD. We should warn that green economy basically means that each country should follow a sustainable path and the MSSD should include reliable indicators informing the policy maker on the sustainable path of each country. The MSSD already includes many single indicators indicating if single countries are following a green path or not about energy intensity, greenhouse gas emissions, sustainable tourism etc.

An indicator implemented by the World Bank (Bolte et al. 2002) concerning genuine savings would complement the existing set of indicators. The main idea of the genuine savings indicators is that negative adjusted net saving rates imply that total national wealth is in decline; policies leading to persistently negative adjusted net savings are unsustainable policies.

Adjusted net savings are derived from standard national accounting measures of gross national savings by making four types of adjustments. First, estimates of capital consumption of produced assets are deducted to obtain net national savings. Then current expenditures on education are added to net domestic savings as an appropriate value of investments in human capital (in standard national accounting these expenditures are treated as consumption). Next, estimates of the depletion of a variety of natural resources are deducted to reflect the decline in asset values associated with their extraction and harvest. Finally, pollution damages are deducted. Many pollution damages are local in their effects, and therefore difficult to estimate without location-specific data. Here we estimate health damages due to urban air pollution. As for global pollution damages, the estimates include damages from carbon dioxide emissions.

In our context the introduction of the genuine savings indicator in the MSSD list:

- 1) Would include the discussion about the depletion of natural resources in Mediterranean countries which is a hot topic not enough emphasized in the previous MSSD version;
- 2) Would provide an overall judgment about the sustainable path of each Mediterranean country. Whereas the genuine savings methodology does not incorporate yet an exhaustive list of natural resources depletion and environmental costs and positive genuine savings do not represent a sufficient condition to prove the sustainable path of each country, a negative genuine saving should already be considered a robust signal of the unsustainable economic path of Mediterranean countries

Table 19. Genuine savings in Mediterranean countries in 2008 (% of GNI).

Country	Gross national saving	Consumption of fixed capital	Net national saving	Education expenditures	Energy depletion	Mineral depletion	Net forest depletion	CO2 damage	Local environmental costs	Genuine savings
Albania	17.96	10.10	7.86	2.84	1.69	0.00	0.00	0.31	0.18	8.51
Algeria	58.84	10.93	47.91	4.47	29.90	0.23	0.06	0.64	0.20	21.36
Croatia	21.82	12.88	8.93	4.34	1.26	0.00	0.22	0.30	0.25	11.26
Cyprus	5.60	14.37	-8.77	6.50	0.00	0.00	0.00	0.27	0.28	-2.81
Egypt, Arab Rep.	23.51	9.35	14.16	4.41	14.48	0.50	0.16	0.87	0.51	2.06
France	18.74	13.86	4.88	5.05	0.03	0.00	0.00	0.10	0.01	9.80
Greece	7.36	13.89	-6.53	2.75	0.34	0.08	0.00	0.23	0.34	-4.76
Israel	19.79	13.49	6.30	5.91	0.24	0.28	0.00	0.29	0.11	11.29
Italy	18.46	13.98	4.48	4.52	0.22	0.00	0.00	0.16	0.08	8.55
Lebanon	10.23	11.29	-1.06	1.82	0.00	0.00	0.00	0.51	0.14	0.12
Morocco	31.44	10.13	21.31	5.22	0.03	6.14	0.00	0.42	0.12	19.83
Slovenia	27.01	13.58	13.43	5.31	0.15	0.00	0.16	0.24	0.10	18.08
Spain	20.55	13.98	6.57	3.90	0.04	0.00	0.00	0.18	0.17	10.09
Syria	12.63	10.06	2.57	2.60	17.57	1.12	0.00	1.05	0.65	-15.23
Tunisia	22.64	11.10	11.54	6.66	5.77	4.69	0.11	0.51	0.14	6.98
Turkey	17.66	11.78	5.89	3.68	0.32	0.05	0.00	0.28	0.58	8.33

Source: World Bank

The interesting insight coming from the previous table is that 13 Mediterranean countries out of 16 show a positive genuine saving and a sustainable economic path with the exception of Cyprus, Greece and Syria. However we confirm that these data should be interpreted cautiously because the World Bank methodology currently excludes many minerals and pollutants and values of the genuine savings may be overestimated.

The MSSD could be improved by incorporating further details concerning these emerging topics. For example a full discussion of adaptation should mention the issue of migration with a particular focus on that related to climate change issues.

Table 20. Net emigration rate in Mediterranean countries in the period 2005-2010

Country	Net emigration rate
Albania	-4.8
Algeria	-0.8
Bosnia and Herzegovina	-0.5
Croatia	0.5
Cyprus	5.8
Egypt	-0.8
France	1.6
Greece	2.7
Israel	2.4
Italy	5.6
Lebanon	-0.6
Libyan Arab Jamahiriya	0.6
Malta	2.5
Montenegro	-1.6
Morocco	-2.7
Slovenia	2.2
Spain	7.9

Syrian Arab Republic	7.7
Tunisia	-0.4

Source: UNdata

Emigration is particularly relevant in Albania, whereas immigration is wide in Syria and Spain. Migration is strictly related to the four MSSD priorities. It is related to economic development because as showed by Cali` and Cantore (2010) emigration of qualified workers generates a brain drain effect reducing growth and GDP per capita⁴¹, to social disparities, because low qualified immigrants in general suffer the social exclusion and low income, but in particular for the MSSD purposes the link with sustainability would be interesting because migration is in place in many areas due of desertification, soil erosion and sea level raise issues.

Finally in some cases “traditional” topics such as health, now deeply discussed in many national strategies need to be emphasized with more effectiveness in the revised version of the MSSD. Data shows there is a strong heterogeneity across Mediterranean countries in terms of health indicators. A regional health policy would be useful to create the right environment to promote business, exchanges and common actions in the Mediterranean area.

Table 21. Health (private + public) expenditures per capita in Mediterranean countries (US\$)

Country	Years
Albania	265
Algeria	268
Bosnia and Herzegovina	495
Croatia	1120
Egypt	113
France	4798
Greece	3041
Israel	1966
Italy	3328
Lebanon	663
Libyan Arab Jamahiriya	417
Malta	1446
Montenegro	617
Morocco	156
Slovenia	2175
Spain	3075
Syrian Arab Republic	72
Tunisia	240

Source: World Bank

2.3.3 The follow up indicators

The pg 58 of the MSSD document contains a list of 34 useful indicators to analyze the follow up of the MSSD priorities plus other useful indicators. Our evaluation is that they are good indicators as they can be easily expressed by quantitative variables. However our suggestion is

⁴¹ A part of the migration literature also mentions a brain gain effect which could operate in the medium/long term by which highly qualified emigrants with their economic activities in host countries my stimulate Foreign Direct Investments, trade and bilateral exchanges with source countries (Batista et al. 2010).

that the table contained in the Annex I and that contained in the Annex II of the MSSD document should be integrated.

In its current form, the Annex I expressing the synergies between priorities and objectives contains targets and indicators which are not contained in the list of follow up indicators (e.g. transport costs in household budget). At the same time the Annex 2 containing the follow up indicators does not categorize indicators according to different objectives (economic development, social disparities, sustainability, governance). Finally in some case indicators contained in the Annex 1 and in the Annex 2 overlap (e.g. 7% target for renewable energy). All these features create confusion for the analyst interested in adopting the appropriate indicators for assessment of the MSSD follow up.

A UNEP/MAP Plan Blue technical document (2006) explains in depth methodological issues of each indicator and their rationale. It would be useful to integrate the new version of the MSSD with the Plan Blue work. However our recommendation is to express the list of indicators with the lay out structure contained in the Annex 1 to highlight as much as possible the role played by the objectives. The list of follow up indicators with the matrix structure contained in the Annex I would appear as follows:

Table 22. Synergies table between objectives and priorities for the 34 follow up indicators

Objectives/priorities	Water	Energy and climate change	Transport	Tourism	Agriculture	Urban development	Sea and coastal zones
Economic development	Water demand and compared to GDP	1) Increase share of renewable energy in energy balance 2) Amount financed in the framework of the Kyoto Protocol flexibility mechanisms by the annex 1 countries to the benefit of other Mediterranean countries			Ratio of agricultural population vs rural Population (diversification)		
Reduce social disparities	1) Increase share of population with access to improved water resources 2) Increase share of population with			International tourism receipts (value added for local communities)		Proportion of urban population with access to a decent dwelling	
Sustainable economy and management of natural resources	1) Water efficiency index 2) Exploitation	1) Decrease energy intensity 2) Reduce greenhouse gas emissions	1) Motor transport intensity compared to GDP	1) Share of "non-seaside resort beds" vs total number of beds	1) Loss of arable land 2) Share of public budget	1) Number of cities with over 10 000 inhabitants engaged in a process	1) Share of artificialised coastline 2) Operational

Objectives/priorities	Water	Energy and climate change	Transport	Tourism	Agriculture	Urban development	Sea and coastal zones
	index of renewable resources		2) The proportion of road transport in terms of land freight transport 3) Share of public surface transport (urban and inter-urban)	(tourism diversification)	allocated to sustainable rural development programmes 3) Proportion of agriculture quality products and share of the agricultural land area used by organic farming	Agenda 21 type or in urban renewal programmes 2) Household waste produced per capita and number of uncontrolled landfills 3) Air quality in the main Mediterranean urban areas	pollution from ships 3) Proportion of coastal urban population connected to a sanitation network 4) Surface of protected coastal and marine areas

From the previous table we can extract two main conclusions:

1) In some cases we cannot easily identify follow up indicators covering each objective for each priority. For example we cannot find indicators which can easily connect economic development to transport, tourism and sea/coastal zones. We acknowledge that objectives are strongly correlated and a classification of indicators across the economic development, sustainability and social disparity criteria is far to be exhaustive, but we deem that this categorization exercise is useful because it induces to think about the most appropriate variables on which policy makers should focus to reach all their objectives. An example is that the additional list of indicators (p. 61) contains rural poverty which could be useful to assess the progress towards the elimination of social disparity for the agriculture priority as we were not able to include in the corresponding cell none of the 34 follow up indicators;

2) The previous table only contains 28 out of the 34 follow up indicators as the Annex II list also includes other indicators representing: 1) solidarity, commitment and financing for a sustainable development: 2) human capital and actors' involvement. In the table of the Annex 1 these indicators are represented as concrete actions to reach objectives across priorities. Again, this further supports the need to fully integrate information contained in both Annexes. Moreover unfortunately the MSSD document does not always express clear indicators to monitor actions. As we will see more in depth in the next paragraph our opinion is that orientations and actions included in the revised MSSD should be expressed or explicitly associated as much as possible to specific indicators.

Recommendation 3. The revised MSSD should put more emphasis on orientations, actions and indicators concerning emerging topics such as adaptation and green economy. Traditional topics such as health would deserve more attention. New indicators such as the number of migrants due to climate change would be useful to monitor with greater detail adaptation and all the other emerging issues.

Recommendation 4. The Annex I of the MSSD explaining synergies between objectives and priorities and the Annex II containing the list of follow up indicators should be integrated to reach a solid and systematic set of indicators to monitor the MSSD performance.

2.4. Suggestions for the improvement of the MSSD objectives, orientations and actions

The MSSD includes a large set of objectives, orientations and actions for seven priorities. Our premise is that the identification of the actions that Mediterranean countries should undertake to reach the targets identified in the document is beyond the aims of our work as this is a rather political issue. However, we are in a position to provide some suggestions for the improvement of the effectiveness of the MSSD and its operational utility:

1. In many cases orientations do not provide useful insights to enhance the operational effectiveness of the document. Orientations should explain the typologies of policies that should be undertaken, the actors that should be involved the potential benefits deriving from these policies, and should allow the reader to quickly understand the target indicator that would be affected. From this point of view the recent French National Strategy for Sustainable Development (NSSD) is organized according to different priorities⁴² for which the context, the target indicators and the operative levers are clearly interconnected and could present a good example for the revision of the Mediterranean Strategy.
2. In terms of concrete actions the MSSD already contains specific actions such as the signature of the ICZM protocol (within 2007), the creation of a Mediterranean Tourism Quality Label (within 2010). We suggest enlarging the set of concrete and identifiable actions to be pursued with a clear timing. Actions are more appropriate than orientations to stimulate the operational effectiveness of the MSSD as they clearly indicate what must be done and when, therefore it is recommended that actions will become more numerous than orientations in the next version of the MSSD.
3. The document should delineate more clearly the role of the MCSD and all the UNEP/MAP components and that of national strategies in implementing orientations and actions. Our consultations show a strong agreement that the MCSD and all the other UNEP/MAP components could have a strong role in capacity building, technical support for the implementation of national strategies, advisory activities for fund raising, promotion of international agreements, and in the creation of networks for the implementation of projects meeting the MSSD targets. The MSSD should distinguish more clearly what is expected at national level to meet actions and orientations and what can be supported by the UNEP/MAP or MCSD.
4. Objectives (and in some cases orientations such as for the energy and climate change priority) in many cases replicate information contained in the table (Annex I) concerning MSSD target indicators summarizing priorities and objectives, where they are specified more accurately. For example, at pg. 27 the objective "Encourage more integrated

⁴² The priorities in the French NSSD are sustainable consumption and production, knowledge society, governance, climate change and energy, sustainable transport and mobility, conservation and sustainable management of biodiversity and natural resources, public health, demography, global poverty.

transport systems which ensure better complementarities of road, rail and sea transport, including a significant shift from road to sea and rail” overlaps with the four target indicators (pg. 56). A revision of the MSSD should focus more clearly on actions and orientations rather than on objectives.

