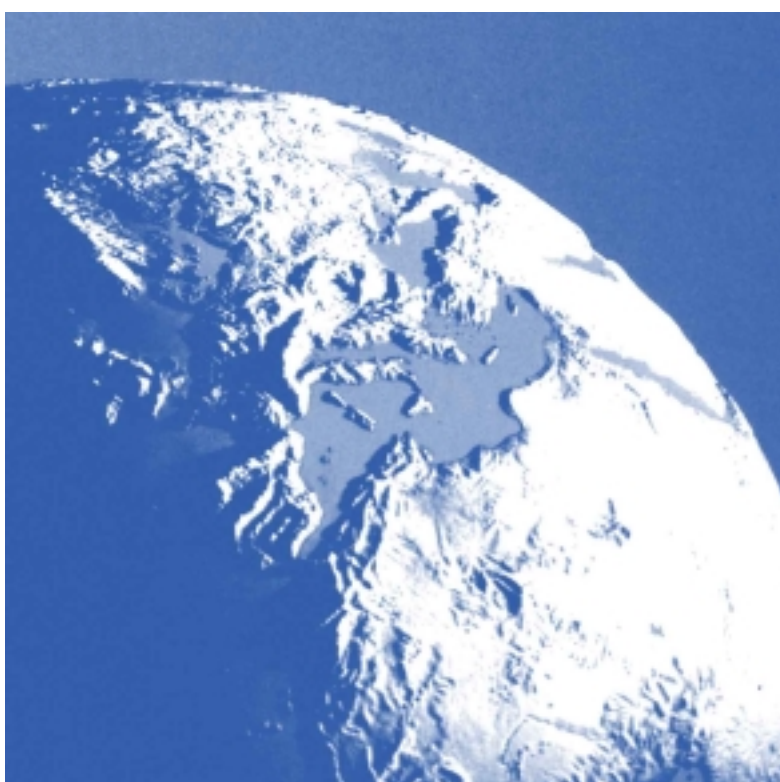# Indicators for Sustainable Development in the Mediterranean Coastal Regions

Follow-up of the recommendations of the Mediterranean Commission on Sustainable Development

Final report

Indicators for
Sustainable Development in
the Mediterranean Coastal Regions

I Introduction

The promotion of indicators for sustainable development is one of the Blue Plan's main avenues of action in the Mediterranean region on both the national and the coastal region levels.

Using these indicators should enable players and political decision-makers to:
- Become aware, if need be, of the economic and ecological value of the coastal regions, more often than not greater than that of the national territory as a whole;
- Better understand the specific issues of sustainable development of these regions through "key figures" supplied by calculating indicators;
- Measure then monitor the major and ever-increasing pressures from human activity in the coastal regions, their impact on the state of the environment and the other socio-economic sectors;
- Measure and monitor the policies implemented in reply to these growing pressures so as to safeguard the environment and the natural resources of the coastline and to make more compatible the development and the environment.

The efficient use of the indicators is conditioned by obtaining a consensus from all the players on the main issues and problems of sustainable development in the coastal region concerned.

It is for this reason that a participatory methodology common to the Mediterranean countries but adaptable to their different specificities, also including "communicative products" towards players and political decision-makers, seemed indispensable from the start to "promote the use of sustainable development indicators in the coastal regions".

This project allowed implementing and testing this methodology in three Mediterranean countries (Croatia, Libya and Syria).

II   Context and goals

Co-funded by the Environment Directorate General of the European Commission and the Mediterranean Action Plan (MAP), this project was carried out within the framework of monitoring the recommendations of the Mediterranean Commission for Sustainable Development and those of the 11th meeting of the MAP Contracting Parties (Malta, 1999).

These recommendations mainly concerned:

- The development of a common body of indicators that can be fine-tuned and filled out depending on the national tests and the needs of the countries and the Mediterranean Commission for Sustainable Development.

- The harmonisation of the indicator definitions and the dissemination of the work on the indicators;

- The periodic writing of a report on sustainable development in the Mediterranean based on the indicators and national reports;

- Reinforcing the capacities of countries to calculate the indicators by basing themselves on the data gathering already done by statistical institutes;

- Promoting the use of the indicators for sustainable development; and

- The monitoring by the Mediterranean Action Plan of the various works.

This project's objectives were the following:

1. Promoting the use of indicators on the coastal regions level,
2. Contributing to the establishment of dashboards based on the indicators and making it possible to measure the progress towards sustainable development in the Mediterranean coastal regions,
3. Developing a method that can be generalised in the future to the other Mediterranean countries.

To attain these goals within a short time period and with limited means, it was decided to test the proposed procedure in the Mediterranean coastal regions of three countries: Croatia, Libya and Syria. All three countries responded affirmatively to the Blue Plan's proposal, and each nominated a consultant to lead the local team and bring the project's activities to successful completion.

III Concepts and definitions

1 The Mediterranean coastal areas

The coastal areas are a part of those places where human pressure is the most concentrated and where current and potential conflicts of land use are the most critical.

The population (including urbanisation) and economic activities (including industry), transport and tourism are concentrated on a "coastal strip" of varying dimensions, depending in particular on relief. These are areas the "economic density" of which (the economic value earned by the space considered) is often much larger, although still poorly understood, than the national average.

A contact zone between land and sea, the coast, rich in specific ecosystems, a number of which are endangered, is often subjected to especially restricting management, which makes it possible to protect it and arbitrate conflicts of use.

Coastal areas, the subject of this report's considerations, are not defined in a single, overall way. The following table gives definitions according to their coastal region type. We shall see that considering them will depend on the problem studied and the indicators considered.

For the European and candidate countries, the European Union's Nomenclature of Territorial Units for Statistics defines several geographical levels depending on the countries' administrative divisions:

For France, for example, this means:

NUTS 0:	Country
NUTS 1	ZEAT (survey zone and national planning)
NUTS 2	Regions
NUTS 3	Departments

Level NUTS 5 concerns the communes.

Definitions of the coastal zone

TYPE	DEFINITION	ISSUES
Maritime physics	Infra-coastal or shallows stage corresponding to the extension area of the Posidonian bed: from 0 to 50 metres in depth	Conflicts between the marine environment and human activities: impact of restructuring and land-based pollution Preferred place for coastal fishing
Maritime physics	Continental shelf: up to 200m in depth	Economic and environmental: preferred place for fishing, offshore exploitation
Land physics	Watershed	Integrated management of water resources Land-based pollution
Land physics	Proximity watershed	Local management
Land physics	Altitude under 100m (200m or 300m) and depending on the slope	Management and use of space
Biophysics	Ecosystems: lagoons, ponds, deltas, etc.	Protection, management
Maritime administration	Territorial waters: 12 nautical miles	State sovereignty: defence, police, etc.
Maritime economics	Economic-interest exclusion zones: 200 nautical miles	Fishing Exploration and extraction of mining resources
Land and maritime administration	Public maritime domain	Management
Land administration	NUTS 3 equivalent (1st decision-making level, data availability): county, province, etc.	Regional management schemes Regional economic development
Land administration	NUTS 5 Equivalent: Communes or districts.	Urbanisation and management Specific regulations
Land regulations	Forbidden zones for building defined by coastal laws: 100m, 300m, etc.	Protection and management Specific regulations

In its previous work, the Blue Plan has considered the Mediterranean coastal regions according to different definitions depending on the geographical level considered and the objective of the work in question.

For the European countries the NUTS 3 coastal units have been retained. For the other countries, an official request has been formulated for each country to propose its coastal administrative units "comparable" to the European NUTS 3 level. This resulted in a body of 221 coastal administrative units that will later be called coastal NUTS 3 (or Mediterranean NUTS 3).

The coastal NUTS 3 level, often sufficient to show the disparities in development between the Mediterranean coastline and the rest of the country, still does not make it possible to show the extent of the pressure because of the existing disparities within a same region between the "coastal strip " and the inland area.

In these cases it is necessary to consider the communal level (NUTS 5 or equivalent) in order to study the differences between the coastal communes and the inland communes. There again, the administrative definition only may not be sufficient; it is then necessary to include the distance to the shoreline and the altitude to refine the selection of the "coastal communes".

2   Sustainable Development of the coastal regions

Sustainable development has undergone numerous definitions, the first of which was formulated in the 1987 Brundtland report, i.e. "sustainable development is a mode of development that meets the needs of current generations without compromising the capacity of future generations to meet theirs".

Since its inception in 1980 the Blue Plan has carried out prospective studies on the interactions of "development and the environment" and uses a definition that takes the Brundtland definition into account as well as that formulated by the FAO, i.e.:

Sustainable development is "**a development which is respectful of the environment, technically appropriate, economically viable and socially acceptable to meet the needs of present generations without compromising the ability of future generations to meet their own needs**".

