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STRATEGY FOR THE DEVELOPMENT OF MEDITERRANEAN MARINE POLLUTION INDICATORS

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1. Introduction

Communication is the main function of indicators: they should enable or promote information exchange regarding the issue they address. Likewise, environmental indicators provide information about phenomena that are regarded typical for, and/or critical to, environmental quality.

Communication demands simplicity. Indicators always simplify a complex reality. They focus on certain aspects which are regarded relevant and on which data are available. But their significance goes beyond that obtained directly from the observed properties.

In relation to policy-making, environmental indicators are used for three major purposes:

1. to supply information on environmental problems, in order to enable policy-makers to value their seriousness;

2. to support policy development and priority setting, by identifying key factors that cause pressure on the environment;

3. to monitor the effects of policy responses.

In addition, environmental indicators may be used as a powerful tool to raise public awareness on environmental issues. Providing information on driving forces, impacts and policy responses, is a common strategy to strengthen public support for policy measures.

2. Rationale

The Contracting Parties to Barcelona Convention at their 12th Meeting held in Monaco in November 2001 requested the MED POL Programme "**To review and develop a set of marine pollution indicators, in cooperation with Blue Plan, EEA, UNIDO-ICS and other competent bodies and organizations".**

In the framework of the Mediterranean Action Plan, Mediterranean Indicators for Marine Pollution are needed to:

- meet the increasing political demands for marine pollution indicator-based reporting to support the policy making processes in the Mediterranean countries;
- streamline indicator needs to facilitate a consistent and stable information basis to support policy making;
- provide countries with clear priorities for marine pollution data collection initiatives that are expensive and involve long-lead times between conception and delivery;
- allow MAP/MED POL to produce indicator-based reports and services and optimise cooperation with other organizations (e.g. EEA, Eurostat, OECD, UNEP) in order to work together on a common approach so as to avoid duplication and, where there are similar needs, to use the same indicators for many purposes;
- rely the information generated by monitoring programmes to the demands placed upon it by both policy makers and the public;
- assess how current reporting systems meet these needs and where there are gaps;
- provide the region with a powerful tool to raise public awareness on environmental issues.

3. MED POL policy demands

There have been increasing demands in recent years from the Contracting Parties to monitor progress on the implementation of the Barcelona Convention and its Protocols and to streamline and harmonize the reporting systems with those of other regional and international organizations. This has been partly recognized by the fact that policy makers and Ministers do not have the relevant information before them to monitor progress in the implementation of **policies statements** or their effectiveness in delivering against environmental objectives and targets.

The Contracting Parties to the Barcelona Convention adopted under the provisions of **MAP II** (1995) a set of Priorities Fields of activities for the decade 1996-2005 under the heading “assessment, Prevention and control of marine pollution”, as follows:

- To assess, on the basis of agreed methodologies, the inputs of pollutants in the sea from the water courses, the atmosphere and diffuse sources, and to evaluate in each country the major sources of marine pollution;
- To prepare evaluations, at national and regional levels, on the quality of the marine environment;
- To promote the reduction of the amount of pollution carried into the marine environment, particularly by strengthening capabilities for implementing specific measures adopted;
- To prepare and adopt guidelines on the dumping;
- To promote the establishment of national, bilateral and/or subregional systems for preparedness for and response to accidental marine pollution;
- To control the movement of hazardous wastes in the region.

With reference to the MED POL Programme, four major policy statements are to be considered, namely: the **Land Based Sources (LBS) Protocol and the Strategic Action Programme (SAP), and the Dumping and Hazardous Waste Protocols.**

As a follow up to the provisions of the amended **LBS Protocol**, the Contracting Parties adopted in 1997 a regional **Strategic Action Plan (SAP)** to address pollution from land-based activities. Through a timetabled schedule, the Mediterranean countries are implementing specific measures for the elimination or control of a priority land-based target group of substances and activities that are of global concern.

The SAP operational strategy adopted in 2001 proposes a national and regional institutional set up that would ensure the financial, technical and socio-economic sustainability of the implementation process of the Plan in the time frame work (2001-2025). The strategy asks for the definition of the basis on which the Mediterranean countries would track the reduction that would be achieved to comply with the SAP binding commitments, considering the year 2003 for the establishment of a **Pollutant National Budget Baseline of releases**, which is the sum of the releases of every SAP targeted pollutant that would be released from the coastal areas.