5. Particular attention should be devoted to the orientations and actions concerning financing sustainable development. This section should incorporate more clearly concrete actions for fundraising in Mediterranean countries. For example our consultations show that initiatives aimed at improving information about fundraising (newsletter, networks creation) would be highly appreciated. The orientations and actions should explain more clearly the role that UNEP/MAP, MCSD and single states could play in this field.

In particular orientations deserve a separate discussion. Orientations contained in the MSSD can be categorized in three main groups:

- 1) Quantitative orientations (see p. 11 for a brief summary of MSSD orientations) such as “Increase the number of protected areas throughout the Mediterranean significantly, to cover at least 10% of coastal and marine habitats with forms of protection that meet the criteria of the IUCN”. In this case orientations contain a clear quantitative target that single countries should reach.

- 2) Non – quantitative orientations that could be easily translated into quantitative targets. The orientation (p. 25) “Invite Mediterranean countries to cooperate in the implementation of the United Nations Framework Convention on Climate Change and flexibility mechanisms of its Kyoto Protocol, to prepare for the post-2012 phase and direct towards the region investment designed to reduce greenhouse gas emissions” can be monitored more easily as it reminds the need to increase the amount of financial flows to Mediterranean developing countries in terms of CDMs and other carbon offsetting mechanisms. UNEP/MAP Plan Bleu (2006) easily translates this orientation into the indicator “Amount financed in the framework of the Kyoto Protocol flexibility mechanisms by the annex 1 countries to the benefit of other Mediterranean countries”.

- 3) Pure qualitative orientations such as: “Encourage countries to promote rehabilitation programmes in destinations where hotel facilities and tourism infrastructure are becoming obsolete, and where historical sites are poorly maintained” by which the document tries to inspire the action of policy makers.

Our analysis of the MSSD and consultations confirm that amendments could improve the effectiveness of the MSSD. About quantitative orientations the best practice would be to justify the numerical targets. In the case of the orientation we have previously mentioned “Increase the number of protected areas throughout the Mediterranean significantly, to cover at least 10% of coastal and marine habitats with forms of protection that meet the criteria of the IUCN”, why should the target be 10%? The identification of the criteria for the setting of numerical targets should be related to the regional/national policy targets. As we have specified in our table 18 suggesting a revised set of indicators, the target expressing the % of renewable energy out of the total energy use could be identified by taking into account the commitment of Mediterranean countries to reduce carbon emissions according to global environmental limits. There are many studies that could be useful to understand the optimal path of renewable energy penetration in case world regions accepted the 2 deg C temperature increase upper limit by 2050.

In case of non – quantitative orientations that could be easily translated into quantitative targets our suggestion is that where possible and/or useful they should be translated in numerical targets. The orientation (p. 32):” Promote regional consultations with Mediterranean countries with a view to adapting to their specific needs the existing legal framework that ensures the sovereignty of countries in matters of gene pools, biodiversity and the right to control the use of GMOs and regulate their movement in conformity with the Cartagena Protocol” could be easily measured by the number of undertaken consultations.

Qualitative orientations represent a precious backbone to inspire national policies but in many cases they cannot be easily translated in useful indicators to assess the progress of the MSSD, or even analyzed through a qualitative methodology. As mere example of this statement we just consider an orientation contained in the MSSD section dedicated to water (p. 23):” Encourage the establishment of appropriate bodies and organizations for integrated watershed, management (surface, groundwater resource and ecosystems), in qualitative and quantitative terms.”. Whereas in principle this orientation represents a strong incentive for policy makers to set the right policies to stabilize water demand and reduce losses, this orientation cannot be easily used for an assessment. For an analysis of this orientation we should before clarify a wide number of questions such as:

- 1) When is a body appropriate?
- 2) In which sectors?
- 3) What is the exact definition of quality?

This orientation is very useful to stimulate policy makers to adopt the right policy measures but can hardly be used for monitoring purposes. Moreover as the MSSD contains a wide number of orientations, the monitoring of all the orientations would be extremely time consuming and almost impossible from a practical point of view. It does seem odd to suggest the monitoring of all the MSSD target indicators and contextually the implementation of all the orientations that are necessary to reach those targets.

Rather it would be very useful to explain more accurately in the MSSD which indicator the qualitative orientation is going to affect. The orientation that we have previously mentioned “Encourage the establishment of appropriate bodies and organizations for integrated watershed, management (surface, groundwater resource and ecosystems), in qualitative and quantitative terms.” should likely affect the water demand indicators. An explicit mention of the indicators would help policy makers to understand the tasks of the bodies and when those bodies should be considered as “appropriate”.

Recommendation 5. Actions should incorporate a more precise time horizon. Orientations should fit operational functionality criteria and help MSSD users understand the involved actors, policy directions, potential benefits and the indicators that would be affected. Objectives should be incorporated in the discussion concerning indicators as in many cases they overlap.

Recommendation 6. Quantitative orientations should be improved with the explanation of the criteria by which the targets are set. Qualitative orientations should be translated in numerical targets and/or clearly associated to specific MSSD target indicators.

Recommendation 7. Orientations and actions about the financing of sustainable development should be more accurately explained by incorporating concrete targets about capacity building, information exchange and education.

3. Institutional aspects and functional synergies with other organizations

This chapter discusses the institutional aspects and external environment of the MSSD.

3.1. Institutional framework

UNEP MAP represents the umbrella under which the MSSD has been developed and implemented. The institutional framework characterizing UNEP/MAP is summarized in Figure 37.

The Contracting Parties decide on MAP strategies, budget and programmes in pursuit of MAP goals at their Ministerial level meetings, held every two years. They appoint Focal Points to review the progress of work and ensure the implementation of recommendations at the national level. A rotating Bureau of six representatives of the Contracting Parties guides and advises the MAP Secretariat in the interim period between the biannual meetings.

The 22 Contracting Parties to the Barcelona Convention are: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, the European Community, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Serbia and Montenegro, Slovenia, Spain, Syria, Tunisia, Turkey

The MCSD is made up of 46 members: 22 permanent, representing each of the Contracting Parties to the Barcelona Convention, as well as 24 rotating representatives from the wider community (local authorities, the business community, NGOs, scientific community, intergovernmental organisations and eminent experts) and 14 alternate members, that in principle have a mandate of 2 years. It makes relevant proposals and recommendations to the Contracting Parties.

There are a number of components, most as Regional Activity Centres with different roles

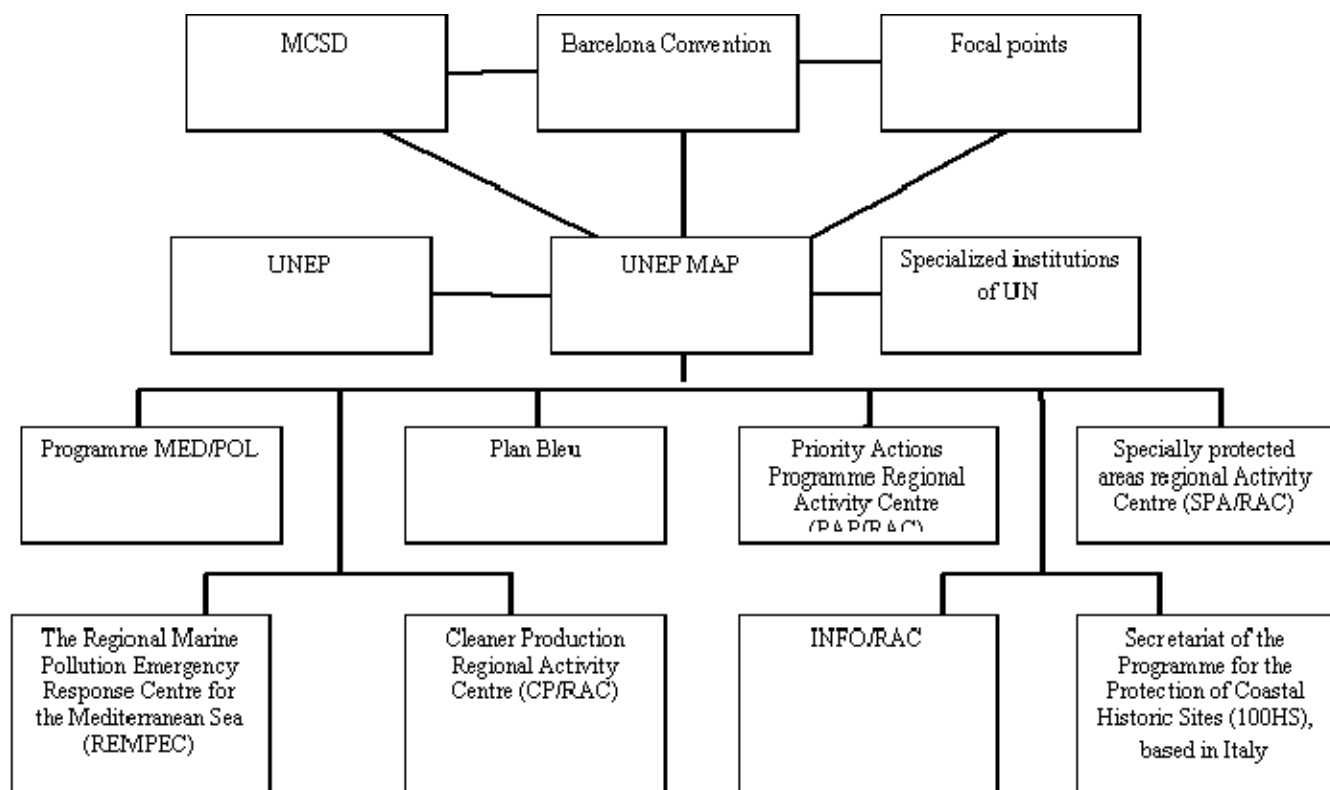
- Blue Plan Regional Activity Centre (BP/RAC), France, adopts a systemic and prospective approach to Mediterranean environment and development issues using observation and evaluation tools and generating indicators.
- Priority Actions Programme Regional Activity Centre (PAP/RAC), Croatia, concentrates on integrated coastal zone management to alleviate development problems in built-up coastal areas. The centre offers technical assistance and coordinates Coastal Area Management Programmes (CAMP) that typically involve the participation of many local bodies.
- Specially Protected Areas Regional Activity Centre (SPA/RAC), Tunisia, focuses on biodiversity and is involved in the protection of Mediterranean species, their habitats and ecosystems.
- Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), Malta, assists Mediterranean coastal states to build up their national prevention and response capabilities to be prepared for major marine pollution incidents,

such as Erika and Prestige. The centre also facilitates cooperation between countries in combating accidental marine pollution from a range of hazardous substances including oil.

- INFO/RAC, Italy, provides communication services and technical support to the MAP Secretariat and the other MAP regional components (RACs). INFO/RAC also focuses on enhancing public awareness and establishing multi-sector working partnerships that enable sustainable development across the Mediterranean region.
- Cleaner Production Regional Activity Centre (CP/RAC), Spain, promotes the reduction of industrial waste from the Mediterranean industrial sector and disseminates tried-and-tested cleaner production techniques. The centre also organizes training programmes, and promotes the exchange of experts, facilitating technology transfer within the region.
- The MED POL Programme is responsible for follow-up work related to the implementation of the LBS Protocol, the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (1980, as amended in 1996), and of the dumping and Hazardous Wastes Protocols. MED POL assists Mediterranean countries in the formulation and implementation of pollution monitoring programmes.

Funding of the MAP is mainly guaranteed by contributions of the parties, in particular France and Italy.

