DRAFT FOR CONSULTATION

IUCN
The World Conservation Union

IUCN CENTRE FOR MEDITERRANEAN COOPERATION

REGIONAL SITUATION ANALYSIS

June 2007

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1. BACKGROUND

The resolutions adopted at the 1994 General Assembly of IUCN in Buenos Aires and at the World Conservation Congress in Montreal in 1996 called on the IUCN Secretariat to work with the members to develop a programme for the Mediterranean region, and to establish an IUCN Mediterranean Programme Office. The IUCN Centre for Mediterranean Cooperation (IUCN-Med) was subsequently established in October 2001 through generous core support from the Junta of Andalucia and the Spanish Ministry of the Environment until the end of 2009.

Throughout two consecutive Intersessional periods, IUCN-Med strengthened its programme in collaboration with Mediterranean members and partners, initiated activities with most countries in the region, promoted collaboration and networking and expanded its outreach.

The current document serves as a baseline for the development of the 2009-2012 programme to be discussed with members and partners and approved during the World Conservation Congress (WCC) in Barcelona in October 2008. It sets out the information and analysis that will provide the foundation for the development of a relevant and sustainable IUCN Programme for the Mediterranean. Furthermore, it is hoped that this document will help to identify those areas in which IUCN can have longer term impact in the region in terms of addressing the key issues affecting conservation and the sustainable use of natural resources, and identify opportunities for maximizing the roles that IUCN can play with the IUCN constituency and other regional partners in the Mediterranean in order to best deliver a relevant, focused and sustainable Programme.

The Mediterranean programme will be developed in two parts; firstly a situation analysis and vision laid out in the present document. Members and partners are invited to comment on this draft by 31 July 2007. Secondly a Mediterranean programme (that conforms with the global IUCN programme 2009-2012) will be circulated in August 2007, inviting comments till 30 September 2007. Further consultation on the programme will also take place during the IUCN-Med members meeting which will be held in Malaga from 5- 8 September 2007.

2. THE MEDITERRANEAN – A SHARED HISTORY

The Mediterranean region is identified on the basis of its common history and culture, by its common geography and ecological characteristics and by the enclosed nature of the shared sea. This “Mare Nostrum” has been the basis for concerted policies and actions in the region for more than 30 years.

The particular Mediterranean geography, where a narrow, productive coastal fringe, is bounded to the south and east by desert, and to the north often by mountain ranges, has meant that the shared sea has frequently been the inward-looking focus of civilizations for thousands of years. From the sea-faring Phoenicians, through Romans, Moors, Ottomans, and smaller States such as Navarre, Venice, Genoa - all have left their mark on the region, and contributed to making it particular and distinctive – making it the unique Mediterranean region.

These historical links have led to the establishment of trading networks, significant exchange of populations and a sense of shared culture that continues to this day. It has also led to some European countries having privileged links with particular southern and eastern Mediterranean countries through common language and a sense of shared history that still strongly influence financial flows and linkages. The Balkans are marked by their specific historical associations, and the geo-political logic often locates them as a subset of Eastern Europe, although these countries also assert their Mediterranean character.

3. MEDITERRANEAN COOPERATION – ENSURING A SUSTAINABLE FUTURE

Cooperation among the different countries in the region, and especially bi-lateral cooperation between northern and southern Mediterranean countries, has framed several of the development initiatives, be it social, cultural, environmental or economic. France, Italy and Spain have been among the leading countries providing that support to governments, civil society groups and scientific and research organisations.

At the broader regional level, the Euro-Mediterranean Conference of Ministers of Foreign Affairs, held in Barcelona on 27-28 November 1995, marked the starting point of the Euro-Mediterranean Partnership (Barcelona Process), a wide framework of political, economic and social relations between the Member States of the European Union and Partners of the Southern and Eastern Mediterranean.

The recent EU enlargement has brought two Mediterranean Partners (Cyprus and Malta) into the European Union, while adding a total of 10 to the number of Member States. The Euro-Mediterranean Partnership thus comprises 35 members, 25 EU Member States and 10 Mediterranean Partners (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestinian Authority, Syria, Tunisia and Turkey). Libya has observer status since 1999.

The Barcelona Process is a unique and ambitious initiative, which laid the foundations of a new regional relationship and which represents a turning point in Euro-Mediterranean relations. In the Barcelona Declaration, the Euro-Mediterranean partners established the three main objectives of the Partnership:

1. The definition of a common area of peace and stability through the reinforcement of political and security dialogue (Political and Security Chapter).
2. The construction of a zone of shared prosperity through an economic and financial partnership and the gradual establishment of a free-trade area (Economic and Financial Chapter).
3. The bringing together of peoples through a social, cultural and human partnership aimed at encouraging understanding between cultures and exchanges between civil societies (Social, Cultural and Human Chapter).

In the Barcelona Declaration, the Euro-Mediterranean Partners agreed on the establishment of a Euro-Mediterranean Free Trade Area (EMFTA) by the target date of 2010. This is to be achieved by means of the Euro-Mediterranean Association Agreements negotiated and concluded between the European Union and the Mediterranean Partners, together with free trade agreements between the partners themselves. Together with EFTA, this zone will include some 40 States and about 700 million consumers, making it one of the world's most important trade entities.

Cooperation has been further enhanced since January 2007 through the current European Neighbourhood and Partnership Instrument (ENPI). This instrument has a budget of approximately €12 billion and it will be covering European Community aid to Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, the Palestinian Authority, Syria, and Tunisia, among other countries for the coming seven years (2007-2013). Through that, the EC offers neighbours a privileged relationship, building upon a mutual commitment to common values (democracy and human rights, rule of law, good governance, market economy principles and

sustainable development), and goes beyond existing relationships to offer a deeper political association and economic integration.

EC assistance under ENPI will be implemented through different types of programmes:

- National programmes for each partner country
- Three Regional programmes: one for the East, one for the South and one trans-regional for both East and South
- Fifteen Cross-border Cooperation programmes
- Five thematic programmes. They are common to neighbouring countries and development countries

EC assistance priorities under ENPI are identified in:

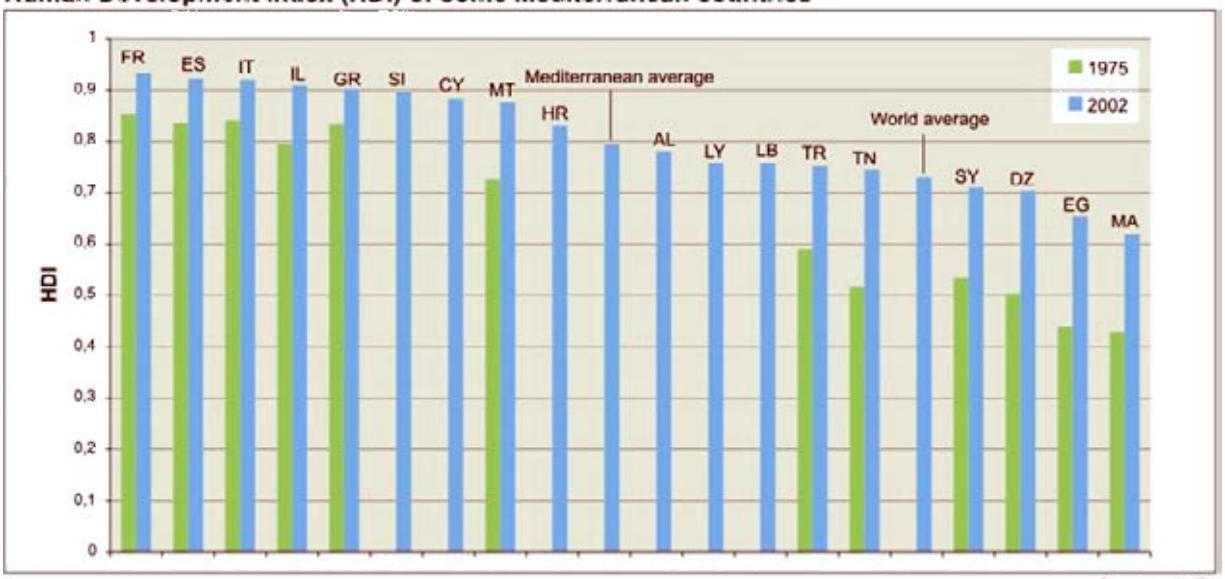
- General Strategy Papers covering the period 2007-2013, such as Country Strategy Papers (CSPs) or Regional Strategy Papers (RSPs)
- More detailed Indicative Programmes which cover 2007-2009 and 2010-2013, such as National Indicative Programmes (NIP) and Regional indicative Programmes (RIP)
- Detailed Annual Action Programmes (AAP) for each year of the programming period.

4. THE MEDITERRANEAN: CURRENT SOCIAL, ECONOMIC AND ENVIRONMENTAL TRENDS

It is useful to start any analysis with a general overview of the human (meaning social, economic and cultural aspects), and environmental trends in the region. This purpose is well served by the Wellbeing Index developed by Prescott-Allen, which includes and aggregates in a single Index a broad range of Human and Environmental Indicators.

The Wellbeing Index is built by aggregating 87 environmental, economic and social indicators. The Index has a 0 to 1 range, divided in five sections: Bad (0-0.2), Poor (0.21-0.4), Medium (0.41-0.6), Fair (0.61-0.8) and Good (0.81-1). The Index considers Human and Environmental Wellbeing together; therefore it is not possible to obtain a good overall ranking without performing well in both areas.

Human Development Index (HDI) of some Mediterranean countries



Source : WDI

As can be seen in the above chart, most Mediterranean countries are situated in the medium range, and compare well to the world average. However, detailed analysis of the environmental situation provides additional information on the overall sustainability values for Mediterranean countries. There have been several attempts at developing indices for measuring sustainability. One of these indices is the Environmental Sustainability Index (ESI), an Initiative of the Yale Centre for Environmental Law and Policy (YCELP) and the Centre for International Earth Science Information Network (CIESIN) of Columbia University, in collaboration with the World Economic Forum and the Joint Research Centre of the European Commission.

ESI is a measure of overall progress towards environmental sustainability and permits cross-national comparisons of environmental progress in a systematic and quantitative fashion. It represents a first step towards a more analytically driven approach to environmental decision-making. Among the 20 indicators that comprise the ESI are factors such as urban air quality, water, and the strength of environmental regulation. ESI takes into account environmental systems, environmental stresses, human vulnerability to environmental risks, society's institutional capacity to respond to environmental threats, and nation's stewardship of the shared resources of the global commons. The chart below represents the ESI index for the different Mediterranean countries, with the top end (Finland) and bottom end (North Korea) as a reference.

