United Nations Environment Programme
Mediterranean Action Plan
Blue Plan – Regional Activity Centre

The Blue Plan's sustainable development outlook for the Mediterranean

Plan Bleu

Sophia Antipolis,
July 2008

English translation from an original document in French.

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Contents

Foreword

Climate change, the innumerable food crises, dwindling oil reserves, unstable financial markets, … are all on the headlines these days but all, in their respective fields, point to a fundamental questioning on where development is heading and how to make sustainable development prevail at different geographical scales: global, regional; national and local. What follows is set in this context with a focus on the Mediterranean region composed by the 22 countries bordering the shores of this shared sea.

Because the Mediterranean is a zone of trade and cultural exchange, but also of deep-rooted fractures between its three continents, the region still has all the trimmings of the « world economy » depicted by Braudel. It also possesses all that is needed to become truly regional laboratory for innovation and cooperation in the field of sustainable development.

Because the Mediterranean is also open to the world and rubs elbows with many geopolitical groupings each with their wealth of values and interests, often at odds with each other, but which call for multilateralism to prevail and build a common future.

With all these values in mind, under the auspices of the United Nations Environment Program, and within the Mediterranean Action Plan, the Blue Plan has for over 30 years been taking stock of the state of the environment in the Mediterranean and its future trends in order to assist policy-makers.

I hope that what is contained in this document will be a source of inspiration for those that will be influential in tracing a sustainable future for the region.

Henri-Luc THIBAULT
Blue Plan's Director

Sustainable development: a major challenge for the Mediterranean

This publication draws from the work conducted by the Blue Plan in the areas of environment and development in the Mediterranean. It reviews recent trends and hopes to draw people's attention to the known and emerging risks facing man and the environment. It goes on to propose policies to avert them. Reconciling development with the environment is key to strengthen solidarity between both rims of the Mediterranean.

The Mediterranean is one of the world regions in which the call for "sustainable development" find all its meaning:

- It is a rare and fragile "eco-region", where development is already hindered by environmental degradation;
- It encompasses a geographical area in which North-South issues concerning development are particularly acute;
- It comprises a set of countries and an area where stability and prosperity will largely depend on implementing models of development which integrate environmental, social and economic dimensions.

This "eco-region" stands out for its climatic zone and the common and shared sea which links three continents. It is the hub of past civilisation whose heritage and cultural landscapes give added meaning to the sense of belonging to the Mediterranean. A sense shared by nations on the three banks. Alas, it is also one of the main "hot spots" of global biodiversity. In a mere 1.6% of the world's land area it supports 10% of known higher plant species, and 7% of marine species in less than 0.8% of its total ocean area. Many of these species are endemic (figure 1). Hydric stress, aridity in the South, natural hazards, limited plain areas and communication difficulties represent serious constraints.

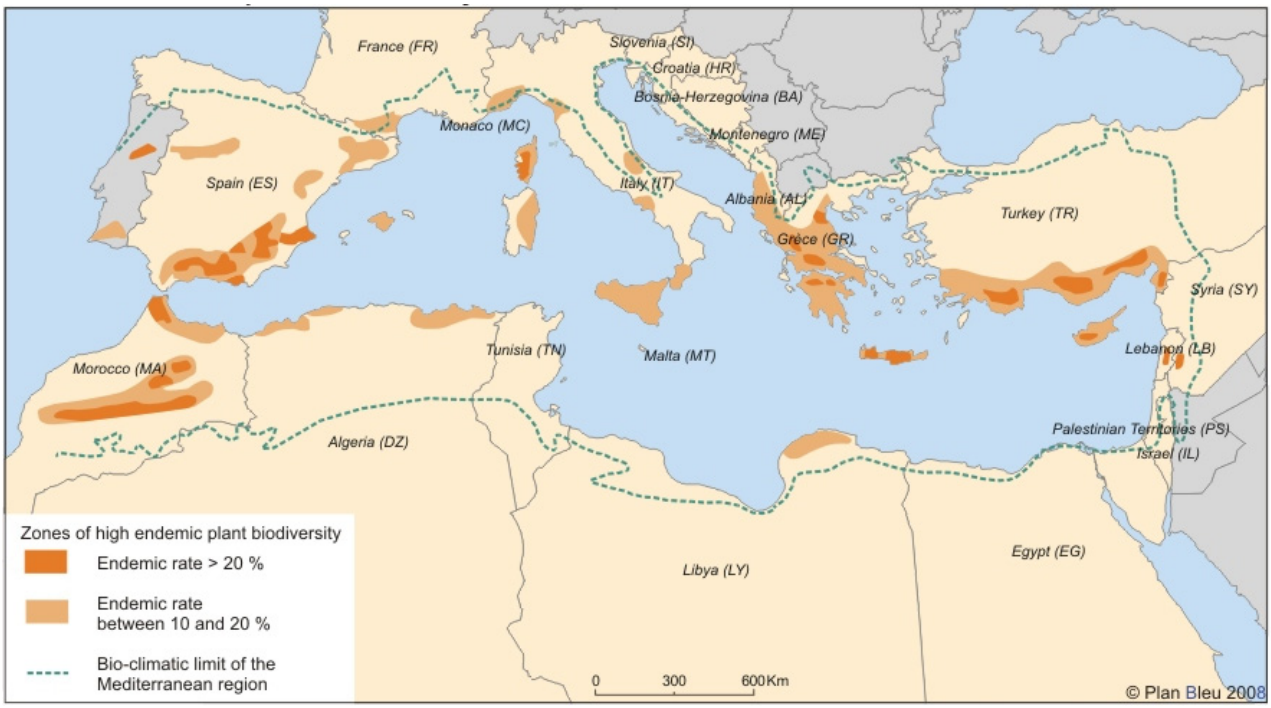
In 2005, the Mediterranean's 22 riparian states and territories (figure 1) accounted for:

- 5.7% of the planet's land mass, including a large number of desert and mountain areas,
- 7% of the world's population (a stable share) with 455 million inhabitants,
- 31% of international tourism, with 246 million visitors,
- 13% of world GDP (decreasing),
- 60% of the population of the world's "water-poor" countries,[1]
- 8% of CO_2 emissions (increasing).

As for the sea, it accounts for 30% of international maritime freight traffic and some 20 to 25% of maritime oil transport.

Note: Throughout the rest of the document, "NMC" will be used to refer to the Northern Mediterranean Countries, including the countries from Spain to Greece and the two island states (Cyprus and Malta). "SEMC" will be used for the countries to the south and east of the Mediterranean, including the countries and areas from Morocco to Turkey.

Figure 1 Riparian countries and areas with a high level of endemic plant biodiversity in the Mediterranean bio-climatic zone



Source : Zones of high endemic plant biodiversity according to Médail & Quezel, in Annals of the Missouri Botanical Garden, 84 (1997)

Changing course: the development framework through to 2025. Economic, social, environmental and political aspects

A region exposed to natural hazards

Lying on the point of contact between two major lithospheric plates and thereby affected by subduction, collision and slippage movements, the Mediterranean is one of the world's major seismic areas (Algiers in 1717, Messina in 1908, and Izmir in 1999). The most highly exposed area stretches across Italy, Greece, and the Near-East, as well as the Northern Maghreb. The earthquake risk is increased by urbanisation. Similarly, the buildings which have mushroomed on the unstable quaternary gravel comprising the hills which border many Mediterranean towns render the effects of a possible earthquake considerably worse.

Volcanic activity is more localised. Nowadays, the principal area at risk is Vesuvius, above Naples. It is an explosive-type volcano, which last erupted in 1944. The volcano is constantly monitored, and the risk here is the maximum.

Besides these two major hazards, the effects meteorological extreme are aggravated by accelerated coastal urbanisation and climate change:

- Land slides: they are usually triggered by intensive and aggressive Mediterranean downpours, which are likely to become more frequent and intense as a result of climate change. The risk increases in areas where vegetation has been reduced by forest fires and is no longer able to play its stabilising role. Often located close to and above the numerous tarmac roads, which limit infiltration, channel surface run-off and increase the gullying effect, their number has shot up over the last 20 years.
- Floods: In the Mediterranean, the watercourse system is strongly marked by the contrast between the summer, when watercourses are a mere trickle, and the winter when they take up most of the riverbed. As a result of the torrential rains in autumn, river levels often rise abruptly and in the space of a few hours the flow becomes enormous in comparison with the size of the watercourse. The consequences can be disastrous. Since the disaster in Nimes in 1988, the list has grown considerably, and virtually not a year goes by without the Mediterranean bewailing some flood-related disaster.
- Forest fires: Largely caused by humans, the number of forest fires has doubled since the 70s, with 50,000 starting each year in the Mediterranean. Fighting these fires costs more than a billion euros per year, yet annually more than 600,000 hectares of woodland still go up in flames. In the northern Mediterranean countries, bushland expansion in escheated areas has increased the risk of fires breaking out and spreading, as was recently the case in Spain. A further factor which increases the fire risk is the greater frequency and intensity of drought, largely as a result of climate change.

A region which is particularly sensitive to climate change

According to the 4th IPCC report, the Mediterranean is one of the regions of the world in which the environment and human activities will be most affected by global warming, with the scale of the expected physical changes threatening to cause considerable loss in economic and human terms. Analyses conducted by climate experts converge on a number of forecasts for the Mediterranean: temperatures set to rise by 3–4 degrees C, a virtually generalized drop in rainfall and more regular extreme events by 2100.

Even according to the hypothesis where the average rise in temperature does not exceed 2 degrees C in the European Union (the EU target), temperatures will rise by more than 2 degrees in the Mediterranean and, given the ecological and socio-economic characteristics of the area, the impact will be greater than in many other parts of the world. As such, the Mediterranean has been dubbed a "hot spot for climate change".

A general drop in average rainfall is expected across the whole of the Mediterranean basin.

The most vulnerable areas of the Mediterranean are the areas in North Africa which border on the desert zones, the major deltas- the Nile, Po and Rhone in particular- the coastal zones both to the north and to the south of the basin, as well as those areas undergoing strong demographic growth (southern and eastern shores, dense towns and suburbs).

The impact of climate change on the Mediterranean environment is already noticeable.

Changes in temperature, rainfall and certain extremes for the Mediterranean

	Variations in temperature (in degrees C)		Variations in rainfall (in %)		Occurrence of extreme events (in %)		
Season	Min.	Max.	Min.	Max.	Hot	Humid	Dry
Winter	1,7	4,6	-16	6	93	3	12
Spring	2,0	4,5	-24	-2	98	1	31
Summer	2,7	6,5	-53	-3	100	1	42
Autumn	2,3	5,2	-29	-2	100	1	21
Annuel	2,2	5,1	-27	-4	100	0	46

Note: The differences are calculated between the periods from 1980-1999 and 2080-2099 according to the A1B scenario, based on the results of 21 global climate models.

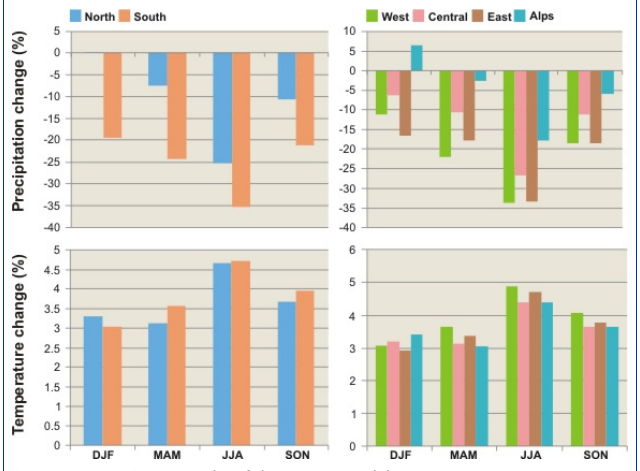
Source: IPCC 4th report, 2007

By the turn of the century, it is estimated that average annual temperatures will increase by between 2.2 and 5.1 degrees C for the Mediterranean.

In the sub-Saharan regions, the increase could be by as much as 4 degrees C in summer. On the northern banks, however, the increase is likely to be most pronounced in the winter, by around 3 degrees C.

As for rainfall, due to thermo-dynamic effects such as a drop in relative humidity over the continents, average rainfall is highly likely to decrease across most of the region compared with today's climate. The number of rainy days will most probably fall, with a clear increase in the risk of drought. The snowy season will be shorter. According to the various models used, rainfall is set to decrease across all seasons, amounting on average to 24% in summer.

Figure 2 Average variations in temperature and rainfall between 1961-1980 and 2081-2100, drawn from 21 world climate models



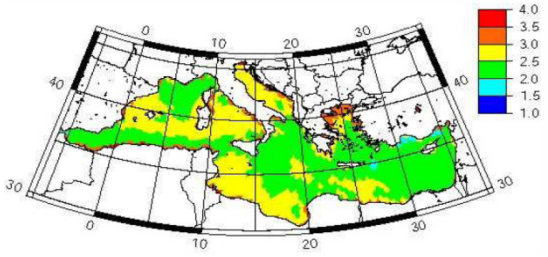
Source: Giorgi, 2007, results of the CMIP-3 model

As far as extreme climatic events are concerned, the models converge on:

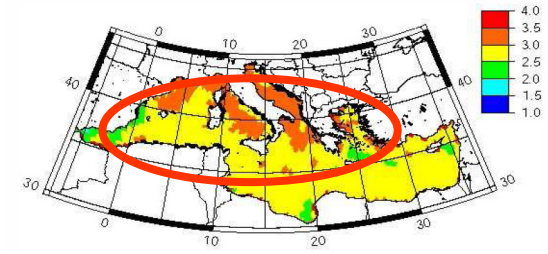
- A multiplication of heat-waves, with an increase in frequency, intensity and duration;
- A clear increase in continental drought: a drop in the number of rainy days, and an increase in the length of the longest rain-free periods.