Whatever the various definitions, they are translated into practice in "development that respects the environment enabling harmonious economic and social progress". The inclusion of the environment in development policies is therefore a constant in most of these definitions.
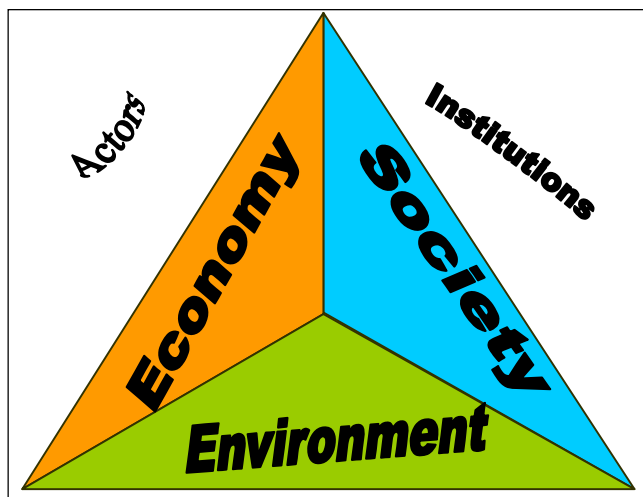
Consequently sustainability in this definition has three basic sectors: the environment, the society and the economy. The institutional dimension may be added, including policies, institutions and players, representative of the society's actions.

The spatial component of sustainable development, which could be defined as balanced national planning that leads to ensuring less harmful distribution of population and activities for the environment, "safeguarding

natural capital" and thus protecting fragile areas such as coastlines and any other specific ecosystem, is of primary importance in the Mediterranean coastal regions. Less crucial on a nation-wide level, the use of space is all important in cases of sustainable development in coastal regions.

2.1 Sustainable management and coastal areas

The sustainable development of regions calls for sustainable management of the coastal area that implies both the taking into account of environmental components in human activities such as aquaculture and fishing, agriculture, transports, industry, tourism and leisure-activities, etc., **and** management of coastal resources, ecosystems, water quality and so forth.

Indeed the interdependence of activities and resources in coastal regions is great and highly complex. According to the Priority Action Programme Regional Activity Centre (PAP/RAC), sustainable and effective management of the coastal regions requires not only **"an analysis of individual activities and their impact but also on the conjugated effects that the sectional activities have on each other and on coastal resources"**.

2.2 Integrated Management of Coastal Areas

The Integrated Coastal Zone Management (ICZM) is one of the tools that might lead to a more sustainable development of the coastal regions. Although there too, the ICZM's definitions are numerous, and the PAP/RAC offers the following definition which seems to be fuller:

The ICZM is **"a process aiming to attain the goals and objectives of sustainable development in coastal areas within the constraints of physical, social and economic conditions and the constraints imposed by legal, financial and administrative institutions and systems"**.

2.3 Coastal Area Management Programme and sustainability analysis

To this end the MAP has been involved since the 90's through the activities of the PAP and the Blue Plan in a set of Coastal Area Management Programmes (CAMP). In these CAMP the Blue Plan since 1998 has conducted a "sustainability analysis", which allows to describe, assess and explore the level of sustainability of an eco-socio-system in the past, the present and the future with indicators.

The sustainability analysis makes it possible to formulate the common objectives of all players with a potential influence on development and environmental protection in the area considered, through the choice of key issues, relevant indicators and their "sustainability intervals".

Interactions between environmental components and development activities
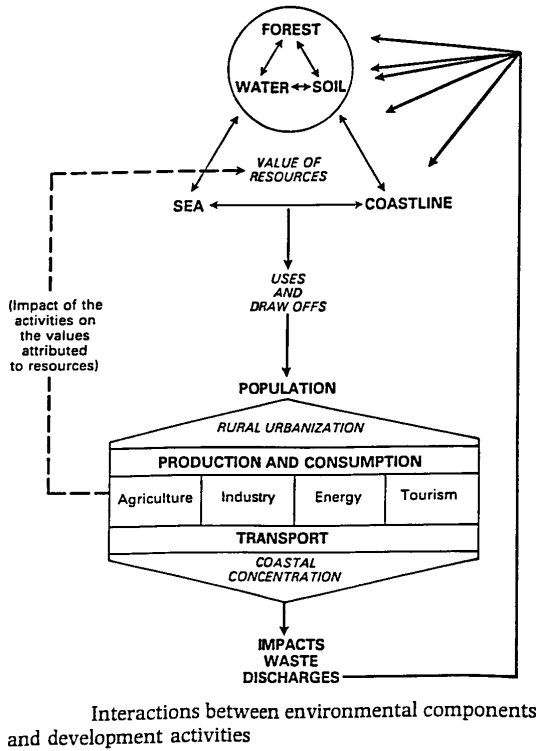
The sustainability analysis, as with the indicators, must be built on a solid foundation composed of the components of the "system" defined by the players to represent the main stakes and issues of the coastal regions. This system, which should be adapted to the different regions, can be built from the general diagram (opposite) of the main components of the environment-development system in the Mediterranean that the Blue Plan had designed to develop the global Mediterranean scenarios.

Each stake and issue taken from this system can then be studied according to a practical framework, "Driving force–Pressure–State–Impact–Response" (DPSIR) which facilitates the selection of the indicators.

The sustainability analysis then calls for the consensual setting of a "band of equilibrium" for the key indicators making it possible to judge the sustainability of the present situation in the region in question and to determine what is desirable and what is unacceptable. The projection of these indicators, based on the prospective of the studied system, then makes it possible to judge the future sustainability and thus the region's sustainable development level.

The involvement of all players in all analytical stages of sustainability analysis is essential for doing the exercise successfully, which can then have operational feedback on decision-making. The use of a synthetic drawing (AMEOBA[1]) to show the results interactively during the analysis then for final presentation to the decision-makers demonstrated its effectiveness in the CAMP now ended in Malta.

---
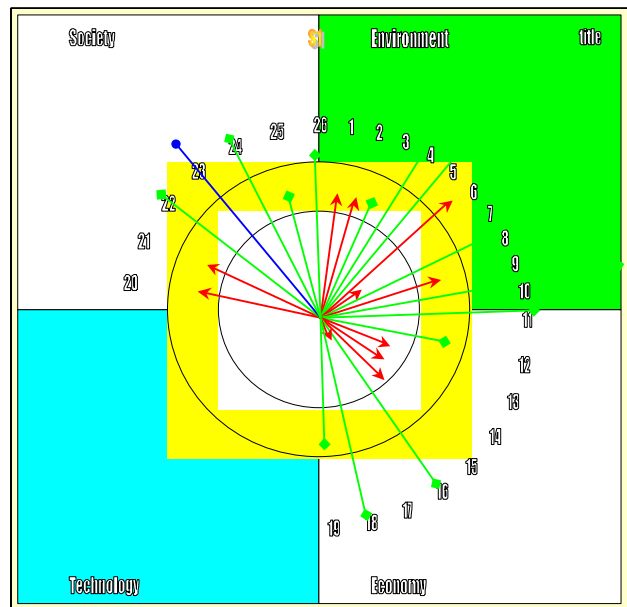
[1] AMEOBA: Dutch Acronym for « general method for the description and the assessment of ecosystems »

2.4 European Commission demonstration projects

Within the framework of a European strategy of Integrated Coastal Zone Management (ICZM) the European Commission has launched thirty-five projects of coastal area management, which have confirmed that "most of the conflicts and physical problems observed in the European coastal regions are attributable to deficiencies on the procedural, planning, action and institution levels". These deficiencies might to be due to a lack of understanding of the complex phenomena and interactions between activities and the environment in coastal regions but also due to a lack of understanding of the economic, social and ecological importance of these coastal areas.

Concerning "useful information" of which the indicators are a component, it appeared that in most of the demonstration projects there was a great number of essential data but that these data are dispersed depending on the network of producers. They must therefore be gathered then transformed into information that is presented in a form that decision-makers can understand and use easily.

Whence the need to check that a common set of indicators is operational in most of the Mediterranean coastal regions according to a common participatory methodology. The promotion of using this common set will then be done through the execution of local projects with the involvement of local and national authorities and the participation of all players.

3 Indicators for sustainable development adapted to the coastal space issues

The sustainable development of the coastal regions, thus the implementation of participatory process, such as the ICZM and sustainable analysis require the definition and use of indicators that make it possible to monitor the coastal area situation, but also the development of the most influential (pressure) human activities and policies (responses).

For the "Mediterranean Region", composed of 21 Mediterranean countries (or entity) a set of 130 indicators was worked out in 1998-99 by the Blue Plan within a participative process, then approved by the Contracting Parties to the Barcelona Convention at their 11th meeting in Malta in 1999.

This set of 130 indicators was divided up into 5 chapters and 40 subjects, including a "coastline and coastalisation" subject. A breakdown of these indicators on the sub-national levels, including coastal regions, was planned in the data sheet of these indicators. Among these 130 indicators, 52 were considered by the Blue Plan to be relevant for the Mediterranean coastal regions. These are the 7 indicators of the "coastal" subject, then 45 indicators of varying subjects.

The consideration of the needs of local players and players with a say on the present and future management and planning of the coastal regions was preponderant in the choice of indicators.

Classifying the 52 Indicators for sustainable development in the Mediterranean coastal regions was therefore revised by specifying the issues concerned. Certain definitions were also updated by specifying the geographical areas or objects for which the indicators have been calculated.

The stakes, issues and the answers with their goals and constraints can only be specified in case studies.

When they are calculated for several geographical levels (national, regional, communal), the indicators also make it possible to show the spatial disparities that can exist within the same country, between the coastal region and the country's interior, but also within the coastal regions between the coastal strip and the inland areas.