2005 ESI RANKING AND OPTIMAL RANK FOR EACH COUNTRY

COUNTRY	2005 ESI RANK	BEST RANK
Finland	1	1
Croatia	19	16
Albania	24	21
Slovenia	29	19
France	36	22
Portugal	37	23
Tunisia	55	34
Bosnia & Herzegovina	61	48
Israel	62	30
Greece	67	44
Italy	69	40

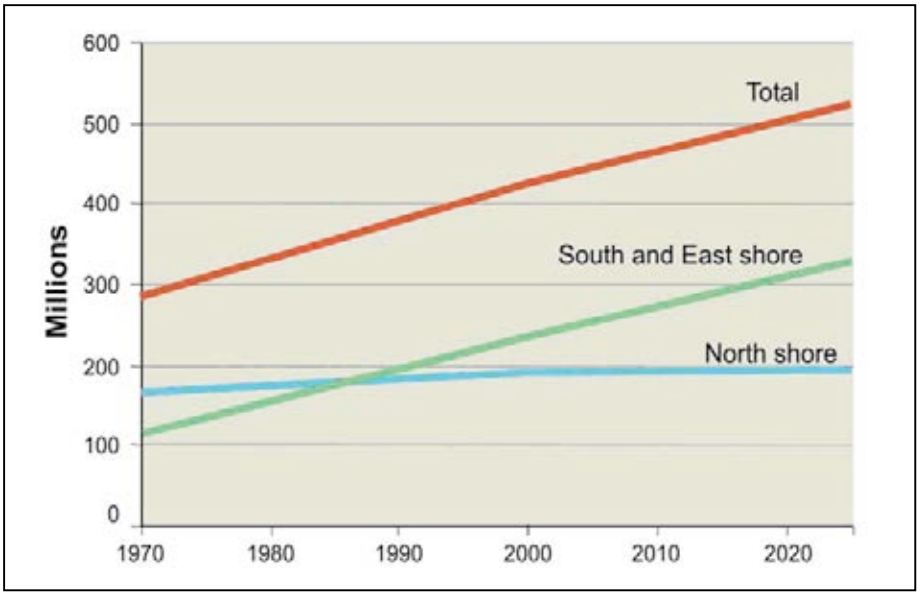
COUNTRY	2005 ESI RANK	BEST RANK
Spain	76	44
Jordan	84	55
Serbia & Montenegro	89	75
Turkey	91	66
Algeria	96	57
Morocco	105	65
Egypt	115	87
Syria	117	75
Libya	126	100
Lebanon	129	85
North Korea	146	144

The best rank represents the “best score” that the different countries have achieved in previous years, and does not necessarily mean that the efforts at the national level in individual countries have decreased, but also hints at the improvements undertaken within other countries evaluated. The methodology and detailed findings indicate that Mediterranean countries with lower scores are more vulnerable to environmental risks as well as lack all the necessary institutional tools to respond to environmental threats.

4.1 MEDITERRANEAN DEMOGRAPHY

The Mediterranean-rim countries hold around 400 million inhabitants, and 135 million of them live on the Mediterranean coast. The graph below shows population data from the year 1970 and the projection towards 2025, and Table 1 provides specific details per each of the different Mediterranean countries, along with the Average Annual Growth Rate (AAGR) from 2000-2025.

Population of Mediterranean Countries: 1970 - 2025



This graph shows that the population of the northern-rim nations will grow by around 4 million between 2000 and 2025 while the population of the southern- and eastern-rim nations will grow by around 98 million over the same period.

Source: Blue Plan, Courbage

TABLE 1: Population of Mediterranean Countries: 1970 - 2025

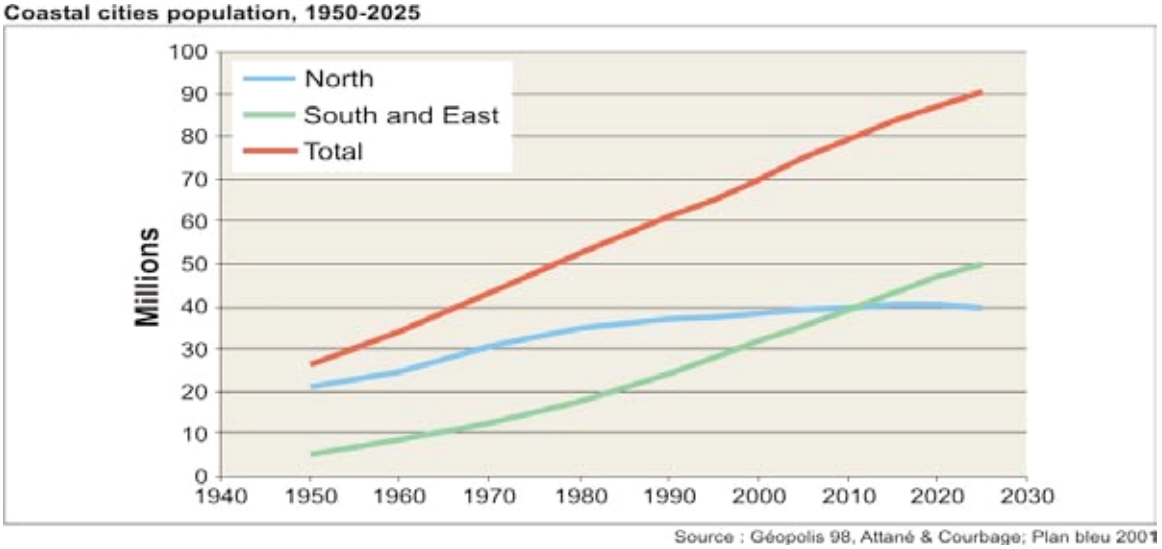
Country	1970	1985	2000	2025	AAGR 1970–2000	AAGR 2000–2025
	(1000 inhabitants)				(%)	
Spain	34,027	38,156	39,815	40,769	0.5	0.1
France	50,569	55,216	59,412	64,177	0.5	0.3
Italy	53,758	56,951	57,456	53,925	0.2	-0.3
Greece	8716	9905	10,558	10,393	0.6	-0.1
Monaco	24	28	34	41	1.2	0.8
Malta	319	344	389	430	0.7	0.4
Cyprus	615	645	785	900	0.8	0.5
Slovenia	1670	1913	1965	2029	0.5	0.1
Croatia	4406	4662	4473	4193	0.1	-0.3
Bosnia-Herzegovina	3564	4129	3972	4324	0.4	0.3
Serbia-Montenegro	8691	9948	10,856	12,217	0.7	0.5
Albania	2184	2978	3114	3820	1.2	0.8
Turkey	35,666	50,267	65,627	87,303	2.1	1.1
Syria	6277	10,298	15,936	24,003	3.2	1.7
Lebanon	2177	2790	3206	4147	1.3	1.0
Israel	2935	4097	5851	7861	2.3	1.2
Palestinian Territories	1134	1510	3150	6072	3.5	2.7
Egypt	32,364	46,140	66,007	94,895	2.4	1.5
Libya	1986	3719	6038	8832	3.8	1.5
Tunisia	5127	7182	9615	12,892	2.1	1.2
Algeria	13,623	21,492	30,332	42,329	2.7	1.3
Morocco	15,081	21,579	28,505	38,174	2.1	1.2
Total NMC	168,542	184,877	192,829	197,218	0.4	0.1
Total east	48,189	68,962	93,770	129,386	2.2	1.3
Total south	68,181	100,112	140,497	197,122	2.4	1.4
Total SEMC	116,370	169,074	234,267	326,508	2.4	1.3
Total Med	284,912	353,951	427,096	523,726	1.4	0.8

AAGR: Average Annual Growth Rate

Source: Attané and Courbage, 2001, Blue Plan

This population growth is coupled with migration towards coastal areas, and specifically in the south and east of the Mediterranean, which is causing pressure on the coastal environment, and more importantly on its biodiversity. Mediterranean countries are also an international travel destination for nearly 200 million visitors per year, the majority of whom visit the coastal zone.

Coastal cities population, 1950-2025



Source : Géopolis 98, Attané & Courbage; Plan bleu 2001

This population increase on the coast, coupled with uncontrolled development and intensive tourism, has a long term negative effects on the natural resources, mainly coastal and marine, and consequently will affect the livelihoods of the people living in those areas. According to Blue Plan, built up areas now cover nearly 40% of the coastline, half of the cities with over 100 000 inhabitants do not have water treatment plants and 60% of urban waste water is discharged into the sea without being treated. Other than posing a threat on Mediterranean species and degrading fish resources, this is affecting bathing water quality which will eventually negatively impact several tourist destinations.

4.2 MEDITERRANEAN ECONOMICS

The GDP per capita of the Mediterranean EU countries is twelve times that of their North African counterparts, and population growth and slow-growing economies make legal or illegal immigration to the EU an attractive prospect for many in an attempt to look for jobs and attain better living conditions for them and their families.

By level of economic development, most Non-EU Mediterranean countries are middle to low-income countries, with an average GDP per capita of USD 2100, compared to USD 20800 for the EU (EIU, IMF, World Bank, Moody's, FEMIP estimates). EU and non-EU Mediterranean economies continue to diverge on a per capita basis (Table 2). Population growth and poverty could be among the reasons contributing to that.

Table 2: Comparative GDP per capita Rates of Selected Mediterranean Countries

Country	GDP per Capita (USD)
France	30,100
Italy	29,700
Spain	27,000
Israel	26,200
Andorra	24,000
Greece	23,500
Slovenia	22,900
Cyprus	22,700
Malta	20,300
Croatia	13,200
Libya	12,700
Turkey	8,900
Tunisia	8,600
Algeria	7,700
Albania	5,600
Lebanon	5,500
Morocco	4,400
Egypt	4,200
Syria	4,000

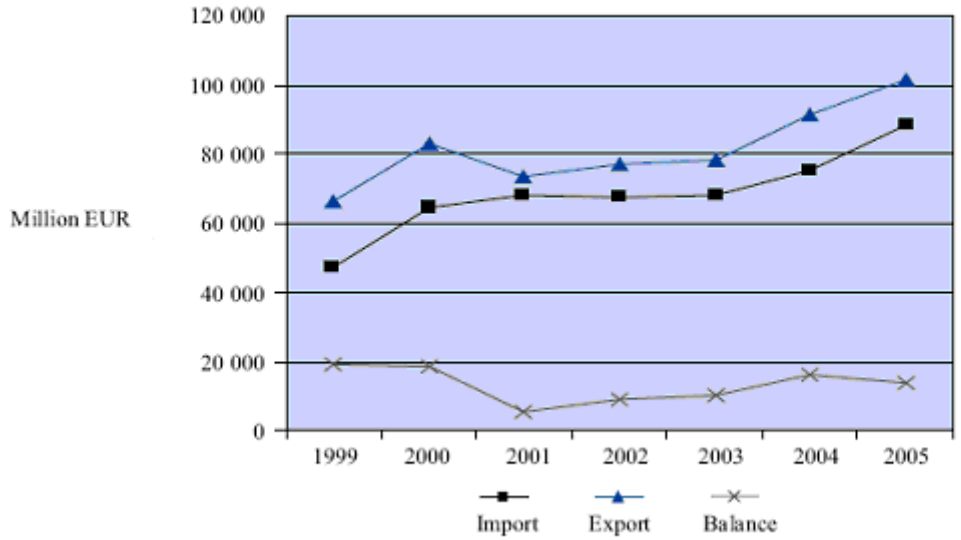
SOURCE: 2007 CIA WORLD FACTBOOK

Data from the World Bank show that the level of poverty is decreasing in the Middle East and North Africa region. However, long-term poverty reduction and sustainable economic growth are now being undermined by the continuing degradation of soils, the increasing scarcity of freshwater, the overexploitation of coastal ecosystems and fisheries, the loss of forest cover, and the loss of biological diversity at the genetic, species, and ecosystem level. Poor and near-poor people in this region are disproportionately affected by these deteriorating environmental conditions and are particularly vulnerable to shocks from environmental change and natural catastrophes.