Figure 3 Anomalies in seawater surface temperatures (SST) in degrees C, 2070-2099 compared with 1961-1990

Winter



Summer



Source: Somot et al., 2007

Globalization and regional solidarity: an integration process well underway in the North, which needs to be backed up in the South and East

The past thirty years have witnessed the collapse of the "block system" and accelerated globalisation. In the Mediterranean, conflict or instability has affected several areas of the Near East and the Balkans, costing the lives of some 500,000 people in the riparian states over the past 20 years (Blue Plan 2005).

To the north, several riparian countries have joined the European Union (Greece, Spain, and, since 2004, Slovenia, Cyprus and Malta), which has led to increased trade and significant progress in terms of peace, democracy and economic modernisation. By 2025, five more riparian states could well join. The integration

process underway in the North has no equivalent in the South and East. Despite several initiatives, this region continues to be marked by persistent conflict and the lack of structured cooperation. In terms of the percentage of GDP, military expenditure in the countries on the eastern rim is twice the world average. From the economic standpoint alone, the low level of trade between Southern and Eastern countries shows the lack of integration. In 2004, trade between the SEMCs amounted to a mere 4.5% of their imports and 6.2% of their total exports.

The Southern and Eastern countries, particularly in the Maghreb, mainly trade with EU countries. The strong Euro-Mediterranean interdependencies are likely to continue to increase.

For example, in 2005 76% of Tunisia's trade was with the European Union. Energy interconnections, gas and electricity in particular, are strengthening the ties between the shores. In spite of more restrictive EU migration policies, migratory flows are still high. In 2006, 4 European Mediterranean countries (ES, FR, IT, GR) welcomed over 11 million foreign residents. In Spain and Italy, 20% and 38% of foreign residents hail from other Mediterranean countries (Source: Eurostat).

Tourism is another important circulatory flow for people in the region. International tourist arrivals more than quadrupled between 1970 and 2005, reaching 246 million to date. In 2003, more than 87% of tourists in the Mediterranean countries came from Europe, albeit differentiated according to neighbourhood and cultural affinities: in Syria and Lebanon, tourists from the Middle East accounted for 76 and 42% respectively of the whole; in Israel, 33% of tourists were from America; in Turkey, over 26% were from Central and Eastern Europe. The assumption for 2025 is of continued strong growth in tourist flows with arrivals up by 150 million compared with 2005.

The transfer of funds by migrants and international tourism represents a significant source of foreign currency for several countries. In 2005, income from international tourism amounted to 243 billion euros.

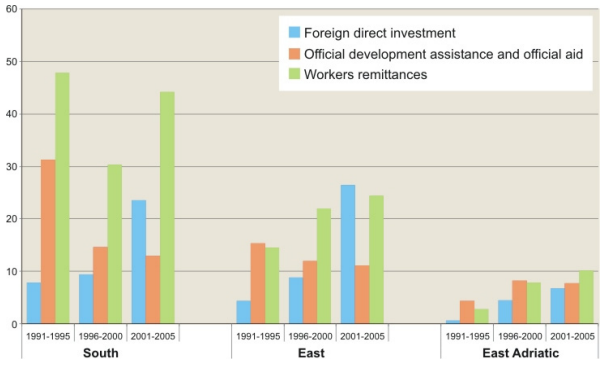
The funds sent back by foreign residents are at particularly high levels for the Maghreb, and help balance foreign accounts. Very little though is channelled into productive investment, tending rather to be used for consumer goods or property in particular.

Foreign direct investment (FDI) flows have been noticeably increasing since the turn of the century, although they are still far from reaching the levels which would be needed for any notable effect to be felt in terms of capital accumulation and increased productivity. Moreover, Mediterranean countries only account for a minimal amount of the FDI flows towards the emerging economies (less than 10% in 2005), and the flows still focus on certain partners (Turkey, Israel and Egypt are the main ones) and sectors (energy, construction).

Europe and the Gulf countries are the leading investors in the region (34% and 40% respectively in 2007).

Public development aid (PDA) also accounts for major financial flows towards the SEMCs. A downward trend in PDA flows towards the latter has, however, been noticed, with an increase towards the countries in the Eastern Adriatic. PDA flows are mainly made up of bilateral funds. The EU share (member states, Commission and EIB) is the largest and rising (Figure 1). The United States of America retain a strong presence in certain countries.

Figure 4 Financial flows towards Mediterranean countries on the southern and eastern banks and in the eastern Adriatic (Balkans) (Billions of euros)



Source: Blue Plan, drawn up using data from the World Development Indicators 2007, World Bank

Until the turn of the century, international cooperation policies and economic reforms were essentially focused on reducing state involvement, trade liberalization, withdrawing subsidies and privatization. According to several experts, too little attention was paid to improving the performance and competitiveness of local actors and professionals, or to clarifying their relations with the state.

The Euro-Mediterranean Partnership, launched in 1995, was the starting point for an ambitious process: establishing a common area of 'stability and shared prosperity'. However, Euro-Mediterranean cooperation, which has been integrated into the new European Neighbourhood Policy since 2003, needs to be bolstered in terms of resources, mutual commitment and its knock-on effect.

The European funds which have benefited the SEMCs amounted to 5.75 euros/inhab./yr over the 1995-1999 period (MEDA 1), and 4.4 euros/inhab./yr for 2000-2004 (MEDA II). Moreover, the south-eastern European countries which receive European CARDS funding received 4.6 billion euros from 2000-2006, in other words an average of 49 euros/inhab./yr over the period.

The *Euro-Mediterranean Partnership* has mainly focused on security issues and trade liberalization, with the aim of establishing a free-trade zone by 2010, and on bilateral approaches. There has been only limited integration of sustainable development into its priorities and financing. It was only recently (2007) that an impact assessment was finalised for the Euro-Mediterranean Free-Trade Zone[2].

An important issue for the future of the region is to reduce the gap between, on the one hand, the Northern rim where development towards a single market is going hand-in-hand with powerful political, financial and regulatory commitments and, on the other hand, a Southern rim where liberalization still does not enjoy an equivalent level of support and regional solidarity.

Accelerated demographic transition, ageing populations in the North, job shortages in the South

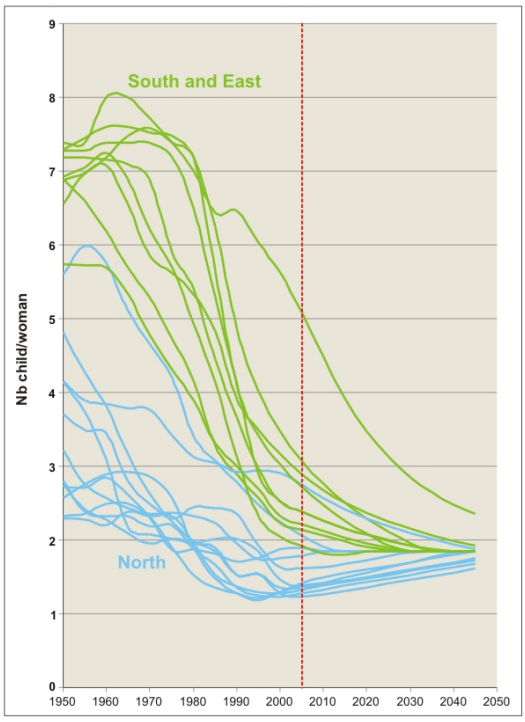
The main observation over the last 20 years has been the drop in fertility rates in Southern and Eastern countries as well as in Albania, much faster than was imagined in the 1980s (Figure 5). The assumption for 2050 is that the demographic transition in the South will continue, as will therefore the convergence of fertility rates. This has been confirmed by the United Nations demographic projections used by the Blue Plan.

Despite the accelerated transition, the demographic swing between the rims is expected to continue. The population in the South and East has virtually doubled over 30 years, to reach 258 million inhabitants in 2005. By 2050 it could well grow by a further 137 million. Populations in Egypt and Turkey would then total 121 and 99 million inhabitants respectively. The population on the Northern rim- 199 million in 2005- has only grown by 14% over the same 30 year period, and is only expected to increase by 4.5 million by 2025.

As a result of these demographic developments, the ageing issue is becoming a cause of increasing concern to the north of the Mediterranean, whilst in the Mediterranean countries on the southern and eastern rims, some 22 million additional new jobs would need to be created within 20 years if current employment levels are to be preserved (Source: FEMISE).

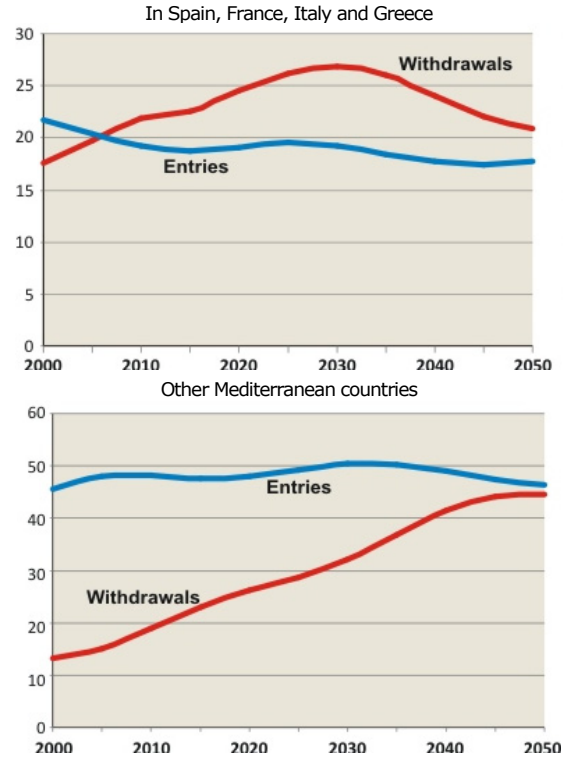
Tendentially speaking, it is mainly in the urban areas and along the coast that the increase in demographic pressure will be at its strongest. As for the rural population, at least up until 2025 it is not likely to decrease in the south and east where it is largest.

Figure 5 Overall fertility indexes: developments since 1950 and projections



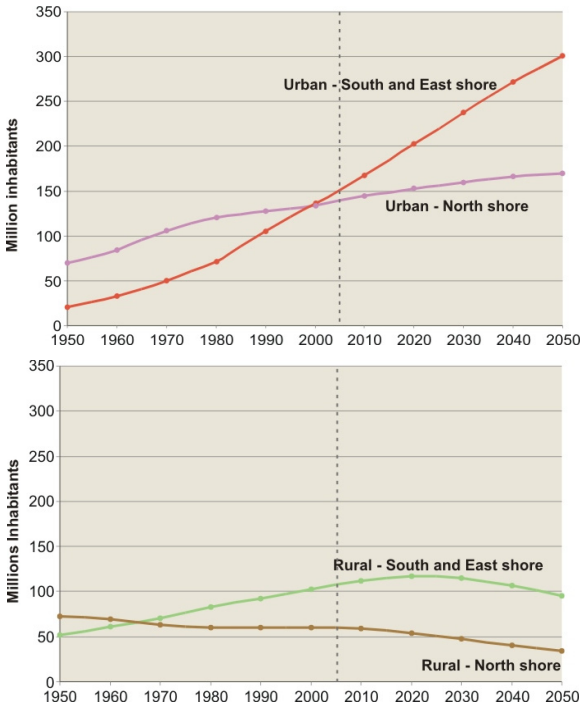
Source: United Nations Population Division -World Population Prospects: The 2006 Revision

Figure 6 Comings and goings on the labour market (in million inhabitants)



Source: United Nations Population Division -World Population Prospects: The 2006 Revision

Figure 7 The urban and rural populations on the two shores of the Mediterranean



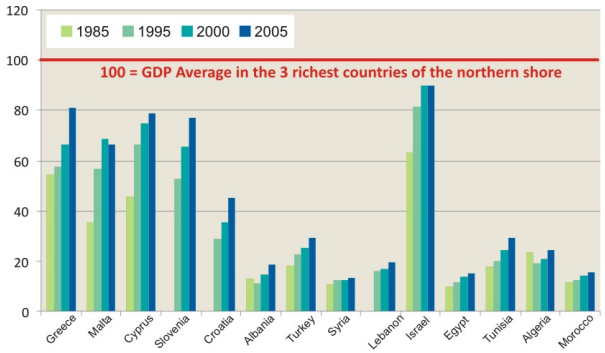
Source: United Nations Population Division -World Population Prospects: The 2006 Revision et World Urbanisation Prospects : The 2007 Revision

Economic performance in need of consolidation in order to reduce the North-South divide

Although over the 90s the SEMCs managed to stabilise their macroeconomic aggregates [3], economic growth on both rims has been lower than in other comparable regions worldwide. One of the reasons often put forward is the ever prevalent 'private means' and 'mining' features of the Mediterranean economy: revenue from land linked to the residential economy and certain types of farming practice, revenue from oil and gas [4], revenue from water abstraction from non-renewable resources, and the appeal of short-term speculative or commercial gains (property speculation has been rife over the last few years) without any real strategy for developing goods and services. The economy still lacks innovation and dynamism. Public and private R&D expenditure and ties between business and training and research institutions are limited. "Competence" drain is rife in many countries and civil society not sufficiently active.