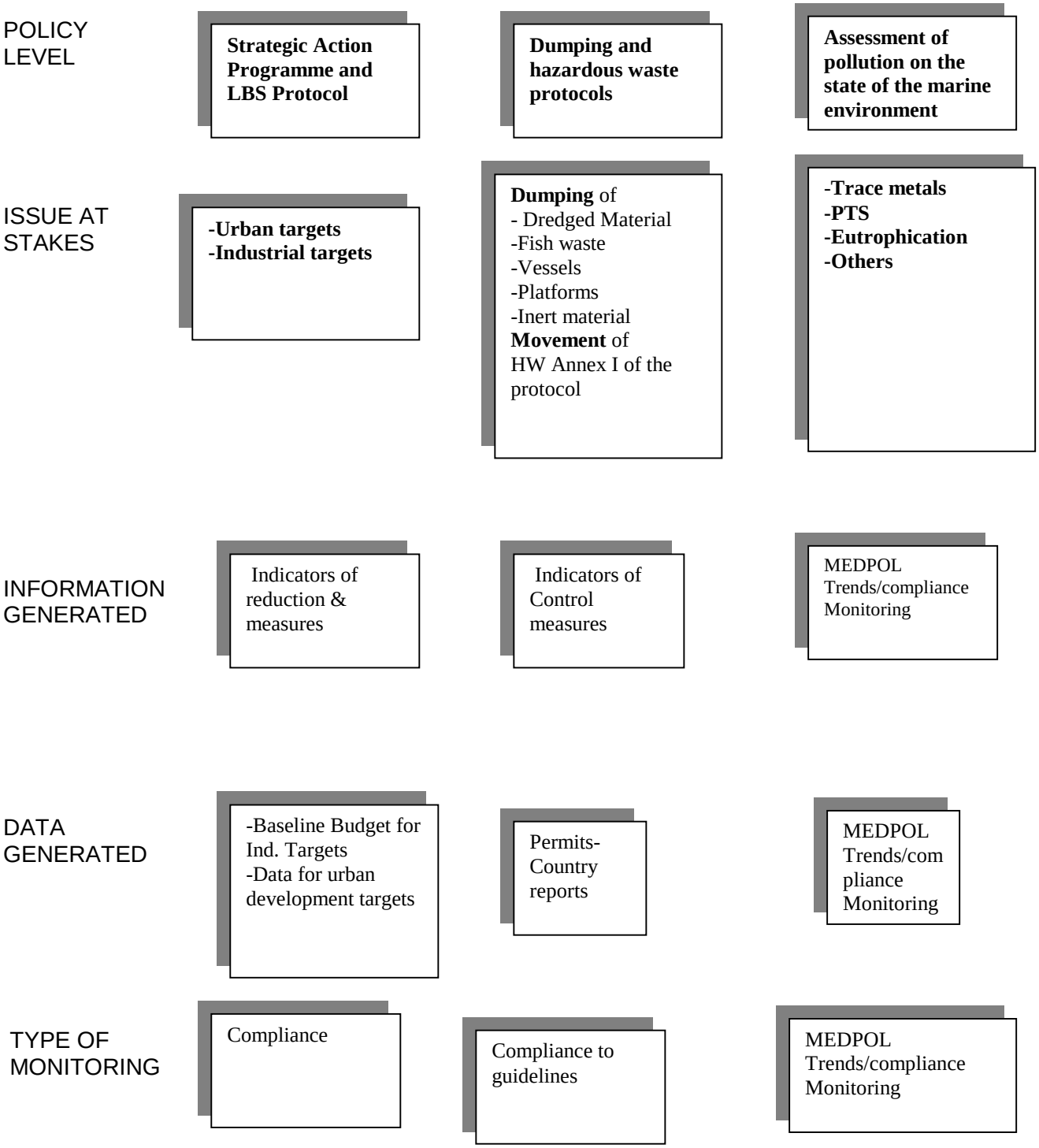
The provisions of the amended **Dumping Protocol (1995) and of the Hazardous Waste Protocols** (1996) to address, respectively, dumping activities and transboundary movements of hazardous waste are also to be implemented in the region as soon as it will enter into force.