List of the 52 indicators for the Sustainable Development in the Mediterranean coastal regions

N°	LABEL OF THE INDICATOR	ISSUES
1	Population growth rate	Population
5	Employment rate	Employment and poverty
15	Number of passenger cars per 100 inhabitants	Standard of life and Transport
18	Urban population growth rate	Population and urbanisation
19	Loss of agricultural land due to urbanisation	Urbanisation and Agriculture
20	Urbanisation rate	Urbanisation
21	Floor area per person	Urbanisation
24	Exploitation index of forest resources	Forest
25	Forest area	Forest and land use
26	Forest protection rate	Forest and protection of the nature
27	Artificialized coastline / total coastline	Urbanisation and costal zone
28	Number of tourists per km of coastline	Tourism and costal zone
29	Number of moorings in yachting harbours	Tourism and costal zone
30	Population growth in Mediterranean coastal regions	Population
31	Population density in coastal regions	Population and land use
32	Coastline erosion	Coastal zone and watershed management
33	Protected coastal area	Coastal zone and protection of the nature
35	Global quality of coastal waters	Pollution and coastal water
41	Wastewater treatment rate before sea release for coastal agglomerations over 100 000 inhabitants	Urbanisation and waste water
50	Use of agricultural pesticides	Agriculture and pollution of water and soils
51	Use of fertilisers per hectare of agricultural land	Agriculture and pollution of water and soils
52	Share of irrigated agricultural land	Agriculture and water
53	Agriculture water demand per irrigated area	Agriculture and water
54	"Arable area" per capita	Agriculture and population
61	Production of aquaculture	Aquaculture
63	Industrial releases into water	Industry and waste water
73	Structure of transport by mode	Transports
74	Density of the road network	Transports and land use
75	Share of collective transport	Transports
76	Number of nights per 100 inhabitants	Tourism and population
77	Number of secondary homes over total number of residences	Tourism and housing
78	Number of bed-places per 100 inhabitants	Tourism and population
79	Public expenditure on tourism development	Tourism
80	Number of international tourists per 100 inhabitants	Tourism and population
86	Share of distributed water not conform to quality standards	Tourism
87	Water global quality index	Fresh water and waste water
88	Share of collected and treated wastewater by the public sewerage system	Waste water treatment
91	Share of Industrial wastewater treated on site	Industry et waste water treatment
93	Land use change	Land use

N°	LABEL OF THE INDICATOR	ISSUES
94	"Arable area" change	Agriculture and land use
95	Wetland area	Biodiversity and land use
100	Generation of municipal solid waste	Waste and population
103	Generation of industrial solid waste	Waste and industry
104	Area of land contaminated by hazardous wastes	Waste and land use
105	Distribution of municipal wastes	Waste and consumption patterns
109	Collection rate of household wastes	Solid waste
114	Frequency of excess over air standard (ozone)	Air quality
119	Economic impact of natural disasters	Natural risks
120	Burnt area per year	Forest and Natural risks
123	Number of associations involved in environment and/or sustainable development	Taking into account of the environment and SD
127	Number of Agendas 21 adopted by local authorities	Taking into account of the environment and SD
129	Net migration rate	Population

IV   Use of indicators in the coastal regions

1   Tests in the Mediterranean regions of 3 countries

1.1   The project's progress

The entire project was done in a year; the first months were devoted to honing a methodology for "using indicators for sustainable development in the Mediterranean coastal regions".

Three experts from the Blue Plan worked on the project, and each of the national tests was done by a local team led by a head consultant nominated by the Blue Plan's "national focal point" institute. The methodology was presented, discussed and validated at a first working meeting that brought together the three national consultants and the Blue Plan team. Each national consultant then gathered a working group together, containing the main institutions and socio-economic players from the coastal area in order to identify the main development issues in the Mediterranean coastal regions, choose the priority issue, then choose the most relevant indicators. Each of the three Blue Plan experts in charge of one of the countries then carried out a mission in the coastal area in order to help the consultant in defining the working programme and to guide the working group. After calculating the indicators and writing up draft national reports, a second meeting was held to present the findings and to harmonise them as much as possible. In fact because of the specificities inherent to the coastal areas and the three countries' administrative organisation, the methodology proposed was unevenly applied resulting in sensibly different findings.

1.2   Specificities of the tests in the 3 countries

These specificities thus had a strong influence on the project's evolution, not to mention the approach and the set of indicators tested. The following tables give the details and the specifics of the three national tests as well as the results depending on the strong points and difficulties in the three countries:

Institutional context

Country	National administration	Project team	Local administrations involved
Croatia	Ministry of the Environment Environmental protection agency	Mixture Academics and Ministry staff	County, communes
Libya	Environment General Authority (EGA)	EGA	Baladyats
Syria	Ministry of State for Environmental Affairs	Mixture Academics and Ministry staff	Mohafazats, Municipalities

Geographical framework, issues and specificities

Countries	Geographical area	Issues	Test specificities
Croatia	2,000 km of coastline with more than 1,000 islands County of Split	Tourism and aquaculture	Specific indicators of which 11 among the 52 proposed indicators for coastal regions
Libya	1,900 km of coastline The 16 coastal baladyats (NUTS 3 equivalent regions)	Tourism and Industry	A monograph implicitly including indicators
Syria	183 km of coastline The 2 coastal mohafazats (4,190 km²) (NUTS 3 equivalent regions) Zoom on the Banyas coastal area.	Tourism and agriculture	Calculation test of the 130 SDIs (including the 52 coastal) with an addition of 4 specific indicators

Assets, difficulties, results and conclusion

Countries	Assets	Difficulties	Results	Conclusion
Croatia	Synergy with the current coastal area master plan Existence of a "Kastela Bay" CAMP Existence of a good SDI, ICZM and SIG experience	Large coastal area (2,000 km of coastline) with numerous islands. Numerous variety of issues Weak length of temporal series (Only post-1991)	Only 20 indicators selected from the 130 (11 among the 52 coastal level) were chosen but accurately targeted on the "issue" and the selected area Few calculated indicators (13) SIG in support of the joint project with the master plan	The test of the 130 SDIs should be continued in all the coastal regions.
Libya	The EPA's determination, policy, involvement and interest	Long coastal area (1,900 km of coastline) Administrative inertiaI 1st Blue Plan project in Libya after about a ten-year period.	Only a few indicators are given in the report without having yet been individualised	Finalisation of the work and operational continuation requiring "continuous" aid from the Blue Plan
Syria	Limited coastal area (183 km of coastline) and clearly identified issues Existence of a "Syrian coastal regions" CAMP Local team's level of understanding, Involvement of the Ministry of State for Environmental Affairs (Blue Plan's Focal Point)	Weak availability of local data mainly concerning economic data and geographic information Command of the SIG tools	37 indicators calculated for the 2 mohafazats and the Banyas region of which 21 among the coastal indicators. 33 indicators calculated for Syria. Prospective study of the "key" indicators	More depth necessary in certain areas SIG still requires development

1.3 Adapting the approach in the 3 tests

1.3.1 Croatia

The approach in Croatia, because of the extensive length of the coastline (2,000 km) and the numerous issues present, focused on a single issue, "Tourism and Aquaculture", concentrated in the county of Split. Which led to a small number of selected and calculated indicators. Likewise, it is the synergy with the master plan of the whole of the coastal area currently being done by the Ministry of the Environment and National Planning that was preferred.

The existence in the country of long experience in the Integrated Management of the Coastal Areas, the already long-standing realisation of the Coastal Area management Programme (CAMP) in the area of Kastela Bay, the positive experience of using Geographical Information System and the carrying out of a national calculation test of Indicators for sustainable development were used profitably in the project's implementation.

The geographical approach was therefore preferred with the maps of the master plan of the coastal area (supplied with the national report, having served as platform for the whole project). The presentation of the indicators in the form of a dashboard was selected by the players and will be developed in the near future for the final presentation of the results.

1.3.2 Libya

It should be noted that this project in Libya is the first to be implemented by the Blue Plan and the MAP after a very long period of time. This, linked with the specific difficulties of communication and the time necessary for convincing the Libyan authorities and for implementing the practical conditions indispensable for the project's implementation, delayed the start of the project's activities. Only the diagnostic phase dealing with the main issues of the Libyan coastal regions could be finalised. It is this diagnosis that is presented in the national report. The following phases on the selection and calculation of the indicators for which the necessary information was assembled will be continued within the framework of the Blue Plan's and MAP's activities.

1.3.3 Syria

In Syria a small length of coastline (183 km) and good identification of the issues made it possible to concentrate on calculating the 130 indicators on both the national and regional levels. Moreover, the "key" issue selected, "Tourism and Agriculture", was in fact studied with numerous local players, leading to the proposal of new indicators.

The experience of a Coastal Area Management Programme (CAMP) for both of the coastal regions, the recent carrying out by the Ministry of State for Environmental Affairs of a national test for calculating indicators as well as extensive knowledge by the local team (the University of Lattakia) of the issues in the coastal area and of existing information, made it possible to bring the project to a successful conclusion and to execute a very detailed prospective of these issues.