Some progress has nonetheless been achieved: GNP growth rates since 2005 are higher in the SEMCs[5] than in the past, which would suggest the beginnings of convergence towards European per capita GDP levels. But, although the Mediterranean countries which have joined the European Union or are candidates for accession have caught up somewhat with France and Italy in terms of their GDP, the North-South GDP per capita gap in terms of purchasing power parity has not narrowed and ranges from 1 to 5 (figure 8).

Figure 8 Per capita income differences between the three wealthiest countries on the northern rim (ES,FR, IT) and the other Mediterranean countries (GDP/inhab)



Source : World Development Indicators 2007, World Bank

Economic performance has still not reached a level which would allow the rapid convergence of living conditions between north and south, and a drop in unemployment.

Thus, youth unemployment has reached record levels on both rims, with many countries recording rates of 20-30%, even though in overall terms unemployment rates would seem to be dropping.

At the same time, remarkable progress has been achieved in the South and East on reducing infant mortality and providing primary education, and significant efforts are underway to reduce the number of Mediterraneans with no access to drinking water, sanitation or energy (some 20 million for drinking water, 47 million for sanitation and 9 million for energy). However, several countries are still seriously behindhand with high illiteracy rates particularly in rural areas. Although extreme poverty is limited, relative poverty is high and not abating. Despite the progress achieved, access to information (internet) and gender equality are still lagging behind when compared with other regions around the world.

Economic growth trends through to 2025 are still highly uncertain, particularly in the South and East. Even though as an annual average for the Mediterranean Basin as a whole it stood at 2.7% per year for 2000-2025 (slightly above the 2.5% trend observed for 1985-2000), it would still not be enough to satisfy the demand for jobs in the Southern and Eastern countries, nor to reduce unemployment and revenue gaps between the two rims.

On the other hand, if the trend towards accelerated growth which has begun over recent years were to persist, and if regional cooperation were to be strengthened, per capita GDP convergence between the southern and northern rims could get underway. This would lead to greater social satisfaction and decreased risk of instability, and the Mediterranean could then increase its economic clout at world level. In several

Mediterranean countries, GDP growth would be encouraged by their lessened sensitivity to economic shocks, oil in particular.

Nonetheless in the medium term- in a context of scarcer resources- how the content of growth evolves will determine how compatible it is with the sustainable development objectives for the region. Everything will depend on the countries' ability to avoid the over-exploitation/degradation of their natural resources (agriculture/water, tourism/coastline, energy/oil, etc) to underpin their economic growth.

In the long term, the economic impact of climate change on the countries on the southern and eastern rims is a cause for growing concern, particularly as far as the adaptation of these countries' economies is concerned.

An environment which remains vulnerable despite the emergence of environmental policies

Over recent decades, environmental awareness and action towards sustainable development has made progressed in the Mediterranean.

At regional level, The Barcelona Convention for the Protection of the Mediterranean Sea against Pollution (1976) was amended and extended to include coastal areas in 1995; a Mediterranean Commission on Sustainable Development, open to civil society, has been set up, its work leading to the adoption in 2005 of a Mediterranean Strategy for Sustainable Development (MSSD).

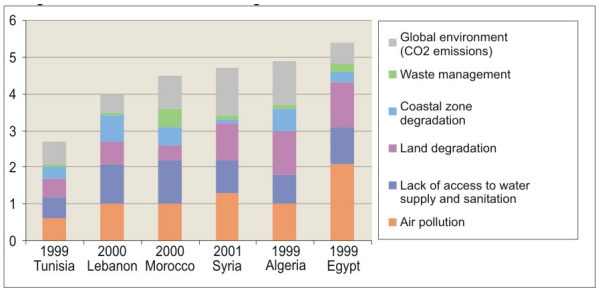
In the same year, meeting for the tenth anniversary of the Euro-Mediterranean Partnership and with reference to the MSSD, the partners committed to adopting a timetable to clean up the Mediterranean Sea by 2020. In view of this commitment the European Commission has launched the "Horizon 2020" initiative which is intended to tackle the main sources of pollution.

Although the synergy between the various regional programmes and initiatives on the environment and sustainable development has recently improved, the means for action are still limited.

In 2007, the Union for the Mediterranean project was launched with the aim of giving political impetus to the cooperation and dialogue process by building on specific, jointly defined projects, particularly in the environmental field.

At national level, all the Mediterranean states have introduced environmental policies, and clear examples of progress can be seen on all three rims. Despite these achievements, the tensions forecast by the Blue Plan in 1989 regarding natural resources and environmental degradation have now been confirmed. They are a heavy burden for the poorest populations and tend to impede, if not to jeopardize, economic and social development.

Figure 9 The average annual cost of damage related to environmental degradation (% of GDP)



Source: World Bank estimates 2004

For example, the World Bank has estimated the annual cost of environmental degradation at nearly 3% in Tunisia and 5% of GDP in Syria, Algeria and Egypt (Figure 9)[6]. The main issues at stake are soil degradation, water resources, the coasts and the urban environment.

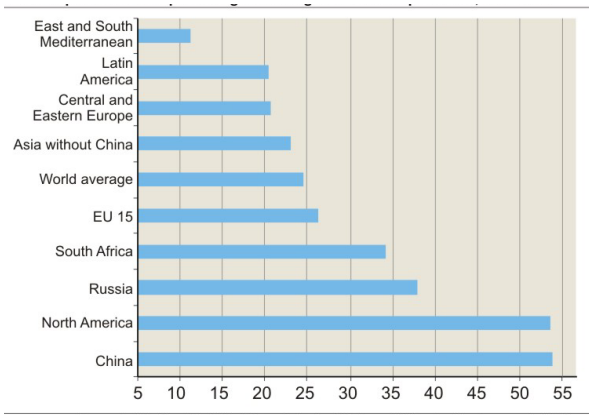
In the EU's Mediterranean Member States, despite the Community's achievements and community principles of solidarity, territorial disparities have further increased. It has not been possible to eradicate "coastalisation", urban sprawl and massive loss of quality farmland, the "concreting" of entire swathes of the coast and poor management of the hinterland. As in Spain and Greece, integration into the single market has brought with it a major increase in greenhouse gas emissions and waste production.

One of the explanations given for such mediocre performance is that in the face of rapid change the Mediterranean has been too much inclined to forget its own customs and know-how and instead has copied development models inappropriate to its specific features. A further factor is the type and respective weight of the various policies. For a long time, environmental policies basically remained top-down, corrective and regulatory rather than participatory, integratory and anticipatory. Priority has tended to be given to a regulatory approach as economic instruments (water metering, pollution tax, subsidies for clean technology….) have still not been developed. These policies often lack funding and inter-ministerial support. Moreover, land use planning policy has registered a certain decline, while coastal and sustainable rural development policies have not gone far enough. The capacities of local authorities in the Southern and Eastern Mediterranean are often limited (Figure 10) and, in those countries where there has been decentralization, the process has not been well enough managed to ensure that the long-term is taken into account. Finally, economic cooperation and sectoral policies (agriculture, energy, water, transport and tourism) have failed to adequately integrate the environmental dimension and sustainability. In particular, whilst major progress has been made on reducing industrial pollution, the growing importance of diffuse sources of pollution (agriculture,

transport, energy, towns….) as well as the degradation or draining of non renewable natural capital demand that attention be paid to lifestyle and consumption trends and that more effort be put into policy integration.

By 2025 if they were to continue, these trends (largely centralised environmental policies which are more curative than preventive) would be a hindrance to environmental governance in the face of sustainable development stakes.

Figure 10 Local expenditure as a percentage of total state spending 1997-2000



Source: L. Urdy for the Blue Plan according to the World Bank Decentralisation Database 2002 and national sources for the Mediterranean countries.

Note: Eastern and Southern Mediterranean: Turkey, Israel, Egypt, Tunisia, Morocco. Central and Eastern Europe: Albania, Croatia, Slovenia, but also 15 other countries. Global average: sample of 56 countries.

Seven sustainability issues in the Mediterranean: trends and alternatives

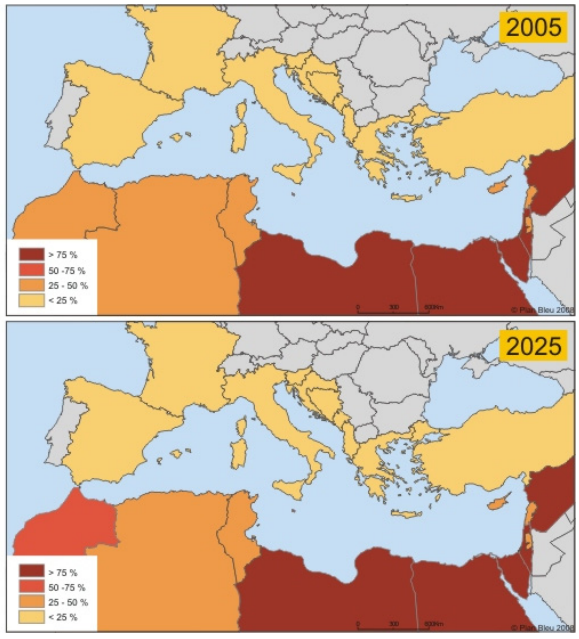
Improving water demand management to prevent shortage and crises

Water resources are limited and very unevenly distributed over both space and time. The Southern rim countries receive only 10% of the total precipitation. The number of *water poor* Mediterranean populations, living in countries with less than 1000 m^3/capita/year of renewable resources, could reach 250 million inhabitants in 2025, 80 million of whom would be facing shortage conditions with less than 500 m^3/capita/year. Twenty million Mediterranean people, particularly in the South and East, are deprived of access to drinking water.

During the second half of the 20th century, water demand, i.e. the amount of resource abstraction (95% of total withdrawal) plus unconventional production practices (desalination, wastewater reuse…), including losses during transport and use - estimated at nearly 40% of total water demand -, has increased twofold, reaching 280 km^3/year in all riparian countries in 2005. Agriculture is the main water-consuming sector (180 km^3/year to irrigate 24 million hectares) and accounts for 64% of total water demand (45% in the North and 82% in the South and East), while it only remains marginal in the Eastern Adriatic countries. Water demand may increase by a further 18% by 2025, essentially in the Southern (28%) and Eastern (33%) countries, and mainly in Turkey and Syria.

By 2025, the significant increase in pressures on water resources, gauged by *the exploitation index of renewable natural water resources*[7], highlights strong and sometimes alarming contrasts as regards the "future of water" (Figure 11). Today, in some countries (Egypt, Israel, Libya, Malta, Syria) and in Gaza Strip, water withdrawals already near or even exceed the limit threshold of renewable resources. The current and future situations are even more alarming when the index is calculated at Mediterranean catchment area rather than country level. Pressures on resources appear even greater when considering the only « exploitable » water resources which account for about one third to a half of renewable natural water resources).

Figure 11 Exploitation index of renewable natural water resources, entire countries, 2005-2025



Source: Blue Plan

Note: Indices nearing or exceeding 75% reveal very strong pressures exerted on water resources; ratios between 50 and 75% point significant medium-term risks of structural stress; indices between 25 and 50% indicate that countries may endure local or fluctuating stress.

Water demand is increasingly met by an unsustainable water production estimated at 16 km^3/year, of which 66 % coming from fossil water withdrawals and 34 % from over-exploitation of renewable water.

The changes in temperature and rainfall described by the climatic models will further aggravate these trends,

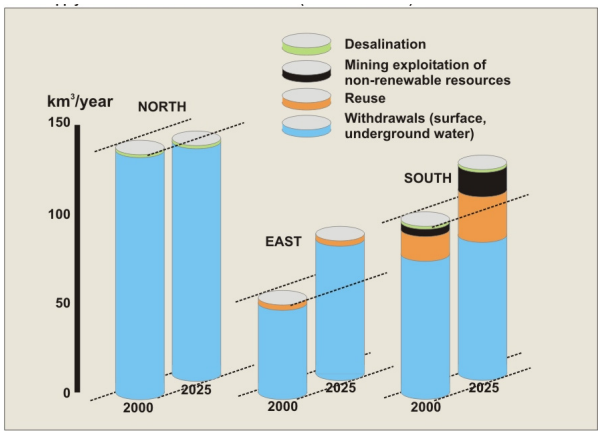
and the Mediterranean regions will find themselves particularly exposed to a reduction in their water resources. Development along these lines could give rise to acute crisis situations in some countries. To the south and east of the Mediterranean the population of the countries which would face a water shortage in 2050 has been estimated at 290 million people.

Pressures can also be qualitative. Many aquifers, particularly in the North, show excessively high contents of pesticides or nitrates. Forty-seven million Mediterraneans are deprived of access to improved sanitation systems, mainly in the South and in the Middle East. And everywhere, many rivers are subjected to chronic pollution due to non-treated domestic and industrial discharges.

To meet growing demand, national strategies essentially rely on the extension of water supply and on major waterworks to enhance resource management and reduce risks resulting from natural constraints - 1,200 large dams are already recorded in the sole watershed area. The supply-based approach is expected to remain prevalent and lead to the following consequences (Figure 12):

- Increased withdrawal of renewable resources through major hydraulic projects, overexploitation of underground water and development of interregional and international transfers;
- Increased "mining" exploitation of non-renewable underground water resources in the Saharan basins. Such excessive abstraction may more than double by 2025, particularly in Libya and Algeria;
- The use of return water from agricultural drainage (Egypt) and the reuse of treated wastewater for irrigation (Spain, Israel, Cyprus, Egypt, Tunisia);
- Industrial freshwater production through desalination of seawater or brackish water, as is currently the case in Malta, Spain, Algeria and Israel.