Environmental changes can make poverty worse by compromising health, livelihoods, and protection from natural disasters, and thus affecting the security of the poor (food security, health security…). Economic growth can create new stresses on the environment as the demand for environmental resources rises and the damaging by-products of economic activity accumulate. The increasing EU trade with the Mediterranean region will have an effect on natural resources, and mainly in southern and eastern Mediterranean countries.

Source: EEA Report, Priority issues in the Mediterranean environment, No 4/2006

EU Trade with the Mediterranean Region



In general, the main EU policy thrust is to improve economic growth throughout the region (while ensuring sustainable development) and promoting exchanges of experience to continue to improve mutual understanding between the region's countries and cultures. The Euro-Mediterranean Partnership and consequently the Euro-Med Free Trade Area is trying to tackle measures to address the effects of increased trade on the environment. The Mediterranean Commission on Sustainable Development (MCSD/MAP) has undertaken in-depth work on the possible effects of free trade in the Mediterranean region and has helped countries identify their comparative advantage and ways of mitigating their production on the ecosystem.

5. MEDITERRANEAN ENVIRONMENT AND SUSTAINABILITY TRENDS

One of the main characteristics of the Mediterranean economy is its high dependence on its natural resources. Whether agriculture, tourism, energy, industry or any other activity that has helped in building this economy, its natural resources are at its base, and failure to realise that and the continual exploitation of those natural resources will eventually have a detrimental effect on its economic growth, wealth and social wellbeing.

Average annual damage cost of environmental degradation in selected Mediterranean countries (as % of GDP)

	Algeria	Egypt	Lebanon	Morocco	Syria	Tunisia
	1999	1999	2000	2000	2001	1999
Air pollution	1	2.1	1.0	1.0	1.3	0.6
Lack of access to water supply and sanitation	0.8	1.0	1.1	1.2	0.9	0.6
Land degradation	1.2	1.2	0.6	0.4	1.0	0.5
Coastal zone degradation	0.6	0.3	0.7	0.5	0.1	0.3
Waste management	0.1	0.2	0.1	0.5	0.1	0.1
Subtotal	3.6	4.8	3.4	3.7	3.3	2.1
Global environment (CO_2 emissions)	1.2	0.6	0.5	09	1.3	0.6
Total	4.8	5.4	3.9	4,6	4.6	2.7

Source: World Bank estimates, 2004

The damage cost of environmental degradation in several Mediterranean countries is increasing, and this should send an alert signal to decision-makers to start looking at measures that safeguard the Mediterranean ecosystem - be those institutional, legal, financial, regulatory or policy oriented - if the region wants to be serious about sustainable development, the pillars of which are not merely wealth and economic growth. This deterioration of the Mediterranean natural and cultural heritage as well as its species richness is affecting the food and air quality, and consequently the livelihoods of the 430 million inhabitants of the region and their visitors who will have to start considering their alternatives.

5.1 MEDITERRANEAN SPECIES: DIVERSITY AND SURVIVAL

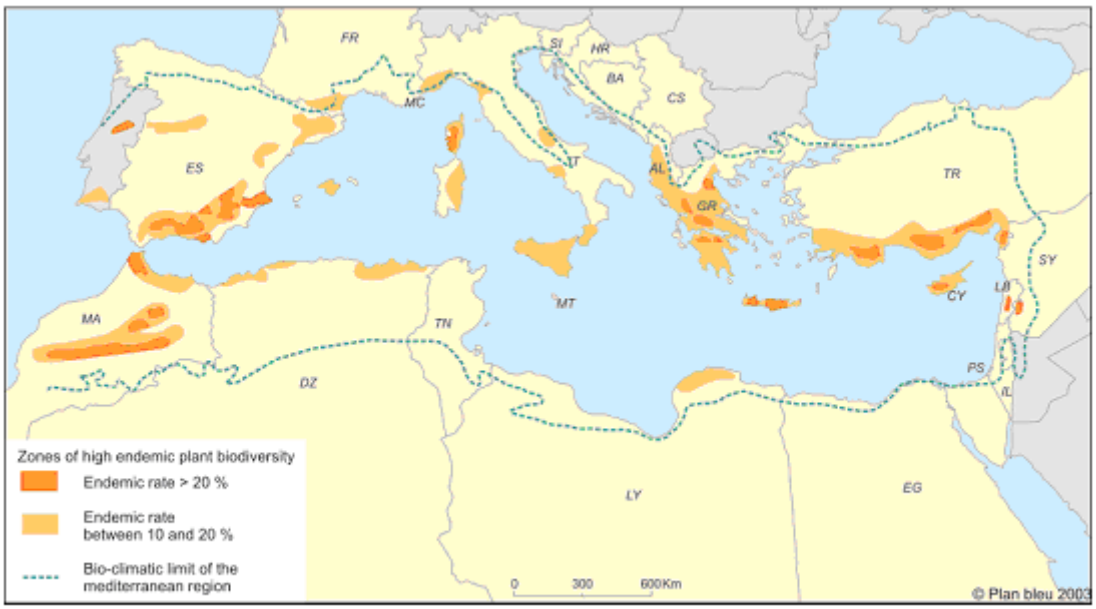
The Mediterranean region has high levels of endemicity that have led to its identification as a global biodiversity hotspot. This is in part due to the area being spared during the recent ice ages, the presence of significant massifs (eg Atlas, southern Taurus, Gudar, Javalambre, Levant…) and also to the long history of varying land-use by people in the area that has created and maintained a wide range of habitats. Additionally, the region is of high value to global biodiversity due to its tolerance of all kinds of disruptions, as well as its role as a natural laboratory for evolutionary studies.

The diversity of vascular plants in the Mediterranean, with about 25,000 plant species, 50 to 60% of which are unique to the region, is significant compared to other regions of the world[1]. Countries with particularly high species richness and endemism are, for example, Morocco (3,800 species of plants, of which 829 are endemic), Syria (2,600 species, 395 endemic), Greece (4,000 species, 554 endemic) and Turkey (10,000 species, 3,000 endemics). Moreover, 70% of the Mediterranean wild plants are known to be of potential economic value. The rate of endemism on Mediterranean islands is especially high, with 10% of species often being endemic.

[1]Quezel P and Médail F, 1995. La région Méditerranéenne, centre mondiale majeur de biodiversité végétale. 6ème rencontres de l'Agence Régionale pour l'environnement Provence-Alpes-Côtes d'Azur.

The biological diversity of the Mediterranean is not limited to plants. Of 106 species of amphibians in the Mediterranean, 68 are endemic (64%), as are 170 of the 355 reptile species (48%). Of the 220 terrestrial mammal species recorded, 25 species are endemic (11%) and 52 species are threatened (excluding marine mammals). An estimated 28% of the marine species found in the Mediterranean are endemic to this sea.

Zones with high level of endemic plant biodiversity in the Mediterranean bio-climatic area



Source: Adapted from Médail and Quezel, in *Annals of the Missouri Botanical Garden*, 84 (1997)

The Mediterranean is also hugely important for its bird populations, being on the migration route of millions of waterfowl. An estimated 2 billion migratory birds of 150 species use Mediterranean wetlands as stopover or seasonal sites. About 50 per cent of the wintering Western Palaearctic populations of ducks and coot occur in the Mediterranean region. Twenty-five endemic species and thirty-one globally threatened bird species live in the region.

In the Mediterranean Sea and the Black Sea, 27 species of cetaceans, from small dolphins to huge sperm and baleen whales, can be observed: 12 species are considered as being regular, whereas 5 are visitors and 10 vagrants. The Mediterranean Sea hosts about 700 species of marine fish, 110 of them being commercially important.

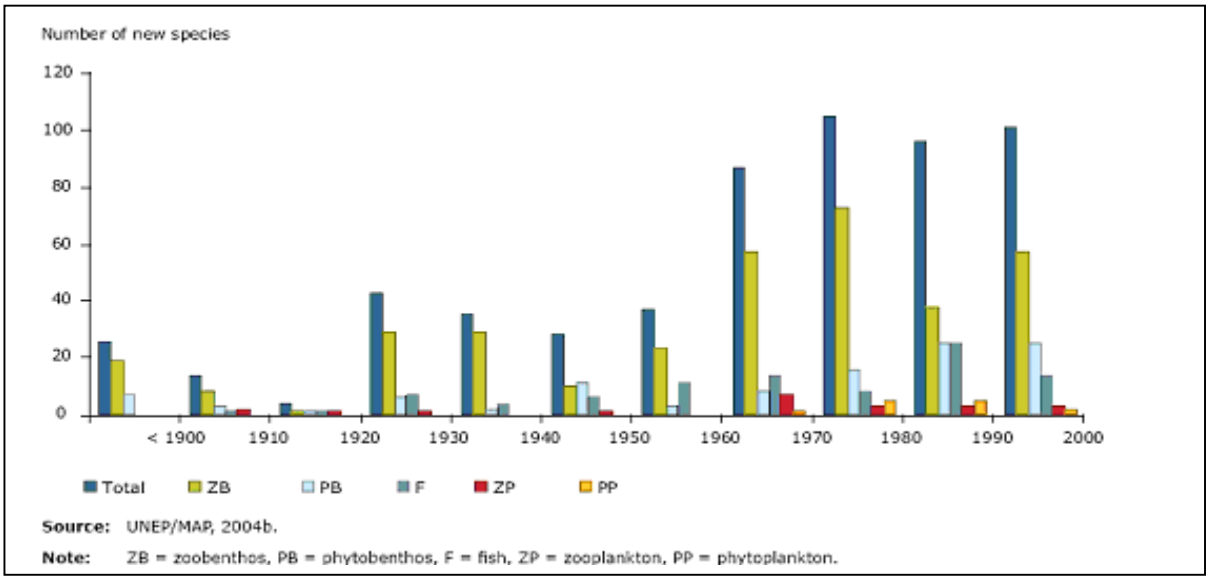
The Mediterranean region is subject to growing pressure, mainly due to increasing population growth and human activities, and species are facing high risks of extinction. About two-third of the cetaceans, one-fourth of the Amphibians, 42% of the Sharks and rays, more than half the endemic freshwater fish species and 13% of the reptiles are threatened with extinction, while more than 10 species of vertebrates are already extinct.

The main threats to species survival in the region are:

- Habitat loss or degradation, mainly due to human activities, such as land-based changes deriving from agricultural (intensification or abandonment), industrial or forestry activities. Infrastructure development, including urbanization (especially in the coastal area), tourism and dam construction, are also a major component of this phenomenon;

- Invasive alien species: Species introduced through ballast waters, fouling, import and invasion has resulted in the establishment of dense alien populations of species. This has sometimes led to catastrophic effects on the natural environment. In islands, they are even the first threat to species survival. They are causing enormous damage on the ecological, economic and health levels. Moreover, they often compete with native species, act as pests or pathogens of cultivated or domesticated species or even disseminate allergenic or infectious agents;

Rate of detection of exotic species in the Mediterranean



- Pollution, affecting mostly the reproduction capacity and the immune system, making species more fragile or even killing them;
- Overexploitation (fishing, hunting, harvesting). The unsustainable use of plants and animals remains a major threat to species. However, over-exploitation also poses a threat to the livelihoods of people who depend on them directly for food, fuel, shelter and medicines and indirectly for the provision of ecosystem services;
- Direct or accidental killing (bycatch, notably, is a major threat to certain species, such as turtles, dolphins or sharks);
- Disturbances induced by climate change, such as desertification, flood, droughts or rise of sea-level are disturbing ecosystems and species. They may also alter migratory species pattern.