The ambitions of the local team were limited only by the poor availability of economic data on the local level and the overly short-term experience in questions of Geographical Information Systems. The geographical approach therefore must be further developed, which can be done in particular on a well defined coastal area.

1.4   Test results in the 3 countries

As for calculating the indicators, the test results varied widely depending on the country.

1.4.1   Croatia

In Croatia the selection and calculation of the indicators focused on the key issue for the County of Split, i.e. Tourism and Aquaculture.

To figure out this issue, the following 20 indicators were selected from among the 130 Mediterranean indicators (11 from the 52 coastal indicators). 13 indicators could be calculated for the County of Split, including 10 on the coastal level. Details of the findings are included in the Croatian national report.

Reading keys showing the calculation and/or the comments of the indicators	
	Indicators no calculated and without comments
1	Indicators no calculated with comments
2	Indicators calculated but without comments
3	Indicators calculated with comments

Balance of the indicators calculated in Croatia		For the coastal level among the 52	For the coastal level among the 130
	Indicators no calculated and without comments	41	110
1	Indicators no calculated with comments	1	7
2	Indicators calculated but without comments	0	0
3	Indicators calculated with comments	10	13
Total number of indicators		**52**	**130**

List of the indicators calculated for the coastal regions in Croatia

No	Label of the indicator	Coastal indicator	Calculated for the coastal level
28	Number of tourists nights per km of coastline	**Yes**	3
30	Population growth in Mediterranean coastal regions	**Yes**	3
31	Population density in coastal regions	**Yes**	3
33	Protected coastal area	**Yes**	3
35	Global quality of coastal waters	**Yes**	3
37	Coastal waters quality in some main "hot spots"		3
41	Wastewater treatment rate before sea release for coastal agglomerations over 100 000 inhabitants	**Yes**	3
43	Distribution of GDP (Agriculture, Industry, Services)		3
49	Employment distribution (Agriculture, Industry, Services)		3
58	Value of halieutic catches at constant prices		1
59	Number and average power of fishing boats		1
60	Fishing production per broad species groups		1
61	Production of aquaculture	**Yes**	1
62	Public expenditures on fish stocks monitoring		1
76	Number of nights per 100 inhabitants	**Yes**	3

No	Label of the indicator	Coastal indicator	Calculated for the coastal level
78	Number of bed-places per 100 inhabitants	**Yes**	**3**
80	Number of international tourists per 100 inhabitants	**Yes**	**3**
84	Exploitation index of renewable resources		**3**
95	Wetland area	**Yes**	**1**
97	Share of fishing fleet using barge		**1**

1.4.2   Libya

In Libya with the process at its beginning, the indicators have not yet been identified and calculated, but a few general indicators figure implicitly in the national report on the issues and problems of the Libyan coastal regions.

1.4.3   Syria

Syria carried out a very full test on the 130 indicators for the national level and the coastal regions: 37 indicators were calculated for the 2 mohafazats and the Banyas region, including 21 of the 52 coastal indicators; 33 indicators of the 130 were calculated for the national level.

The common set of 52 indicators proposed for the coastal regions was filled out by 4 new indicators associated with the issues of tourism and agriculture:

Number of tourists per km of coastline
Tourism density
Evolution of citrus fruits production
Evolution of olive oil production

Reading keys showing the calculation and/or the comments of the indicators	
	Indicators no calculated and without comments
1	Indicators no calculated with comments
2	Indicators calculated but without comments
3	Indicators calculated with comments

Balance of the indicators calculated in Syria		For the coastal level among the 130	For the coastal level among the 52	For the national level among the 130
	Indicators no calculated and without comments	92	30	59
1	Indicators no calculated with comments	1	1	27
2	Indicators calculated but without comments	0	0	11
3	Indicators calculated with comments	37	21	33
Total number of indicators		**130**	**52**	**130**
2&3	Indicators calculated (Number)	**37**	**21**	**44**
	Indicators calculated (%)	**28.5 %**	**40,4 %**	**33.8 %**

The details of the indicators figure in the following chart (see the Syrian national report for the body of quantified findings.)

List of the indicators calculated for the coastal regions and the national level in Syria

No	Label of the indicator	Coastal indicator	Calculated for the	
			Coastal level	National level
1	Population growth rate	Yes	3	3
2	Total fertility rate		3	3
3	Women per hundred men in the labour force		3	3
4	Human poverty index (HPI)			1
5	Employment rate	Yes	1	1
6	School enrolment gross ratio		3	3
7	Difference between male and female school enrolment ratios			
8	Production of cultural goods		3	3
9	Share of private and public finances allocated to the professional training			1
10	Public expenditure for the conservation and value enhancement of natural, cultural and historical patrimony			
11	Life expectancy at birth		3	3
12	Infant mortality rate		3	3
13	Access to safe drinking water		3	3
14	Annual energy consumption per inhabitant		3	3
15	Number of passenger cars per 100 inhabitants	Yes	3	3
16	Main telephone lines per 100 inhabitants		3	3

No	Label of the indicator	Coastal indicator	Calculated for the	
			Coastal level	National level
17	Distribution of food consumption per income decile			
18	Urban population growth rate	Yes	3	3
19	Loss of agricultural land due to urbanisation	Yes		2
20	Urbanisation rate	Yes	3	3
21	Floor area per person	Yes		2
22	Population change in mountain areas			
23	Existence of program(s) concerning the less favoured rural zones			
24	Exploitation index of forest resources	Yes		1
25	Forest area	Yes	3	3
26	Forest protection rate	Yes	3	1
27	Artificialized coastline / total coastline	Yes		1
28	Number of tourists nights per km of coastline	Yes		2
29	Number of moorings in yachting harbours	Yes		2
30	Population growth in Mediterranean coastal regions	Yes	3	3
31	Population density in coastal regions	Yes	3	3
32	Coastline erosion	Yes		
33	Protected coastal area	Yes		
34	Oil tanker traffic			2
35	Global quality of coastal waters	Yes		
36	Density of the solid waste disposed in the sea			
37	Coastal waters quality in some main "hot spots"			
38	Quality of biophysical environment			
39	Protection of specific ecosystems			
40	Existence of monitoring programs concerning pollutant inputs			
41	Wastewater treatment rate before sea release for coastal agglomerations over 100 000 inhabitants	Yes		1
42	Harbour equipment ratio in unballasting facilities			1
43	Distribution of GDP (Agriculture, Industry, Services)		3	3
44	Foreign Direct Investment			
45	External debt / GDP			
46	Saving / investment			3
47	Public deficit / GDP			
48	Current account balance / GDP			
49	Employment distribution (Agriculture, Industry, Services)		3	3
50	Use of agricultural pesticides	Yes		2
51	Use of fertilisers per hectare of agricultural land	Yes	3	3
52	Share of irrigated agricultural land	Yes	3	3
53	Agriculture water demand per irrigated area	Yes		2
54	"Arable area" per capita	Yes	3	3
55	Rate of food dependence			1
56	Annual average of wheat yield		3	3
57	Water use efficiency for irrigation			1
58	Value of halieutic catches at constant prices			
59	Number and average power of fishing boats			
60	Fishing production per broad species groups		3	3

No	Label of the indicator	Coastal indicator	Calculated for the	
			Coastal level	National level
61	Production of aquaculture	Yes		
62	Public expenditures on fish stocks monitoring			1
63	Industrial releases into water	Yes	3	1
64	Intensity of material use			1
65	Number of mines and carries rehabilitated after exploitation			
66	Turnover distribution of commerce according to the number of employees			1
67	Share of merchant services to the enterprises			
68	Existence of restrictive legislations on the setting up of hypermarket			1
69	Energy intensity			
70	Energy balance			
71	Share of consumption of renewable energy resources			
72	Average annual distance covered per passenger car		3	1
73	Structure of transport by mode	Yes	3	
74	Density of the road network	Yes	3	3
75	Share of collective transport	Yes	3	2
76	Number of nights per 100 inhabitants	Yes	3	3
77	Number of secondary homes over total number of residences	Yes	3	3
78	Number of bed-places per 100 inhabitants	Yes		
79	Public expenditure on tourism development	Yes		2
80	Number of international tourists per 100 inhabitants	Yes		
81	Share of tourism receipts in the exportations			
82	Currency balance due to tourism activities			
83	Public expenditure on tourism sites conservation		3	3
84	Exploitation index of renewable resources			
85	Non-sustainable water production index			
86	Share of distributed water not conform to quality standards	Yes		1
87	Water global quality index	Yes		1
88	Share of collected and treated wastewater by the public sewerage system	Yes		
89	Existence of economic tools to recover the water cost in various sectors			
90	Drinking water use efficiency			1
91	Share of Industrial wastewater treated on site	Yes		1
92	Ratio of land exploitation			
93	Land use change	Yes		
94	"Arable area" change	Yes	3	3
95	Wetland area	Yes		1
96	Number of turtles caught per year			1
97	Share of fishing fleet using barge			1
98	Threatened species			
99	Total expenditure on protected areas management			
100	Generation of municipal solid waste	Yes	3	
101	Generation of hazardous wastes			
102	Imports and exports of hazardous wastes			1
103	Generation of industrial solid waste	Yes		2
104	Area of land contaminated by hazardous wastes	Yes		3

| No	Label of the indicator	Coastal indicator	Calculated for the	
			Coastal level	National level
105	Distribution of municipal wastes	Yes	3	3
106	Minimisation of waste production			3
107	Cost recovery index of municipal wastes			1
108	Destination of household wastes			
109	Collection rate of household wastes	Yes		1
110	Emissions of greenhouse gasses		3	3
111	Emissions of sulphur oxides			
112	Emissions of nitrogen oxides			
113	Consumption of ozone depleting substances			2
114	Frequency of excess over air standard (ozone)	Yes		
115	Expenditure on air pollution abatement			
116	Share of clean fuels consumption in total motor fuels consumption			
117	Share of agglomerations over 100 000 inhabitants equipped with a air pollution monitoring network			
118	Number of sites with high risk			
119	Economic impact of natural disasters	Yes		
120	Burnt area per year	Yes	3	1
121	Existence of intervention plans			
122	Number of direct employments linked to the environment			
123	Number of associations involved in environment and/or sustainable development	Yes		
124	Number of enterprises engaged in "environment management" processes			
125	Public expenditure on environmental protection as a percent of GDP			
126	Existence of environment national plans and/or sustainable development strategies			
127	Number of Agendas 21 adopted by local authorities	Yes		
128	Openness rate of GDP			
129	Net migration rate	Yes		
130	Public development assistance coming from abroad			