Figure 12 Water supply sources in Mediterranean countries (baseline scenario)



Source: Blue Plan

Desalination costs have been significantly reduced and make this approach to resource supply more competitive than transfers. The use of freshwater produced in this way is no longer limited to satisfying drinking water requirements, but may also be used for irrigation, until now considered as too expensive. Spain ranks first in the use of desalinated water for agriculture. However, the total volume of treated wastewater and of desalinated water is expected to account for only 25 km³ in 2025, 90% of which in Egypt with the recycling of agricultural drainage water.

The continued application of policies focused on extending supply and pursuing abstraction represents severe risks in the long-term, such as the rapid depletion of some fossil resources, the destruction of coastal aquifers through seawater intrusion, the degraded quality of water and aquatic systems, reduced flows and the drying-up of wetlands. The factors of increasing "water vulnerability" could be aggravated. Supply-based policies are therefore reaching physical, socio-economic and environmental limits, as demonstrated in the South and East by the current condition of dams, where silting will probably reduce most of their capacity (in Algeria, some reservoirs have already lost 25% of their initial capacity).

An alternative scenario could be used to counter the trend scenario with its inevitable crises, relying on the implementation of voluntary policies:

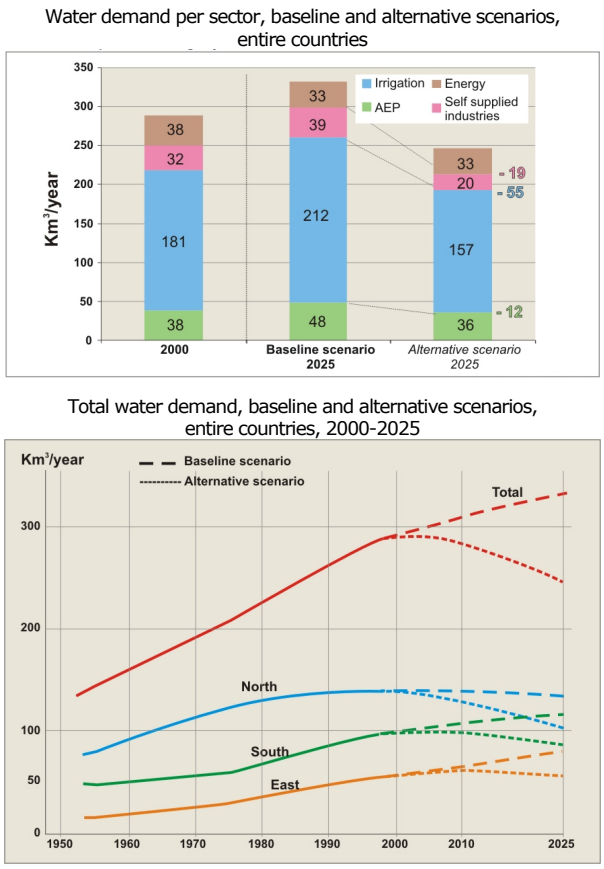
- Policies for efficient and economic use, called « water demand management » policies,
- Policies to increase exploitable potential through improved water and soil conservation, and increased recourse to the artificial replenishment of water tables in arid countries.

There is considerable room for progress since improved water demand management would make it possible to save 25% of water demand, i.e. approximately 86 km³/year in 2025 (Figure 13). Irrigated agriculture represents the largest potential for volume savings, with nearly 65% of total water potential savings identified in the Mediterranean (transport losses reduced by 50%, down to 10%, irrigation water efficiency increased from 60% to 80%). A further 22% in water savings potential can be expected from industry (recycling rate up to 50%), and another 13% from drinking water supply (transport losses and household leaks reduced by 50%, respectively down to 15% and 10%).

According to this optimistic view, assumed to be generalized throughout the Mediterranean countries, total water demand would level off at 102 km³/year in the North and at 144 km³/year in the South and Middle East, globally equivalent to the drop in total current demand of approximately 40 km³/year (Figure 13). These savings represent net benefit: the rare available studies reveal gaps from 1 to 3 between the cost per cubic meter

of saved water and that of exploited water. The benefits could also be seen in energy savings.

Figure 13 Water savings, demand management with the alternative scenario to 2025



Source : Blue Plan

These global estimates, based on concrete experiences carried out in certain countries, show that current trends can be inverted. Tunisia, for example, has implemented a national water-saving strategy for irrigation, which includes the creation of user associations, pricing aimed at progressive cost recovery, targeted financial instruments for water-efficient farming equipment, and support to farmer revenues. Since 1996, this policy has stabilized irrigation water demand despite agricultural development, and the needs of both the tourism sector and cities have been assured. In Morocco, improved water management has deferred or perhaps completely avoided some costly investments (dams, transfer canals) initially planned in the 1980 Master Plan.

The challenge of water demand management is not only limited to physical savings. It also means improved economic and social enhancement of mobilized resources and the coverage of water requirements of ecosystems.

The transition from the baseline scenario to a sustainable development scenario can only be gradual, carried by the indispensable policy reforms posting clear integrated water resource management objectives in all policies - particularly in agricultural ones - and generating the means for implementation, based on the development of sustainable efficiency plans and financial mechanisms.

In this context, both the financing of investments in drinking water supply and sanitation infrastructures (in the South and East) and the recourse to economic instruments such as subsidies and pricing to optimize allocation of available resources, appear crucial for the future. The same applies to strengthening management capability, particularly at local level. Regional cooperation, based on a long-standing tradition in water in the Mediterranean, can certainly contribute as catalyst to accelerate the emergence of the required changes.

Thus, in the framework of the Mediterranean Strategy for Sustainable Development, the Mediterranean rim countries have set the following priority objectives:

- To stabilize water demand through the reduction of water losses and the wasteful use of water and increase the added value per cubic meter of water used,
- To promote the integrated management of watersheds,
- To achieve the Millennium Development Goals concerning access to safe drinking water and sanitation,
- To promote participation, partnership, active cooperation and solidarity for the sustainable management of water, at local and national level.

Making rational use of energy and promoting renewables

The trend: increasing risk, impact and cost

By 2025, primary energy demand in the Mediterranean[8], will have increased by 50% compared to 2006 Energy demand growth rates in the southern and eastern Mediterranean countries (SEMCs) will exceed, in percentage terms, four times those of the northern ones (NMCs) and will by then account for 42% of the Mediterranean basin's total demand for energy, compared with 29% in 2006. Turkey could well become the basin's second biggest consumer.

Fossil fuels (oil, gas and coal) account for 80% of the countries' energy supply (94% for the SEMCs and 75% for the NMCs). Four countries- Algeria, Libya, Egypt and Syria- are oil exporters, providing 22% of the Mediterranean basin's oil imports and 35% of its gas imports. All the other countries are net energy importers.

Unless this trend is corrected by 2025, natural gas could account for 37% of primary energy demand in the SEMCs. Coal would retain its share, particularly for the production of electricity. Leaving aside hydraulic energy and biomass, renewable sources of energy would still only account for a small share, rising from 2.8% to 3% of primary energy in the SEMCs and from 3 to 4.2% in the NMCs.

Energy demand within this baseline scenario would be marked by spectacular growth in electricity demand, far outstripping that of GDP, primary energy consumption or population, particularly in the SEMCs. Driven by a three-fold increase in consumption in Turkey, Tunisia and Algeria and a two-fold increase in Egypt and Morocco, for the SEMCs it could well multiply by 2.6 between 2006 and 2025. Such a startling increase in consumption will most likely be triggered by the expected growth in the industrial sector, improved access to electricity and improved standards of living directly linked to consumption in the residential sector.

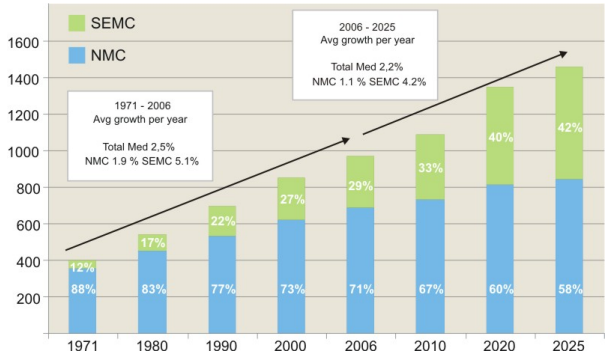
In the NMCs, the most marked increase in consumption for 30 years has come about in the transport sector, taking first place with 32% of energy consumption. All sectors in these countries have seen a surge in consumption, with industry and the residential sector being the biggest consumers in 2005, accounting for 36% and 27% of energy consumption respectively.

This type of trend scenario points to increased risk and impact:

- Between 2006 and 2025, CO_2 emissions from energy consumption could rise by 55% in the NMCs and by 119% in the SEMCs. In 2025, whilst being 1.8 times per capita below those in the NMCs, emissions in the SEMCs could well account for 47% of the basin's emissions, as opposed to 33% in 2006.
- Energy dependency could increase sharply both for the SEMC importers (rising from 77% in 2006 to 88% in 2025) and for the NMCs (up from 68% to 73% over the same period).
- The social and economic risks attached to the rise in supply costs and its repercussions on national energy bills, households and business would increase.

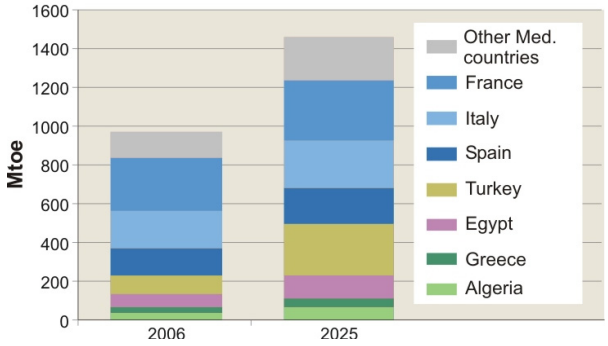
Global warming heightens the risks in this trend scenario. Hydric stress, linked with increased frequency of extreme climatic events could thus trigger a drop in hydro-electric potential and a cooling of the thermal power stations. Thus in France in the summer of 2006, the power generated by certain nuclear power stations along the Rhone was rendered temporarily unavailable at the same time as there was a surge in demand, largely driven by air conditioning needs.

Figure 14 Primary energy demand in the Mediterranean: trend developments (in Mtoe)



Source: Mediterranean Energy Observatory

Figure 15 The main energy consuming countries in the Mediterranean, 2006-2025



Source: Mediterranean Energy Observatory

An alternative for slowing down the increase in energy consumption

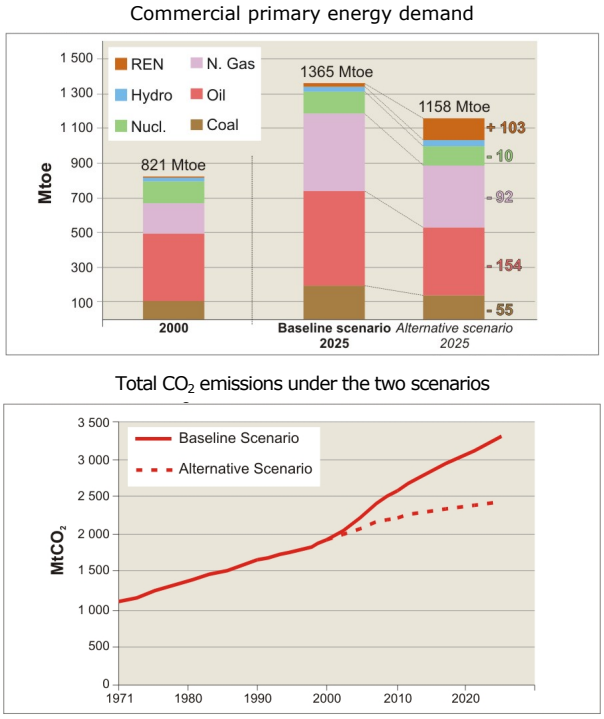
An alternative Blue Plan scenario (Figure 16), based on improved use of currently available technologies, is based on the more rational use of energy and rapid development of renewables (solar, wind, geo-thermal energy and hydroelectricity).It is assumed that savings of 20 to 25% in total energy demand can be made by 2025, with renewables accounting for 14% as compared with the 4% in the baseline scenario. The housing sector represents the most significant potential for energy savings, particularly in the Southern and Eastern countries, where there is strong population growth

The comparison of inter-country performance, along with multiple examples, shows that this double dividend scenario, presenting both environmental and economic gains, is feasible. Such is the case for Italy, with decreasing energy intensity, and the Palestinian Territories as far as solar water heaters are concerned. Returns on investment tend to be short-term- a few years, or sometimes just a few months.

The alternative scenario has considerable advantages:

- Growth in demand halved, representing total energy savings of 208 Mtoe/yr in 2025;
- Avoided expenditure of 2,000 billion euros over 25 years, based on the price of $120 per barrel;
- Energy dependency down to 18% (compared with 38% in the trend scenario);
- 154 500 MW power plants which do not need to be built on the Mediterranean coastline;
- 860 million tonnes less of CO_2 in greenhouse gas emissions in 2025;
- Creation of numerous jobs in the innovative sectors of the 'post-oil' era;
- Adapting the region to the changes required in order to limit global warming.

Figure 16 Energy and CO_2 emissions savings which can be achieved with the alternative scenario, 2025 (all Mediterranean countries



Source : Blue Plan, Mediterranean Energy Observatory

The implementation of the alternative scenario will require major changes in energy thinking, planning and management in order to diversify policies and involve as many stakeholders as possible. Strong public initiatives, which are clearly visible in national strategies, will be needed, along with sustainable financing mechanisms, efforts in R&D, and communication and training. For behaviour to evolve, incentives and clear "price" signals are indispensable. In the Palestinian Territories, Cyprus and Israel for example, high kWh prices in the residential sector have lead to the significant development of solar water heaters. It will also be necessary to revert to "Mediterranean" architecture and town planning which is suited to the climate.