Knowledge of the biodiversity of the region is heterogeneous at country level, sometimes restricted to species lists, occasionally also including spatial distribution. An important effort is to gather and synthesize information on Mediterranean biodiversity, its level of threats and the conservation measures needed. The first results seem to indicate that the freshwater biome is probably one of the most endangered biomes. Stress on water resources in many Mediterranean countries makes this biome of particular vulnerability. Furthermore, wetlands, that are considered to be among the most productive and diverse ecosystems have been lost as a result of demand for water and perception of “waste” lands (eg. 65% of Greece wetlands).

Mediterranean marine species are also likely to face higher risk of extinction than species in other seas and urgent actions need to be undertaken to address this issue, as most of the threatened species are not currently receiving adequate protection. Only eight of the thirty threatened shark species are, for example, granted some kind of protection.

5.2 MEDITERRANEAN FORESTS

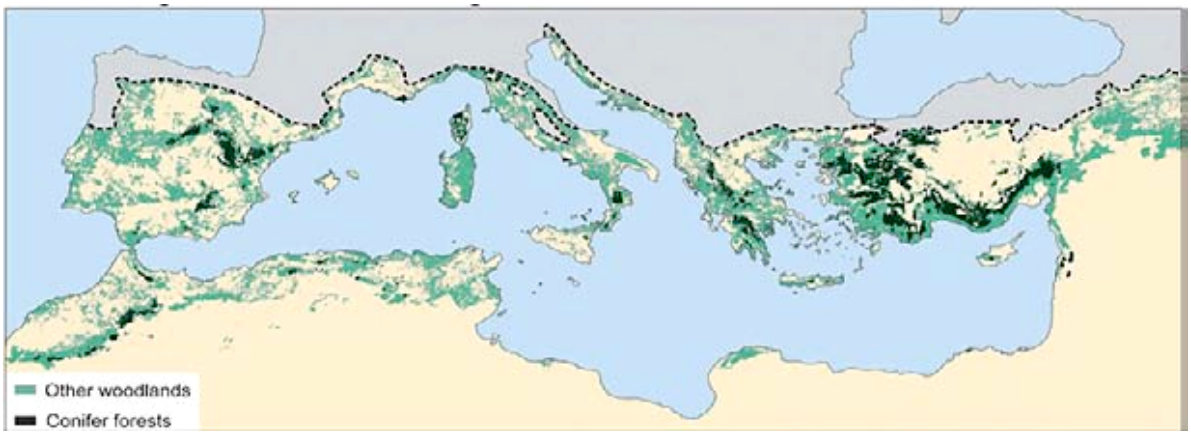
Mediterranean forests provide a wide range of important benefits and services to society that go far beyond traditional forest products. Furthermore, they represent one of the planet's important centres of plant diversity, with an estimated 25,000 species of plant of which around half are endemic.

Forests have always played, and still play, an important role in the daily life of the Mediterranean peoples. Although Mediterranean forests provide low direct economic returns on wood products in comparison to the Northern European forests, they play a crucial role in maintaining key ecosystem components for securing human welfare and life in the region. Previously, exploitation of the natural landscape was long, slow and relatively sustainable. In the past decades, that balance between nature and humankind has been lost. The forests are now fragile and under threat. Agricultural intensification, fires, over-grazing, urbanisation and climate change are some of the major threats to Mediterranean forests and have helped lead to forest loss and degradation in many countries over the past several decades. Action is needed to conserve, sustainably manage and restore forests in the region for the maintenance of watersheds and local climate and to protect against desertification, erosion and flood damage.

Sustainable use of Mediterranean forests is affected by the economics of exploitation that usually render them less economically viable than those in northern Europe. A dynamic approach to tackle this issue is needed, linking inter-governmental initiatives with concrete actions at the local and regional level – explicitly linking policy with practice - and bringing key actors together to share constructive insights and identify opportunities.

There are several synergies among the leading forest-related international conventions, which can facilitate effective implementation, and support the sustainable management of forests in the region. These include synergies among the UNFF, CBD, UNFCCC and UNCCD regarding restoration, rehabilitation and reforestation; public participation in decision-making and implementation; and ecosystem-related considerations. These synergies can be harnessed to successfully conserve, sustainably manage and restore forests in the region.[2] Forest–related issues are clearly linked to land degradation and desertification in much of the region where rainfall allows forest development.

Wood coverage of the Mediterranean Region



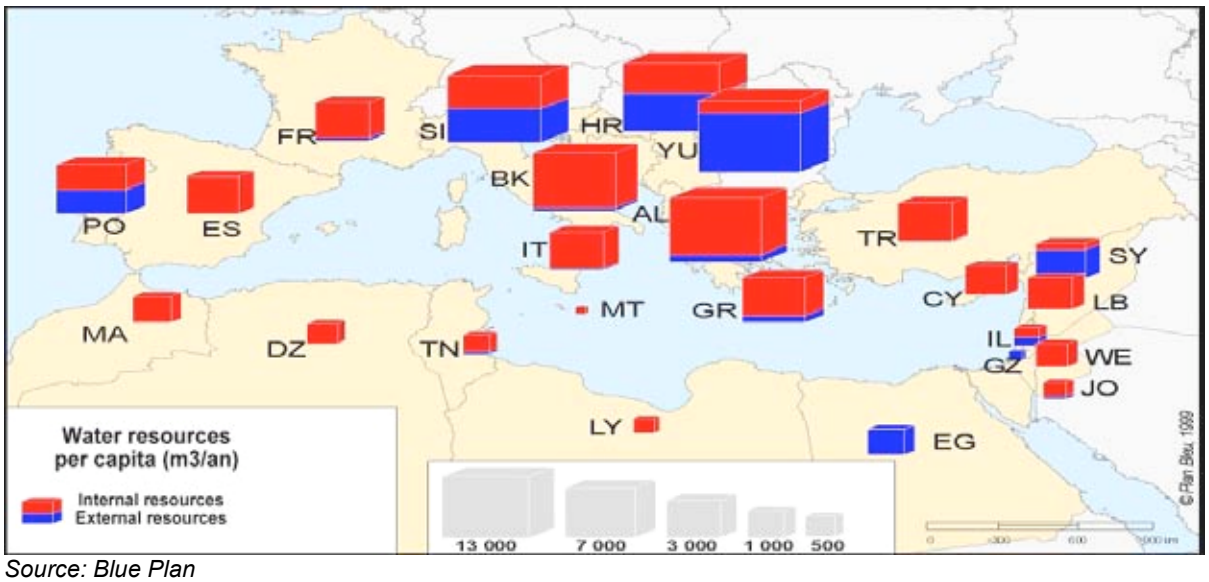
Source: UNEP – WCMC

[2] Drawn from Saint-Laurent C, 2003, 'Background Paper on Supporting Implementation of International Forest Objectives in the Mediterranean'

5.3 THE MEDITERRANEAN: A QUESTION OF WATER

For many countries, water resources are a key issue, except perhaps in the more water-rich Balkans, and the global debate on water finds a voice in the Mediterranean region. For example, of the 12 southern and eastern Mediterranean countries, the Blue Plan estimates that 8 now annually use more than 50 per cent of their renewable water resources; two of them (the Palestinian Territories and Libya) are already using more than their renewable water resources. By the year 2025 the Blue Plan estimates that 10 of the 12 countries may be consuming more than 50 per cent of their renewable water resources, with eight of them using more than 100%. Some 70 % of Mediterranean water is used for agriculture, much of it for consumption within Europe. Many wetlands have been lost through drainage and diversion (eg. 65% in Greece, 28% in Tunisia).

Water Resources per Capita (m^3/year)



Source: Blue Plan

Mediterranean Key Figures

40%: share of France and Turkey in the aggregate water resources of the Mediterranean Basin (20% each).

2%: share of the Maghreb (Morocco, Algeria, Tunisia and Libya) in the aggregate water resources of the Mediterranean Basin.

30%: fall in per capita water supply in France, Greece and Spain between 1950 and 1995.

55%: expected fall in per capita water supply in Jordan and Libya between 1995 and 2025.

7: the number of Mediterranean countries – all located on the southern shore – that are now experiencing severe scarcity, with less than 500 m³/inhabitant/year (Tunisia, Algeria, Israel, Jordan, Malta, Libya and Palestine).

44%: the percentage of the rural population of Morocco without access to potable water in 2002 (down from 82% in 1990).

97%: Egypt's water dependency index (ratio of water imported into the country to total national water appropriation).

81%: share of agriculture in overall demand for water in countries on the southern and eastern shores of the Mediterranean (compared with 42% for countries on the northern shore).

From CIHEAM Watch Letter – April 2007. Sources: FAOSTAT (2006) , PAI (2003) , UNDP (2006)

5.4 PROTECTED AREAS IN THE MEDITERRANEAN

All Mediterranean countries have created protected areas networks that seek to protect pristine or representative areas. Some of these are uninhabited; others depend on the active participation of local people in and around them for the maintenance of their natural values. The table below illustrates the number, surface and percentage in the whole territory of the protected areas by category and by country within the Mediterranean region.

Protected areas in Mediterranean countries

	Protected areas 1970–2004 (1000 hectares)						Protected area as percentage of the national (marine and terrestrial) territory 2004	
	According to the IUCN categories (Ia–VI)					All categories (IUCN & national)		
Country	1970	1980	1990	2000	2004	2004	IUCN	Total
Spain	904	1567	3657	4240	4240	4807	6.8	7.7
France	1815	4288	5532	7226	7226	7319	11.6	11.7
Italy	271	480	1442	1878	1878	5724	4.1	12.5
Greece	37	167	232	491	491	688	2.0	2.8
Monaco	0	0.05	0.05	0.05	0.05	0.05	25.5	25.5
Malta	0.01	0.01	1.32	4.90	5.86	5.85	1.4	1.4
Cyprus	67	67	69	78	78	92	3.4	4.0
Slovenia	87	89	128	150	150	150	7.3	7.3
Croatia	50	91	450	572	572	572	6.5	6.5
Bosnia-Herzegovina	27	27	27	27	27	27	0.5	0.5
Serbia-Montenegro	96	188	323	338	338	387	3.3	3.8
Albania	58	58	60	103	103	103	2.9	2.9
Turkey	291	474	1039	1256	1256	3353	1.5	3.9
Syria	0	0	0	0	0	357	0.0	1.9
Lebanon	0	0	4	4	4	8	0.3	0.5
Israel	33	53	263	295	295	408	11.7	16.2
Egypt	48	48	253	9744	11,812	12,767	11.2	12.1
Libya	0	157	157	173	173	221	0.1	0.1
Tunisia	0	41	46	46	46	258	0.2	1.3
Algeria	13	32	11,949	11,957	11,957	11,970	5.0	5.0
Morocco	330	340	340	373	373	567	0.8	1.2
NMC	**3411**	**7022**	**11,920**	**15,108**	**15,109**	**19,876**	**6.6**	**8.7**
SEMC	**715**	**1146**	**14,050**	**23,848**	**25,916**	**29,909**	**3.7**	**4.3**
MED	**4126**	**8168**	**25,970**	**38,956**	**41,025**	**49,785**	**4.4**	**5.3**
Med. France[1]					1519	1533	22.2	22.5
NMC revised[2]					9402	14,090	5.5	8.2
Mediterranean[3]					**35,318**	**43,999**	**4.0**	**5.0**

Source: UNEP-WCMC/WDBPA v2.03 (World Database on Protected Areas (sea.unep-wcmc.org/wdbpa)), *Plan Bleu*, 2005

Notes:
1 Med. France = Mediterranean regions of France (Languedoc-Roussillon, PACA and Corse).
2 NMC revised = NMC excluding non Mediterranean part of France.
3 Mediterranean = NMC revised + SEMC.