Figure 37. UNEP – MAP institutional framework



In spite the provision of specific suggestions for a different MSSD governance structure is

beyond the aims of the present work, a basis for a collective reflection and discussion could be represented by a series of opinions arising from our consultations:

1. UNEP is seen as “environmental” rather than economic. Many stakeholders suggested that an environment-oriented institution is not effective in managing a strategy dealing with a wider set of policy targets, including economic and social issues.
2. The MSSD has had little observable influence on sectoral strategies, policies and action programmes. This finding comes from consultations and from the report of NSSD Assessment(2009) showing that environmental policies, especially in the European countries, are mainly influenced by European policies, and that in North African and Middle Eastern Mediterranean countries they are not affected by the MSSD.
3. In terms of regional activities, many regional initiatives have been launched towards the objectives and priority areas of the MSSD, but except for the ICZM protocol, there is little evidence that they have been driven by the MSSD.
4. The MSSD was conceived as a framework strategy for Regional partnership, and yet the Union for the Mediterranean, Horizon 2020 and other important strategic initiatives have not formally acknowledged the MSSD.
5. The Mediterranean Commission for Sustainable Development, UNEP/MAP could improve the coordination of their activities to support the implementation of national strategies, to enhance capacity building, to increase fund raising capabilities of private and public organizations engaged in environment and development issues.
6. The support and operational activities of the MCSD towards national governments should be improved
7. The participation of the business community, academics, and NGOs should be strengthened at national and MCSD level.
8. A different organization of the roles and organization framework concerning UNEP/MAP and in particular national focal points would be needed to create figures working exclusively on the MSSD.

A detailed analysis of the modalities to improve the institutional aspects of UNEP/MAP and its effectiveness to implement the MSSD is beyond the scope of the present work. However, a message coming from the present work is that MSSD progress is affected by the institutional aspects that will need to be improved in the near future. A widespread perception is that the MSSD represents a useful document as a background for public authorities in the implementation of national strategies but does not concretely affect policy actions in individual countries. A frequent and important comment arising from our consultations is that UNEP/MAP does not “appropriate the strategy” yet, meaning that MSSD is still needs to become viewed as a lively and dynamic document. An important revision of the MSSD would be to include a document that specifies guidelines for the transposition of the MSSD into national strategies in terms of procedures, resources and organization. This was a common feeling expressed by many consultees. In many cases the elaboration and implementation of national strategies meets many difficulties especially in developing countries such as the lack of coordination across different Ministries, the lack of funds, the scarce involvement of stakeholders. The MSSD would greatly improve if MAP components could be more strongly interconnected to the single national policy processes (technical support, support to funds raising procedures, commitments of focal points only on MSSD issues) and if the document could clarify:

- 1) The modalities by which each single country must involve local stakeholders
- 2) The modalities by which different ministries should interact during the policy process

- 3) The procedures by which research and consultancy should inform the writing up and implementation of national strategies.
- 4) Suggestions to manage the trade-off between the need to implement country specific national strategies for sustainable development and the consistency of those strategies with a Mediterranean regional policy.
- 5) The coordination between MAP components and national institutions (e.g. the coordination between research activities of Plan Blue and those of national research institutes).
- 6) Guidelines for fundraising and technical activities.
- 7) Competencies, human resources and skills needed to write up and implement national policies.

In other words our consultations shows that initiatives aimed at transforming the MSSD in concrete actions would be very welcome and would increase the perception of the this document as a “lively” tool for policy implementation.

Recommendation 8. Evidence from our consultations shows that a wide consultation participatory process is needed to achieve an agreed institutional structure of the MSSD which may encourage an effective accomplishment of the MSSD targets. A different organization of MAP components roles and coordination is needed to define changes necessary to transform MSSD in a “lively” document.

Recommendation 9. The MSSD should be revised in order to clearly incorporate guidelines explaining in greater detail the procedures, resources and organization for the transformation of the strategy into action at country level.

3.2. Synergies with other organizations

The MSSD emphasizes the need to create synergies with other programmes, initiatives and organisations in the field of integrating environment and development issues. We list some of the salient passages of the MSSD in this respect here:

1. Develop synergies with the Mediterranean Renewable Energy Programme (MED REP), the Rome Mediterranean Energy Platform (REMEP) and the Euro Mediterranean Energy Policy.
2. Explore the possibility of extending to non-EU Mediterranean countries the benefits of the Marco Polo Programme for the development of road-sea modal transfers.
3. Before 2015, Invite all Mediterranean urban areas, especially large cities, to launch local Agenda 21 type processes, strategies, planning and urban renewal programmes involving inhabitants, associations and businesses in joint urban renewal projects and public/private partnerships.
4. Make the best use of the Euro-Mediterranean SMAP programme to promote integrated coastal zone management.
5. Prevent and reduce land-based pollution by achieving the goals set out in the Strategic Action Programme to address Land-based Sources of Pollution, adopted in 1997.
6. Accelerate implementation of the Strategic Action Programme for the Preservation of Biological Diversity in the Mediterranean Region (SAP-BIO), adopted in 2003.
7. Actively implement the programme of work on protected areas adopted by the Convention on Biological Diversity, taking into account the agreed timetable and objectives.

8. Other international institutions active in the region, such as FAO, World Bank, UNDP, GEF the World Tourism Organization and other regional United Nations organizations, as well as facilities and programmes such as CIHEAM, CEDARE, and METAP, will also have to play an important role in the implementation of the Strategy.
9. Subregional approaches, such as the Adriatic and Ionian Initiative, the trilateral agreement between Croatia, Italy and Slovenia for the protection of the Adriatic Sea and coastal areas, the RAMOGE agreement and the Black Sea Environment Cooperation Programme⁴³, should be strengthened and their convergence and accordance/agreement with UNEP/MAP emphasized so that they become active partners in implementing the MSSD.

Except SMAP III which was very important to lead the signature of the ICZM Protocol, all the other programs and initiatives cited in the previous points are still operational. Significant progress has recently been obtained by Mediterranean countries in relation to the Convention on Biological Diversity with the signature of Morocco of the Cartagena Protocol on Biosafety⁴⁴ in April 2011 and the signature of Algeria of the Nagoya Protocol⁴⁵ in February 2011.

In spite of the usefulness of emphasizing the role of synergies, in its current form the MSSD fails to mention a wide range of programmes which could relate to the MSSD activities. Moreover, after 5 years other programmes and recent initiatives such as the Mediterranean Climate Change initiative or Horizon 2020 are of particular interest and deserve to be mentioned in a revised report. The operational effectiveness of the strategy would be improved if it contained a more articulated and updated set of priority programmes with the most promising synergies and a clearer indication of the modalities through which synergies would arise. From an operational point of view, the effectiveness of the strategy would strongly increase if an appropriate unit within UNEP/MAP, MCSO or RACs could work to monitor the existing programs in the field and to improve knowledge sharing, the implementation of joint actions and information circulation to better support the next implementation of national strategies.

The MSSD progress in the coming years will depend on the capability of UNEP/MAP to create functional synergies and complementarities with organizations which are already working in the Mediterranean area in the environment/development field with a strong focus on their capacity building impact. An interesting aspect is that there are many actors and projects which are currently operating in the Mediterranean area.

Within the activities of this project we analyzed interesting programmes, initiatives or

⁴³ The EU has recently established a new cross-border cooperation programme - Black Sea Basin Joint Operational Programme 2007-2013 - involving various stakeholders, including local authorities in the countries around the Black Sea, and supporting the activities of civil society organizations.

⁴⁴ The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003

⁴⁵ The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity is an international agreement which aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components. It was adopted by the Conference of the Parties to the Convention on Biological Diversity at its tenth meeting on 29 October 2010 in Nagoya, Japan. The Nagoya Protocol will be open for signature by Parties to the Convention from 2 February 2011 until 1 February 2012 at the United Nations Headquarters in New York

partnerships which are illustrative of the potential benefits derived from cooperation with strong organizations in the field⁴⁶. We stress that an evaluation of the importance of each program is beyond the scope of this work. An example is that it would be arduous to decide if the preservation of biodiversity is more important than the reduction of greenhouse gas emissions to reach the MSSD strategy objective. First, this evaluation would not be consistent with the spirit of the MSSD as in its formulation this strategy does not include weights on the different objectives or on the importance of single indicators. Second, an evaluation of the monetary impact of each program would require the application of sophisticated academic techniques and specific studies. Nonetheless this exercise is useful to show the huge potential deriving from the complementary activities undertaken in the field.

The analysis of these complementary activities to the MSSD strategy shows that the search of initiatives, programs and partnerships complementary to the MSSD goals could provide huge benefits to the MSSD implementation in the context of a broader strategy for the value enhancing of synergies as showed by the following steps:

- 1) Check of the initiative/program/partnership aims and planned actions;
- 2) Comparison of the initiative/program/partnership program aims and the MSSD aims;
- 3) Check of the institutions managing the initiative/program/partnership;
- 4) Construction of a dataset containing all the initiative/program/partnerships which would create synergies with the MSSD
- 5) Building of relationships, exchange of information, networking activities between MAP and complementary institutions.

The description of these steps clearly shows the need of a strong organization effort within MAP and in the relationships between MAP and single countries institutions in order to create a governance system able to manage the steps previously described.

Recommendation 10. The MSSD document should explicitly mention as much as possible opportunities for synergies with programmes, organizations and initiatives and, when feasible, indicate timing and modalities by which these synergies may arise.

Recommendation 11. UNEP, MCSD or RACs should create or adapt existing work units to provide a service of monitoring the existing programmes and push forward activities of knowledge sharing, information exchange, networking.

Another important point which needs to be more clearly stressed in the strategy as an orientation/action is that it will be very important to promote a stronger link between universities and policy makers. Many projects funded by national institutions and the European Commission under the Framework Programme (FP) schemes are currently ongoing and dealing with environment/development issues in the Mediterranean area. An achievement would be to use the findings from academics and universities to feed policy decisions as much as possible. The creation of the Euro Mediterranean University representing one of the six Union for

⁴⁶ A description of these initiatives, programmes and partnerships are included in the Appendix D.

Mediterranean priority areas is a first step towards closing the gap between policy and research. Some examples of useful projects with results that could be used to feed the policy process about the management of environmental threats and the opportunities provided by sustainable low carbon practices are contained in the next table:

Table 23. Some academic projects of interest for the Mediterranean policy process

Name	Objective	Link
CIRCE: Climate change and impact research: the Mediterranean Environment	The objective of CIRCE is to understand and to explain how climate will change in the Mediterranean area (an assessment of the climate change impacts in the Mediterranean area). •to predict and to quantify physical impacts of climate change in the Mediterranean area; •to evaluate the consequences of climate change for the society and the economy of the populations located in the Mediterranean area; •to develop an integrated approach to understand combined effects of climate change; •to identify adaptation and mitigation strategies in collaboration with regional stakeholders	http://www.circeproject.eu/
Medclivar (Mediterranean climate variability)	MedCLIVAR aims to coordinate and promote the study of the Mediterranean climate. Its scientific priorities •description of climate past evolution •assessment of climate variability at different space and time scales •understanding the mechanisms responsible for the observed climate variability •identifying trends and providing climate prediction in relation to future emission scenarios. •Study of the occurrence of extreme events and climate change impacts	http://www.medclivar.eu/
MedSea project (Mediterranean sea acidification in a changing climate)	MedSea is a funded project by the European Commission under Framework Program 7. It will assess uncertainties, risks and thresholds related to Mediterranean acidification at organismal, ecosystem and economical scales. It will also emphasize conveying the acquired scientific knowledge to a wider audience of reference users, while suggesting policy measures for adaptation and mitigation that will vary from one region to another.	http://medsea-project.eu/
BISOUS (Evaluation of the impact of organic farming on greenhouse gas emissions)	BIOSUS aims to evaluate environmental effects of organic farming on greenhouse gas emissions and the best policies to promote environment friendly land management practices with a particular focus on the Italian farms	http://biosus.ning.com/

3.3. The MSSD and NSSDs: a comparison

Even before the launch of the Mediterranean Strategy for Sustainable Development the importance of a strong relationship between the MCSD and the implementation of national policies was already emphasized, as shown by the Strategic Review for Sustainable Development in the Mediterranean Region (2001). The report UNEP(DEC)/MED WG. 339/Inf. 3 (2009) showed that the MSSD was not very influential in the implementation of national policies especially in European countries which are affected by EU policies. However, as supported by our consultation, the MSSD is widely appreciated as a background paper to inspire national strategies and, as shown by our analysis of national strategies, the MSSD has proved to be influential as a strategic document.

Table 24. The implementation of National Strategies for sustainable development

Country	Implementation (year)
Albania	In progress
Algeria	National Action Plan for Environment and Sustainable Development (2002)
Bosnia	NSSD in progress
Croatia	NSSD in progress
Cyprus	NSSD (2007)
Egypt	NSSD in progress
France	NSSD in progress
Greece	NSSD 2002
Israel	Strategic Plan for Sustainable Development
Italy	NSSD 2002
Lebanon	NSSD in progress
Libya	
Malta	NSSD 2007
Morocco	NSSD in progress
Montenegro	NSSD 2007
Slovenia	NSSD in progress
Spain	NSSD 2007
Syria	NSSD in progress
Tunisia	NSSD in progress
Turkey	NEAP 1998

Source: UNEP(DEC)/MED WG. 339/Inf. 3 (2009)

Through the the European Sustainable Development Network website⁴⁷, a recent report of the Economic Commission for Africa (2011) and other online sources, we have verified the status of those NSSDs which were described as being in progress in 2009 in the UNEP(DEC)/MED WG. 339/Inf. 3 (2009) document. France and Croatia NSSDs are currently on line, and represent new entries compared with the table 24. It should be noted that we examined only English documents.