1.5   Conclusions of the national tests

The tests in the three countries made it possible to validate the methodology finalised to promote the use of SDIs in the coastal regions. Based on a local team and players including decision-makers, while taking management projects into account and projects relating to the indicators, this methodology was followed at least in part.

Unfortunately the use of the indicators having to be part of the participatory management policies or in the ICZM projects is conditioned by the operational level and the progress of these policies or projects. Which is not very compatible with the short time of the project. Therefore the tests will continue in the three countries within the framework of the MAP's activities, and their results will be used to adapt the methodology to the other Mediterranean countries.
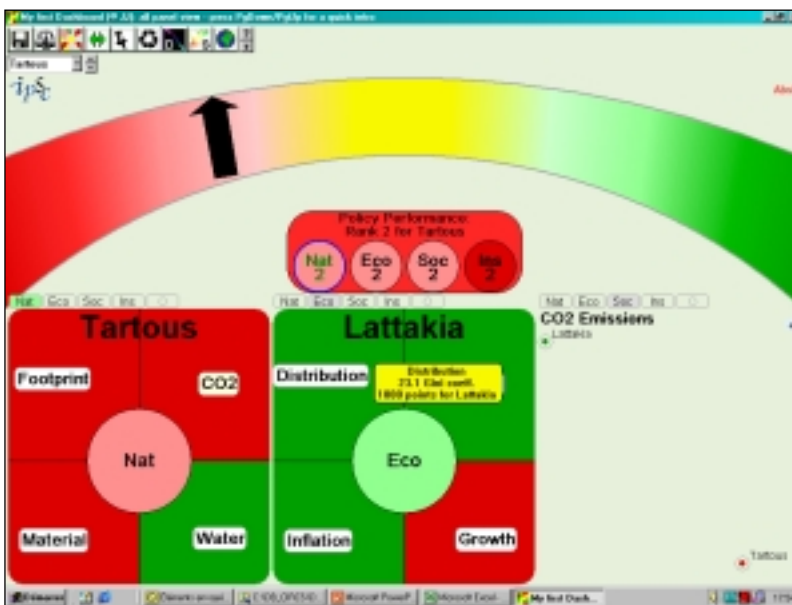
The presentation of the findings with the help of a dashboard of a common type appeared as an interesting goal in the three tests. The dashboards, equivalent to those developed by the Joint Research Centre (Ispra) of the European Community, which were presented (see opposite) during the project, were unanimously approved. They can be used to give the indicators in a telling form to the players concerned.

But it also emerged that in the Mediterranean regions it would be desirable to adapt this dashboard to the socio-politico-cultural specificities of the country and to the "key" issues of the coastal areas by adding on the spatial component by means of a SIG.
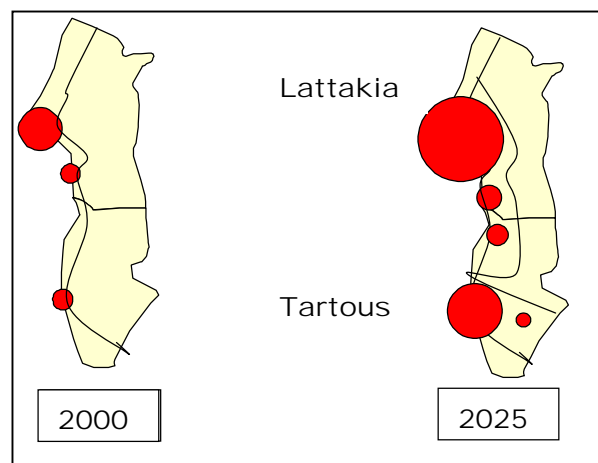
2   Generalising the process

Despite the obvious advantage in using a common set of indicators for all of the Mediterranean regions, what emerged from this project is that a harmonisation is needed upstream for the definitions and calculation methods as well as for the coastal administrative authorities.

The harmonisation of indicators must also have a common definition of a "relevant coastal strip" in the sustainable development sense, but this does not have a global definition, or even a unique one, for it depends on the issues that are concentrated there. Consensus on a definition of the "coastal strip" appeared difficult to obtain within the same country and even more so on the international level.

This harmonisation of the definition of the coastal strip could be part of a future protocol on the "Mediterranean coastal regions" (PAP is at present time elaborating it), which would efficiently link the Integrated Coastal Zone Management with the Sustainable Development Indicators.

In practice nonetheless this harmonisation can be done by:

- Using common participatory methodology, mainly the selection of "relevant" indicators by all the players in the coastal area.
- The use as a priority of the set of common indicators (52 indicators) for various coastal geographic units, from the coastal region to the coastal strip, but defined in similar if not equivalent ways in all countries.

3   Recommendation proposals

The project and execution of the national tests made it possible to develop recommendations for effective and harmonised use of the indicators for sustainable development in coastal regions of all Mediterranean countries. These recommendations proposed in annex 1 concern the use of a common set that might be adapted to the key issues of the regions in question. They are also about the need for real political will's being translated into practice by a synergy with the planning projects of the existing coastal regions and between all the national and local institutions concerned by the development, management and environment of the coastal regions. The active participation of all players and an awareness of the interest of the indicators as tools for understanding and communication are also of prime importance.

V   Conclusions

This project made it possible to:

- Promote the use of the indicators on the coastal regional level by:

  - Demonstrating the interest in using the indicators for analysing the issues of sustainable development in order to aid the implementation of appropriate policies;

  - Gathering all of the players around these issues and having them participate in the fundamental phases of selecting indicators, then presenting the results;

- Contribute to establishing dashboards based on the indicators and making it possible to measure progress towards sustainable development in the Mediterranean coastal regions by:

  - Proposing types of representation and projecting a summarised vision of the issues of coastal areas appropriate to the presentation of results to the decision-makers.

  - Presenting the communication experiences in the recent Coastal Area Management Programmes (CAMP) that included a "Sustainability Analysis".

- Develop a method that can be generalised in future to the other Mediterranean countries by:

  - Including in the definition of the method all of the Blue Plan's experience in Coastal Area Management Programmes (CAMP), systemic analysis and sustainability analysis and tests on the indicators;

  - Bringing together all players as much as possible and in all phases of the project's execution;

  - Testing this method in three Mediterranean countries with manifestly different coastal regions, issues and political-administrative systems, thus opening a spread that should make it possible to generalise the approach to all of the Mediterranean countries.

The efforts mobilised for carrying out this project must be continued in the three countries depending on the findings reached. They must then be repercussed onto the presentation of the method during a Mediterranean seminar in order to improve the consideration of sustainable development in the coastal regions in the policies of the Mediterranean countries.

Annex 1: Proposal of recommendations

In the recommendations by the Contracting Parties approved in October, 1999 in Malta, it was proposed to the Mediterranean countries to extend the calculation of the indicators to the Mediterranean coastal regions and to all relevant geographical levels, i.e. the coastal regions and within the coastal regions according to a more detailed administrative sub-division (communes) and based on the mapping of the issues of Sustainable Development in these regions.

The various tests carried out in the Mediterranean countries have enabled the following confirmations:

- The common set of 130 Mediterranean indicators, including the 52 indicators proposed for the sub-national level, may be used as the basis for selecting indicators. In particular it not only makes it possible to compare the developments of the coastal regions to those of the whole country (and the inland regions) but also to the coastal regions of other countries.

- Within the coastal regions the development of specific indicators makes it possible to understand the issues unique to the study area in more detail. The geographical information and the mapping of the issues of sustainable development then make it possible to visualise spatially and define the hot spots and conflict areas with precision.

- The indicators are a useful tool for studying the issues of sustainable development in the coastal regions and for communicating the main results to the decisions makers in a **dashboard** form.

- The choice of priority development issues and the selection of the key indicators should, if possible, be done in the framework or in support of a **planning project** done on the country's initiative. The indicators are then an indispensable tool for all "**sustainable analysis**" that might be conducted within the framework of these projects.