All across the Mediterranean protected areas contribute, in addition to their conservation function, to human welfare, poverty alleviation and sustainable development. Among other things, they help protect species and genetic diversity, maintain ecosystem services, support livelihoods for local people, and provide a wide array of goods and opportunities. The number of protected areas in

the Mediterranean has increased significantly over the last decade and environmental conventions and multi-lateral agreements have promoted the development of several systems of protected areas (Ramsar sites, Biosphere reserves, Natural and Mixed World Heritage sites, SPAMIs…). However, while the number and size of protected areas have been increasing, biological diversity continues to be lost in the region. One of the reasons for that could be the existing system and governance aspects relevant to the creation and management of protected sites in the Mediterranean, which suffer from the following shortcomings:

- The diversity in the objectives, criteria and methodologies used in the selection process of the different systems of protected areas and the lack of coordination between them, as well as the lack of consideration of climate change influence, do not allow the development of an integrated, effective and dynamic national network that is ecologically representative;

- Due to planning and management considerations (in the analysis of the viability of conservation targets, habitat dynamics, stakeholder involvement, traditional knowledge relevant to the management of natural resources, threats and zone of influence), protected areas are in many cases not fulfilling their objectives of biodiversity conservation and their contribution to the livelihoods of people living in and around them;

- The ecosystemic approach is often limited to the establishment of connectivity corridors without adequately considering the integrated management of the global landscape of the whole zone of influence, which may integrate habitats of wide-ranging species, genetic reservoirs, watersheds, or cultural components. These wider land and seascapes are essential components in national and global biodiversity conservation strategies. While preserving natural and cultural heritage, they can help reduce habitat fragmentation and can contribute to poverty alleviation by providing sustainable livelihoods through the integrated sustainable management of their natural resources (CBD/PoWPA);

- In most cases, the baseline allowing for the evaluation and monitoring of the ecological integrity of protected areas is not determined;

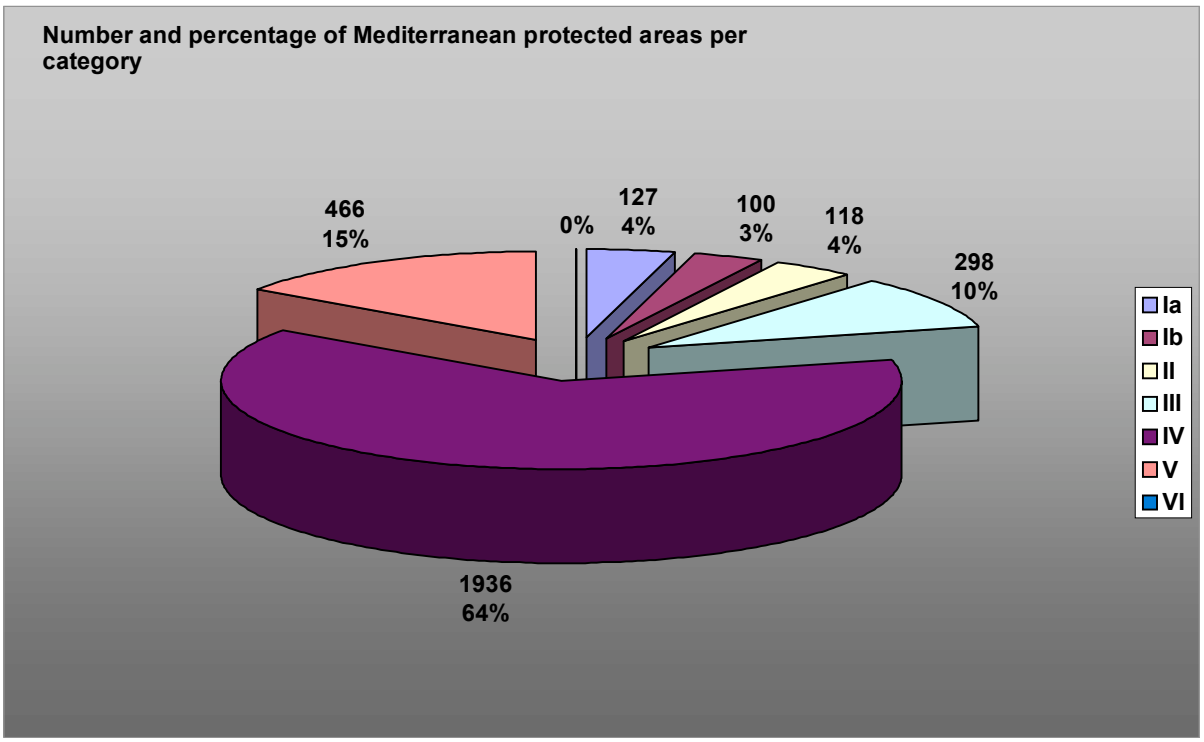
- Governance is often assumed exclusively by the agency in charge of the management of protected areas, and the participation of local communities and of other key stakeholders in the establishment and management of protected areas is inadequate in several Mediterranean countries;

- Protected areas are often poorly funded and sustainable financing instruments not widely developed;

- Training and capacity development for people managing protected areas is insufficient in many countries of the region as well as awareness of decision-makers on the contribution of protected areas to sustainable development.

Different countries display different degrees of flexibility with respect to incentives for biodiversity conservation, and provisions for sustainable use. Many still implement a “protectionist approach” with strong centralized jurisdiction over particular land areas, with weak linkage to local populations, resource users, or local economies although legislation, and attitudes, continue to evolve. Often centralized jurisdiction over protected areas may be at odds with decentralized powers (e.g. of regional governors and their equivalents), or there may be conflicts of interest between the concerned ministries (e.g. where new environmental ministries have been created), raising the need for inter-ministerial coordination with existing protected area managers such as forestry or agriculture departments. Equally, there is recognition that land-use policies outside protected areas, both in coastal zones and semi-mountainous areas, contribute to the creation of unique Mediterranean landscape values. The majority of Protected Areas in the region are of IUCN

Category IV and V and the small number of categories I, II and III indicates the Mediterranean reality and the presence of human activities.



The capacity of protected areas to be seen as an opportunity, rather than a constraint, for local development, represents one of the emerging areas of work in the region. Several countries have a growing experience on this topic while others are still far behind in meeting their protection commitments.

5.5 LAND DEGRADATION IN THE MEDITERRANEAN

Land degradation has always existed around the Mediterranean Sea. However, in the last several decades, the rate of land degradation has been increasing. About 300,000 sq km of land in the European coastal zone of the Mediterranean is undergoing desertification, affecting the livelihood of 16.5 million people.

Key driving forces affecting land degradation in the Mediterranean include the following:

- Overexploitation of natural resources;
- Urbanization and other forms of human settlements;
- Rapid population growth;
- Inadequate progress in increasing agricultural productivity;
- Unsustainable use of the land and water resources;
- Lack of economic incentives and marketing difficulties for producers;
- Climatic and soil conditions;
- High human pressure on the natural resources;
- Exploitative agricultural and grazing practices;
- The breakdown of traditional leadership and consequent difficulties in security of tenure;
- Inappropriate development strategies;
- Inadequate legal framework for sustainable management of natural resources.

In Tunisia and Spain alone, the costs of land degradation have been evaluated at $100 million and $200 million a year respectively. Tunisia loses 8,000 ha of land every year to desertification and Algeria loses 40,000 ha. About 66% of the Mediterranean rural area has a moderate to high risk of soil degradation. A large proportion of land is at high risk in Greece, Portugal and Spain (68%, 43% and 41% respectively). Extensive areas of bare rock cover approximately 10% of the land in Greece, Albania, and the Mediterranean sections of the former Yugoslavia. These areas can be considered to be mostly desert land now and soil erosion has ceased to take place because there is practically no soil left.

In addition to agricultural productivity losses and increasing poverty, land degradation results in significant reductions in carbon storage in soils, contributing to global warming, and loss of biodiversity. It also triggers soil erosion because of the loss of vegetative ground cover exacerbating water erosion and flash floods. These accelerate siltation of rivers and lakes and pollute water reserves.

Land degradation reduces the ability of people to provide themselves with food, wood and water. It has been documented that people residing in areas where severe land degradation has occurred experience a declining quality of life. Higher infant mortality, lower life expectancy, malnutrition, general poverty, and starvation are associated with desertified and degraded lands. After experiencing man-induced degradation, the environment is less able to defend itself against naturally occurring droughts and arid conditions.

Mediterranean Governments have all ratified the United Nations Convention to Combat Desertification (UNCCD) and are responsible for undertaking national and regional initiatives to fulfil their commitments relevant to this convention. Article 5 of the UNCCD states that affected country parties will ‘provide an enabling environment by strengthening, as appropriate, relevant existing legislation and, where they do not exist, enacting new laws and establishing long-term policies and action programmes.’ The main actors who are concerned with Land Degradation issues in the region include the relevant government agencies – which are in most instances the Ministries of Agriculture – as well as the various research and scientific institutions working on land degradation and natural resource conservation issues.

5.6 THE MEDITERRANEAN MARINE ENVIRONMENT

The Mediterranean Sea covers about 2.5 million km^2, with an approximate coastline of 46,000 km. It is considered as a poorly productive sea, although the most diverse in terms of species.

The enclosed nature of the Mediterranean Sea and the high levels of urbanisation and industrialisation along its shores and rivers have long made it sensitive to profound environmental change. The riparian states have recognised this through their ratification of the Barcelona Convention and their joint commitment to work together to conserve its values, natural resources and biodiversity features in a rapidly changing context.

The Mediterranean Sea includes 6 percent of the world's species for less than 1 per cent of the world's ocean area, and while much of the fauna is of Atlantic or Red Sea origin, the levels of endemism are also high, including some emblematic species of global conservation concern.

5.7 GOVERNANCE OF THE MEDITERRANEAN SEA

The governance of the Mediterranean Sea is complex with different mandates shared, and at many instances overlapping, between national jurisdictions as well as international conventions and agreements, such as the Barcelona Convention, Accobams[3], International Maritime Organisation, FAO and the UN Convention on the Law of the Sea.

So far, only a few States have extended their national jurisdiction beyond 12 miles (extent of territorial waters). Therefore most of the Mediterranean comes under the high seas system, where significant collaborative efforts are required to ensure the sustainable use and the conservation of shared Mediterranean natural resources.

The majority of the Mediterranean countries have not yet declared their Exclusive Economic Zone (EEZ) and the number of national initiatives aiming at extending their jurisdiction increased in a significant way during the last decade. Furthermore, during the last decade, and taking account of the difficulties of establishing a negotiated EEZ, certain countries set up zones subjected to particular regimes enabling them to exert more control on fishing or pollution such as Spain, Libya, Algeria, Malta, France and Italy.

One can conclude that the dominant current practice in the Mediterranean goes in the direction of a "jurisdictionnalisation" of this sea. Among the 21 riparian states of the Mediterranean, 14 States have declared economic zones or zones under national jurisdiction.