Taking account both of the vulnerable nature of the region in the face of climate change and its potential to increase emissions, the Mediterranean Strategy for Sustainable Development (MSSD) has adopted as one of its objectives the "control, stabilisation or reduction of greenhouse gas emissions, depending on the case".

There are several options for reducing CO_2 emissions, ensuring that the demand for services from energy is met, and at the same time ensuring security of supply.

The MSSD suggests that potential for energy efficiency in key sectors (construction, transport, industry) should be exploited as a priority, and renewables rolled out on a grand scale.

Developing modes of transport and « uncoupling » mobility from economic growth

Transport growth far outstripped population and economic growth between 1970 and 2000: 4.9% per year for passengers and 3.8% for freight (excluding maritime traffic). Road transport accounted for 88% of land passenger traffic and 82% of land freight in 1999. Rail (9% of domestic passenger traffic) plays a significant role in Egypt (47% of the total) and the Eastern Adriatic countries (23%). Strong growth in air transport (7.3% a year) is linked to the growth in tourism.

Maritime freight transport has also grown considerably (4% per year), even though North-South Euro-Mediterranean transport chains lack competitiveness. The Mediterranean fleet transports hazardous substances, while controls are limited. Maritime transit flows account for almost 40% of Mediterranean traffic. The closure of transit routes in former Yugoslavia during the conflicts resulted in the establishment of intermodal chains with Greece and Turkey using the sea for their trade with Western Europe. This situation continued after the end of hostilities, thus demonstrating the economic soundness of these more "sustainable" transport systems.

Transport is a source of significant pollution:

- Peaks in ozone pollution;
- Most noise pollution, which affects 51% of the population in Israel, 45% in Malta and 33% in Italy;
- It plays a major role in emissions related to hydrocarbon combustion (volatile organic compounds, benzene, etc.);
- It is responsible for a third of CO_2 and particle emissions, and 70% of nitrogen oxide emissions in large Northern rim urban areas;
- Road congestion costs, which are already high and showing a marked increase in Mediterranean Europe (16% per year). The cost has been estimated at 40 billion euros for the Mediterranean for 2000, 14 billion of which for France as compared with 1.6 for Turkey, for example;
- A major cause of surface sealing (through infrastructure construction), thus increasing vulnerability to floods and loss of biodiversity;
- The irreversible "concretisation" of the coasts when roads are built alongside or too close to the coastline.

Significant progress has been achieved in the marine pollution field: operational oil pollution was apparently divided by a factor of 20 between 1985 and 2000 through more stringent regulation, mainly the obligation to use separate ballast tanks. Albeit illegal, pollution from tanker ballast waters is estimated at between 100,000 and 150,000 tonnes per year.

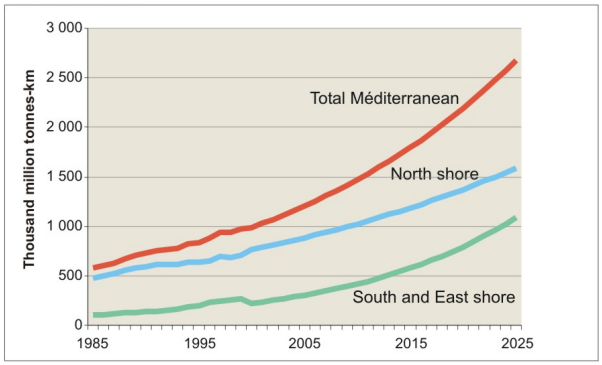
The trend scenario foresees considerably increased pressures by 2025: a 2.6 fold increase in land freight traffic (Figure 17), 3.7 fold in maritime freight traffic, and a virtually two-fold increase in passenger traffic. Mass motorisation (cars) will become widespread in the South before 2025. This exponential growth will have a major impact in terms of congestion, noise pollution, greenhouse gas emissions and local pollution. With the surge in traffic, the Mediterranean Sea is no longer sheltered against disasters such as the *Prestige* or *Erika*, which may prove much more costly than those in the Atlantic.

The alternative scenario supposes:

- The decoupling of motorized mobility from economic growth, with the hypothesis of traffic in 2025 being 8% lower than in the trend scenario;
- Modal distribution more favourable to rail (20%) and maritime transport;
- Extended and stricter implementation of rules to combat pollution from ships.

Spectacular advantages would be obtained in terms of reduced CO_2, VOC (90,000 tonnes avoided) and NOx emissions, congestion costs, road accidents, noise and marine pollution if it were to be achieved.

Figure 17 Freight traffic (road, air and rail): growth and trend scenario up to 2025



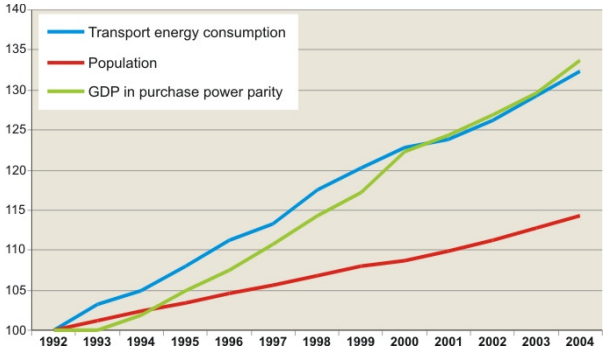
Source: CEMT, Ministries for transport, national statistical institutes, Blue Plan prospective analysis

This scenario will require the Mediterranean transport system and policies to evolve, particularly by adopting a medium and long-term vision of the desirable developments for the various geographical levels (Euro-Mediterranean, national, regional and local) in terms of sustainability, ensuring the financing of sustainable transport infrastructures, rationalizing taxes and subsidies, and strengthening international cooperation to regulate liberalization. Europe's role as a regulatory pole should increase.

Since the year 2000, the increase in energy consumed for transport has far outstripped demographic growth, which is a worrying development in a difficult energy context (figure 18).

Although data on energy consumption include an improvement in engine performance, the rate of increase in energy consumption for transport in the Mediterranean is close to that of economic growth. Major efforts thus still need to be made to bring about the "decoupling" needed to trigger a change of scenario.

Figure 18 Growth in energy consumption for transport, population and GDP for all Mediterranean countries (base 100 in 1992).



Source: Mediterranean Energy Observatory, World Development Indicators 2007- World Bank

By ensuring sustainable mobility through appropriate transport management having been set as a regional priority, the Mediterranean Strategy for Sustainable Development has identified the following as the main objectives in this area:

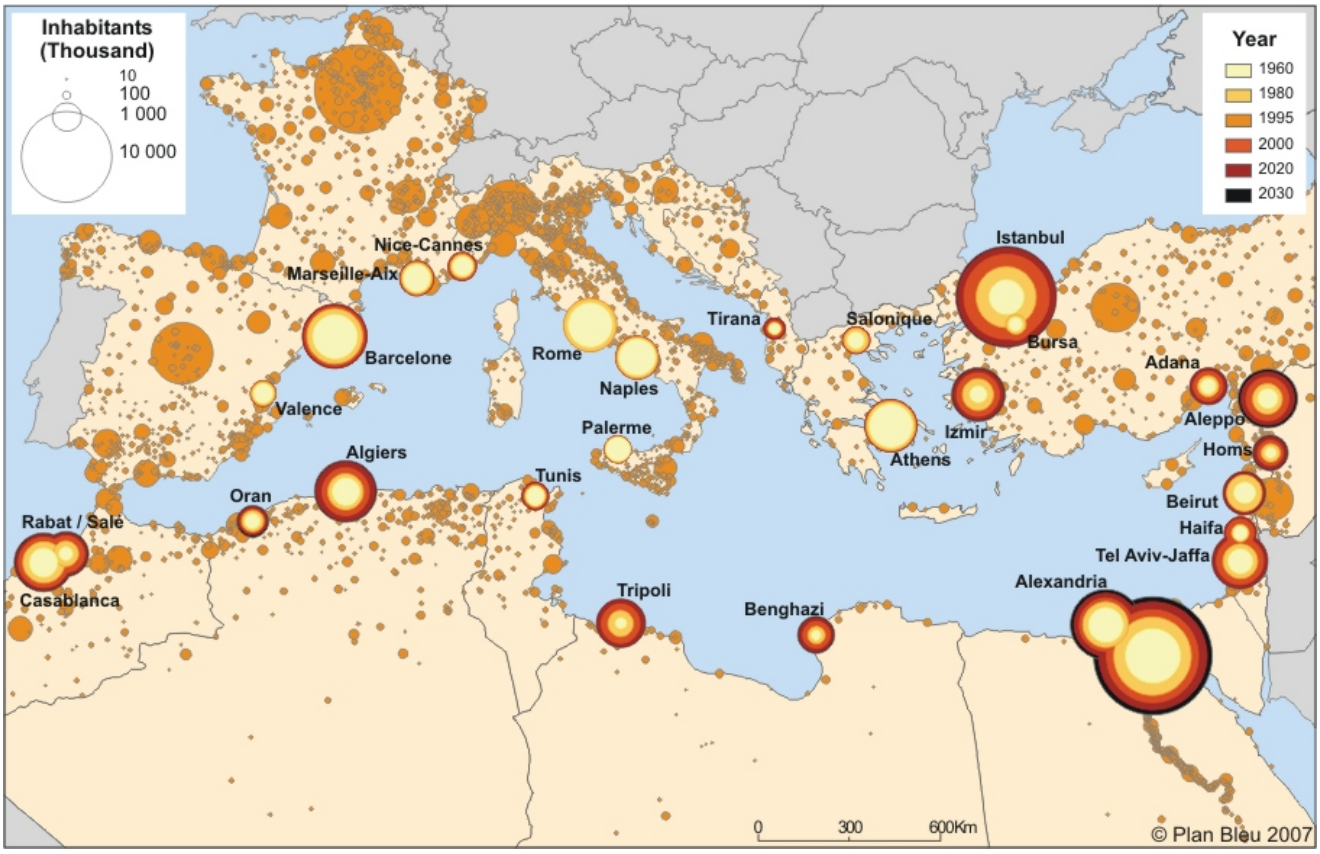
- Supporting regional and national initiatives for promoting more competitive and sustainable transport systems and improving Euro-Mediterranean transport connections and networks.
- Promoting more integrated transport networks in order to ensure greater complementarity between road, rail and sea, and a significant switch from road to sea and rail.
- Promoting the use of cleaner and less polluting fuels.
- Improving the integration of transport policies into economic planning in order to achieve constant progress in terms of uncoupling growth in motorised transport and growth in GDP.

Going along with a continuing urbanization and containing urban sprawl

Urban population in the Mediterranean coastal countries passed from 90 million in 1950 (42% of total population) to 290 million in 2005 (63%). The Southern and Eastern countries report accelerated urbanization (3.6% over the period 1970-2000). By 2025, urban population would reach 220 million in the Eastern and Southern countries (151 million in 2005) and 156 million in the countries of the European rim (140 million in 2005). A third of this growth would take place in the Mediterranean coastal regions.

With nearly 70 million extra city-dwellers between 2005 and 2025, the cities of the Southern and Eastern Mediterranean will be undergoing major social and environmental changes. The political or economic capital cities and the several-million metropolises are thirty in the Mediterranean, though they accommodate only a third of total urban population. About 18% of city-dwellers live in 85 intermediate-sized cities (from 300,000 to one million inhabitants), and nearly half of the urban population lives in over 3000 cities of less than 300,000 inhabitants (Figure 19). In the Southern and Eastern Mediterranean countries, the medium and small-sized cities – numbering 1450 – are experiencing a steady growth, whereas they lack resources and technical capacities. The extent of decentralization in these countries is still quite weak, particularly on the financial level.

Figure 19 Population changes in some cities in the Mediterranean countries – Projections to 2030



Source : Blue Plan from Geopolis 1998 and United Nations Population Division, World Urbanization Prospects: The 2005 Revision

Throughout the Mediterranean region, cities, which used to be compact, are now sprawling. They invade their surroundings, absorb previously independent small villages, use up suburban agricultural land, and contribute to extending artificial land cover and sealing soils. In urban areas of the Northern shore, with weak natural demographic growth, trends have been marked for thirty years by a scattering of both population and employment, and by the spreading of urbanized areas further and further away. More and more private car use, affordable land prices in the outskirts, and public sector mechanisms for road facilities, housing and taxation, are main drivers of urban sprawl. In the Southern and Eastern Mediterranean, the expansion of cities is mainly induced by the dynamism of unregulated housing. According to countries and cities, between 30 and 70% of city-dwellers cannot have access to housing unless they resort to informal channels for the purchase of building land plots. This results in the development of derelict areas on the outskirts, with difficult access to water, sanitation and other basic facilities.

The densely populated unregulated-housing areas are particularly vulnerable to natural hazards. Between 1975 and 2001, out of 480 extreme events recorded in the Mediterranean, the most affected countries as for the number of fatalities have been Turkey, Italy, Algeria, Greece and Egypt. Earthquakes, floods and other fatal disasters regularly unveil a poor implementation of town-planning and building rules. With the expected impacts of climate change, the vulnerability of urban areas to extreme hydrometeorological events, to warming and to sea level rise for the very low coastal cities, will be accentuated.

With accelerated urbanization on the South and the East, management of household waste has become a major concern for local authorities. Waste production, estimated at 282 kg/capita/year in 2000, could reach 600 kg/capita in 2025, whereas nearly 80% of dumping sites are today out of control in the South. In the Northern shore countries, waste quantities produced are reaching a ceiling (566 kg/capita/year) though no sign of reduction is yet recorded. In the Mediterranean countries of the European Union, the strengthened regulation founded on the producer's enlarged responsibility might lead to curbing the trend by 2012 and to qualitative improvements.