4. Policy – Indicators – Information – Data – Monitoring interlinkages

The experience gained by the MED POL Programme in launching and following up monitoring programmes shows that data are expensive to generate and collect. As a result, it is important for MED POL to develop its activities towards the production of, as much as possible, homogeneous and reliable data and information that can be integrated into national activities and report on national compliance to **policy objectives.**

In line with the policy followed by EEA, the MCSD, OECD and others organisations, **indicators** approach is considered as the most appropriate, convenient and cost effective mechanism that enables national authorities to monitor their countries' achievements and disseminate the appropriate information and the regional and international organizations to prepare comprehensive assessments of the state of the marine environment.

So far, the MED POL Programme has identified indicators related to marine pollution control (e.g. baseline budget of pollutants' releases for SAP industrial targets, number of permits/year provided for industries and number of dumping permits/year under the provisions of LBS and dumping protocols, etc.). There is now needs to link these indicators to a set of **Marine Pollution Indicators** that could reflect the impacts of the measures taken on the marine environment and in particular on **water, fauna and flora**. This is described in the following Box flow chart:

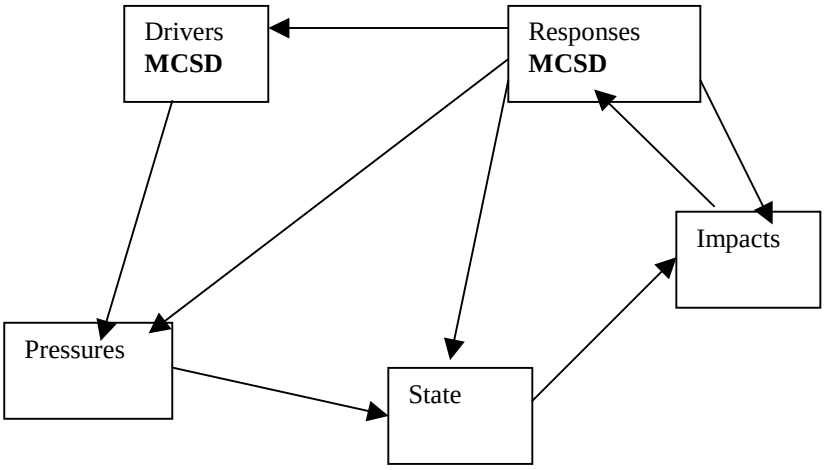


5. Assessment framework

The DPSIR framework

At present, most reports compile sets of physical, biological or chemical indicators. They generally reflect the analysis of the relations between the environmental and the human systems.

Figure 1: The **DPSIR** Framework for Reporting on Environmental Issues



According to this systems analysis approach, social and economic developments exert **P**ressure on the environment and, as a consequence, the **S**tate of the environment changes, such as the provision of adequate conditions for health, resources availability and biodiversity. Finally, this leads to **I**mpacts on human health, ecosystems and materials that may elicit a societal **R**esponse that feeds back on the **D**riving forces, or on the state or impacts directly, through adaptation or curative action. Therefore, from the policy point of view, there is a need for clear and specific information on (i) the Driving forces and (ii) the resulting environmental Pressures, on (iii) the State of the Environment and (iv) the Impacts resulting from changes in environmental quality and on (v) the societal Response to these changes in the environment.

The DPSIR framework is useful to describe the relationships between the origins and consequences of environmental problems, but in order to better understand their dynamics it is also useful to focus on the links between DPSIR elements. For instance, the relationship between the 'D' and the 'P' by economic activities is a function of the eco-efficiency of the technology and related systems in use, with less 'P' coming from more 'D' if eco-efficiency is improving. Similarly, the relationship between the Impacts on humans or eco-systems and the 'S' depends on the carrying capacities and thresholds for these systems. Whether society 'Responds' to impacts depends on how these impacts are perceived and evaluated; and the results of 'R' on the 'D' depends on the effectiveness of the Response.