In light of the increasingly serious threats to which this "maritime space" is subjected, several specialists think that the generalization of the national jurisdictions by a declaration of EEZ, or other similar measures, are likely to ensure a better control of the States of the region on this sea and consequently a better risk management of pollution and resources. However, the geographical and geopolitical configuration of the Mediterranean makes difficult, and sometimes extremely conflictive, the maritime limits between neighbouring States.

There is currently no existing framework in the Mediterranean to allow States to work together or inform each other on intentions for extension of jurisdiction beyond the territorial sea. Putting in place such a framework of dialogue would reinforce the stability of the international relations between the States of the region and would also contribute to improving the systems of environmental governance of the Mediterranean, in particular of its high seas. This framework would be a convenient place of analysis of the advantages and disadvantages of the various steps and their implications for neighbouring countries.

[3] Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic area.

5.8 RISKS OF MARITIME TRAFFIC ON BIODIVERSITY

The maritime traffic sector is known to cause many threats to marine biodiversity. This sector is growing rapidly and is expected to become three times larger in the next twenty years due to the intensification of transportation needs and global commercial exchanges.

Maritime traffic is a traditional sector for Europe and has been gaining importance over time. Taking into consideration that 90% of the EU's external and 40% of internal trade is via shipping - transporting 3.5 billion tonnes of cargo per annum and 350 million passengers - the importance of maritime traffic is highlighted and its associated environmental impact cannot be overlooked. A 10% annual growth has been achieved in the cruise industry the last few years whereas the construction of recreational boating has been steadily increasing and it is forecasted to grow by 5-6% annually. The presence of maritime traffic consequently followed by pressure on the marine biodiversity is thus steadily increasing.

About 27 species of cetacean occur in the region, around half of which migrate through the straits of Gibraltar, so their survival can be seriously affected by lack of proper controls of maritime traffic or wider marine conservation measures. A transboundary agreement between Sardinia and Corsica has also improved the protection of the ecologically-sensitive Straits of Bonifacio from ships carrying dangerous substances.

5.9 AQUACULTURE AND FISHERIES

Worldwide demand for fishing products tripled between 1961 and 2001 as a result of the human population increase and the rise of consumption per person from 11 kg/person/year in 1970 to 16,2 kg/person/year in 2002 (FAO, 2004b). Fisheries products are at present one of the most important animal proteins in the world, representing 25% of the ingested protein in developing countries and 10% in Europe and North America.

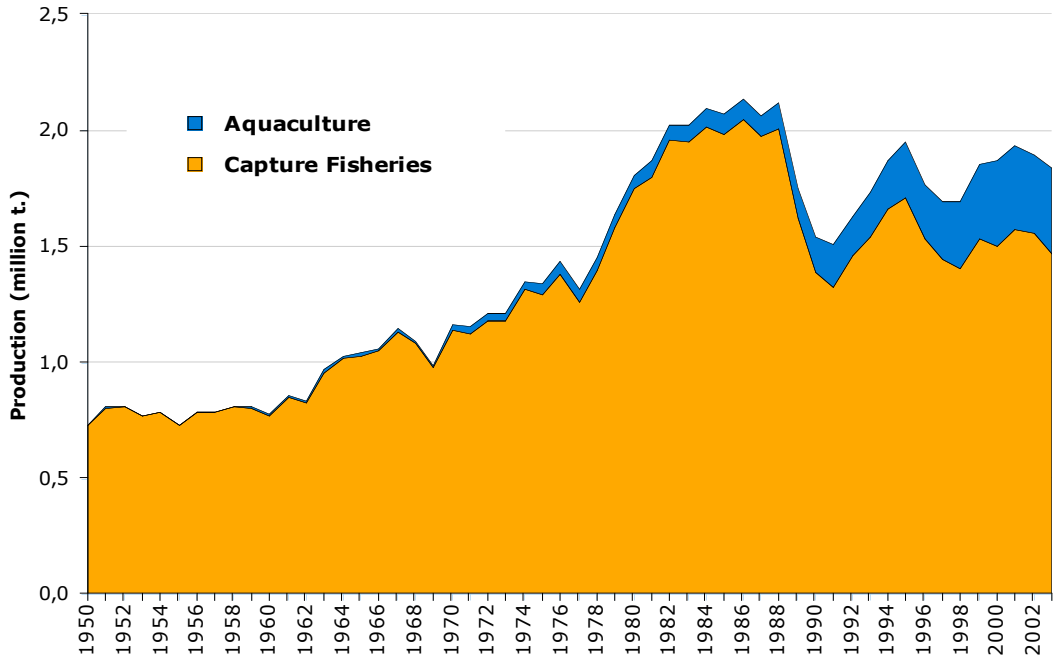
Aquaculture and extractive fishing are complementary activities that must face the challenge of this increasing demand for marine products. The production of extractive fishing reached its highest levels at the end of the 1980s, and since that time has fluctuated around the same level (90-95 million tonnes), indicating that the oceans are being exploited near to their maximum production.

Aquaculture has a history of 4,000 years, but it is only in the last 50 years that it has become a socioeconomic activity of importance, giving employment to 9.8 million people around the world (FAO, 2004b). Its contribution to the world's fish, crustacean and mollusc supply is growing every year. According to FAO (FAO, 2004b), contribution of aquaculture to world supply has increased from 3.9% of the total fishing production (in weight) in 1970, to 29.9% in 2002, with a forecast of 50% in 2025. However, in 2006 aquaculture already provided almost half of fishing products for direct human consumption.

The main species cultivated worldwide are omnivorous and herbivorous finfish. These are produced mainly in developing countries, with production close to seven times that of carnivorous finfish, which are primarily cultured in developed countries.

In the Mediterranean region, aquaculture has expanded rapidly over the last two decades, with an annual growth rate rising from 4% in 1980 to 13% in 2000, and with a trend towards the diversification of cultured species which facilitates the growth of the sector.

Production in the Mediterranean: Fisheries + Aquaculture (FAO, 2006a)



Although Mediterranean aquaculture production was focussed mainly on mollusc farming during the mid 1990s, the share of finfish culture continues to increase. Comparing the total Mediterranean aquaculture production from 1994 to 2003, a significant increase in finfish production has been registered in the Mediterranean aquaculture (almost three times higher); mollusc farming has also increased.

Aquaculture in the Mediterranean. Production by species (FAO, 2006a)

Mediterranean mussel *(Mytilus galloprovincialis)*	147,920 tons
Gilthead seabream *(Sparus aurata)*	74,078 tons
European seabass *(Dicentrarchus labrax)*	43,804 tons
Flathead grey mullet *(Mugil cephalus)*	42,546 tons
Japanese carpet shell *(Ruditapes philippinarum)*	25,000 tons
Other seabass	20,982 tons
Pacific cupped oyster *(Crassostrea gigas)*	8,608 tons
Other marine fish	4,894 tons
Trout *(Salmonids)*	1,194 tons
Red drum (Sciaenops ocellatus)	438 tons

Aquaculture currently faces a significant challenge: how to fulfil the expectation of alleviating the pressure that fishing fleets exercise on fish populations and the increasing demand of sea products in local and international markets without leading to environmental problems. Particularly, aquaculture is expected to develop widely in the near future in the Mediterranean's European, Southern and Eastern countries. In order to avoid potential environmental disruption issues, it is important that the aquaculture sector is provided with clear, user friendly and scientifically-based guidelines to ensure its sustainable development.

5.10 CURRENT CHALLENGES TOWARDS A NETWORK OF REPRESENTATIVE MARINE PROTECTED AREAS IN THE MEDITERRANEAN

The concept of establishing a network of marine protected areas (MPAs) is a step beyond the more traditional approach of establishing MPAs opportunistically, as single independent entities. The network concept suggests that the whole is greater than the sum of the parts. Through interconnections and interdependencies, the individual elements of the network contribute positively to each other's integrity and by distributing risk, decreasing overall vulnerability. Connections between MPAs may be ecological, socio-economic, or both. For instance, marine food webs extend beyond individual MPA boundaries and fishers are dependent on different species and geographic regions at different times of the year. Tourism revenues from one easily accessible MPA with charismatic species can cross-subsidise the maintenance costs of another more remote MPA that does not have other values easily captured through current market mechanisms. Many biophysical and socioeconomic connections overlap national boundaries; and regional cooperation can promote national interests.

In the Mediterranean, identifying sites to be protected should prioritise areas and habitats that are ecologically representative and are of special Mediterranean importance. With the high level of endemism, species protection is a strong motivation. The basin presents a long history of human use and resource exploitation and issues of multi-jurisdictional governance are politically complex and not easily resolved. Some marine protected areas have successfully been established, with the first, the Mljet Island National Park in ex-Yugoslavia, as early as 1960.

However, fundamental questions remain: do current MPAs constitute a network of marine habitats that are representative of the shared basin? The answer is simply no, with deep sea and southern / eastern Mediterranean habitats conspicuously underrepresented. According to the most accurate and recent estimate, there are 70 marine areas under some type of protection or management of which all but one are coastal. The majority (56 or 80%) are located in the northern Mediterranean. Disproportionately, ten (14%) are in the eastern Mediterranean countries of Turkey, Syria, Lebanon, Cyprus, and Israel while only 4 marine protected areas (6%) are located in the Southern Mediterranean region and are found in Morocco, Algeria, and Tunisia.

The Southern and Eastern Mediterranean coasts are both ecologically and socially unique within the Mediterranean and therefore merit distinct representation and protection. Unique oceanographic conditions (temperature, salinity, bathymetry, and topography) and low levels of human development cause species diversity and habitats of the eastern and southern Mediterranean to be different than those in the western and northern Mediterranean. For example, between the Gulf of Gabes (Tunisia) and the Gulf of Sirte (Libya) lies more than 1,500 km^2 of sea grass meadows, the largest in the Mediterranean, providing food and shelter to a multitude of species.

In 2003, the World Summit on Sustainable Development (WSSD) recognised that the ocean-related objectives of Chapter 17 were still largely unmet, and that the needs addressed by them are becoming critical. Governments agreed to specific time-bound commitments relating to marine resources including the establishment of a representative network of MPAs by 2012, including in the high seas. The list of Specially Protected Areas of Mediterranean Importance (SPAMI) existing under the Barcelona Convention is an innovative system that promotes cooperation between member States to establish protected areas including beyond their national jurisdiction.

Apart from the Pelagos Marine Sanctuary, high seas MPAs do not exist in the Mediterranean till now, but other initiatives are being considered for the Alboran Sea, amongst others. Protection in the high seas should first focus on deep sea communities because they contain a high level of endemic species and unique but extremely vulnerable habitat. Deep sea species mainly inhabit continental slopes, submarine canyons, and seamounts. The low food input to the deep-sea

results in scarce food resources, high food partitioning, highly diversified diets, and very complex trophic webs. Assemblages in water deeper than 1000m exhibit extremely low productivity and as such may be particularly vulnerable to human influences such as:

- Removal of top predators through fishing, and removal of habitat forming species such as gorgonian (e.g. *Isidella elongate)* and cold water coral species (e.g. *Lophelia pertusa* and *Madrepora oculata*) through deep sea trawling,
- Modification of trophic links between species in food webs through the discarding of bycatch and subsequent and unorthodox use by species, accumulation of heavy metals and toxins in specific areas of deep sea due to marine pollution that is channeled by submarine canyons, and lastly,
- Global climate change will affect the quality and quantitative of food that reaches deep sea communities.