In the face of a trend scenario of "poor urban development", numerous experiences on the ground show however that shifts are possible in view of guiding urbanization, containing urban sprawl, reducing vulnerability to natural hazards, and mitigating impacts on the near and remote environment.

- *Local Agendas 21* have emerged following the 1992 Earth Summit. Some 500 local governments would be engaged in this kind of environmentalist process, which can sometimes be fairly targeted, like in Izmit, Bursa and other cities of the highly vulnerable region of Marmara in Turkey, where Local Agendas 21 have been redirected, since 2000, to prevention and preparedness for natural disasters.
- In the *mass transport* sector, tramway projects have been on the increase in recent years (Alicante, Valencia, Barcelona, Montpellier, Marseilles, Nice, Rome, Naples, Palermo, Athens, Cairo, Tunis, Algiers, Constantine, Oran, Rabat . . .), with good results in terms of reducing congestion and pollutant emissions in city centres. However, since mass transport development can amplify urban sprawl and favour car use on the outskirts a new generation of land use planning policies is now seeking to influence mobility at source, through an urban organization that generates less motorized travel. A "city with short distances" is aimed at by the *twin-planning of city and transport*, where emphasis is laid on a densification around mass transport stations and lines (Netherlands, Great Britain, Norway, Brazil, Singapore).
- *Policies of regeneration and renewal* of the urban fabric point out a promising course of action with a view to containing urban sprawl, mitigating environmental impacts and improving the quality of life. Barcelona, Marseilles, Genoa, Naples, Aleppo, show examples of policies aimed at renovating old towns, revitalizing town centres, enhancing public spaces, rehabilitating seafronts, and boosting the urban economy, through the factoring of cities' historical and cultural heritage.

All these initiatives show that cities can contribute to environmentally sustainable development. The issue, therefore, is not so much the number of city-dwellers but the way cities are managed, and urban lifestyles wasteful of natural resources.

The future will rely on policies being implemented at the very local level: the metropolitan area, the entire city, the heart of the city, the neighbourhoods. It will be closely linked to a long term vision, a more strategic urban planning, a fearless leadership and participatory approaches aimed at involving the inhabitants in city affairs. However, in view of the immense sustainable development challenges, local endeavours require large support. A change of scenario will require simultaneous efforts by cities, provinces or regions, and States, with support from international cooperation, not only decentralized cooperation but also inter-State cooperation. The Mediterranean area would benefit in

this regard from an accentuated urban dimension in pan-Mediterranean cooperation in view of supporting medium-sized cities and urban areas in crisis.

The Mediterranean Strategy for Sustainable Development has made it a priority field of action, and laid down four main directions:

- To anticipate and plan for expected urban growth;
- To enhance the value of Mediterranean cities' heritage;
- To improve the quality of life and reduce inequalities;
- To improve urban governance while strengthening solidarity between Mediterranean cities.

Integrating agricultural and rural activities into the territorial development objectives

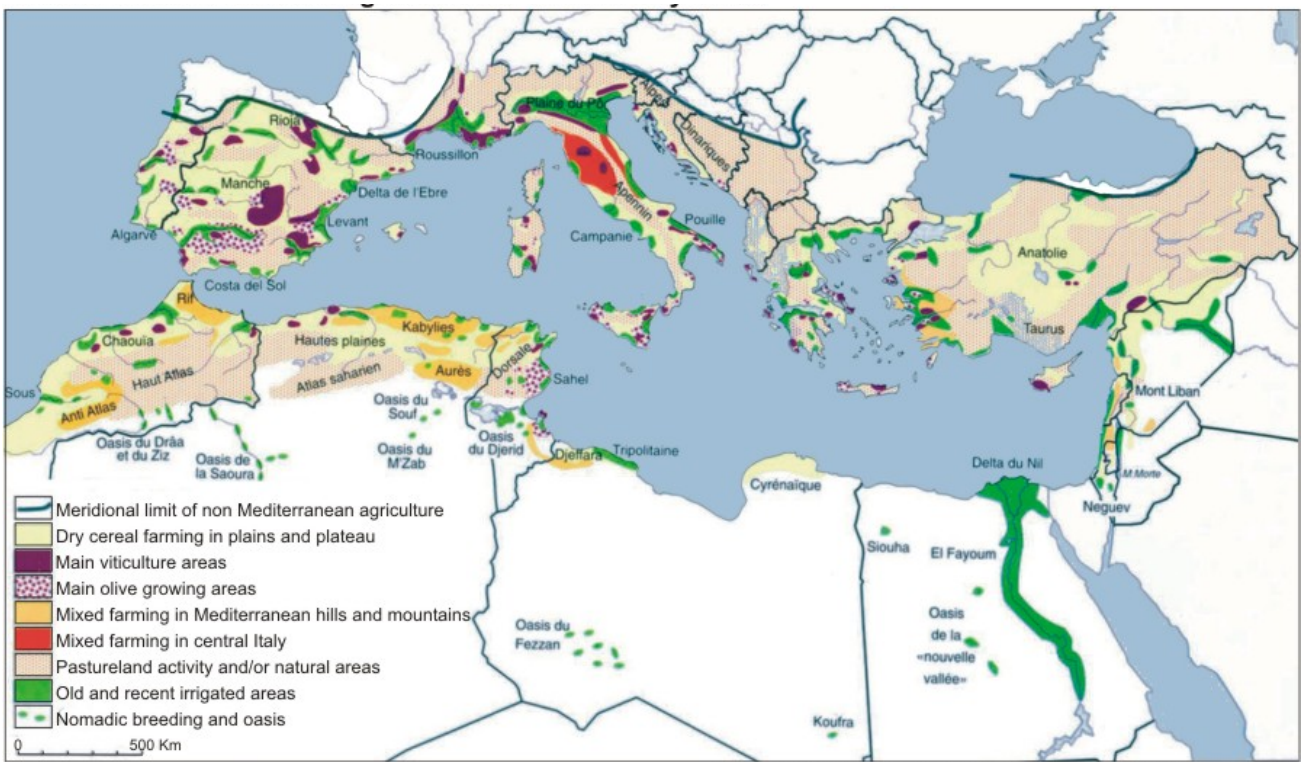
For ten thousand years, the rural lands of the Mediterranean have been shaped by the societies which have grown up there. This interaction between Mediterranean farmers and breeders with the processes of nature explains the wealth, diversity and complexity of the land and landscapes today.

In the agricultural sector, some areas have managed to intensify their production in the face of global competition, either by specialising in typically Mediterranean production with relatively high added value (wine, olive oil…), or by depending heavily on irrigation (vegetables, fruits, cotton, …). In 40 years, the area under irrigation has doubled, and now amounts to more than 26 million hectares in the Mediterranean, in other words more than 20% of cultivated land.

On the other hand, faced with competition from the major crops of temperate Europe or the new world, most small-scale farmers, working just a few hectares of land and with very low yield (around ten quintals per hectare, if not less) and owning only a few animals, have generally speaking not been able to find their way into intensification. In the mid 19th century their numbers started to decline in France, with the other countries on the northern rim following suit in the 20th century, prompting a major rural exodus, a marked fall in population in the least favoured areas and the dry mountain areas in particular, and the abandonment of farming in many difficult sectors. In the countries to the south and east of the Mediterranean, several millions of small-scale farmers are still living in dire poverty despite high levels of emigration towards the towns.

Mediterranean agriculture is thus of a markedly dual nature: « dry crops » (pluvial) and irrigated ones, wealthy areas and poor ones, and this duality is becoming more entrenched.

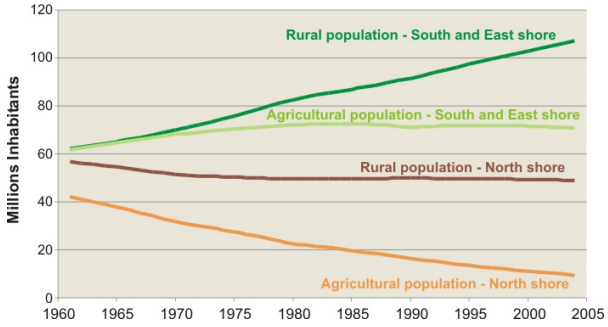
Figure 20 The main agricultural and natural systems in the Mediterranean



Source : Geographic revue of the Mediterranean countries, Tome 97 « 40 years of Mediterranean geography, 2001

Figure 21 shows these different development lines followed by the Mediterranean agricultural population: an old and rapid drop to the north (less rapid in the Balkans); a foreseeable but slower drop in the SEMCs (faster in Turkey).

Figure 21 Development of the agricultural and rural population in the Mediterranean



Source : FAO

Whether sedentary, transhumant or nomadic, breeding has always been an essential component in Mediterranean agro-pastoral systems. On the northern rim, it has held up better than non-irrigated agriculture, albeit having undergone far-reaching change and becoming increasingly dependent on aid linked to the common agricultural policy. To the south and east, breeding has also undergone a profound change: the natural fodder provided by the pastureland in the steppes or the wooded areas has been increasingly replaced by artificial foodstuffs of agricultural origin, either local or imported. In the SEMCs, the pressure exerted by cattle in conjunction with the abandonment of centuries-old methods of sustainable pasturage management puts the soil at serious risk of seeing its plant cover degraded.

To the north, the Mediterranean woodlands have benefited greatly from the abandonment of the agricultural and pastoral areas. The forests[ix] cover around 50 million hectares in the countries on the northern rim, with 20 to 25 million of them being typically Mediterranean forest. To that should be added a further 20 million hectares of other forms of woodland (scrub, garrigue and matorral). They are all spreading, mainly through natural vegetation dynamics (some 0.5 to 1% per year), in spite of fires. Fighting these fires, however, demands ever more increasingly expensive land and airborne means. The break-up of these areas by infrastructure and the intensive building which comes with diffuse town planning are other threats to be reckoned with.

In the countries to the south and east, forests cover some 13 million hectares, and other forms of woodland a further 15 million. Over two thirds of them are to be found in Turkey. Huge pressure continues to be exerted by poor agriculture, particularly in the Maghreb, largely due to the clearing and planting of marginal land, over-exploitation of firewood and over-grazing. The situation has been stabilised by efforts to protect and re-forest, apart from in some very poor mountain areas where soil degradation and erosion are still a cause for concern. Some of the best ways of improving the situation would be through better definition of property rights and usage, modernising agriculture, substituting more energy-friendly heating and cooking methods for the traditional wood-burning ones and in particular combating rural poverty.

For several decades now, many regions to the north of the Mediterranean have been undergoing economic and demographic renewal, based on diversification of the activities which produce goods and services, tourism and retirement homes in particular. This development has been encouraged by national land planning policies and by the European structural funds. But it is a type of development which often goes hand in hand with major consumption of built-up space, infrastructure, transport and energy.

If current trends continue in the rural, agricultural, pastoral and wooded areas, this will bring with it several major risks of non-sustainability:

- On-going or increased desertification and rural poverty to the south and east,
- aggravation of its direct and indirect impact (increased pressure on the towns and towards emigration through the rural exodus, rapid silting up of dams, irreversible loss of biodiversity),
- the loss of more than 1.5 million hectares of good quality farming land through urbanization and infrastructure,
- the degradation of water resources, increased vulnerability to fire and floods.

To these should be added:

The risks created by global climate change. The economic risks linked to the rising cost of energy, raw materials and agricultural produce.

The routes proposed for reorienting these trends towards sustainable agricultural and rural development, particularly through the Mediterranean Strategy for Sustainable Development entail:

- Giving greater priority in the SEMCs in particular to developing small and medium scale agriculture, in order to allow more families to escape poverty and to contribute to the food security of their country,
- Favouring high quality food produce in line with Mediterranean cultural and gastronomic traditions as

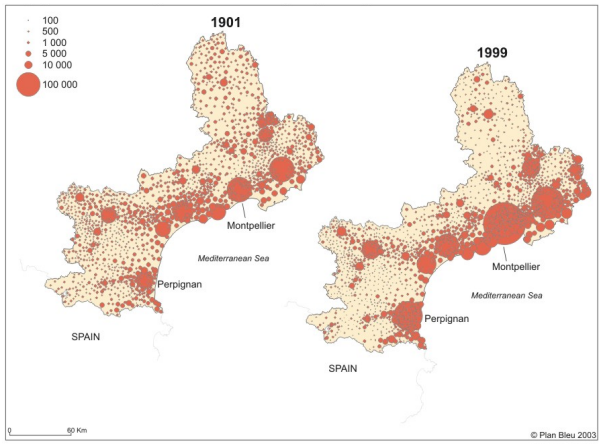
well as organic produce, by giving them suitable promotion on domestic and foreign markets,

- Encouraging water and energy-friendly production and technology,
- Encouraging the diversification of the rural economy towards products and services apart from agricultural ones, which are water, transport and energy friendly, for example by developing medium and long term tourism and stays in the hinterland.
- Allowing plant and animal migration from their distribution zones, thereby avoiding the collapse of biodiversity as a result of climate change. Limiting area break-up and re-creating green corridors to this end.

Ensuring balanced development of the coasts and halting their constant degradation

The Mediterranean coastline is a priceless asset, given the wealth of its eco-systems, its cultural heritage, the importance of its social function and its strong maritime identity. It is in this highly coveted space that most of the transport infrastructure, tourist accommodation and industrial installations are concentrated. This sprawl of built-up areas along of the coast has been ongoing for several decades is changing the natural environment through what it takes away and the waste it produces, as well as the new uses of space it involves.