We find that both of the most recent NSSDs cite the Mediterranean Strategy for Sustainable

⁴⁷ <http://www.sd-network.eu/>

Development. (France p. 45 and Croatia p. 2). However the MSSD hardly appears to represent a synthesis for the national Mediterranean strategies implemented in the region. An example is represented by the target concerning the proportion of renewable energy. Whereas the French document, in terms of climate change, recognizes the need to reduce global emissions in order to match the 2 degree global temperature increase limit and calls for a 23% increase of renewable energy penetration by 2020, the Croatia NSSD incorporates the same target as the MSSD (7% of energy demand excluding combustible renewables and waste).

Moreover we also find that the new documents anticipate trends and new challenges that could be incorporated in the revised MSSD (e.g. population and migration issues) or mention challenges that have not been previously incorporated in the MSSD but that could be useful to discuss (e.g. health).

If we examine strategies written in the 2005 – 2010 period, we find a disparate situation. NSSDs such as that of Spain do not mention the MSSD, Malta recognizes that its NSSD is in line with the MSSD, whereas the Montenegro document appears to be more inspired by the MSSD framework. All three documents were published in the 2006 – 2007 period, soon after the issuing of the strategy. Countries which have not published their strategy yet and for which the work is still in progress (the majority) represent a great opportunity for UNEP/MAP, RACs and MCSD to strengthen the influence of the MSSD in single national contexts. Moreover as we mentioned in other sections of this report the reader should also note that from our consultations it emerges that the influence of the MSSD should focus not only on the strategic perspectives of countries but also on the operational implementation of the MSSD actions and orientations in the field to reach concrete results in terms of improvements for MSSD target indicators. Only through an operational influence expressed in terms of capacity building, information sharing, technical and fundraising support of UNEP/MAP, MCSD and RACs will the MSSD be able to represent a synthesis across the strategies in Mediterranean countries.

Conclusion 2. The MSSD does appear to have influenced the development of national strategies, especially the most recent ones. However, it does not appear to be equally influential from an operational point of view and does not yet represent a synthesis of all the single Mediterranean national strategies.

Recommendation 12. A harmonization of the NSSDs at Mediterranean level will be encouraged by the strengthening of the MSSD in terms of operational influence through guidelines for the national incorporation of the strategy and through support, capacity building, information exchange and fundraising support activities implemented by UNEP/MAP.

4. Conclusions

This report evaluates the performance of Mediterranean countries in relation to the MSSD targets. Not surprisingly, we find that for some indicators Mediterranean countries are improving, for others the situation is worsening. The results of the gaps analysis provided several suggestions through which the MSSD can be modified. First, the MSSD could focus on those priorities where Mediterranean countries were the furthest from the targets. The gaps analysis allowed us to verify those indicators which no longer represent a priority for Mediterranean countries. For example, access to electricity and to sanitation do not seem to represent a further challenge for Mediterranean countries and should not be a variable on which policy makers should focus their priority.

Second, the MSSD needs to incorporate consistent target indicators. Our analysis demonstrates that many Mediterranean countries show a decreasing path of energy intensity whereas emissions are increasing. A decrease of energy intensity may not guarantee a decrease of emissions if both GDP and energy consumption grow over time. Moreover, we identified many cases where indicators should be clarified. For this reason we suggest to introduce more quantitative target indicators that can be measured through an objective process. Indicators contained in the Annex I and Annex II of the MSSD document should be integrated in a whole set of indicators to improve the clarity of the document.

Third the MSSD should now contain with more emphasis emerging areas such as the green economy, climate change adaptation and migration which were not enough treated in the initial version. In some cases national strategies can be useful to identify emerging areas as they mention topics such as health which deserve more attention in the updated version.

Finally, another important improvement would be the inclusion of more concrete actions and deadlines to accomplish them rather than generic claims and statements. The MSSD targets included the signature of an ICZM Protocol, the development of a Mediterranean quality labeling, the development of an integrated Mediterranean transport system, the development of TRICs and synergies with other Mediterranean initiatives for sustainable energy. Among these targets, the ICZM is the only one which has currently been signed and adopted by Mediterranean countries, whereas for the others, results are much less evident. The general insight coming from our work is that the evaluation of MSSD progress would be much clearer if concrete actions and specific deadlines were included. For these reasons we recommend actions rather than orientations for the next revised version of the MSSD. In any case, when orientations are introduced, they should be useful to help decision makers in the design of national policies, clearly identify involved actors, and always give the reader a clear understanding of the targets they are going to affect. When orientations are expressed in qualitative terms, they should be expressed in order to be easily translated in indicators or clearly be associated to MSSD target indicators. Orientations and actions about the financing of sustainable development deserve a particular attention as they should be more accurately explained by incorporating concrete targets about capacity building, information exchanges and education.

According to our analysis of NSSDs, the MSSD has proved to be a useful background. It shapes the policy directions in countries, although the direct influence is more ambiguous especially in European countries where European policy appears predominant. Countries which

do not belong to the EU and which have recently approved an NSSD are found to have an NSSD which is more strongly influenced by the MSSD. However our consultations show that whilst the role of the MSSD in influencing national strategies is evident in many documents such as the recent France and Croatia NSSDs, MSSD hardly represents a synthesis of all the national Mediterranean policy orientations, and more needs to be done in terms of the operational influence of the MSSD through capacity building, information exchange and fundraising support activities implemented by UNEP/MAP. The MSSD should be revised in order to clearly incorporate guidelines explaining in greater detail the procedures, resources and organization for the transformation of the MSSD into actions at national level.

Our consultations suggest that the institutional framework within which the MSSD works can be improved. Some of these suggestions arising from consultations reflect the findings of a Report developed 10 years ago evaluating the MCSD (2001): "Although they are high ranking as is required, the representatives of the Contracting Parties in the MCSD are usually officials from the ministry of the environment. In several cases they are national focal points for MAP or the Regional Activity Centres shouldering additional responsibilities over and above their other obligations vis a vis MAP. The relations of these representatives with the national structures responsible for sustainable development, such as the NCSDs, insofar as they exist, are not always clearly defined" (MCSD, 2001). However the main message coming from our consultations is that a wide consultation participatory process is needed to achieve an agreed institutional structure of the MSSD which may encourage an effective accomplishment of the MSSD targets. A different organization of MAP components roles and coordination is needed to define changes necessary to transform MSSD in a "lively" document with a stronger operational impact on the elaboration of national policies.

The effectiveness of MSSD implementation will also depend on the capability of UNEP/MAP, and national authorities to seek functional synergies with other organizations which are currently working with success in the field to improve capacity building and to provide assistance. The World Bank and the European Investment Bank are examples of partners which could assist individual countries in implementing national strategies and achieving the actions to protect the environment and boost development. There are currently many institutions working in the field with programmes in the Mediterranean matching the priorities and targets contained in the MSSD. A revised MSSD should acknowledge as much as possible these synergies and identify actions to promote cooperation with other key actors in the field.

For the implementation of national strategies it will be very important to improve cross country and cross sectorial (among different Ministries in each country) exchange of information and coordination. This will be useful for UNEP/MAP, and all the other organizations for improving their capacity building support activity in the field, and for national planners in order to make choices on the basis of a wide information set. The creation of institutions with specific interests and experience in Mediterranean countries (see the current discussion about the Mediterranean Development Bank) could help the creation of a fruitful environment encompassing economic, environment and development goals, because they could capture and exploit networks, synergies and relationships already consolidated in the Mediterranean area.

The success of the MSSD will also depend on the capability of the single countries to implement the right and most effective policies. An exercise implemented through a computational General Equilibrium analysis contained in the Appendix clearly shows that policies may vary in terms of their effectiveness. We find that whereas ODA, carbon tax and R&D expenditures do not

produce huge improvements of the MSSD indicators, significant improvements are obtained by investments in primary education for MDG2 achievements in laggard Mediterranean countries showing the lowest performance. This finding confirms the importance of the existence of a Mediterranean Strategy for Sustainable Development providing orientations for a series of policies covering different development and environment aspects.

Further research will be needed to test these results with different models frameworks and with proper sensitivity analyses showing the model responses to different variations of the same policy variable. In the meanwhile this report represents an intermediate tool to understand what has been done and what could be done to improve the effectiveness of the MSSD implementation.

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Other on line sources

Horizon 2020 <http://www.h2020.net/>

Sustainable Water management and de-pollution of Mediterranean http://www.enpi-info.eu/mainmed.php?id=313&id_type=10

MED EUWI <http://www.euwi.net/wg/mediterranean>

Global Water Partnership Med <http://www.gwpmed.org/>

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http://www.footprintnetwork.org/en/index.php/GFN/page/mediterranean_initiative/

Mediterranean Information Office for environment, culture and sustainable development
<http://www.mio-ecsde.org/>

Euro-Mediterranean Information system on the know – how in the water sector
<http://www.emwis.org/>

Appendix A. Questionnaires and synthesis of responses

Questionnaire – MCSD members

1. MSSD progress	
are you aware of the Mediterranean Strategy for Sustainable Development (MSSD) objectives and priorities?	
Are you aware of the progress of MSSD for relevant indicators across countries over the 2005 – 2010 time period?	
are you aware of any important examples of significant progress towards achieving the priorities of the MSSD over the period 2005-2010, in any or all of the seven priority fields of action?	
better management of water resources and demand	
improved rational use of energy, increased renewable energy use and mitigation of and adaptation to climate change	
sustainable mobility through appropriate transport management	
sustainable tourism as a leading economic sector	
sustainable agriculture and rural development	
sustainable urban development	
sustainable management of the sea, coastal areas and marine resources	
b) are you aware of any important examples of significant progress towards achieving the objectives of the MSSD over the period 2005-2010, in any or all of the seven priority fields of action?	
Economic development	
Reduction of social disparities	
Change unsustainable production and consumption patterns	
Improve governance	
are there any instances that you would like to highlight of a significant lack of progress for the above mentioned priorities and objectives?	
are you aware of any important examples of specific actions and policies that have been implemented in	

relation to the MSSD ? (such as policies to reduce CO2 emissions, to protect coastal zones, to boost economic growth, to enhance the penetration of renewable energy etc.)
are you aware of any examples where there has been a strong synergy between the MSSD and the role played by particular institutions or initiatives? (such as UNEP, the European Commission, the EU Water Initiative, the EU Maritime Policy, Horizon 2020, the Arab League, the Union for Mediterranean, the UfM Strategy on Water in the Mediterranean, the African Development Bank, the World Bank, the GEF Strategic Partnership for the Mediterranean)
are you aware of any important examples of significant influence of the MSSD on national policies? (please refer to the implementation of policies/strategies in countries or regions with an explicit acknowledgment that they were inspired by the MSSD)
Do you perceive your work related to the MSSD influencing/or being influenced by other sectoral or development policies? Which policies? (Example: Official development assistance, UNFCCC negotiations etc.)
2. Recent and expected developments are you aware of any recent or anticipated changes in environment/development issues in the region that are particularly relevant to MSSD objectives? (Please indicate important variations of the economic and social context where the MSSD operates since 2005 such as oil price, climate change growth etc.)
are there any changes to MSSD objectives or priority actions that you would suggest in the light of recent or anticipated developments? (Please indicate further priorities and objectives that are not currently explicitly specified by the MSSD document or priorities/objectives which should not be included anymore in the MSSD)
3. Role of the MCSD and related institutions are there any important changes that you would suggest to the role that the Mediterranean Commission for Sustainable Development (MCSD) and the MSSD should play in the future? (Example: focus only on the support of national strategies, technical assistance etc.).

would you suggest any particular means to expand the role of the MSSD and improve its efficiency and effectiveness? (Example: widening of the involvement of stakeholders, link with a broader range of relevant institutions beyond Ministry of Environment, improved coordination between MCSD and UNEP/MAP etc.)
are there any changes that you would suggest to the role played by other institutions to strengthen synergy with the MSSD? (Example: Can the Union for Mediterranean or other institutions play a role to make effective the MSSD?)
How do you think the roles and coordination of UNEP/MAP, regional activity centres and RAC should change to improve the MSSD implementation effectiveness?
4. Documents
has your organisation produced any relevant reports or other documents which should be included in our literature review?
are there any other documents which you consider to be particularly important for our literature review?
5. Other information
is there any other information that you would like to bring to our attention regarding implementation of the MSSD and its future development?
Questionnaire – for RACs staff
1. Monitoring of RAC activities
Are you aware of the MSSD priorities and objectives?
Are you aware of the path MSSD indicators path in Mediterranean countries over the period 2005 -2010?
What actions should be undertaken to improve the monitoring of the MSSD implementation?
How do you think the activities of your centre have contributed to MSSD goals and priorities?