The need to increase the number of protected habitats and the quality of protection in underrepresented Mediterranean Sea areas is apparent. Although more than twenty sites have been identified by countries of the Southern and eastern Mediterranean as unique and important habitats in need of protection, little progress in protection has occurred in the last 15 years. There is an urgent need to understand the potential causal factors for the discrepancy in protection between European and non-European MPAs that may include aspects of governance, institutional structures, wealth distribution, social capital, and the available conservation capacity and knowledge. Complimentary studies of marine biodiversity must also be initiated in these areas to ensure sound design of marine reserves.

On the high seas much remains to be done. Although a ban on trawling beneath 1000 meters has been introduced by the General Fisheries Committee for the Mediterranean (GFCM), protection of vulnerable sites has not been implemented. A 2004 study by CIESM, IUCN, and WWF has identified the most important deep sea sites that need to be addressed. The most unique high and deep sea ecosystems are associated with cold seeps, brine pools, cold water coral mounds, and sea mounts. An important criterion in the identification of potential MPAs in the deep sea was the type and number of endemic species in an area. The study proposes a system of deep sea marine protected areas that is representative of these unique habitats and based on a distribution of 35 unique, deep-sea biocenoses in the Mediterranean.

6. LINKING CONSERVATION TO SECURITY

Reflecting on the progress made so far both under CBD and Millennium Development Goals (MDG) implementation, the need for enhanced understanding of linkages at national, regional and global levels is essential. Under MDG 7, which seeks to sustain the environment, biodiversity is a priority, but successfully managing the natural resource base will also require examining gender inequities, human needs (food, health and job security, education…), population growth, and economic pressures and opportunities, which are key challenges in all Mediterranean countries. Governments seeking to meet the challenges of MDGs will have to tackle those multiple issues.

IUCN dedicates increasing attention to exploring how to make effective contributions to the reduction of poverty through socially responsible conservation by promoting and practising a poverty-focused approach to conservation. This seeks to ensure that the sustainable management and use of biological resources is employed positively to help the poor obtain a sustainable and desirable livelihood.

As detailed earlier, land degradation in the Mediterranean region is affecting the livelihoods of the people and their security. To mitigate its effects, Mediterranean Governments need to start mainstreaming land degradation policies into development planning as well as harness investments in sustainable land management. Improving knowledge and developing capacities of local communities and policy makers in issues of water management, traditional knowledge and land-use rights are equally important.

With the additional threat of climate change, the Mediterranean region will be more vulnerable to drought and desertification. In combination with continuing pressure for economic growth, and the rapid population growth rates across the Mediterranean region, this will further threaten food security, unless coherent land tenure, adequate legal and institutional frameworks and effective management policies are established and enforced.

Land degradation, poverty, development pressures and climatic factors interact in a complex manner to influence food security. It is, therefore, essential that an integrated approach is developed to tackle those challenges, an approach that combines institutional and legal reform; economic and social development strategies; international partnerships; capacity building; and financial sustainability. There are several initiatives undertaken in the Mediterranean region that deal with one or a combination of these entry points. However, efforts related to reform have been marginalised, a matter that is still contributing to the failure of most other initiatives.

7. CLIMATE CHANGE: A REGIONAL CHALLENGE

One of the challenges that the Mediterranean will be facing in the coming years is climate change. Scientific observation is confirming the perception of a warming world and other climate changes linked to increased emissions of greenhouse gases (such as CO_2) from human activities (energy, transport, agriculture, etc.).

At the Mediterranean level, a recent Europe-wide assessment investigating ecosystem service supply during the 21st century (Schröter et al) found out that large changes in climate and land use typically resulted in large changes in ecosystem service supply. Those changes increase vulnerability due to a decreasing supply of ecosystem services (e.g., declining soil fertility, declining water availability, increasing risk of forest fires…), especially in the Mediterranean and

mountain regions. This alarming finding is making several Mediterranean actors realise that there is little understanding of the effect of climate change on Mediterranean ecosystems.

All countries in the Mediterranean are facing this global challenge. This has taken diverse pathways in the different countries, ranging from development of national legislation, private sector involvement, promoting knowledge and scientific research, investigating innovative adaptation strategies, and at times, in very few countries, looking at it as a distant threat that is too early to tackle.

Mediterranean Key Figures

- Annual CO_2 emissions per capita in the Mediterranean were close to the world average in 1990 (4.8 tonnes per year compared with 4.3) but considerably greater by 2000 (5.4 tonnes compared with 4), which is a sign of development that is not husbanding natural resources.
- Emission levels vary markedly from one country to another, ranging in 2000 from 0.9 tonnes per capita in Albania to 10.9 in Libya.
- Libya, the EU Member States (including those that joined in 2004) and Israel are the largest emitters, while the Maghreb countries (excluding Libya) and Egypt emit relatively little (between 3.1 and 1.4 tonnes per capita).
- Average per capita emissions in the Mediterranean in 2000 were nearly half those in the EU-15 (5.4 tonnes per year compared with 9) and almost four times less than in the US (21 tonnes).

Source: Blue Plan, A Sustainable Future for the Mediterranean.

Several Mediterranean governments and some businesses are starting to take responsibility for their carbon dioxide (CO_2) emissions, and it is now increasingly accepted that the current warming of the Earth cannot be avoided. Past and current emissions to the atmosphere will lead to at least another 1°C warming over the next 50 years. Since we cannot prevent all climate change, Mediterranean countries need to look at adaptation strategies to increase the resistance and resilience of ecosystems to this challenge, and policy makers need to adequately address this serious threat.

Cooperation among Mediterranean countries is essential at that level, as climate change is not just centralised in one country or one ecosystem, and neither will its effects be. Initiatives should be developed to benefit from national experiences to affect regional policies which will ultimately contribute to global challenges, taking into account the development of adequate knowledge and proposing strategies that would help inform decision-makers, especially in the fields of energy, transport and agriculture. This will include measures that minimise vulnerabilities to climate variability and extreme weather events, which can help vulnerable communities reduce their exposure to climate-related hazards and extend options for sustaining livelihoods. Managers of natural resources will increasingly need to pay more attention to how to incorporate climate change into their decisions and develop strategies for adaptation.

8. GENDER, EQUITY AND EMPOWERMENT

Gender refers to the array of socially constructed roles and relationships, personality traits, attitudes, behaviours, values, relative power and influence that society ascribes to the two sexes on a differential basis. Gender is relational and refers not simply to women or men but to the relationship between them which should be mainstreamed into all actions, projects, programmes and policies, to ensure that those are designed with the ultimate benefit of improving the livelihoods of the people they are trying to affect.

Gender mainstreaming begins with a rigorous gender analysis of the population in question and the development situation before laying out a strategy for integrating a gender perspective. Gender impact assessments are used to determine the differential impact of a policy or programme on women and men. Other tools that are used in the gender mainstreaming process include gender checklists, gender-disaggregated data and statistics, gender balance in decision-making and recruiting, gender-based research, etc. Rather than an isolated exercise, gender mainstreaming becomes a tailored component of a government's or institution's project or policy cycle.

The following are some guiding questions to be applied within the gender mainstreaming process:

a. *Who are the stakeholders? Do they include individuals or groups with a gender perspective? Is there gender balance in all institutions and bodies involved?*
b. *Does the subject of your project or policy affect men and women in different ways?*
c. *Does the goal of the project or policy include a broader commitment to improve gender equality?*
d. *Has a mapping exercise or policy review from a gender perspective been conducted? What tools are available for promoting gender equality?*
e. *How will the project or policy benefit or not benefit men and women? How do male and female stakeholders view the project or policy? What are the wider consequences of failing to adopt a gender-sensitive policy or project?*
f. *What gender-related monitoring and evaluation mechanisms are in place? Are those involved in project implementation continually motivated to maintain a gender perspective?*

From IUCN Manual on Gender, Poverty, and Environment

During the past 40 years there has been undoubted progress in the condition of women in the Mediterranean, with better school enrolment, and more participation in the job market, although there is still a lot to be hoped for when it comes to the role of women at the decision-making level, as well as to mainstreaming their role in management of natural resources.

MEDITERRANEAN KEY FIGURES

In the northern Mediterranean countries, as well as in Turkey and in Israel, there are more than 66 economically active women for every 100 economically active men compared with fewer than 40 in 1960 - In the Maghreb and Mashrek countries, the proportion of women in the working population remains lower than in other regions of the world.

The differences between the unemployment rates for men and women in the Mediterranean are often high: by more than 17 percentage points in Egypt in 2001; in the four EU-Med countries the gap (between 2 and 8 points in 2002–2003) has not stopped rising since 1980. For example, in Spain, in 1980, the unemployment rate for women was 2 points higher than for men; the gap reached 7.7 points in 2003. Women, on average, are also less well paid than men, despite some progress. In France salary gaps between men and women were 25 per cent in 2001. The gap was 36 per cent in 1950, but at this rate women will need another century to find equality. Women are also the most vulnerable within the poor, especially single women.
The ratio between the number of girls and boys enrolled in primary and secondary education shows that the differences have been reduced considerably in the Southern and Eastern Mediterranean Countries since 1990, although in Turkey and Morocco significant disparities remain (ratios of 85 and 84 per cent

respectively). Ratios for the other countries are greater than 92 per cent, and in 2000 Tunisia had already reached the 2015 target of equality;

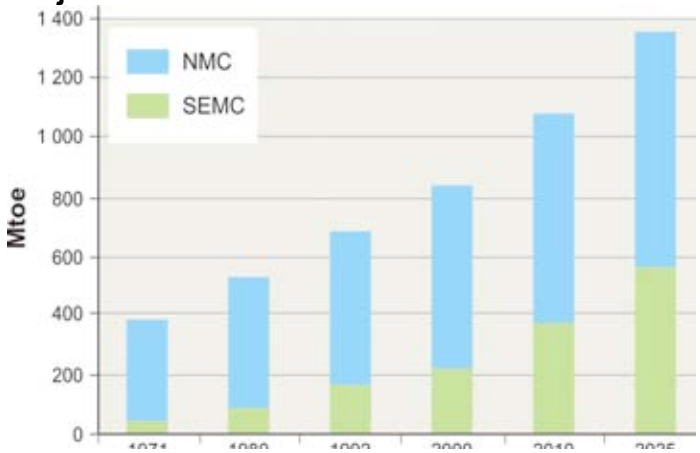
Women still play a small role in political institutions in all Mediterranean countries. In the North Mediterranean Countries, only 9–29 per cent of members of parliament are women (compared with an average of 25 per cent in the OECD countries and 35 per cent in northern Europe); in the Southern and Eastern Mediterranean Countries, only between 2 and 12 per cent are women; the east-Adriatic countries stand out with more than 15 per cent and Spain with 29 per cent.

Source: Blue Plan, A Sustainable Future for the Mediterranean.