Figure 22 Population of the Languedoc-Roussillon communities, France, 1901-1999



Source : INSEE data

In the year 2000, the Mediterranean coasts counted 70 million town-dwellers, 584 coastal towns, 175 million tourists, 286 trading ports, some 900 marinas, 248 energy plants, 238 desalinization plants, 112 airports and numerous busy roads (figure 23). And the building sprawl of the coastline continues the major new Tanger Med sea port, a new international airport in Enfidha (Tunisia)…. In 2002, 60% of urban wastewater was still being released into the sea without prior treatment (figure 24) and there was a gaping gap between those countries which had joined the EU or received structural assistance, and the countries to the south and east.

Figure 23 Road and airport infrastructure along the coasts

Source : Blue Plan, International civil aviation organisation, National statistical institutes

To the north just as to the south and east, the Mediterranean coasts are facing increasing pressure and degradation, with rapid artificial land cover of coasts. In less than one generation, entire swathes of the coast have disappeared under concrete, causing irreversible damage to landscapes and loss of habitat and biodiversity. The effects of a drop in natural sediment input from rivers (down 90% in 50 years), illegal extraction of sand and inappropriate constructions right on the coast are combining to intensify coastal erosion, the economic consequences of which can be major. Just by way of example, Tangiers lost 53% of tourist nights after the beach nearly disappeared in the 1990s.

Despite growing awareness, sea protection and sustainable coastal management policies remain insufficient. The relative share of protected coastal areas remains low despite a six-fold increase over 25 years. Other approaches to protection and sustainable management have been applied: five riparian countries have framework legislation on coastal areas and three countries (France, Tunisia, and Algeria) have a specialised agency. Yet the overall development of the coastal regions still remains an issue.

The risk of economic non-sustainability should be underscored. Those destinations which have developed mass tourism rather than highlighting their own identifying features are competing against each other on markets dominated by the big tour operators. Several destinations have witnessed a drop in nominal spending per tourist, loss of territorial quality and degradation issues.

In the Mediterranean, tourist expectations as far as the climate is concerned could well be upset by global warming, with hotter temperatures potentially putting off the elderly, whose numbers are on the up and up.

If there are more heat-waves and a rise in summer temperatures, the Mediterranean regions may lose out in the attractiveness stakes to more northern ones. An increase in the number of disasters or a significant rise in the cost of transport linked to global warming prevention programmes could also have a harmful effect on tourist activity. Conflict with other users may be triggered by the scarcity of water resources.

As far as the rise in sea levels as a result of global warming is concerned, some local studies estimate that the average increase through to the end of the century will be 35cm. The main consequences to be feared are:

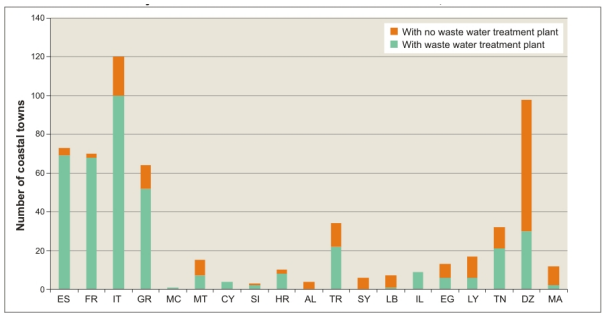
- Increased submersion of lower lying coasts, particularly deltas, lagoon coastlines, marine marshes, mangroves, coral reefs and certain islands;
- Accelerated cliff and beach erosion;
- Increased salination in the estuaries;
- Decreased volume of freshwater water tables.

Prospective analysis of the Mediterranean coasts raises questions and is cause for concern. How, in addition to the forecast growth in the coastal urban population (a further 20 million town-dwellers by 2025), can this geographically limited area and its societies withstand the near doubling of tourist flows (+ 137 million in the coastal regions: 2.3% per year) and an even bigger increase in transport? The current trend points to an undesirable future, with impoverished coastal quality and integrity, and increased natural and social risks. Nearly 50% of the coastline could be under concrete by such date, as compared with 40% in 2000.

One alternative would be to beef up policies in all countries to halt degradation and reduce the risks, with objectives differing from zone to zone. On coasts which are already largely built-up, repairing and restoring ecosystems, landscapes and buildings would be the primary objectives. Where there are still no extensive built-up areas on the coast, more innovative anticipatory strategies would lead to less costly development patterns in the long term. On coasts with a marked industrial and international trade vocation, improving transport systems would be the priority. Others would, on the contrary, opt for creating territorial added value by playing their quality joker and promoting the "character" of their region and synergy between tourist and productive activities (fishing and agriculture), even though this may reduce accessibility and urbanisation.

A common objective to all coastal areas could be to halt continuous linear urban development, by introducing green, agricultural and wooded areas, and favouring transversal road access to the sea rather than building coastal roads. The anticipation stakes are particularly crucial for the coasts of high potential countries such as Libya, Morocco, Algeria, Albania, Montenegro and Syria, where innovative approaches to sustainable tourism and conservation will need to be thought out.

Figure 24 Waste water treatment for coastal towns with over 10,000 inhabitants in 2002



Source: MEDPOL 2003

The accrued release of public and private financing and increased North-South solidarity will be crucial to reducing land-based pollution and achieving the objectives defined in Mediterranean and national action plans. The cost of upgrading sewage systems in coastal cities with more than 10,000 inhabitants in the South and East could well be in the order of 10 billion euros.

The alternative scenario also involves "*uncluttering*" the coastal zones to some extent: refocusing tourist

development to the benefit of the hinterland and urban tourism in some countries, adopting a modal approach to transport favouring sea and rail, re-channelling urban development into more appropriate areas and breathing new life into the hinterland.

Finally, tourism policies need to evolve to limit the negative territorial and environmental impact and to make tourism a real driving force for sustainable urban, rural and coastal development. New economic instruments need to be invented so that tourists who come to enjoy the Mediterranean environment make a greater contribution to its upkeep, and 'accommodation capacities' could be defined. Concrete examples exist, but ambitious innovations will be needed in these areas.

Implementing this type of alternative scenario presupposes a tightening up of coastal policy, but it should be recalled that regional cooperation has already started to bear fruit.

Tourism has been identified by the Mediterranean Strategy for Sustainable Development as a priority action area with the following objectives:

- Reducing its negative territorial and environmental impact,
- Promoting sustainable tourism which brings with it social cohesion and cultural and economic development by drawing on Mediterranean diversity and its particular features and strengthening synergy with the other sectors of the economy,
- Increasing the added value created by tourism which feeds back into the local community and to the various stakeholders in developing countries,
- Improving governance for sustainable tourism.

The MAP (*Mediterranean Action Plan*) has a land-based sources of pollution Protocol and a strategic action programme for combating pollution, which was adopted in 1997 and is rolled out through national plans. "Integrated coastal zone management" operations have been initiated by MAP and, in Europe, by the European Commission.

Once MEDPOL/MAP had inventoried 131 pollution « hot spots » and the European Commission had launched the *Horizon 2020* initiative, a study conducted by the European Investment Bank in conjunction with MAP in seven Mediterranean countries identified some forty projects which could be funded under a Mediterranean programme of investment in the « sensitive zones ».

Recently, within the framework of the Union for the Mediterranean project, the environment was put forward as an area of regional interest for the implementation of specific projects, and particularly for cleaning up the seas.

Finally, the adoption in January 2008 by the Contracting Parties to the Barcelona Convention of a *Protocol on integrated coastal zone management in the Mediterranean (ICZM)* sends out a strong signal of the political will for change. Signed by fourteen of the twenty two Parties to the Barcelona Convention, the Protocol will enter into force once six Parties have ratified. It is the first international legal instrument in this field. Basically, it establishes the principle of non-construction in the 100 metres coastal strip; it tackles the coast in terms of its land/sea interaction; it creates a common framework of commitments to be respected by the States/Parties; it builds on the headway being made by the riparian states towards the sustainable management of these fragile and coveted areas by strengthening the means for their protection.

Protecting the marine environment

Mediterranean Sea is subject to high levels of human pressure linked to coastal activities such as sea traffic, which impact on the quality of the marine environment and ecosystems.

As far as pollution is concerned, heavy metal levels in the sea water tend to be quite low overall, indeed below usual standards, and eutrophication related to the input of nutritive substances is limited to certain specific areas such as the Northern Adriatic and the Gulf of Lions. There is on the contrary, however, considerable local sea pollution linked to input from towns, industry and tourist complexes, and the scale of macro-waste both on the beaches and at sea should be noted.

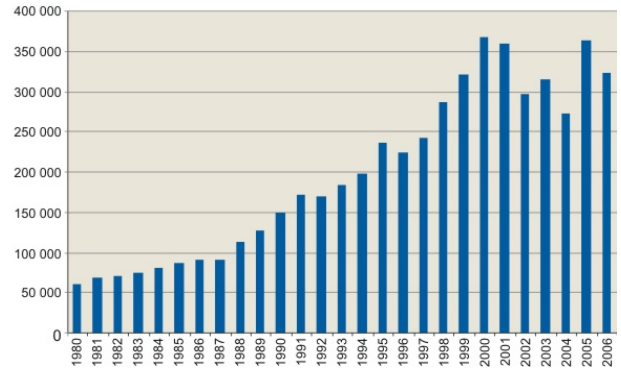
Oil pollution, particularly intentional pollution from ships, is also a matter for concern. Whilst pollution accidents are well-documented, estimates set intentional oil pollution at between 20 000 and 80 000 tonnes per year.

From 1999 to 2004, there were between 1400 and 2600 oil spills each year, outside French territorial waters in the ecological protection zone set up in 2004 (Source: European Union's Joint Research Centre for the French Government's General Secretariat for the Sea). This figure dropped by 70% once the protection zone was established.

As far as marine biodiversity is concerned, the Mediterranean is affected by fishing activity both for commercial species and by-catches, marine mammals and turtles in particular. Nearly 500 marine species alien to the Mediterranean eco-system have been introduced. One hundred and four species are deemed to be endangered, including the monk seal and sea turtles.

Mediterranean and Black Sea marine aquaculture production increased more than six-fold between 1980 and 2006, to reach the current figure of 375,000 tonnes (Figure 25). Sea bream and bass production has shot up, with an average annual growth rate nearing 27% over the same period, to hit 180,000 tonnes in 2006, 80% of which originated in Greece and Turkey.

Figure 25 Marine aquaculture: crustacean, mollusc and fish production in the Mediterranean and Black Sea 1980-2006 (in tons)



Source: Fishstat – FAO

The underwater prairies so essential to fish reproduction and beach maintenance are being damaged by work at sea, physical pollution and the uprooting caused by the anchors of pleasure craft. The introduction of exogenous species represents a growing threat and, in the long term, global warming could change the marine ecosystem.

This rapid assessment is the result of the work conducted jointly by the Barcelona Convention, its regional activity centres and Programmes (Blue Plan and the Tunis-based Centre for Specially Protected Areas), the CIESM, the European Environment Agency and the IUCN, along with research laboratories in the Mediterranean countries and NGOs.

Although regional political responses exist, they are still of limited effectiveness.

The Barcelona Convention for the protection of the Mediterranean Sea, which was adopted in 1976 by the riparian states and the European Community, is supplemented by protocols which create legal frameworks requiring States to monitor the environment, combat pollution, protect species and set up protected marine areas. This corpus was updated in 1995 and the Mediterranean now has a highly advanced legal instrument which makes it possible to jointly set up protected marine areas even at sea, such as the Pelagos sanctuary which protects cetaceans between Monaco, France and Italy.

Based on these legal instruments, the Barcelona Convention has adopted a Strategic Action Programme to combat land-based sources of pollution. A set of more than 131 pollution "hot spots" has been identified and every major town has seen a waste inventory drawn up. The review's conclusions show that 50% of urban wastewater is released without prior treatment. The situation is particularly critical to the East and South of the Mediterranean Basin.

Figure 26 Pollution « Hot spots » around the Mediterranean coasts

Source: MAP/MEDPOL, Blue Plan

Thus the need to launch a large scale initiative involving a substantial financial commitment (several tens of billions of euros) aimed at cleaning up the Mediterranean became imperative. The Horizon 2020 initiative was adopted within the framework of the Euro-Mediterranean Partnership on its tenth anniversary (2005).

The European Investment Bank is already working hard to implement this initiative. Using the regional and national strategic plans drawn up by the Barcelona Convention in order to bring about a massive reduction in land-based sources of pollution, the bank has identified 44 clean-up investment projects to the tune of 2.2 billion euros.

At the same time, the French initiative aimed at setting up a Union for the Mediterranean is proposing that the aim of a clean Mediterranean should be adopted as one of the projects studied.

Political initiatives aimed at making the clean-up of the Mediterranean a political objective are thus multiplying. For the time being, however, such initiatives go no further than combating land based sources of pollution.

The scale of the intentional oil pollution previously referred to has not been established. Bringing about a change in current trends will require a major political commitment and the adoption of an effective plan for combating this type of pollution.

Indeed, the detection and suppression of breaches of international legislation (MARPOL Convention) against the emptying of fuel tanks takes place at sea, often on the high seas; such work should be supported by close international technical and legal cooperation in order to mobilise joint monitoring means (particularly planes) and allow the maritime services and legal authorities to exchange information. It is therefore a real issue for regional political cooperation, as illustrated by the North Sea example.

The Union for the Mediterranean could well find in this a model area for cooperation towards a highly interesting objective: ridding the Mediterranean and its beaches of chronic oil pollution.

As far as marine biodiversity is concerned, regional cooperation has stopped at the level of scientific experts, NGOs and administrative bodies. The political level has never stepped in, despite the Euro-Mediterranean Partnership having financed capacity building programmes for the management of Marine Protected Areas (MPAs).