Is there a discrepancy between planned activities and implemented activities within the MSSD context?
What are the barriers to the implementation of RAC activities?
Are you aware of any recent or anticipated changes in environment/development issues in the region? (Please indicate important variations of the economic and social context where the MSSD operates since 2005 such as oil price, climate change growth etc.)
How do you think these changes have affected RAC activities?
What are the main actors influencing MSSD and how do they affect RAC activities?
How do you think the roles and coordination of UNEP/MAP, regional activity centres and RAC should change to improve the MSSD implementation effectiveness?
2. Documents
Has your organisation produced any relevant reports or other documents which should be included in our literature review?
Are there any other documents which you consider to be particularly important for our literature review?
3. Other information
is there any other information that you would like to bring to our attention regarding implementation of the MSSD and its future development?

Questionnaire – general – other stakeholders

1. Interplay between other stakeholders and MSSD
Are you aware of the MSSD objectives and priorities?
How do you think the activities of your institution affect the MSSD strategy and implementation?
Do you find synergies between MSSD priorities and those identified by your institutions?
What do you think are the best means to strengthen these synergies?
What do you think are the most important barriers to value enhance these synergies, and how might they be removed?
are there any important changes that you would suggest to the role that the Mediterranean Commission for Sustainable Development (MCSD) and the MSSD should play in the future?
would you suggest any particular means to expand the role of the MSSD and improve its efficiency and effectiveness?
2. MSSD progress
are you aware of any important examples of significant progress towards achieving the priorities of the MSSD over the period 2005-2010, in any or all of the seven priority fields of action?
better management of water resources and demand
improved rational use of energy, increased renewable energy use and mitigation of and adaptation to climate change
sustainable mobility through appropriate transport management
sustainable tourism as a leading economic sector
sustainable agriculture and rural development

sustainable urban development
sustainable management of the sea, coastal areas and marine resources
b) are you aware of any important examples of significant progress towards achieving the objectives of the MSSD over the period 2005-2010, in any or all of the seven priority fields of action?
Economic development
Reduction of social disparities
Change unsustainable production and consumption patterns
Improve governance
are there any instances that you would like to highlight of a significant lack of progress for the above mentioned priorities and objectives?
are you aware of any important examples of specific actions and policies that have been implemented in relation to the MSSD?
(such as policies to reduce CO2 emissions, to protect coastal zones, to boost economic growth, to enhance the penetration of renewable energy etc.)
are you aware of any examples where there has been a strong synergy between the MSSD and the role played by particular institutions or initiatives? (such as UNEP, the European Commission, the EU Water Initiative, the EU Maritime Policy, Horizon 2020, the Arab League, the Union for Mediterranean, the UfM Strategy on Water in the Mediterranean, the African Development Bank, the World Bank, the GEF Strategic Partnership for the Mediterranean)
are you aware of any important examples of significant influence of the MSSD on national policies? (please refer to the implementation of policies/strategies in countries or regions with an explicit acknowledgment that they were inspired by the MSSD)
3. Recent and expected developments

are you aware of any recent or anticipated changes in environment/development issues in the region that are particularly relevant to MSSD objectives? (Please indicate important variations of the economic and social context where the MSSD operates since 2005 such as oil price, climate change growth etc.)
are there any changes to MSSD objectives or priority actions that you would suggest in the light of recent or anticipated developments? Please indicate further priorities and objectives that are not currently explicitly specified by the MSSD document or priorities/objectives which should not be included anymore in the MSSD)
4. Documents has your organisation produced any relevant reports or other documents which should be included in our literature review?
are there any other documents which you consider to be particularly important for our literature review?
5. Other information is there any other information that you would like to bring to our attention regarding implementation of the MSSD and its future development?

Synthesis of responses

The return rate of questionnaires was low in spite of repeated reminders to provide feedback. Out of 50 people contacted by e-mail we have received about a 20% response of completed questionnaires. We have also had the opportunity to visit directly in the field Morocco, Lebanon and Egypt, where we gained additional important information to that contained in the written questionnaires. In spite of the difficulties in receiving information we reached some important findings from the discussions undertaken with MCSD members, RACs staff and other stakeholders. Here we summarize the main findings.

People are often aware of the MSSD, but in many cases they are not informed about the progress concerning the MSSD indicators. This means that effort should be devoted towards improving communications and the diffusion of information from research institutes and policy makers. In other words the MSSD policy implementation could improve if data analysis could directly support the policy mechanisms. A concrete example is that studies produced by UNEP/MAP Plan Blue should come from policy needs in specific countries and obtained in close collaboration with national research institutes and observatories.

In general the people interviewed do not perceive a strong influence of the MSSD on policy, but they recognize its importance as a background document inspiring national planning. They acknowledge the importance of seeking synergies with other stakeholders such as the World Bank, the European Union, the Union for the Mediterranean, but in many cases they perceive a distance from these organizations. Many people recognize the importance of the MSSD for signature of the ICZM Protocol.

They seem to appreciate the MSSD priorities and objectives which are generally judged to fit well with current policy challenges. In some cases they provide interesting inputs to update the current set of priorities and objectives by emphasizing the emerging role of green economy, and calling for a better incorporation in the Strategy of climate change adaptation measures. However they show strong criticisms on the current coordination between the MCSD, UNEP/MAP and RACs which is judged as not appropriate to make the MSSD effective. They complain of a lack of success of UNEP/MAP, the MCSD and in particular focal points in implementing participatory approaches to transform a regional strategy into national policies. This is one of the most cited critical points during consultations.

Participatory approaches should be incentivized through forums, meetings which could be able to mobilize as much as possible resources and motivations. In some cases people specifically mention that the involvement of the private sector would be crucial and to improve participation it would be good to push forward those themes for which private companies could obtain a win – win situation in terms of profits enhancement and or/marketing and environment preservation (e.g. waste management). In other cases they complain of the rigidity of the UNEP/MAP legal framework which does not allow rapid adaptation to changing needs and challenges, and some would desire a permanent post in the UNEP/MAP secretariat in charge of MSSD. To the same extent a diffuse opinion is that national focal points should work specifically on the MSSD implementation and they should not be shouldered with different responsibilities.

Many people recognize the crucial role of funding for an effective implementation of the MSSD. They do not generally ask more funding from UNEP – MAP, but they acknowledge the importance to increase the capacity of fundraising. For this topic they almost unanimously acknowledge that a support from UNE/MAP and MCSD in terms of technical assistance, knowledge sharing, capacity building would be very important. Interestingly this view is shared by people working in the public sector but also by private organizations (e.g. charities) working in the field about environment and development issues. Finally they often advocate the necessity to strongly involve other institutions such as the Union for the Mediterranean which could be able to incorporate social and economic issues with more effectiveness and which could be more connected to other crucial Ministries necessary to implement effective policies incorporating environment.

Appendix B List of consulted people through phone calls and visits in the field.

Talks in the field		
Person	Role	
Mme Fatiha El Mahdaoui	Focal point MAP	Rabat
Mme Lakfifi	Focal point CMDD	Rabat
Mme Fatine et Mme Lahlali	Fondation Mohamed VI pour l'Environnement	Rabat
M. Bah	ENDA Maroc	Rabat
M. Skim	Point Focal Biodiversité	Rabat
M. Nbou	Point Focal CCNUCC	Rabat
M. Benyahia	MAP Président	Rabat
Monsieur Abdellah EL MASTOUR	Haut Commissariat des Eaux et Forêt et de la Lutte contre la Désertification	Rabat
Monsieur Larbi SBAI	Département de la Pêche maritime	Rabat
Madame Nawal ZOUBAIR	Département de l'Environnement/SEEE	Rabat
Monsieur Yahya SABHI	Département de l'Environnement/SEEE	Rabat
Mme Farah BOUQARTACHA	Département de l'Environnement/SEEE	Rabat
Monsieur HAMID RHIWANI	Département de l'Environnement/SEEE	Rabat
Mme Saida BOUROUS	Département de l'Environnement/SEEE	Rabat
Mr Rachid FIRADI	Département de l'Environnement/SEEE	Rabat
Imane Abd El Al Arab	Association of the Friends of Ibrahim Abd El Al	Beirut
Carol Chouchani Cherfane	UN ESCWA	Beirut
Djamel Eddine Djaballah	League of Arab States	Cairo
PHONE CALLS		
Nicos Georgiades	Cyprus Ministry of Interior	
Andrew Murphy	European Commission	
Michael Scoullas	MIO-ECSDE	
Paolo Lombardi	WWF	
Giuseppe Aristei	European Environment Agency	
Gidon Bromberg	Friends of the Earth Middle East	
Lucien Chabason	Institut du Développement Durable et des Relations Internationales	

Appendix C. A modeling exercise: how will MSSD policies affect target indicators in Mediterranean countries?

Hughes and the Pardee University research team designed the multi sector/multi country International Future model (IFs) to help in thinking strategically and systematically about economic, social, political and environmental systems with a strong focus on poverty aspects. The extensive database underlying IFs includes data for 183 countries over most years since 1960. The model is organized through systems of equations belonging to different modules (health, education etc.) showing strong interconnections and interdependencies. The IFs model has been used to investigate many topics such as migration, income distribution, communication technology and their link to poverty (Hughes 2007). The IFs model recently expanded to include a detailed set of equations concerning climate change, emissions and important natural resources such as water.

We use this model as it includes a detailed overview of the economies of more than 180 countries over the world including Mediterranean countries. This is not a model designed specifically to explain climate change dynamics in developing countries. IFs does not include detailed equations describing climate change impacts and adaptation but does describe the level of global emissions, atmospheric carbon concentration, temperature increase and development variables on the basis of the economic activity undertaken in each country. A great advantage in using this model is that it deals with a wide set of transmission channels.

An interesting element is that the MSSD strategy identifies some important actions that countries could undertake to improve MSSD indicators in the field of:

1. Solidarity, commitment and financing;
2. Human capital and participation;
3. National and sectoral sustainable development strategies.

Just to illustrate to what extent the implementation of national strategies and sound international agreements could affect MSSD indicators performance in Mediterranean countries, we include four very simple simulations within each of the three pillars indicated in the strategy:

1. Official Development Assistance for the pillar Solidarity, commitment and financing;
2. An increase in education investments and R&D expenditures for the pillar Human Capital and Participation;
3. A carbon tax for Mediterranean countries showing the highest increase of CO₂ emissions.

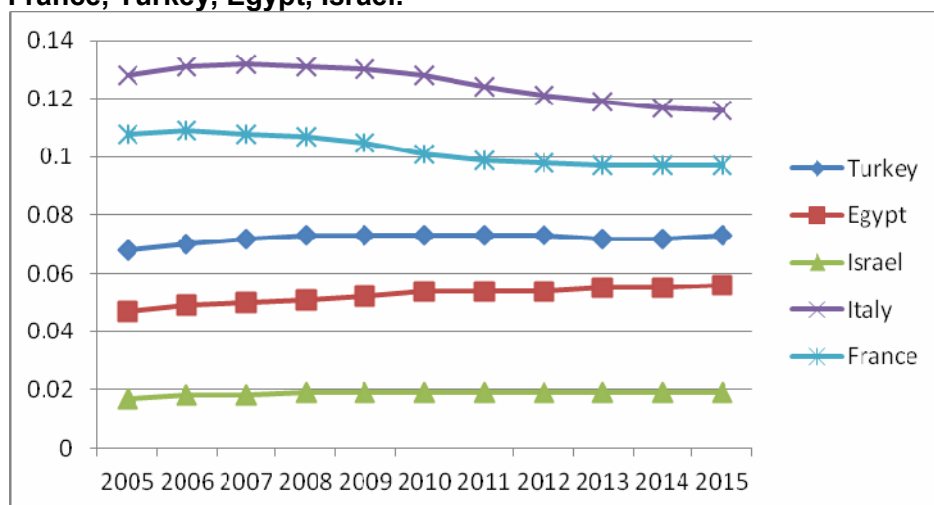
In particular, we assume an increase of ODA from OECD DAC countries to 0.7% of GNI, a 150-300\$/tonCO₂ carbon tax for those Mediterranean countries which currently show the highest CO₂ emissions increase over the period 2011-2030, a 20% increase of the education expenditures IFs parameter over the period 2011 – 2030 for the Mediterranean countries showing the lowest level of primary education rate and a 20% increase of the IFs parameter governing public expenditures in R&D in those countries showing the lowest levels of energy efficiency .