MED POL Objectives

MED POL objectives will focus on the development if indicators describing the result of a defined socio-economic human activities (driving forces, Pressure) on the policy processes eventually adopted. Since the policy processes related to marine pollution are already well defined in the Mediterranean region (SAP, LBS, Dumping and Hazardous Waste Protocols which are considered partly as Response indicators) therefore a **State/Impact/Response (SIR)** framework could exhaustively and comprehensively reflect the marine pollution status in response to the relevant policy of the region.

In order **to implement this concept, MED POL should therefore consider the Driving Forces and partly the Pressure indicators adopted by the Mediterranean countries in the framework of the Mediterranean Indicators for Environment and Development and, at this stage, develop only indicators related to State and Impact.**

More specific Pressure and Driving Force indicators will be generated through the MAP reporting system.

Therefore three types of **State – Impacts** indicators are proposed in this framework:

1. **P**ressure indicators that could complement the existed MCSD indicators;

2. **S**tate indicators such as trends of levels, ecosystem stress;

3. **I**mpacts indicators such as ecosystem stress and biological indicators (Biomarkers).

The full lists of the proposed indicators are shown in Annex I. Annex II shows the list of 130 Environment and Development indicators.

6. The "ROAD MAP"

The proposed ROAD MAP is as follows:

At short term (2004-2006):

- to develop methodology sheets for the set in line with existing sheets developed by related organizations;
- to undertake a test procedure in a few Mediterranean countries;
- to review the set according to the results of the test;
- to propose the adoption of the set to Contracting Parties;
- to perform Capacity building and intercalibration programmes
- to undertake a Data gap analysis;
- to coordinate the MEDPOL indicators activities with BP, MEDSTAT, SPA/RAC;
- to develop quality indices on the basis of the core set of MPI adopted;
- to undertake periodical evaluation.

At medium term (2006-2010):

- to develop monitoring programmes to generate relevant meta data;
- to confirm with national administration respective responsibilities on indicator production and data flows, in particular with EEA, MEDSTAT (and other organisations);
- to build into the MED POL priority data flows system what is needed for those indicators and put these on a regular cycle, either annual or regular;
- to develop methodologies and data flows for those indicators not yet developed;
- to develop and produce regular thematic and sector indicator-based reports;
- to develop modeling instrument for coastal risk assessment.

ANNEX I

FULL LIST OF PROPOSED INDICATORS

CORE BIOMARKERS

Biomarker	Observation	Enzymo/spectro	Type
Lysosomal stability	**µ**		State
Lipofuschine	**µ**		State
AChE		*	State
BPH		*	State
MTs		*	State
GST		*	State
CAT		*	State
MDA		*	State/Impact
Stress on stress	*		State/Impact
Macrophage activity	**µ**	*	Impact
Micronuclei	**µ**		Impact
EROD (F)	*		State
Bile FACs (F)	*		State

(F): only in fish; µ: need microscope

SUPPLEMENTARY BIOMARKERS

Biomarker	Observation	Enzymo/ spectro.	HPLC/ Electro.	Antibody, probe	Type
Peroxisome	**µ**	*			Impact
MDR		*		*	State
CYPs		*		*	Impact
Hormonal shift			*	*	Impact
Embryo sex ratio	*				Impact
Reproductive success	*				Impact
Signal transduction		*		*	Impact
Mitochondrial activity		*			Impact
DNA alteration		*	*		Impact
Hsp				*	State
Gonadal alterations	**µ**			*	Impact
Apoptosis signals				*	Impact
Sperm parameters	**µ**	*			Impact
Aromatase / Testosterone		*	*		Impact
Oxydative stress enzyme		*			Impact
VTG / VTG like		*		*	Impact

BIOTESTS

Biotests	Water Column()	Intestice Water	Sediment	Chemical extracts	Type
Microtox	*	*	*	*	Impact
Algea	*	*		*	Impact
Mutatest/tox	*	*		*	Impact
Daphnia	*	*		*	Impact
Fish	*	*	*	*	Impact
Sea urchin sperm	*	*	*	*	Impact
Mollusc larvae		*		*	Impact
DR- CALUX				*	Impact
ER- CALUX				*	Impact