With NGO assistance, the Barcelona Convention has various achievements to its credit: almost 150 MPAs, Action Plans for threatened species, a network of top experts… But, in the Mediterranean as elsewhere, the share of marine areas enjoying protected status does not exceed 1%; and although coastal wetlands are being increasingly identified and protected, plenty of essential issues such as the introduction of sustainable fishing are virtually at a standstill.

Effective protection of the marine environment also means responding to emerging issues such as the development of off-shore oil exploitation, the impact of pleasure cruising, the development stakes related to adaptation strategies as well as questions related to the governance of marine zones outside national jurisdiction.

It necessitates an increase in the means available to marine biology and oceanographic research teams, particularly to the South, and beefing up marine monitoring systems and the structures within ministries, National Agencies and other services responsible for the protection of the marine environment; NGO activity and their access to information should likewise be encouraged and local populations and tourists made aware of protection stakes in order to better mobilise the economic stakeholders and semi-autonomous regions.

Finally, if there is one subject on which scientific research should be better coordinated at regional level, it is climate change. Indeed, the migration of southern species usually westwards and northwards provided the first signs of the impact of climate change on marine biodiversity: the appearance of sub-tropical species (barracudas, dolphinfish and sardinella), the collapse of certain species (sprat, anchovy) and changes to the life-cycle of others (yellowtails, tuna). These changes go hand in hand with acute stress related to extreme weather events, seen as the leading triggers of disease in gorgonians and Mediterranean sponges. In 1999 and 2003, heat waves resulted in high levels of mortality amongst Western Mediterranean populations. The same would also seem to apply to marine plankton. Although these disturbances are already influencing marine ecosystem productivity, to date the situation has only been studied in the Western Mediterranean. Thus research networks need to be formed at Mediterranean basin level, this over-arching level being the only one at which a diagnosis can be made, given the sea's geo-ecological unity. More particularly, campaigns to monitor plankton evolution should be launched throughout the region. Once the inventory has been drawn up, models forecasting the evolution of Mediterranean marine biodiversity will need to be worked out, as well as economic indicators linking these developments to the human activities which depend on them.

Making the Mediterranean an area for cooperation towards sustainable development

What has been outlined so far in the document gives some indication of the Mediterranean's potential to becoming an area for cooperation in the field of sustainable development.

Developing a Mediterranean approach to sustainable development

The countries bordering the Mediterranean compose a region in which to exchange on key questions on sustainable development. All share a vested interest in the management of public goods such as the sea, the climate, the health of their peoples and biodiversity. Their management depends on decisions and approaches arrived at collectively. The region also faces specific demographic, seismic and climatic risks, the threat of soil degradation and ecosystem deterioration. Their management must be done jointly, rather than being dealt with on a piecemeal basis by individual countries and communities. The region has already demonstrated that it can act jointly to deal with common threats. The Mediterranean Action Plan, with the Barcelona Convention as its legal instrument; its regional activity centres and the Mediterranean Trust Fund, are poignant examples of constructive cooperation in the environmental field, as is the CIHEAM in the area of agriculture.

The Mediterranean-rim countries belong to various geo-political entities: the European Union, the African Union, the Arab Maghreb Union and the Arab League each on with its own, and sometimes diverging Mediterranean policies. Yet this very diversity expresses a wealth of allegiance, history, culture and population doubtless more productive when pooled than if divided.

The Mediterranean-rim countries are faced with the same challenges in terms of economic convergence, capacity building, transfer of technology, finance and development and management of natural resources as those faced by the international community at a global scale. And it is in these areas that the Mediterranean can stand out as a itself a unique laboratory for innovation, cooperation and solidarity.

Anticipating climate change

Such leadership could find in climate change some common ground for cooperation. Over recent decades, the rise in temperatures of the Mediterranean region has exceeded the global average, and all the IPCC scenarios confirm the likelihood of it becoming a "hot spot" for climate change. Although in international negotiations the Mediterranean region has no common voice, all Mediterranean-rim countries are affected by the subjects contained in the roadmap adopted in Bali. As far as mitigation, adaptation, transfer of technology and financial support are concerned, Mediterranean countries should be able to develop strategies, cooperation and joint programmes to implement in due time the decisions which are adopted internationally. This regional approach would then be implemented at the national level, and all sectors of the economy. Given the vulnerability of the poorest countries on the southern and eastern banks, a Mediterranean dimension can assist in show the determination of all countries to collectively pre-empt the far-reaching changes which climate change will bring about in the region.

Sustainable territorial management

The Mediterranean population is growing, particularly to the South and East, becoming more urbanised and particularly on the coast. This coastal-sprawl is worsened by the projected increases in tourism. This means that the organisation of new urban areas needs to be revised in conjunction with modes of transport in order to control coastal build-up, improve energy efficiency in the towns and optimise urban mobility. In the rural areas, agriculture is once again coming to the fore with the food crisis, raising questions as to the role, place and nature of the different types of farms already in existence or to be promoted. Such questions require increased research, which the Mediterranean countries are called upon to support without fail.

Reconciling economic growth and the environment

The sustainable development of the Mediterranean calls for convergence between the all economies in order to reduce the rift in living standards and contribute o poverty eradication. To this end, the least economically advanced countries must increase their production of wealth and ensure that it is fairly distributed. The point is not to make consideration for environmental concerns or sustainable development dependent on economic growth, but rather to stress the need to think up a form of development which serves the aspirations of the people and feeds into their well-being.

The development of the Mediterranean region's least economically advanced states will in particular need to satisfy their needs for infrastructure, housing and services, in line with the Millennium Development Goals. It will inevitably increase pressures on energy, water and natural resources. The challenge will therefore consist of inventing new production and consumption patterns in order to better manage limited space, finite natural resources, a growing population, new constraints- such as climate change- and on-going inequality.

The alternative scenario advanced by the Blue Plan points to the economic interest of promoting consumption patterns less demanding of scarce resources. Greater energy efficiency, particularly in the transport and construction sectors, could generate savings amounting to about a quarter of total primary energy demand anticipated for 2025 and at a cost likely to be at less than 10% of currently planned investment. As a result, increases in greenhouse gas emissions could be noticeably mitigated. In the water sector, greater efficiency for the various different uses could largely compensate increased demand and at bearable cost. As far as transport is concerned, bringing "soft" modes of transport back into the urban centres and rehabilitating public transport are avenues to be favoured. Thus, adopting more frugal modes of consumption appears to be both feasible, healthy and equitable.

The alternative scenario also reveals the interest of promoting new modes of production. Renewable energy (solar and wind in particular), re-use of wastewater, tapping freshwater sources before being lost in the marine environment and desalinating in crisis situations should be developed.. Agricultural practices should be more caring of the top soil while using less water and address the new food challenge. There is a wealth of research to this effect. It must be promoted. Industry is constantly innovating and generating substantial water and energy savings and reduced pollution. At sea, the Mediterranean-rim countries still need to improve methods capable of maintaining fish stocks

A strong political will at the highest level

Adopting new production and consumption patterns along these lines requires strong political will at the highest level Through the adoption back in 2005 of a Mediterranean strategy for sustainable development, endorsed the same year by heads of State and government of the Euro-Mediterranean Partnership, these leaders led the way in giving political visibility to the perspectives contained in the prospective analysis they prescribed. Unable to find leverage in mainstream political and academic circles or public opinion, the officials in charge of environmental affairs and of promoting the sustainable development strategy were not really able to implement its recommendations. The impetus must come from the highest levels of government. In this perspective, the Union for the Mediterranean is a real opportunity. By placing environmental and sustainable development at the very centre of their priorities, drawing on existing instruments, institutions and cooperation mechanisms and favouring specific actions which can therefore be assessed, the heads of state and government could give a fresh and particularly strong boost to sustainable development.

Regional choices and national and local actions

The strategies adopted regionally must be implemented nationally and locally involving all stakeholders. Whether on water resource management, defining energy mixes, the role attributed to agriculture in the rural areas or organising urban space, the options chosen by the Mediterranean countries depend on political, technical, economic, cultural and environmental considerations specific to each of them. Thus there can be no one shape fits all solution, not even to common problems, but sharing and pooling good practices and asking public opinion are essential to win support for objectives and strategies for change, which could be expressed in the form of national sustainable development strategies. The same applies at local level. Thus, there are numerous successfully tested methodological tools in existence for imagining the future of shared areas in more collective terms.

Converting guidelines into action

Strategic guidelines are worthless unless expressed in action. At regional level, the Mediterranean countries under the aegis of the Mediterranean Action Plan in particular, have already shown their will and ability to implement joint projects, particularly related to capacity building or protecting biodiversity. But this needs to be taken further. In the energy, water resource management, transport and coastal protection sectors, to combat climate change, it is absolutely essential and feasible to pool efforts and competence. Mediterranean countries must therefore focus on drawing up this type of specific action using a genuinely partnership-based approach. The same applies at national level, where sustainable development strategies and territorial development programmes will only have any point and interest if they feed through into action.

Strengthening partnerships

Promoting more sustainable development in the Mediterranean therefore demands a root and branch overhaul of partnerships.

Partnerships between stakeholders in civil society. The civic societies on the various banks of the Mediterranean have shown their enormous vitality as well as their ability to come up with often innovative solutions for organising or restoring social cohesion, compensating for the financial institutions which often do not have tools adapted to the situation of the most needy, and satisfying the demand of parts of the market not covered by the official production sector. It is therefore a matter of encouraging rather than curbing exchange between stakeholders and building their capacity to intervene both at financial and at institutional level.

Partnerships with the private sector. Lifting the constrains to successfully implementing the alternative scenario require major investment in the energy, transport, water and construction sectors. This will require the active involvement of the banking sector and finding the appropriate incentives for mobilising the private sector

Partnerships with organisations for cooperation. Multilateral, European and bilateral cooperation is particularly active in the Mediterranean, albeit not always perfectly coordinated, consistent nor, in particular, effective. Although this can partly be attributed to the cooperation organisations, the reason for the dysfunctions observed is also to be found in the lack of orientation, guidance and control by the countries or communities concerned. This is a major issue for the countries to the South and East of the Mediterranean in particular, since the responses forthcoming from their partners will depend first and foremost on their capacity to present their sustainable development priorities.

The Mediterranean has a promising future and the opportunity remains to be seized by the Mediterranean-rim countries in the region to draw the future to which they aspire. Despite the challenges, in particularly climate change, sustainable development still remains possibility in the Mediterranean. It can become reality if committed to collectively and at the highest political level and its citizens. It will be implemented if production and consumption patterns which show greater respect for the scarcity of resources and the vulnerability of the area and its territories are promoted. It will be implemented if the resources and funding required to take specific action are mobilised and made available.

It is on this basis that the Mediterranean should set itself on course to become a genuine showcase for sustainable development.

Notes

[1] Countries in which per capita renewable natural water resources (not all of which are « available ») amount to less than 1,000m3 water/capita/yr.

[2] The Euro-Mediterranean Free Trade Zone impact study, which the European Commission commissioned from the University of Manchester, concludes that in the absence of adequate political measures the economic benefit could be limited (even negative in the short term to the south) and certain social and environmental costs could be very high.

[3] Although inflationist tensions related to the rising cost of oil and raw materials have been noticed since 2000.

[4] With the subsidies intended to compensate for energy prices becoming an extremely worrisome burden in importing countries' budgets

[5] According to the FEMISE 2007 report, average annual growth rates were approaching 5% in 2006 and 2007 in the Mediterranean countries, in other words more than one point above the average growth recorded for 1995-2000.

[6] Source: World Bank "Assessing the Costs of Environmental Degradation in the Middle East and the North Africa Region". *Environment Strategy Note* No.9, April 2004.

[7] Defined as a ratio: volume of annual abstraction on renewable natural water resources / annual average volume of available renewable natural water resources, expressed as a percentage.

[8] 2006-2025 trend, according to the work of the Mediterranean Energy Observatory

[9] FAO definition: Forests are areas where large tree cover accounts for over 10% of the surface area.

ISO country codes

Albania AL, Algeria DZ, Bosnia-Herzegovina BA, Croatia HR, Cyprus CY, Egypt EG, France FR, Greece GR, Israel IL, Italy IT, Lebanon LB, Libya LY, Malta MT, Monaco MC, Montenegro ME, Morocco MA, Palestinian Territories PS, Slovenia SI, Spain ES, Syria SY, Tunisia TN, Turkey TR

About Blue Plan

The Blue Plan is one of the six regional activity centres of MAP (Mediterranean Action Plan) established by the United Nations Environment Programme (UNEP). It has been created, funded and steered by all riparian countries and the European Community that encompass the Contracting Parties to the Barcelona Convention on protection of the marine environment and coastal areas of the Mediterranean. With respect to its mandate, Blue Plan is in charge of:

- producing information and knowledge aimed at warning decision makers and actors of environmental and sustainable development challenges in the Mediterranean;
- performing systemic and prospective studies for decisions to be enlightened.

Four objectives

In 2007, Blue Plan conceived a strategic intervention framework running over the period 2007-2015 the main objectives of which are:

- To identify, collect and process permanently and continually environmental, but also economic and social information useful to stakeholders and decision makers ;
- To assess the interactions between the environment and economic and social development in order to measure progress towards sustainable development
- To carry out analyses and prospective studies in order to help building future visions and supporting decisions ;
- To disseminate and communicate the findings and outputs in ways adapted to the target groups ;

Blue Plan is located at Sophia Antipolis (Alpes-Maritimes, France) and in Marseille (Bouches-du-Rhône, France)

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