The results are discussed in the following sections

A carbon tax in Turkey, Israel and Egypt to reduce carbon emissions

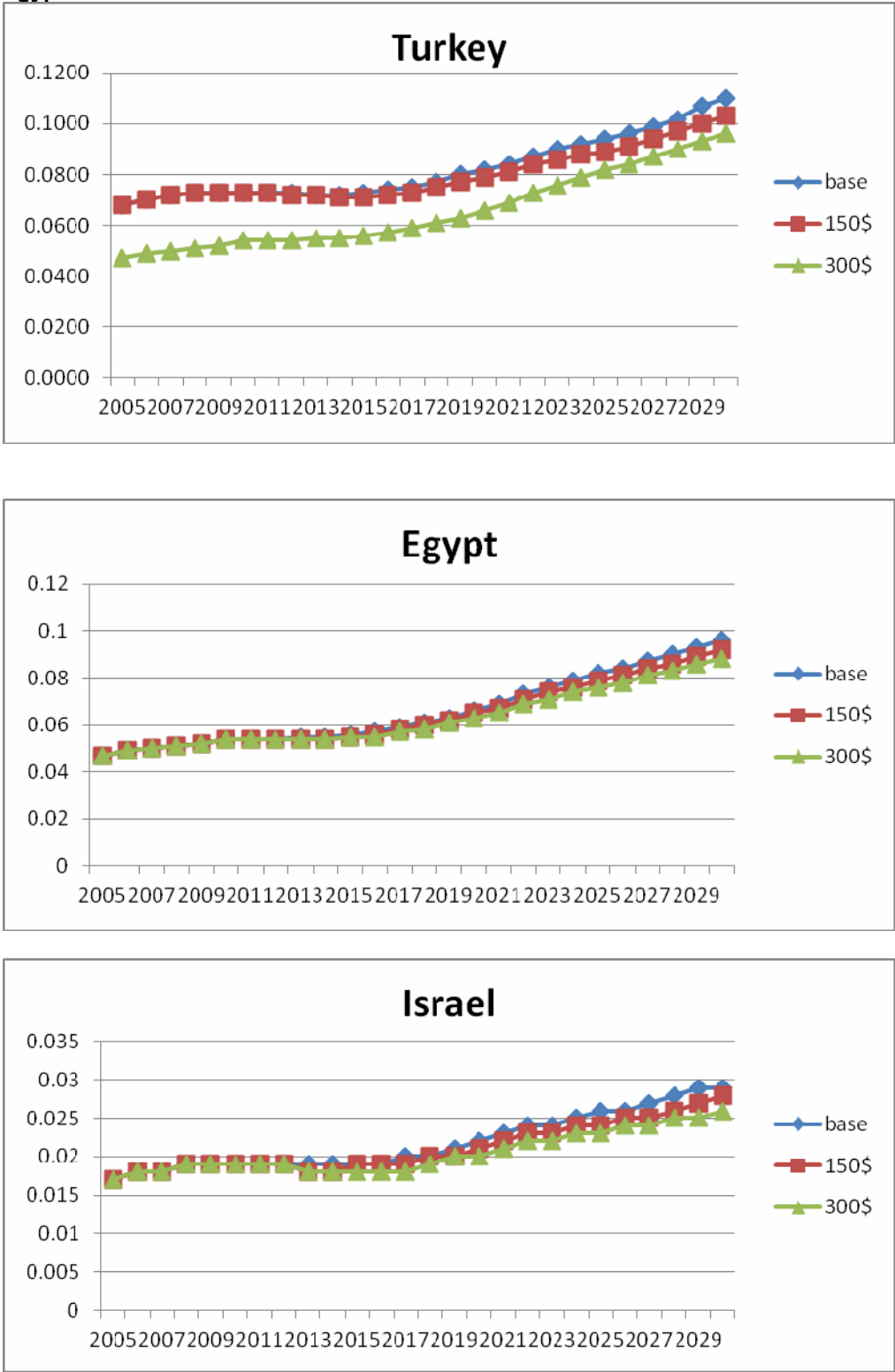
The IFs baseline over the period 2005-2030 includes similar national trends we described in the figure 7 with real data: a decreasing level of CO₂ emissions for countries such as France and Italy and an increasing path for countries such as Turkey, Egypt and Israel. In theory a carbon tax could reduce the demand of fossil fuel energy in those countries showing an increasing path, stimulate the adoption of renewable energy and decrease the level of emissions over time.

Figure 38. Ifs model. Baseline scenario of carbon emissions (billions of tons) for Italy, France, Turkey, Egypt, Israel.



We assume an application of a carbon tax for those Mediterranean countries showing a strong increasing path of CO₂ emissions (Turkey, Israel and Egypt). Interestingly we find that even with high levels of carbon tax (150\$/ton and 300\$/ton) the level of emission reduces, but the path does not become downward sloping as the MSSD target requires.

Figure 39. IFs model. The application of a 150\$/ton and 300\$/ton carbon tax in Turkey, Israel and Egypt

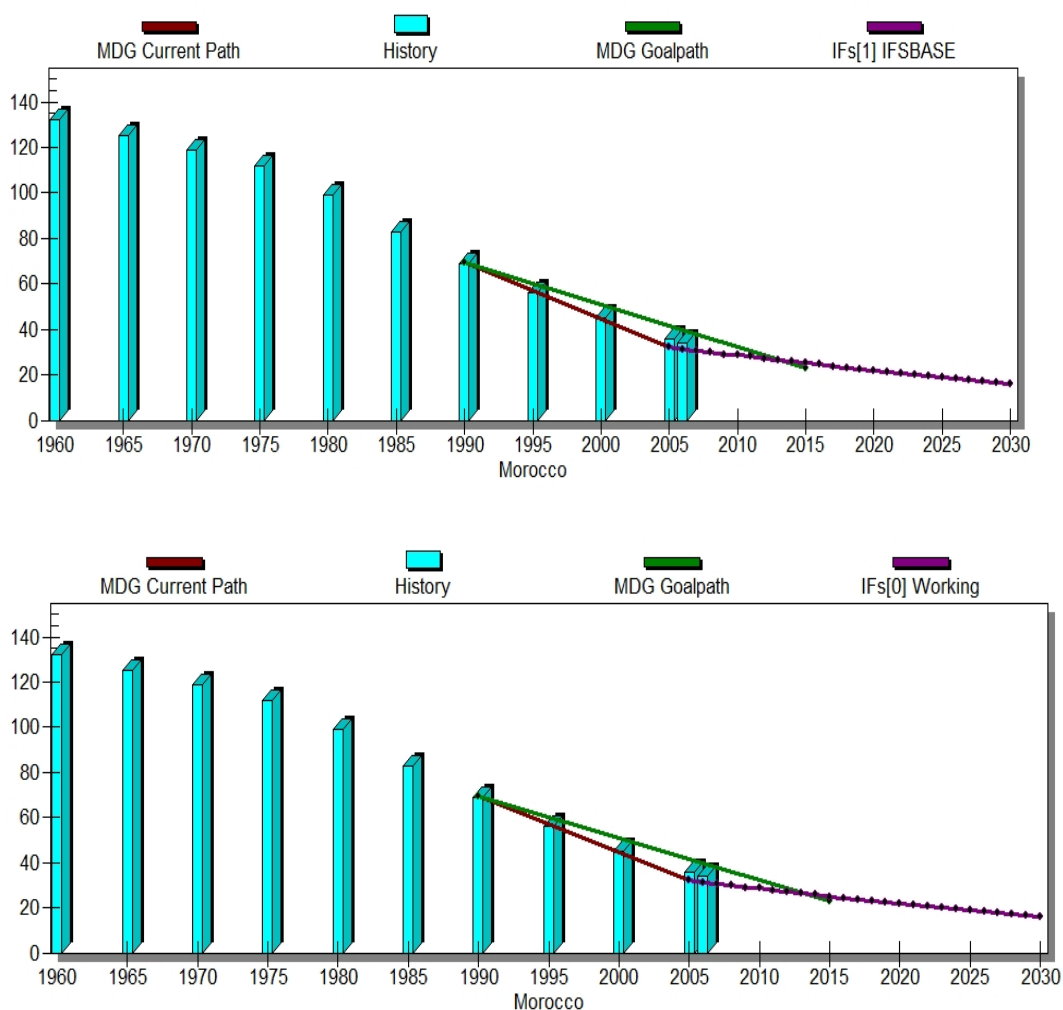


An increase of ODA from OECD DAC countries up to 0.7% of GNI

In this scenario we assume that Official Development Assistance is increased by OECD countries to the 0.7% level which is the level recognized at international level as industrialized countries main UN Millennium commitment. The underlying transmission channel in the model equations is that a higher level of Official Development helps to reduce social goals such as child mortality and poverty. Child mortality is one of the MDGs and MDGs are included in the MSSD as important target indicator. We have seen in the figure 29 with real data that Morocco and Algeria are the countries showing currently the highest levels of child mortality.

The next figure shows the level of child mortality in the IFs baseline scenario and in a scenario where all the OECD countries give to developing countries 0.7% of their GNI. As shown in figure 40 both Algeria and Morocco follow an optimistic path of reduction of the child of mortality in the baseline towards the accomplishment of the MDG goal path and consequently towards the MSSD target. This is consistent with the decreasing trend we presented in the figure 29 with real data. However it is worth noticing that the impact of ODA on child mortality is very low (around 0.01% in both countries).

Figure 40. Path of the % of child mortality in Algeria and Morocco in base scenario and a scenario where OECD DAC countries give to developing countries 0.7% of GNI.



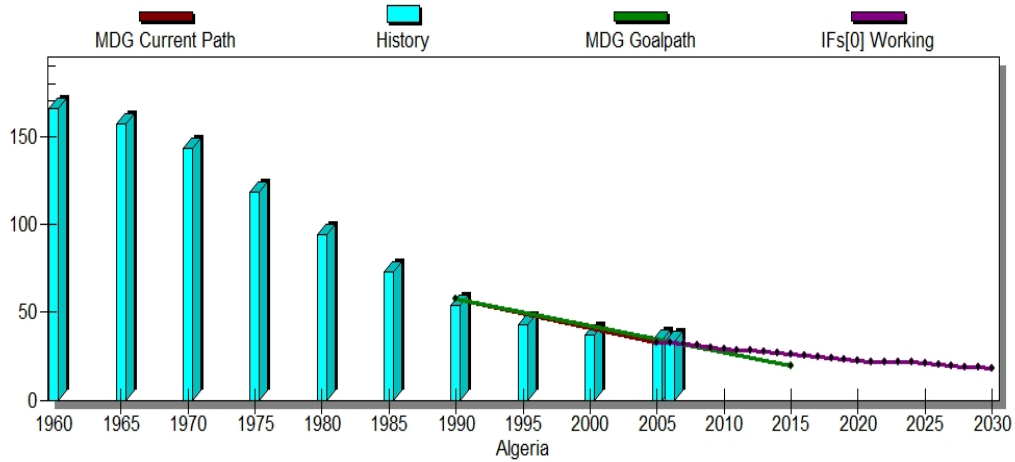
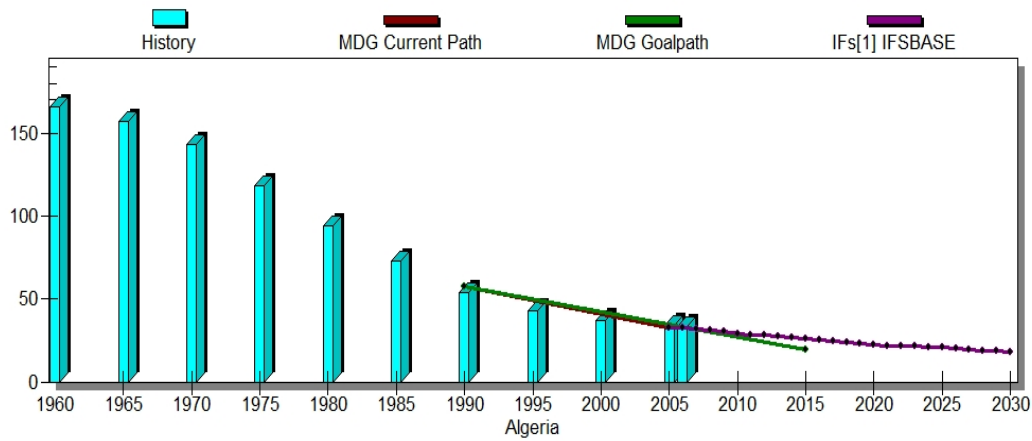


Table 25. Assumption about the level of foreign aid (ODA) in Algeria and Morocco in a baseline and a OECD DAC 0.7% GNI scenario in 2015 and 2030. (billions of \$)

	Algeria	Morocco
2015 (OECD DAC ODA 0.7%)	0.78	2.58
2030 (OECD DAC ODA 0.7%)	0.65	2.50
2015 (baseline)	0.22	0.74
2030 (baseline)	0.20	0.66