(): Only working with highly polluted waters

ECOSYSTEM INDICATORS
CORE SET

Indicator	Taxonomy group	Type
Changes in population of key species	CC	Impact
Occurrence of nuisance species (HABS)	Plankton	Impact
Ecological quality index based on macrophytes	Phytobentos	State
Number of macrobenthic species	Zoobenthos	State
Benthix	Zoobenthos	State
Changes in the distribution area of habitats types	CC	Impact
Dominance Index	Phytoplankton	State
Total phytoplankton biomass (mg m^{-3})	Phytoplankton	State
Phytoplankton species composition - % composition of key groups (number and biomass) **Also described under Dominance Index**	Phytoplankton	State
Seasonal succession of key phytoplankton species (cells l^{-1})	Phytoplankton	?
Annual maximum density (cells l^{-1}) of each blooming phytoplankton species **Described above as Occurrence of nuisance species (HABS)**	Phytoplankton	impact

SUPPLEMENTARY INDICATORS

Indicator	Taxonomic group	Type
Number of exotic species	CC	Impact
Presence of sensitive/opportunistic zoobenthic species	Zoobenthos	State
Presence of sensitive/opportunistic zoobenthic taxa	Zoobenthos	State
Comparison of dominance curves	Zoobenthos	state
Log-normal distribution	Zoobenthos	State
Geometric abundance/size classes abundance	Zoobenthos	State
The ration between r and K selected species	Zoobenthos	State
Infaunal trophic index	Zoobenthos	State
Community Diversity	CC	State
Biomass of each phytoplankton species (mg m^{-3})	Phytoplankton	?
Density of each phytoplankton species (cells l^{-1})	Phytoplankton	?
Total number and species composition)*	Zooplankton	?
Number of neustonic copepods (family Pontellidae) (ind m^{-3})	Zooplankton	state
Number of Polychaeta larvae in total number of meroplankton (%)	Zooplankton	?
Total biomass of zooplankton (mg m^{-3})	Zooplankton	state
Specific production of dominant zooplankton species	Zooplankton	
Total biomass of phytoplankton/Total biomass of zooplankton (d^{-1})	Zooplankton	?
Total Pelagic Biomass/Total benthic biomass	Zooplankton	?
Number and Biomass of *Noctiluca scilntillans* in the total zooplankton (%)	Zooplankton	?
Average biomass of the jellyfish *Aurelia aurita* (g m^{-2})	Zooplankton	impact
Total primary production (mg Corg m-2 month-1)	Macrophytes	State
Total macrophyte biomass (mg m^{-2})	Macrophytes	
Biomass of dominant macrophyte species (g m^{-2})	Macrophytes	State
Key groups: Chlorophyta, Rhodophyta, Phaeophyta (%biomass)	Macrophytes	
Key genera (presence/absence)	Macrophytes	State
Specific production of the dominant species of macrophytobenthos (d^{-1})	Macrophytes	

CHEMICAL INDICATORS
CORE SET

Indicator	Media	Type
Total Mercury	Biota	State
Total Cadmium	Biota	State
Bacteriological count	Bathing Water	State
Bacteriological count	Shellfish Water	State
BOD,	Effluents	Pressure

Indicator	Media	Type
COD, Nutrients Heavy metals PAH+ HH+		
Temperature PH Transparency Salinity Ortophosphate Total Phosphorus Silicate-Sio2 Disolved oxygen Total nitrogen Nitrate Ammonium Nitrite Chorophyll-a	Sea water Sea water Sea water Sea water Sea water Sea water Sea water Sea water Sea water Sea water Sea water Sea water Phytoplancton	State
Total Mercury	Effluents,Water Air and Hot Spots	Pressure
Total Cadmium	Effluents,Water Air and Hot Spots	Pressure

SUPPLEMENTARY CHEMICAL INDICATORS

Indicator	Media	Type
Total As, Zn, Cu	Water, Hotspots	State
Total HH+, PAH+	Water, Hotspots	State
Total Loads As, Zn, Cu	Effluents-Air	Pressure
Total Loads HH+, PAH+	Effluents-Air	Pressure
Suspended particulate matter	Water	State
Water colour	Water	State
H2S	Water	State
TOC	Water	State

ANNEX II

LIST OF 130 ENVIRONMENT AND DEVELOPMENT INDICATORS

List of Indicators for Sustainable Development (ISD)
sorted by theme

ISD are presented according to the thematic framework taken from Agenda MED21 and adopted by the Contracting Parties of the Barcelona Convention in Malta in October 1999.