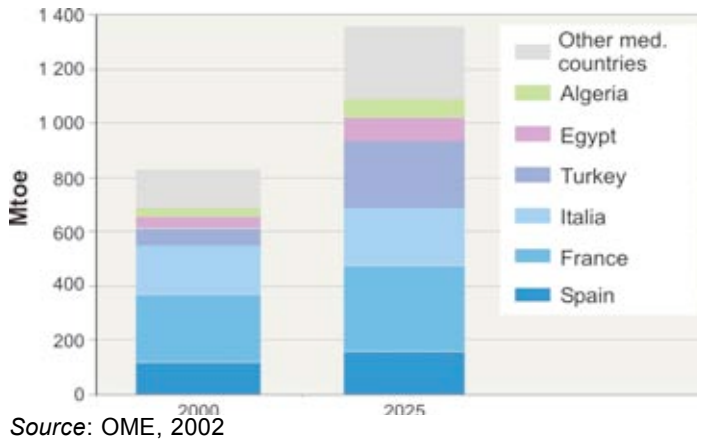
9. ENERGY

Energy plays a role in everything we do and the Mediterranean society's growing requirements for energy are resulting in significant impacts on biodiversity. Energy supply systems both depend on and influence ecosystems. Ecosystems, such as watersheds and forests, are critical for the provisioning of energy services such as water flows for hydro-electricity and biomass for bio-energy. However, current energy production can also cause species and habitat loss along the entire energy cycle from exploration to production and distribution to final use. The very biodiversity that provides energy services is under threat by the growing demand for energy.

Primary Energy Demand – Trends and Projections



The Main Energy Consumers in the Mediterranean



Source: OME, 2002

At the global level, energy systems are changing. These changes are driven by factors such as development imperatives and security and environmental concerns. It is increasingly recognised that energy choices are also having an impact on the world's ability to respond to and mitigate climate change. The options to meet energy demand are expanding to include renewable sources such as wind, solar and geothermal energy while recognising that traditional sources such as coal, gas and oil cannot completely be eliminated in the near future. No one energy source is completely biodiversity-neutral and energy choices will need to be made with a full understanding of the trade-offs involved in any specific situation.

With the abundance of sun, there is a considerable potential for the production of solar energy in the Mediterranean, as well as other renewable sources such as wind energy and hydropower. Biomass could also be a significant energy option in many areas. In that respect, very few Mediterranean countries are exploiting that potential, and if so, to a very minimal level that still does not cater for the increased energy demand.

Primary energy supply sources per country, baseline and alternative scenarios, 2000–2025

Baseline scenario	Supply sources (%)											
	Coal		Oil		N. Gas		Nucl.		Hydro		REn	
	2000	2025	2000	2025	2000	2025	2000	2025	2000	2025	2000	2025
Spain	17	11	54	50	13	27	13	8	2	2	0.5	2.3
France	6	4	35	38	14	19	44	35	2	2	0.1	1.9
Italy	7	8	52	42	34	43	0	0	2	2	1.8	2.7
Greece	34	29	58	54	6	11	0	0	1	2	0.5	3.6
Malta	0	0	100	98	0	1	0	0	0	0	0.0	0.9
Cyprus	1	5	99	90	0	4	0	0	0	0	1.5	1.3
Slovenia	21	21	40	40	14	22	20	14	5	4	0.0	0.5
Croatia	6	3	53	52	30	36	0	0	7	5	0.0	0.3
Bosnia-Herzegovina	64	18	22	39	5	30	0	0	10	12	0.0	0.4
Serbia-Montenegro	55	46	23	24	12	23	0	0	8	7	0.0	0.5
Albania	1	0	67	25	1	56	0	0	27	18	0.0	1.1
Turkey	33	38	44	29	18	30	0	0	4	3	0.7	0.5
Syria	0	0	71	56	25	41	0	0	4	2	0.0	0.2
Lebanon	3	1	94	53	0	45	0	0	1	1	0.1	0.6
Israel	33	29	65	35	0	34	0	0	0	0	3.0	2.1
Palestinian Territories	0	0	71	39	0	55	0	0	0	0	11.6	5.7
Egypt	2	1	59	50	36	46	0	0	3	2	0.0	1.3
Libya	0	0	74	41	26	59	0	0	0	0	0.0	0.1
Tunisia	1	1	58	41	41	56	0	0	0	0	0.0	2.2
Algeria	2	1	29	30	69	68	0	0	0	0	0.0	0.4
Morocco	26	21	70	51	0	23	0	0	1	2	0.1	2.3
NMC	**12**	**10**	**45**	**43**	**19**	**27**	**21**	**16**	**3**	**3**	**1**	**2**
SEMC	**15**	**20**	**54**	**37**	**27**	**40**	**0**	**0**	**2**	**2**	**1**	**1**
TOTAL	**13**	**14**	**48**	**40**	**21**	**33**	**15**	**9**	**2**	**2**	**1**	**2**
Alternative scenario												
NMC	**12**	**8**	**45**	**35**	**19**	**24**	**21**	**16**	**3**	**3**	**1**	**14**
SEMC	**15**	**18**	**54**	**32**	**27**	**41**	**0**	**0**	**2**	**3**	**1**	**5**
TOTAL	**13**	**12**	**48**	**34**	**21**	**30**	**15**	**10**	**2**	**3**	**1**	**11**

Source: OME from the International Energy Agency from 1971 to 2000, Energy balances of the OECD and non-OECD countries.

Notes:
Hydro: energy from hydro power plants. It includes large as well as small hydro.
REn: Geothermal energy, solar energy and wind energy.

Energy use in the Mediterranean is linked to population growth and the Human Development Index: as a country develops, energy consumption patterns increase. The future projections of energy supply and demand in the region present a real challenge in terms of its potential impact on biodiversity, as well as its economic and socio-economic implications.

To be able to confront this challenge, countries in the region need to further look at energy demand management as well as more sustainable energy supply modes, and couple that with enabling public policies that promote more diversified and less polluting energy supplies, which is also less expensive on the long term. Developing partnerships with the private sector and learning from experiences across the region is a very valuable entry point to start exploring.

10. ECONOMIC INCENTIVES FOR BIODIVERSITY CONSERVATION

Today's economies generally fail to support the sustainable management of ecosystems, primarily because the full value of biodiversity is not taken into account. Despite significant progress in many countries, much work remains to be done to widen and deepen the incorporation of environmental values and related livelihood concerns in economic policy, markets and finance, particularly with respect to biodiversity, intangible ecosystem services, and poverty reduction. A related priority is to develop new sources of finance for biodiversity conservation, together with improved allocation mechanisms to ensure more cost-effective and more equitable conservation.

The challenge is not so much conceptual or technical as political, namely to persuade the public and policy-makers that economic policies and markets can and should be reformed to support ecosystem conservation. The starting point is to build capacity within government agencies and private businesses to assess and reduce adverse environmental impacts. Further steps typically involve efforts to internalize environmental values in economic policy and markets through the use of economic incentives.

Various environmental economic instruments are available to generate increased funding while also improving the efficiency of natural resource management. These include fiscal incentives (taxes and subsidy reform), the allocation of property rights to natural resources, the development of new consumer and investor information systems (labeling of products, certification of forest management, socially responsible investment) and various other means to facilitate the internalization of environmental values in economic policy making and ecosystem goods and services decisions. Economic measures that contribute to natural resource management also make a significant contribution to poverty reduction.

The emphasis placed on incentive measures echoes the requirement in Article 11 of the CBD that " … *each contracting party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity* …".

Summary table of categories of economic incentives for biodiversity conservation

	Direct incentives	Indirect incentives	Disincentives
Property rights	**Examples:** Ownership, management, access, and use rights over biodiversity. Joint, collaborative and co-management of biodiversity. Leases, concessions, licences, permits and franchises to manage, use, harvest and prospect biological resources.		**Examples:** Exclusion, alienation from land and biodiversity. Enforcement and penalties for unsustainable or illegal biodiversity use.
Markets and charge systems	**Examples:** Improvement of existing biodiversity markets and prices., development of new biodiversity markets and charges – tourist levies, entrance fees, user fees, prospecting fees, royalties. Tradable quotas, permits, rights and licenses.	**Examples:** Development of alternatives to biodiversity markets and products. Eco-labelling and accreditation of sustainable biodiversity products.	**Examples:** Bans on biodiversity-impacting products or markets. Biodiversity-impacting product quotas or limits.
Fiscal instruments	**Examples:** Subsidies to biodiversity conserving activities, technologies and products. Tax relief or differential taxes on land uses, technologies and products. Credits and offsets for biodiversity conserving activities.		**Examples:** Biodiversity-impacting product taxes or surcharges. Differential land use, technology and product taxes.
Bonds and deposits			**Examples:** Security deposits, restoration bonds, assurance bonds, conditional resource security
Livelihood support	**Examples:** Improving efficiency, scope and sustainability of biodiversity utilisation.	**Examples:** Rural development, livelihood diversification and improvement. away from biodiversity.	

Source: Using Economic Incentives for Biodiversity Conservation, Lucy Emerton, IUCN

While there exists in the Mediterranean region few positive examples of economic inducements for conserving biodiversity, or economic discouragement against degrading it, there are many economic forces that encourage people to carry out economic activities in ways, or at levels, that impact natural resources. Setting in place economic incentives for biodiversity involves identifying and understanding these economic forces, and instead making sure that conservation is perceived as an economically attractive, and desirable, course of action – for governments, the private sector, communities, households and individuals.

11. CONCLUSION

This overview of Mediterranean challenges presents the urge to develop an innovative programme that takes into account all the emerging issues that the region is facing, while at the same time giving special importance to activities that conserve biodiversity and promote sustainable use of natural resources. The challenges related to climate change and energy will need to be an integral part of this programme, examining their effects on the livelihoods of the people and on their security.

The IUCN programme for 2009-2012 – *Shaping a Sustainable Future* - cleverly responds to those challenges, and its key thematic areas will allow IUCN and its members and partners to work together on a result-based integrated programme to make a difference in the region. Those key thematic areas are:

Thematic priority area 1 - Conserving the diversity of life
Ensuring sustainable and equitable management of biodiversity from local to global levels
Global result 1.1: Biodiversity-related policies and governance systems enable action towards the achievement of biodiversity conservation.

Global result 1.2: IUCN standards, tools and knowledge for sustainable natural resource management available and used for biodiversity conservation including effective management of global and regional common natural resources.

Thematic priority area 2 - Changing the climate forecast
Integrating biodiversity considerations and opportunities into climate change policy and practice
Global result 2.1: Climate change mitigation and adaptation policies and practice include biodiversity concerns from local to global level.

Global result 2.2: Natural resources management policies and strategies to adapt to the impacts of climate change are adopted and implemented.

Thematic priority area 3 - Naturally energizing the future
Implementing ecologically sustainable, equitable and efficient energy systems
Global result 3.1: Energy policies and strategies mitigate the impact of the growing energy demand on biodiversity.

Global result 3.2: Ecosystem services that underpin sustainable and equitable energy, are incorporated in energy policies and strategies

Thematic priority area 4 - Managing ecosystems for human well-being
Improving livelihoods, reducing poverty and vulnerability, and enhancing environmental and human security through sustainable ecosystem management
Global result 4.1: Development policies and strategies support vulnerable and poor stakeholders, especially women, to sustainably manage ecosystems for improved livelihoods

Global result 4.2: Sustainable environmental management reduces vulnerability to natural hazards and conflicts.

Thematic priority area 5 - Greening the world economy
Integrating ecosystem conservation values in economic policy, finance and markets
Global result 5.1: Economic, trade and investment policies better integrate biodiversity values.

Global result 5.2: Companies, industry associations and consumer groups incorporate ecosystem values into planning and action.

This Programme framework strengthens the Union's heartland work on conserving the diversity of life, while developing more effective and strategic interventions linked to the global agenda for sustainable development in the areas of climate change, energy, poverty and security, and economy and markets. IUCN-Med will be working closely with all its members and partners to implement this programme in an effort to make it possible to read a brighter analysis of the situation in for Mediterranean in the years to come.