Increase of investments in education in Morocco and Lebanon

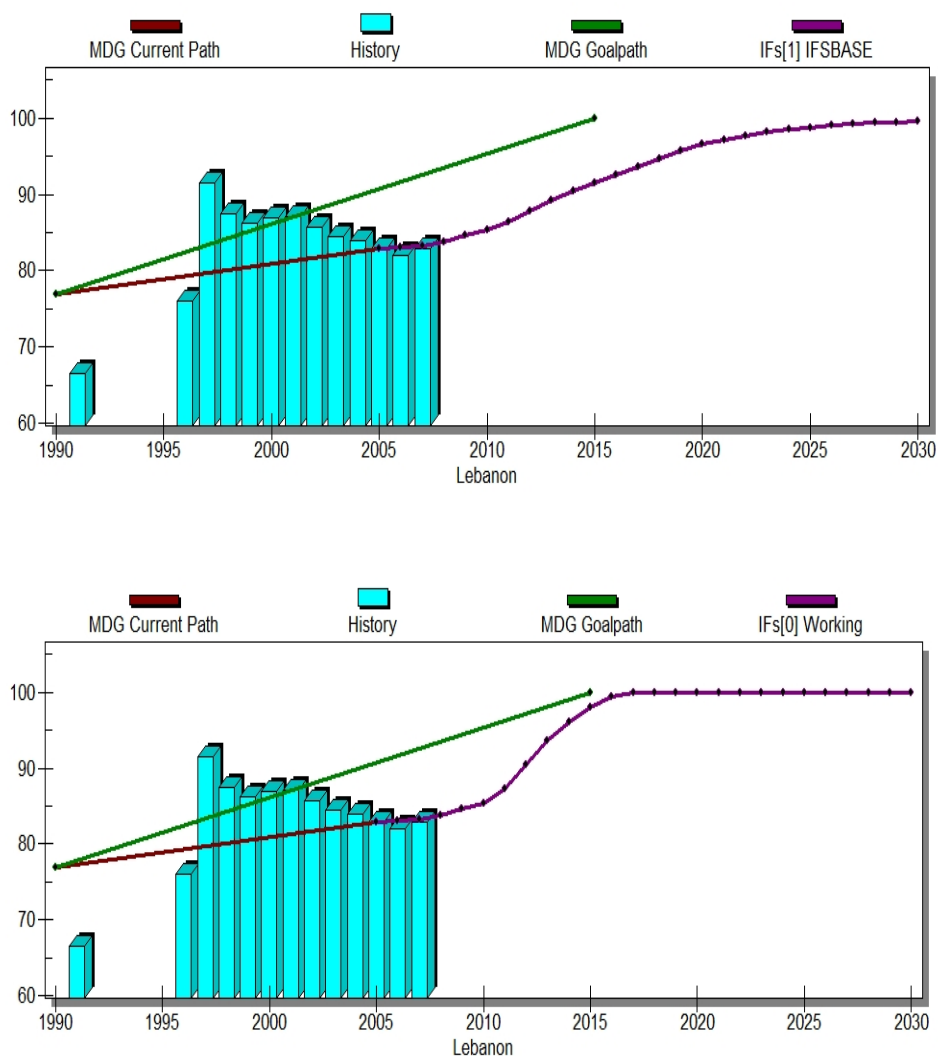
In this exercise we assume an increase of Government expenditures for education in Morocco and Lebanon which currently represent the countries showing the lowest level of students' enrolment at primary school in the sample of countries for which we have data as showed in the figure 30. We shift a model parameter (20% increase over the period 2011-2030) governing national expenditures and corresponding to the following variation of % expenditures for primary education in 2015 and 2030 as below:

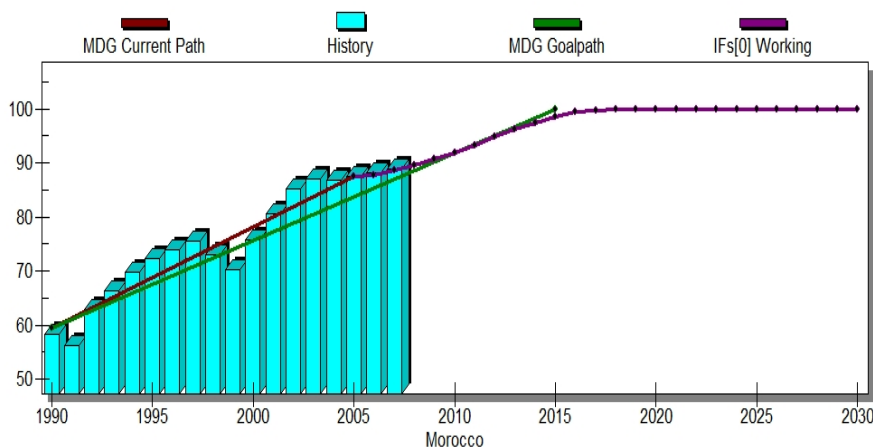
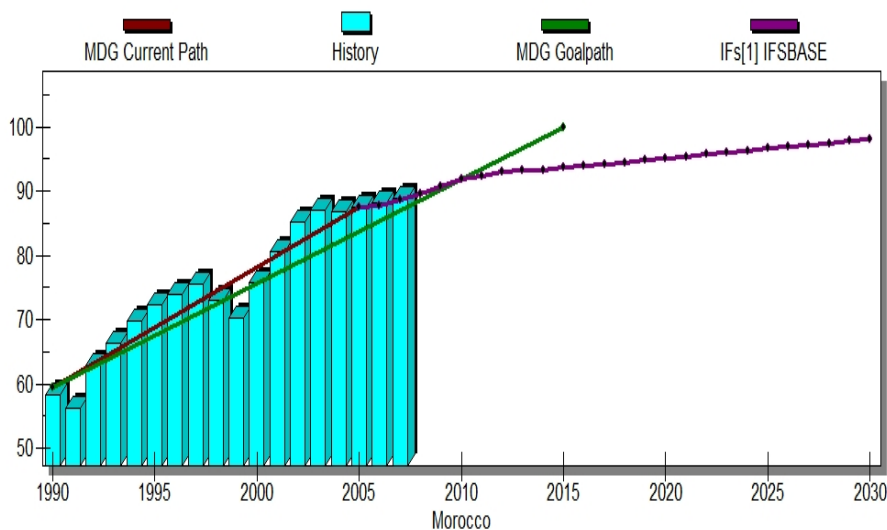
Table 26. Share of expenditures for primary education out of total government expenditures for education

	Lebanon	Morocco
2015 (INVESTMENTS +)	37%	44%
2030 (INVESTMENTS+)	34%	38%
2015 (baseline)	35%	43%
2030 (baseline)	32%	37%

The next figure shows an increasing IFs baseline path of the net enrolment ratio in primary education for both Morocco and Lebanon. Again the model forecast seems to follow the increasing trend already evidenced in the figure 30 with real data. In 2015 the % is 91% in Lebanon and 93% in Morocco. The interesting finding is that with an a prolonged national increase of national expenditures towards primary education over the period 2011 – 2030, the % of the net enrolment ratio is about 98% in both countries in 2015. In other words, in scenarios where investments in primary education are higher the accomplishment of the MDG2 for Morocco and Lebanon is faster.

Figure 41. Path of the % children enrolled at primary school in Lebanon and Morocco





An increase of R&D expenditures for Syria

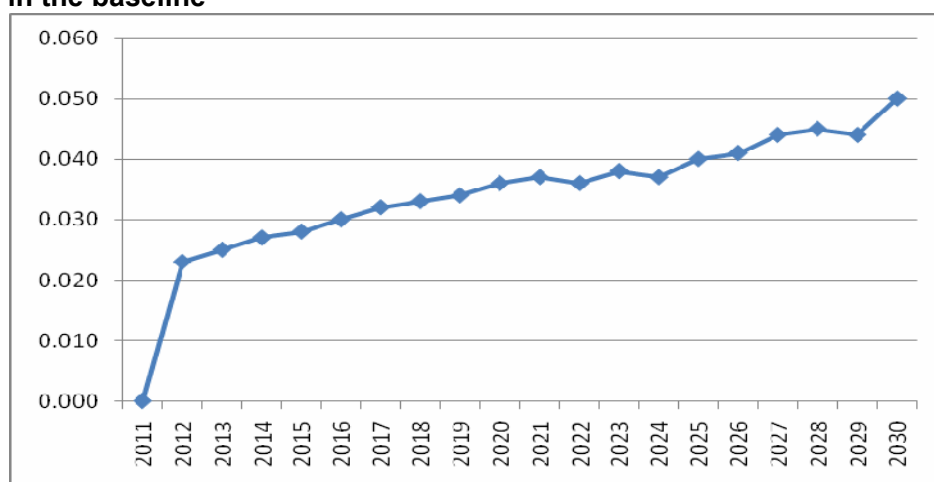
According to the figure 10, Syria is the Mediterranean country showing the lowest level of energy efficiency expressed as the highest value of the ratio between GDP and expenditures for energy. We now assume an increase of the Syria public Research and Development expenditures (R&D) parameter increasing the long run productivity of the country, with a level of energy demand corresponding to that expressed in the IFs baseline. The increase of R&D expenditures is planned over the period 2011 – 2030 and corresponds to expenditures variations as contained in the following table:

Table 27. Increase of public R&D expenditures in Syria (millions of \$)

	Syria
2015 (R&D +)	24
2030 (R&D +)	28
2015 (baseline)	47
2030 (baseline)	58

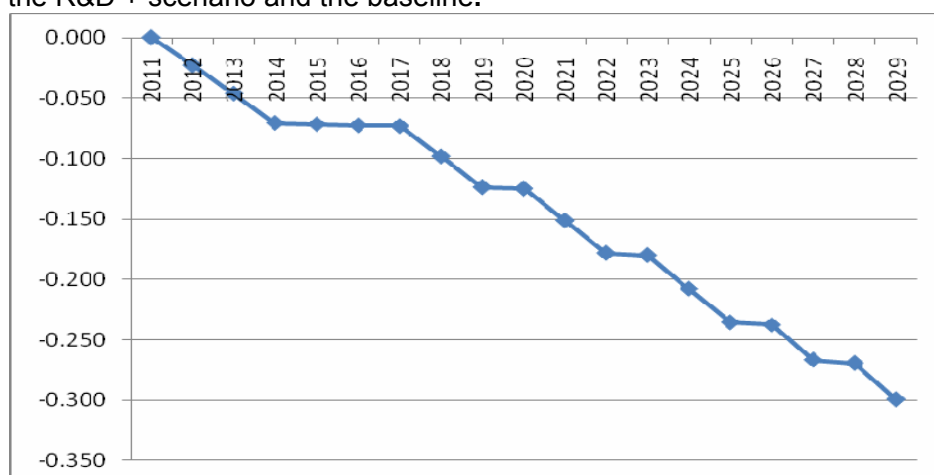
As showed by the figure 42 an increase of R&D generates gains in the long run productivity of the Syria economic system.

Figure 42. Difference between the growth rate in the R&D + scenario and the growth rate in the baseline



In the long run this policy is win – win as it increases growth and decreases energy intensity (expressed in the IFs model as the ratio between energy demand and GDP, whereas in the figure 10 energy intensity is expressed as the ratio between GDP and energy demand).

Figure 43. % Difference between energy intensity (billions of oil equivalents/thousands of \$) in the R&D + scenario and the baseline.



These simulations lead to the following conclusions:

1. We generally find consistency between the trends arising from our figures introduced in the Section 3 with real data and trends arising the model forecasts;
2. For some MSSD target indicators the impact of specific policies is low (in our exercise carbon taxes, children mortality and energy intensity), for other variables the effects are more considerable (e.g. investments in primary education);
3. The variability of the magnitude of impacts of specific policies confirms the importance of regional strategies like the MSSD which incorporate prescriptions and useful background for a wide and complete set of policies of policies in a context of different goals covering economic, environmental and social targets;
4. Results of the model depend on the model assumptions and parameters. Moreover they do not incorporate sudden and recent events (e.g. the recent crisis in North Africa and Middle East). In spite of these limitations modeling helps to understand the potential of Mediterranean countries to reach goals in different fields.

Recommendation 13. Our simulations suggest that in order to achieve MSSD targets policy makers should implement packages of policies, as the magnitude of the impact of single policies is not always high. This finding confirms the importance of the existence of a Mediterranean Strategy for Sustainable Development providing orientations for a series of policies covering different development and environment aspects.

Appendix D. A description of illustrative ongoing initiatives, programmes and partnerships showing synergies with the MSSD

Horizon 2020

The initiative aims to support:

- Projects to reduce the most significant pollution sources focusing on industrial emissions, municipal waste and urban waste water, responsible for up to 80% of pollution in the Mediterranean Sea
- Capacity-building measures to help neighbouring countries create national environmental administrations that are able to develop and police environmental laws.
- Using the European Commission's Research budget to develop and share knowledge of environmental issues relevant to the Mediterranean.
- Developing indicators to monitor the success of Horizon 2020.