They are identified with a number from 1 to 130.

The column " BLUE PLAN " refers to the 50 ISD already computed at Mediterranean level thanks to data available in international sources.

The column " MEDSTAT " indicates the indicators being at least partially calculated in the MEDSTAT Environment project.

The column " SUB NATIONAL " indicates if the indicator should be calculated at a sub-national geographical level, i.e., on the coastal regions, coastal strip or for the specific Mediterranean spots.

P = Pressure, E = State, R = Response.

CHAPTER AND THEME	N°	T	Indicator name	MCSD	BLUE PLAN	MED STAT	SUB NATIONAL
POPULATION AND SOCIETY							
Demography and population	**1**	P	Population growth rate	7	yes		yes
	2	R	Total fertility rate	9	yes		
Standard of life, employment, social inequities, poverty, unemployment	**3**	S	Women per hundred men in the labour force	20	yes		
	4	S	Human poverty index (HPI)	228			
	5	R	Employment rate	322	yes		yes
Culture, education, training, awareness improvement	**6**	P	School enrolment gross ratio	229	yes		
	7	S	Difference between male and female school enrolment ratios	19	yes		
	8	S	Production of cultural goods	323	yes		
	9	R	Share of private and public finances allocated to the professional training	324			
	10	R	Public expenditure for the conservation and value enhancement of natural, cultural and historical patrimony	325			
Health, public health	**11**	S	Life expectancy at birth	24	yes		
	12	S	Infant mortality rate	26	yes		
	13	R	Access to safe drinking water	23	yes		
Consumption and production patterns	**14**	P	Annual energy consumption per inhabitant	47	yes		
	15	P	Number of passenger cars per 100 inhabitants	213	yes		yes
	16	S	Main telephone lines per 100 inhabitants	129	yes		
	17	S	Distribution of food consumption per income decile	326			
LANDS AND AREAS							
Habitat and urban systems	**18**	P	Urban population growth rate	34	yes		yes
	19	P	Loss of agricultural land due to urbanisation	206		yes	yes
	20	S	Urbanisation rate	37	yes		yes
	21	S	Floor area per person	39			yes

CHAPTER AND THEME	N°	T	Indicator name	MCSD	BLUE PLAN	MED STAT	SUB NATIONAL
Rural and dry areas, mountains and hinterland	**22**	P	Population change in mountain areas	84			
	23	R	Existence of program(s) concerning the less favoured rural zones	208			
Forests	**24**	P	Exploitation index of forest resources	94			yes
	25	S	Forest area	95	yes	yes	yes
	26	R	Forest protection rate	97	yes		yes
Littoral and "littoralisation"	**27**	P	Artificialized coastline / total coastline	137			yes
	28	P	Number of tourists per km of coastline	205			yes
	29	P	Number of moorings in yachting harbours	327			yes
	30	S	Population growth in Mediterranean coastal regions	72	yes		yes
	31	S	Population density in coastal regions	209	yes		yes
	32	S	Coastline erosion	230			
	33	R	Protected coastal area	212	yes		yes
Sea	**34**	P	Oil tanker traffic	346			
	35	S	Global quality of coastal waters	347		yes	yes
	36	S	Density of the solid waste disposed in the sea	348			
	37	S	Coastal waters quality in some main “hot spots”	349			
	38	S	Quality of biophysical environment	350			
	39	R	Protection of specific ecosystems	351			
	40	R	Existence of monitoring programs concerning pollutant inputs	352			
	41	R	Wastewater treatment rate before sea release for coastal agglomerations over 100 000 inhabitants	353		yes	yes
	42	R	Harbour equipment ratio in unballasting facilities	354			
ECONOMIC ACTIVITIES AND SUSTAINABILITY							
Global economy	**43**	P	Distribution of GDP (Agriculture, Industry, Services)	246	yes		
	44	P	Foreign Direct Investment	328	yes		
	45	S	External debt / GDP	57	yes		
	46	S	Saving / investment	231			
	47	S	Public deficit / GDP	329	yes		
	48	S	Current account balance / GDP	330	yes		
	49	S	Employment distribution (Agriculture, Industry, Services)	331	yes		
Agriculture	**50**	P	Use of agricultural pesticides	87			yes
	51	P	Use of fertilisers per hectare of agricultural land	88	yes		yes
	52	P	Share of irrigated agricultural land	89	yes	yes	yes
	53	P	Agriculture water demand per irrigated area	138			yes
	54	S	"Arable area" per capita	91	yes		yes
	55	S	Rate of food dependence	232			
	56	S	Annual average of wheat yield	332	yes		
	57	R	Water use efficiency for irrigation	275		yes	
Fisheries, aquaculture	**58**	P	Value of halieutic catches at constant prices	333			
	59	P	Number and average power of fishing boats	368	yes		
	60	S	Fishing production per broad species groups	217	yes		
	61	S	Production of aquaculture	218	yes		yes