- It is essential that this activity be done by a "**working group**" made up of institutions and academics. It is preferable to have **the participation of all actors, including local act**ors, so that the maximum of concerns and viewpoints be taken into account as soon as the issues and indicators are selected.

- **Synergy between national and local institutions**, environmental and planning institutions and sectional institutions and statistical institutes is vital for objectively selecting and calculating the indicators by using the body of available information.

- The calculation and adaptation of these indicators can be a goal of the national institutions (environmental and statistical) for working out a body of information useful in analysing development and sustainable planning of the coastal regions.

Annex 2: Methodological note

With a view to sustainable development, the Mediterranean coastal areas, and mainly those with strong economic and environmental potential, are very vulnerable and must be at the centre of policies of national urban and rural planning considerations. Indeed, the sustainable development of coastal areas that may derive from local policies depend heavily on national policies.

Moreover the coastal areas are the place where human pressures are the greatest and where the present and potential conflicts of land use are the most critical. In these areas it is essential to consider the geographical aspects of territorial planning policies, the execution of tourist and industrial projects and policies for protecting the environment.

When they are calculated for several geographical levels (national, regional and municipal), indicators make it possible to show the spatial disparities that can exist in the same country. Moreover certain indicators, more specifically adapted to the issues of the coastal areas, make it possible to improve the information required for decision-making.

An dashboard amalgamating the geographical information and key indicators can be a particularly useful communication and decision-making tool in the coastal areas with major development issues in conflict with and harmful to the environment.

I   Overall Objectives

This project is proposed within the framework of the follow up to the recommendations of the Mediterranean Commission on Sustainable Development and those of the 11th meeting of the MAP Contracting Parties (Malta, 1999). The goals of this project are the following:

1. Promoting the use of indicators on the regional coastal level,

2. Contributing to the establishment of instrument panels based on the indicators and enabling the measurement of the progress towards sustainable development in the Mediterranean coastal regions

3. Developing a method that can be generalised in future to the other Mediterranean countries.

II   Means

The project will be conducted by a local team under the guidance of a lead consultant (professors of geography and regional development) in harmony with the Blue Plan team. The local team will contribute its knowledge of the area under study (description, data, maps and indicators); it will organise local events (meetings) and produce the national report.

A think tank composed of the main institutions and socio-economic players that might influence the decision relating to the area studied will be organised by the lead consultant to brainstorm on a priority issue and select the most relevant indicators.

The Blue Plan will provide technical assistance based on its experience in sustainable development, indicators and prospective more specifically in the Mediterranean coastal areas.

The mapping will be done by the Blue Plan on a 1/1,000,000 scale for the whole of the coastal area of each country and on a 1/50,000 scale for close-ups, using data supplied by the local team. For the sake of consistency the Blue Plan will provide the local team with the geographical information it has. This information will then be updated by the local team.

III   Implementation phases

The project consists of 5 phases, the progression of which is shown in the logical graph in annex 1. This project calls for a lot of information, the flow of which between the local suppliers, the local team, the Blue Plan and the local players is diagrammed in annex 2.

1   Definition of the study area

It is vital to start the project with a description of the geographical and administrative situation of the study area that will cover the country's entire Mediterranean coastal area. It will be delimited by the coastal administrative units comparable to level 3 of the Nomenclature of Statistical Territorial Units (NUTS). The description will consist of a regional monograph illustrated with physical and administrative maps.

The physical mapping will, insofar as possible, delimit the coastline, the coastal plain and the inland area depending on the altitude and its distance from the sea.

The administrative mapping will supply a breakdown into units comparable to level 3 of the European Union's Nomenclature of Statistical Territorial Units (NUTS) and to level 5 of the same nomenclature. In the project the units will be respectively named regions and communes. The communes will be classified according to whether they belong to the coastline, the coastal plain or the inland area.

The various geographical scales used for calculating the indicators may be found in annex 3.

2 Description of the major sustainable development stakes, the decision's making processes and data availability

2.1 Major stakes of sustainable development

The main stakes of sustainable development relating to the interaction and conflicts between one or several socio-economic activities and the environment will be described and argued. To this end the planning documents will be largely used and analysed by the local team. A mapping description of these issues will then be done by the Blue Plan by using data supplied by the local team (see point 3.1).

2.2 Institutional description of the decision-making

The institutions responsible for or concerned by the decision-making associated with the issues of sustainable development in the study area will be described along with their fields of competence. The description will concentrate on the hierarchy and roles of these institutions and on the possible overlapping of fields of competence.

2.3 Availability and accessibility of the basic data

Knowledge of availability of and access to databases and maps is essential for designing the project's activities, mainly for calculating the appropriate indicators.

The geographical and administrative levels and periods for which the data are available will be indicated according to the main socio-economic sectors and the environmental components.

Information sources (and the administrative level of data gathering) will be indicated with an assessment on the possibility of obtaining information.

3 Description of the current situation (with a retrospective)

3.1 Cartographic description of the stakes

The stakes described above will be mapped by Blue Plan by using ground-use maps. The main classes of ground use (industry, urbanisation, agriculture and tourism) and the areas of ecological interest will be presented. A map of transportation networks (road and railroads, ports, pipe works) will also be developed. The layering of these maps will

make it possible to see the conflict areas in the coastal zone. The details of the mapping can be found in annex 4). This mapping will be carried out on different scales, i.e. 1/1,000,000 for the whole of the coastal area in each country and 1/50,000 for the specific study area (see point 3.2).

3.2 Selection of one priority stake and corresponding indicators

So as to limit the study field a priority issue (or priority issues) will be chosen and defined. This issue will be detailed and analysed according to a DPSIR framework (the definitions are in annex 5). Then the most relevant indicators will be selected and defined. This job will be done by a multi-disciplinary group which will have to keep in mind the joint set of the 130 indicators for sustainable development in the Mediterranean and more specifically the 51 indicators proposed for the coastal level. The definitions of these indicators figure in a glossary done by Blue Plan and will be given to the local team (the list of the 130 indicators, including the 51 coastal indicators, can be found in annex 6).

3.3 Calculating the indicators

Calculating the selected indicators will be done for the regions and the communes of the study area.

Although the field of study is limited to the priority issues for a specific area, all of the 51 indicators proposed by Blue Plan for the coastal level will also be calculated for the entire coastal area (NUTS level 3).

The indicators will also be supplied on the national level with a view to comparing the various geographical levels. The findings of the already done national test will be given to the local team, who will be able to update it according to available new data.

4 Prospective

4.1 Cartography of the development projects

The mapping of the development projects as outlined in the planning documents will be done so as to show an image of the future of the study area. The layering of these maps with those described in point 2.1 will make it possible to see the conflict areas associated with the execution of projects.

4.2 Selection and projection of the key indicators

Among the indicators selected by the think tank, a limited set of from 10 to 15 will be projected into the long term (to 15, 20 or 25 years according to the horizons adopted in the planning documents). In this set the performance indicators (targeted indicators) will be preferred.

The indicators will be projected according to a trend scenario (basic scenario), designed on the basis of past trends. An alternative projection of these indicators will make it possible to identify the political, economic and social re-orientations necessary for more sustainable development.

5   Presentation of the results

The findings will be given in a report on the issues of sustainable development in the Mediterranean coastal areas of each country. Based on the use of **indicators, this report will be illustrated with maps and will propose a dashboard for decision-makers**.

Easy to update so as to enable a follow-up of the coastal area situation, this instrument panel will consist mainly of

- prospective "land management-environment" maps

- prospective statistical maps of the key indicators

- a graphic representation of the key indicators

Annexe 1: Logical Chart

Institutional Information

Statistical data

Atlas, Map

1. Definition of the study area

2.1 Major stakes of sustainable development

2.2 Institutional description of the decision-making

2.3 Availability and accessibility of the basic data

Indicators

3.1 Cartographic description of the stakes

3.2 Selection of one priority stake and corresponding indicators

3.3 Calculation of the indicators

4.1 Cartography of the development projects

4.2 Selection and projection of the key indicators

Planning

5. Presentation of the results

Annexe 2: Information flows

Local Providers

Local Team

Blue Plan

Method

Atlas, Maps

Planning documents → Geographical Background

Geographical Background ↔ GIS

Geographical information

Institutional Information → Decision Making Information

Statistical data → Statistical data

Statistical data → Indicator

Indicators ↔ Indicator ↔ Indicators

Report, dashboard → Synthesis

Indicators → Synthesis

Local Actors

Annexe 3: Geographical scales

Most indicators are designed for a **geographic scale** corresponding to the entire country; yet certain indicators can also (or exclusively) be defined for smaller geographical units (coastal region, coastal area, sites) or larger ones (maritime areas).

The *maritime area level* refers to the zoning adopted in the framework of the MAP/Medpol for studying land-based pollutants in the Mediterranean (1984). There the Mediterranean Sea is subdivided into XIII zones. This zoning is proposed in two indicators (nos. 34 and 36).