The Horizon 2020 Steering Group consists of nominated focal points of the Ministries of Environment from the EU Member States, the ENP Partner Countries, other regional/international organisations active in the protection of the Mediterranean, the International Financing Institutions, the European Commission, and other interested stakeholders, such as municipalities, regional networks, NGO's and the business sector. The Horizon 2020 Initiative could potentially provide a series of impacts on all the MSSD priorities.

Sustainable Water Management and De-pollution of the Mediterranean (SWMDM)

Funded by UfM/ENPI, the programme contributes to raising awareness of water value and of the continuous depletion of water resources through policy dialogue and the dissemination of information and good practices, while assisting Partner Countries in updating and implementing their strategies at the national and local levels, in cooperation with other international initiatives. It also contributes to institutional reinforcement and the development of planning and management skills, in line with the objectives of the Horizon 2020 (H2020) initiative for the de-pollution of the Mediterranean Sea. It carries forward the results achieved by two earlier regional programmes, SMAP I, SMAP II and SMAP III and MEDA Water. It supports activities aligned with the four priorities of the Mediterranean Water Strategy (MWS), namely water governance, water and climate change, water financing and water demand management. A few demonstration projects will promote integrated ecosystems approaches in the fields of integrated water management, or coastal zone management, and in sectors covered by the Horizon 2020 initiative, and put them into practice at local level. A team of experts will deliver the technical assistance needed to capitalise the results of the demonstration projects and to support the implementation of both initiatives, the MWS and Horizon 2020.

Mediterranean Component (MED EUWI)

The Mediterranean Component (MED EUWI) is a regional component of the EUWI (European Union Water Initiative) and shares its overall objectives. The MED EUWI is led by the Greek Government's Ministry of the Environment. The organizational framework of MED-EUWI is based on a light structure aiming to effectively ensure the multi-stakeholder participation in its activities. It includes: an advisory regional Multi-Stakeholder Forum (MStF) guiding and decision making Working Group (WG), chaired by the Lead Country and Greece (Ministry of Environment, Physical Planning and Public Works and Ministry of Foreign Affairs) a Secretariat, facilitated by the GWP-Mediterranean Secretariat, to provide support and ensure smooth

running Regional thematic working groups of the Joint Process between the Med-EUWI and the Water Framework Directive”.

Global Water Partnership-Med (GWPM)

GWP-Med is a platform bringing together competent organisations working regularly on water issues in the Mediterranean region. Its members may come from all over the Mediterranean and beyond. GWP-Med represents the Global Water Partnership in the Mediterranean, and as such has the responsibility of implementing its principles and initiatives in the region. GWP-Med's goal is to promote and exchange knowledge for the sustainable use of the region's water resources.

It involves:

- the Regional Activity Center of the Mediterranean Action Plan/UNEP (Barcelona Convention)
- the Center for Environment and Development in the Arab Region and Europe
- the Euro-Mediterranean Irrigators Community
- the International Centre for Advanced Mediterranean Agronomic Studies
- the Mediterranean Institute on Water
- the Mediterranean Cities Network
- the Mediterranean Wetlands Initiative
- the Mediterranean Network of Basin Organizations
- the Mediterranean Information Office for Environment, Culture and Sustainable Development

Global Water Partnership Med will affect the performance of Mediterranean countries in the context of the MSSD water priority.

Sustainable Water Integrated Management (SWIM)

Following the Euro-Mediterranean Ministerial Conferences on Environment (Cairo, 2006) and on Water (Dead Sea, 2008), the European Commission has launched a new Regional Programme on Water called "Sustainable Water Integrated Management" (SWIM) to be implemented under the European Neighbourhood and Partnership Instrument (ENPI), in accordance with the Regional Indicative Programme 2007-2010. The overall objective of the SWIM programme, emanating from the Euro-Mediterranean initiatives, is to actively promote the extensive dissemination of sustainable water management policies and practices in the region in the context of increasing water scarcity, combined pressure on water resources from a wide range of users, and desertification processes, in connection with climate change. This regional programme is intended to support building consensus and sustainable cooperation links among the countries concerned on water issues of common concern. The specific objectives of the SWIM programme as a whole are summarised as follows:

- Draw the attention of Partner Countries' decision-makers and stakeholders to existing and forthcoming threats to water resources, to the necessity of adopting a more appropriate water consumption and water use model, as well as to the existence of solutions to tackle the problem;
- Support Partner Countries in designing and implementing sustainable water management policies at the national and the local levels, in liaison with existing international initiatives in the area concerned;

- Contribute to ensuring institutional reinforcement and the development of the necessary planning and management skills, in line with the draft SWM and Horizon 2020 objectives, and facilitate know how transfer.
- Enhancement of regional cooperation in the areas of sustainable and integrated management of water resources through institutional strengthening, society awareness, capacity building and participation.

SWIM could provide an impact on the MSSD water priority indicators of Mediterranean countries.

FAO Regional integrated pest management (IPM) Program in the Near East (RIPMP)

The FAO Regional Integrated Pest Management (IPM) Programme in the Near East - started its activities in April 2004, with funding from the Government of Italy. Originally the Project worked in 6 countries: Egypt, Iran, Jordan, Lebanon, the Palestinian Territories and Syria. After several extensions, and budget increases, in 2009 the Italian Government endorsed the expansion of the Project activities to 4 new countries: Algeria, Iraq, Morocco and Tunisia. Results from the FAO Near East IPM programme in the last five years confirm the technical potential of IPM in the Mediterranean region, and underline the importance of capacity building, demonstrating that production can increase while reducing and minimizing the inputs of pesticides, for a wide range of horticultural crops. This FAO initiative could have an impact on the agriculture priority of the MSSD.

Mediterranean Climate Change initiative (MCCI)

The Greek Government, with the support of the European Investment Bank (EIB) and in collaboration with leaders from across the Mediterranean, launched the Mediterranean Climate Change Initiative on 22 October 2010, in Athens, Greece. According to the Joint Declaration released for the launch, Mediterranean leaders acknowledge the imperative for the Mediterranean to act now by: sharing best practice, experience and tools to adapt to changes already being observed; reducing greenhouse gas (GHG) emissions; and pursuing opportunities for common low-carbon development strategies. The Initiative involves Albania, Bulgaria, Croatia, Cyprus, Egypt, the Former Yugoslav Republic of Macedonia, France, Greece, Israel, Italy, Libya, Malta, Mauritania, the Palestinian National Authority, Romania, Serbia, Slovenia, Spain, Syria, Tunisia and Turkey. The European Commission, the Arab League, the World Bank and the Intergovernmental Panel on Climate Change (IPCC) participated in the launch. The initiative could be very important for the energy and climate change priority of the MSSD.

Water Governance Programme for Arab States (WGPAS)

The Regional Bureau for Arab States of the United Nations Development Programme (UNDP-RBAS) together with the League of Arab States have launched a new regional initiative - the Water Governance Programme for Arab States (WGP-AS). The programme aims to support regional efforts in improving the effective management and use of scarce water resources in Arab States by addressing socio-economic and environmental dimensions of water governance within the integrated water resources management context. WGPAS could have an important impact on the MSSD water priority.

Environmental Mediterranean Sustainable Development Program (EMSDP)

In cooperation with beneficiary countries and relevant partners, the World Bank and the GEF have expressed a mutual interest in collaborating in the preparation and implementation of a comprehensive, new framework program – the Environmental Mediterranean Sustainable Development Program, “Sustainable MED” – to deal with issues related to natural resources,

land degradation, solid and hazardous waste, and climate change. The Sustainable MED is a natural follow-up program to the METAP programme, and could fruitfully affect all the MSSD priorities.

IDB merit scholarship program for High Technology (MSPHT)

The IDB (Islamic Development Bank) Merit Scholarship Program aims at developing technically qualified human resources in the IDB member countries by providing scholarships to promising and/or outstanding scholars and researchers to undertake advanced studies or to research in the fields of applied science and technology needed for the development of the member countries. The objective is to assist the needs of the IDB member countries in science and technology areas in which the countries are lacking but are areas considered crucial to their development by enhancing the scientific, technological and research potentials of their scholars/ researchers and their institutions.

This program could have an impact on the level of education in North Africa and the Middle East. Education is currently included within the MDG indicators in the agriculture priority⁴⁸.

Collaborative Partnership on Mediterranean Forests (CPMF) The Mediterranean Basin loses between 0.7 and one million hectares of forests every year to fires. Economic loss as a result is estimated at €1 billion. The region faces considerable increase in longer and more frequent droughts and heat waves, resulting in the growing risk of large-scale forest fires as well as more water scarcity, affecting both rural and urban populations. Total forest area in the Mediterranean region is 73 million hectares, or 8.5 per cent of the region's total land area. The objective of the Partnership is to improve the political conditions for sustainable management of forests and related ecosystem services in the context of climate change in selected member countries. The project involves Mediterranean countries in North Africa (Algeria, Morocco and Tunisia) and the Middle East (Lebanon, Syria and Turkey). The expected result of the partnership is that governmental and non-governmental actors of the southern Mediterranean region, in the new context of climate change, will reinforce their policies and actions towards enhancing sustainable forest management, protecting forest resources and valorizing goods and services delivered by forest ecosystems. Currently, forests are not clearly mentioned in the MSSD⁴⁹, but the impact of forest protection is beneficial for the Agriculture and the Climate Change/Energy priorities.

Euro-Mediterranean Information system on the know – how in the water sector (EMWIS)

EMWIS is an initiative of the Euro-Mediterranean Partnership. It provides a strategic tool for exchanging information and knowledge in the water sector between and within the Euro Mediterranean partnership countries. All the countries involved in the Euro-Mediterranean Partnership are involved:

- The 27 EU member states
- The 10 Mediterranean Partner Countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, Syria, Tunisia and Turkey).

The EMWIS approach is based on partnership. The principle of subsidiarity regarding the

⁴⁸ In the section 3.3 we suggest to modify the current inclusion of MDGs only in the agriculture priority as MDGs crosscut all the MSSD priorities.

⁴⁹ In the paragraph 3.3 we suggest to include the reduction of deforestation as indicator within the agriculture priority

partner countries was adopted from the start of the initiative (Naples, Dec. 1997). This means that each partner country benefiting from a subsidy must be committed to providing adequate resources for the development of its national system and the operation of its National Focal Point. Regional activities (meetings, working groups, defining standards, training, etc.), the International Focal Point and technical assistance to non-EU countries are financed by contracts between the European Economic Interest Group – EMWIS-TU-EEIG – and the European Commission.

Mediterranean Information Office for environment, culture and sustainable development (MIO – ECSDE)

The Mediterranean Information Office for Environment, Culture and Sustainable Development is a federation of Mediterranean NGOs for Environment and Development. MIO-ECSDE acts as a technical and political platform for the intervention of NGOs in the Mediterranean scene, and is represented in the MCSD. In cooperation with Governments, International Organisations and other socio-economic partners, MIO-ECSDE plays an active role in the protection of the environment and the promotion of the sustainable development of the Mediterranean Region and its countries. The partnership is currently involved in projects such as the H2020 Capacity Building Mediterranean Environment Program and the UNEP/MAP GEF Strategic Partnership for the Mediterranean Sea Large Marine Ecosystems. It can potentially provide synergies with all the MSSD priorities.

Global Footprint Network Mediterranean Initiative (GFNMI), launched in June 2010 in partnership with WWF's Mediterranean Programme Office, UNESCO, Plan Bleu and Tour Du Valat, is an effort to bring leaders together to develop a regional approach to managing resource-dependence and biocapacity. Among the goals of the Mediterranean Initiative is to bring the reality of resource constraints into the national and international policy debate. The initiative will provide decision-makers with key Ecological Footprint and biocapacity data to inform policy issues. It aims to help leaders understand the key resource issues faced by Mediterranean countries and how they can work collectively to manage resource consumption and natural capital. The Mediterranean Initiative was launched at Footprint Forum 2010. This initiative can potentially affect all the MSSD priorities.

	Horizon 2020	SWMDM	Med EUWI	GWPM	SWIM	RIPMP	MCGI	WGPAS	EMSDP	MSPHT	CPMF	EMWIS	MIO- ECSDE	GFNMI
CATEGORY	Initiative	Program	Initiative	Partnership	Program	Program	Initiative	Program	Program	Program	Partnership	Initiative	Partnership	Initiative
UNEP/MAP											☒			☒
World Bank							☒		☒					
GEF									☒					
EC	☒	☒	☒		☒		☒							
UfM	☒	☒										☒		
EBRD														
FAO						☒					☒			
Arab League							☒	☒						
IPCC							☒							
UNDP								☒						
Other stakeholders	☒		☒	☒						☒	☒		☒	☒
Potential impact on MSSD targets indicators	Crosscutting all MSSD priorities	Water priority	Water priority	Water priority	Water priority	Agriculture priority	Energy and climate change priority	Water priority	Crosscutting all MSSD priorities	MDGs (currently agriculture priority)	Energy and climate change	Water priority	Crosscutting all MSSD priorities	Crosscutting all MSSD priorities