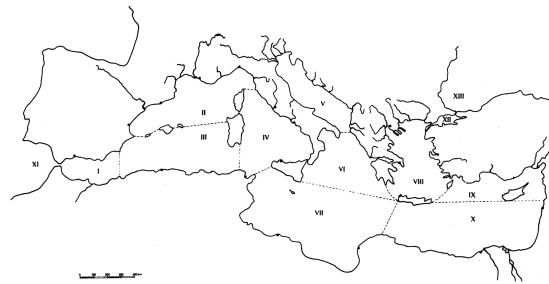The *national geographic level* corresponds to the entire national territory. Non-Mediterranean extra-metropolitan territories are not concerned here.

The *coastal regions level* corresponds to the administrative regions equivalent to level 3 of the Nomenclature of Statistical Territorial Units (NUTS 3) bordering the Mediterranean. Depending on the case, the indicator is requested for these administrative regions taken individually or for the body of these regions incorporated into a single geographical entity.

The *"coastal area" level* accentuates the preceding geographical level by targeting a smaller coastline, constituted of a land strip and a sea strip. Unless that is specified in the methodological indications, the strip of land corresponds wither to a 10-km band from the coastline, or to the whole of the communes (NUTS 5) bordering the coast. The proposed sea strip corresponds to the territorial waters (12 miles).
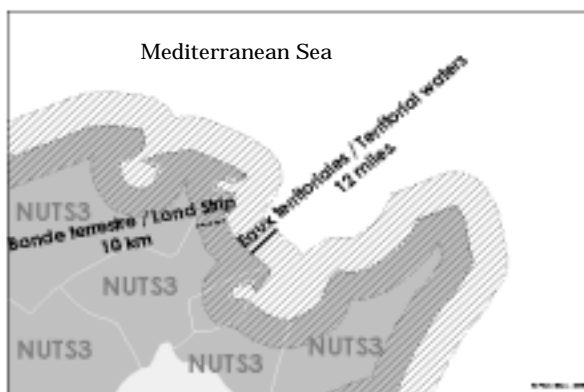
The *sites level* corresponds to points defined in detail according to geographical co-ordinates where measurements are regularly carried out that serve to assess a quality level, for example.

Annexe 4: Cartography

The goals mentioned in the project note require the use of much information and data available on the national level. Making a geographical information base requires a lot of effort in data gathering.

Working methodology:

The job will be executed in four main phases:

1. Data collection
2. Data integration
3. Data processing
4. Dissemination of findings

The national consultant will be responsible for data collection. It can either be in hard copy or digital format. The job of integrating data into the GIS will be defined for each country. It depends on the technical availability of local team tools and their ability to use them. Blue Plan will process the data and disseminate the results.

Geographic scales:

As a general rule, all geographic information gathered will be managed on a scale of 1/1,000,000, but the maps gathered might be on different scales. If necessary, certain close-ups will be done in the zone in question. The study area will be managed and analysed on different geographical levels:

1. Administrative level with two subdivisions: regional (NUTS 3 equivalent) and municipal (NUTS 5 equivalent)
2. Physical level defined by classes depending on the distance to the coast and the altitude.

Geographical projections:

The official national projection adopted by each country will be taken into account for this project.

Cover list

Theme	Cover	Types	Periods
Basic data	Administrative limits for the coastal regional level	Polygon	The latest
	Administrative limits for the coastal communal level	Polygon	The latest
Bathymetry	Isograms	Line	
Hypsography	Altitude areas	Polygon	
	Isograms	Line	
	Altitude point	Point	
	Slopes		
Drainage	Lakes, currents, estuaries,	Polygon	

Theme	Cover	Types	Periods
	lagoons, sebkhas…		
	River currents, canals	Line	
Land cover	Main classes of land cover (artificial surfaces, farming areas, wooded areas, semi-natural areas, wetlands and areas under water)	Polygon	2 dates
Biodiversity	Areas classed according to different types of protection	Polygon	
	Biotopes of major interest for nature conservation	Polygon	
Industry	Main industrial sites (industrial complexes, electric power plants, gas wells, refineries…)	Point (or polygon)	2 dates
Urbanisation	Urban areas	Polygon	2 dates
	Cities and towns	Point	2 dates
Transport	Road and rail networks	Line	2 dates
	Airports, harbours	Point (or polygon)	2 dates
Tourism	Main tourist areas, historic sites, yacht harbours	Point (or polygon)	2 dates
Planning	Development project on the coastal regions level	Polygon	

Annexe 5: DPSIR framework

The DPSIR framework developed by the AEE as an extension of the PER framework which had previously been developed by the OECD is very useful for analysing environmental issues and classifying the indicators.
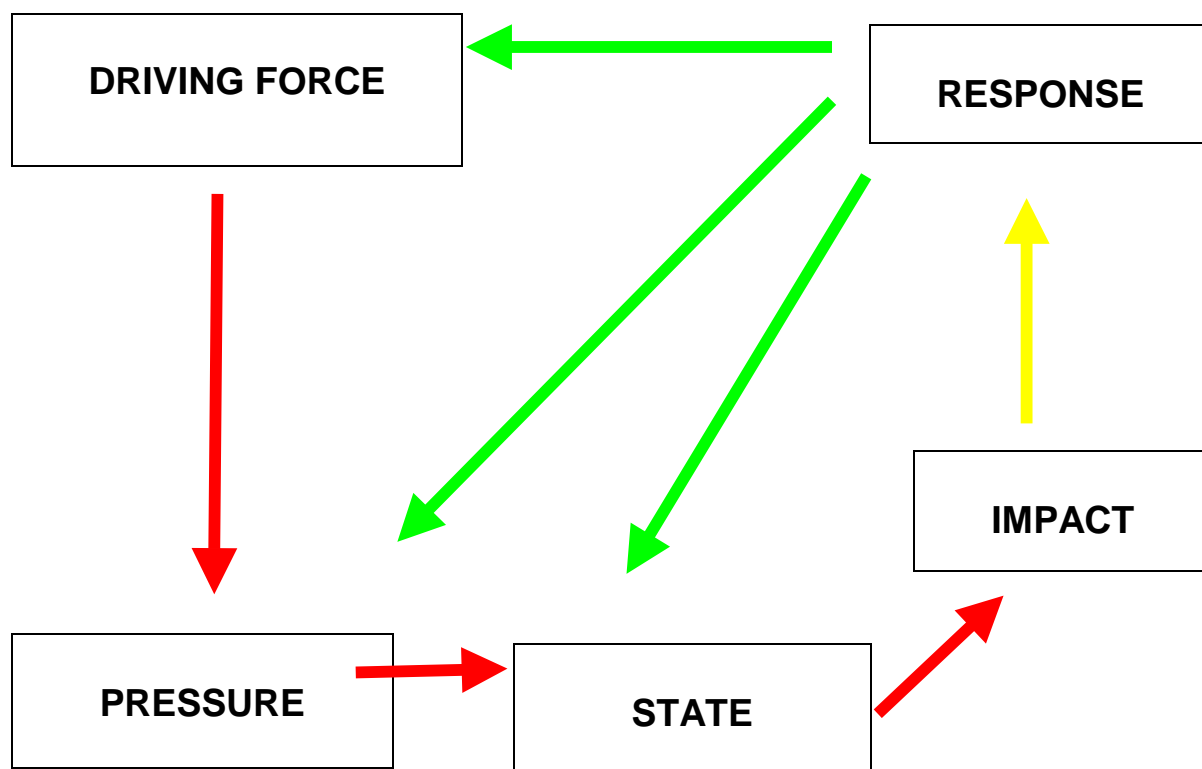
Adapted from EEA

D: The driving forces are the underlying factors that influence a certain number of relevant variables. E.g. the number of cars per capita; industrial production and the GDP.

P: The Pressure indicators describe the variables that directly cause (or can cause) environmental problems. E.g. toxic product emissions, CO_2 emissions.

S: The State indicators describe the present situation of the environment. E.g. lead concentration, water quality.

I: The Impact indicators describe the effects of the evolution of the state of the environment.
E.g. the percentage of children suffering from lead-caused health problems.

R: The Response indicators show the efforts by society (i.e. politics, decision-makers) for solving problems.
E.g. the percentage of cars with catalytic converters; reducing waste production to a minimum.

Annexe 6: List of Indicators for Sustainable Development for the Mediterranean (MCSD)

The Indicators for Sustainable Development are grouped according to the thematic framework taken from the MED 21 Agenda and adopted by the Contracting Parties to the Barcelona Convention in October 1999.

They were numbered from 1 to 130.

The column Type specifies P = Pressure, E = State, R = Response.

The " BLUE PLAN " column refers to the indicators (50) already calculated by the Blue Plan thanks to the availability of data on the international level.

The "MEDSTAT" column indicates if the indicator is partially or completely calculated in the framework of the MEDSTAT Environment project. It will be useful to refer to the work underway in the countries concerned by this project2 and take advantage of it.

The "SUB-NATIONAL" column indicates whether the indicator should be calculated at an infra-national geographical level, i.e. at the level of the coastal regions, the coastline or the Mediterranean sites.

CHAPTER AND THEME	N°	T	Indicator name	BLUE PLAN	MED STAT	SUB NATIONAL
POPULATION AND SOCIETY						
Demography and population	1	P	Population growth rate	Yes		Yes
	2	R	Total fertility rate	Yes		
Standard of life, employment, social inequities, poverty, unemployment	3	S	Women per hundred men in the labour force	Yes		
	4	S	Human poverty index (HPI)			
	5	R	Employment rate	Yes		Yes
Culture, education, training, awareness improvement	6	P	School enrolment gross ratio	Yes		
	7	S	Difference between male and female school enrolment ratios	Yes		
	8	S	Production of cultural goods	Yes		
	9	R	Share of private and public finances allocated to the professional training			
	10	R	Public expenditure for the conservation and value enhancement of natural, cultural and historical patrimony			
Health, public health	11	S	Life expectancy at birth	Yes		
	12	S	Infant mortality rate	Yes		
	13	R	Access to safe drinking water	Yes		
Consumption and production patterns	14	P	Annual energy consumption per inhabitant	Yes		
	15	P	Number of passenger cars per 100 inhabitants	Yes		Yes
	16	S	Main telephone lines per 100 inhabitants	Yes		

---

² Malta, Turkey, Syria, Lebanon, Israel, the Palestinian Territores, Cyprus, Egypt, Tunisia, Algeria and Morocco.

CHAPTER AND THEME	N°	T	Indicator name	BLUE PLAN	MED STAT	SUB NATIONAL
	17	S	Distribution of food consumption per income decile			
LANDS AND AREAS						
Habitat and urban systems	18	P	Urban population growth rate	Yes		Yes
	19	P	Loss of agricultural land due to urbanisation		Yes	Yes
	20	S	Urbanisation rate	Yes		Yes
	21	S	Floor area per person			Yes
Rural and dry areas, mountains and hinterland	22	P	Population change in mountain areas			
	23	R	Existence of program(s) concerning the less favoured rural zones			
Forests	24	P	Exploitation index of forest resources			Yes
	25	S	Forest area	Yes	Yes	Yes
	26	R	Forest protection rate	Yes		Yes
Littoral and "littoralisation"	27	P	Artificialized coastline / total coastline			Yes
	28	P	Number of tourists nights per km of coastline			Yes
	29	P	Number of moorings in yachting harbours			Yes
	30	S	Population growth in Mediterranean coastal regions	Yes		Yes
	31	S	Population density in coastal regions	Yes		Yes
	32	S	Coastline erosion			
	33	R	Protected coastal area	Yes		Yes
Sea	34	P	Oil tanker traffic			
	35	S	Global quality of coastal waters		Yes	Yes
	36	S	Density of the solid waste disposed in the sea			
	37	S	Coastal waters quality in some main "hot spots"			
	38	S	Quality of biophysical environment			
	39	R	Protection of specific ecosystems			
	40	R	Existence of monitoring programs concerning pollutant inputs			
	41	R	Wastewater treatment rate before sea release for coastal agglomerations over 100 000 inhabitants		Yes	Yes
	42	R	Harbour equipment ratio in unballasting facilities			
ECONOMIC ACTIVITIES AND SUSTAINABILITY						
Global economy	43	P	Distribution of GDP (Agriculture, Industry, Services)	Yes		
	44	P	Foreign Direct Investment	Yes		
	45	S	External debt / GDP	Yes		
	46	S	Saving / investment			
	47	S	Public deficit / GDP	Yes		
	48	S	Current account balance / GDP	Yes		
	49	S	Employment distribution (Agriculture, Industry, Services)	Yes		
Agriculture	50	P	Use of agricultural pesticides			Yes
	51	P	Use of fertilisers per hectare of agricultural land	Yes		Yes
	52	P	Share of irrigated agricultural land	Yes	Yes	Yes
	53	P	Agriculture water demand per irrigated area			Yes
	54	S	"Arable area" per capita	Yes		Yes
	55	S	Rate of food dependence			
	56	S	Annual average of wheat yield	Yes		

CHAPTER AND THEME	N°	T	Indicator name	BLUE PLAN	MED STAT	SUB NATIONAL
	57	R	Water use efficiency for irrigation		Yes	
Fisheries, aquaculture	58	P	Value of halieutic catches at constant prices			
	59	P	Number and average power of fishing boats	Yes		
	60	S	Fishing production per broad species groups	Yes		
	61	S	Production of aquaculture	Yes		Yes
	62	R	Public expenditures on fish stocks monitoring			
Mines, industry	63	P	Industrial releases into water		Yes	Yes
	64	S	Intensity of material use			
	65	R	Number of mines and carries rehabilitated after exploitation			
Services and commerce	66	S	Turnover distribution of commerce according to the number of employees			
	67	S	Share of merchant services to the enterprises			
	68	R	Existence of restrictive legislations on the setting up of hypermarket			
Energy	69	P	Energy intensity	Yes		
	70	P	Energy balance	Yes		
	71	R	Share of consumption of renewable energy resources	Yes		
Transports	72	P	Average annual distance covered per passenger car	Yes		
	73	S	Structure of transport by mode	Yes		Yes
	74	S	Density of the road network	Yes		Yes
	75	R	Share of collective transport			Yes
Tourism	76	P	Number of nights per 100 inhabitants	Yes		Yes
	77	P	Number of secondary homes over total number of residences			Yes
	78	P	Number of bed-places per 100 inhabitants	Yes		Yes
	79	P	Public expenditure on tourism development			Yes
	80	P	Number of international tourists per 100 inhabitants	Yes		Yes
	81	S	Share of tourism receipts in the exportations	Yes		
	82	S	Currency balance due to tourism activities			
	83	R	Public expenditure on tourism sites conservation			
ENVIRONMENT						
Freshwater et waste water	84	P	Exploitation index of renewable resources	Yes	Yes	
	85	P	Non-sustainable water production index	Yes	Yes	
	86	S	Share of distributed water not conform to quality standards			Yes
	87	S	Water global quality index		Yes	Yes
	88	R	Share of collected and treated wastewater by the public sewerage system		Yes	Yes
	89	R	Existence of economic tools to recover the water cost in various sectors			
	90	R	Drinking water use efficiency		Yes	
	91	R	Share of Industrial wastewater treated on site		Yes	Yes
Soils, vegetation and desertification	92	P	Ratio of land exploitation		Yes	
	93	S	Land use change		Yes	Yes
	94	S	"Arable area" change	Yes	Yes	Yes

CHAPTER AND THEME	N°	T	Indicator name	BLUE PLAN	MED STAT	SUB NATIONAL
Biological diversity, ecosystems	95	P	Wetland area		Yes	Yes
	96	P	Number of turtles caught per year			
	97	P	Share of fishing fleet using barge			
	98	S	Threatened species			
	99	R	Total expenditure on protected areas management		Yes	
Solid, industrial and hazardous waste	100	P	Generation of municipal solid waste		Yes	Yes
	101	P	Generation of hazardous wastes		Yes	
	102	P	Imports and exports of hazardous wastes		Yes	
	103	P	Generation of industrial solid waste		Yes	Yes
	104	S	Area of land contaminated by hazardous wastes			Yes
	105	S	Distribution of municipal wastes		Yes	Yes
	106	R	Minimisation of waste production			
	107	R	Cost recovery index of municipal wastes		Yes	
	108	R	Destination of household wastes		Yes	
	109	R	Collection rate of household wastes		Yes	Yes
Air quality	110	P	Emissions of greenhouse gasses	Yes	Yes	
	111	P	Emissions of sulphur oxides		Yes	
	112	P	Emissions of nitrogen oxides		Yes	
	113	P	Consumption of ozone depleting substances	Yes	Yes	
	114	S	Frequency of excess over air standard (ozone)		Yes	Yes
	115	R	Expenditure on air pollution abatement		Yes	
	116	R	Share of clean fuels consumption in total motor fuels consumption			
	117	R	Share of agglomerations over 100 000 inhabitants equipped with a air pollution monitoring network		Yes	
Natural and technological risks	118	P	Number of sites with high risk			
	119	S	Economic impact of natural disasters			Yes
	120	S	Burnt area per year	Yes		Yes
	121	R	Existence of intervention plans			
THE SUSTAINABLE DEVELOPMENT: ACTORS AND POLICIES						
Actors of the sustainable development	122	R	Number of direct employments linked to the environment			
	123	R	Number of associations involved in environment and/or sustainable development			Yes
	124	R	Number of enterprises engaged in "environment management" processes			
Policies and strategies of the sustainable development	125	R	Public expenditure on environmental protection as a percent of GDP		Yes	
	126	R	Existence of environment national plans and/or sustainable development strategies			
	127	R	Number of Agendas 21 adopted by local authorities			Yes
EXCHANGES AND COOPERATION IN THE MEDITERRANEAN						
International trade, Free trade zone and environment	128	P	Openness rate of GDP			
Other Mediterranean exchanges	129	P	Net migration rate	Yes		Yes

CHAPTER AND THEME	N°	T	Indicator name	BLUE PLAN	MED STAT	SUB NATIONAL
Mediterranean cooperation in the fields of environment and sustainable development	**130**	R	Public development assistance coming from abroad			

PLAN BLEU - CENTRE D'ACTIVITES RÉGIONALES
PLAN BLEU - REGIONAL ACTIVITY CENTRE
15, rue Beethoven – Sophia-Antipolis – F-06560 Valbonne – Tél. +33 4 92 38 71 30 – Fax +33 4 92 38 71 31 – E-mail : planbleu@planbleu.org - Web :
www.planbleu.org