CHAPTER AND THEME	N°	T	Indicator name	MCSD	BLUE PLAN	MED STAT	SUB NATIONAL
	62	R	Public expenditures on fish stocks monitoring	334			
Mines, industry	**63**	P	Industrial releases into water	172		yes	yes
	64	S	Intensity of material use	52			
	65	R	Number of mines and carries rehabilitated after exploitation	233			
Services and commerce	**66**	S	Turnover distribution of commerce according to the number of employees	335			
	67	S	Share of merchant services to the enterprises	336			
	68	R	Existence of restrictive legislations on the setting up of hypermarket	371			
Energy	**69**	P	Energy intensity	234	yes		
	70	P	Energy balance	235	yes		
	71	R	Share of consumption of renewable energy resources	54	yes		
Transports	**72**	P	Average annual distance covered per passenger car	223	yes		
	73	S	Structure of transport by mode	236	yes		yes
	74	S	Density of the road network	237	yes		yes
	75	R	Share of collective transport	224			yes
Tourism	**76**	P	Number of nights per 100 inhabitants	337	yes		yes
	77	P	Number of secondary homes over total number of residences	338			yes
	78	P	Number of bed-places per 100 inhabitants	339	yes		yes
	79	P	Public expenditure on tourism development	340			yes
	80	P	Number of international tourists per 100 inhabitants	370	yes		yes
	81	S	Share of tourism receipts in the exportations	341	yes		
	82	S	Currency balance due to tourism activities	342			
	83	R	Public expenditure on tourism sites conservation	343			
ENVIRONMENT							
Freshwater et waste water	**84**	P	Exploitation index of renewable resources	65	yes	yes	
	85	P	Non-sustainable water production index	344	yes	yes	
	86	S	Share of distributed water not conform to quality standards	149			yes
	87	S	Water global quality index	282		yes	yes
	88	R	Share of collected and treated wastewater by the public sewerage system	70		yes	yes
	89	R	Existence of economic tools to recover the water cost in various sectors	154			
	90	R	Drinking water use efficiency	279		yes	
	91	R	Share of Industrial wastewater treated on site	345		yes	yes
Soils, vegetation and desertification	**92**	P	Ratio of land exploitation	242		yes	
	93	S	Land use change	77		yes	yes
	94	S	"Arable area" change	186	yes	yes	yes
Biological diversity, ecosystems	**95**	P	Wetland area	355		yes	yes
	96	P	Number of turtles caught per year	356			
	97	P	Share of fishing fleet using barge	357			
	98	S	Threatened species	98			

CHAPTER AND THEME	N°	T	Indicator name	MCSD	BLUE PLAN	MED STAT	SUB NATIONAL
	99	R	Total expenditure on protected areas management	358		yes	
Solid, industrial and hazardous waste	**100**	P	Generation of municipal solid waste	108		yes	yes
	101	P	Generation of hazardous wastes	115		yes	
	102	P	Imports and exports of hazardous wastes	116		yes	
	103	P	Generation of industrial solid waste	247		yes	yes
	104	S	Area of land contaminated by hazardous wastes	117			yes
	105	S	Distribution of municipal wastes	244		yes	yes
	106	R	Minimisation of waste production	245			
	107	R	Cost recovery index of municipal wastes	281		yes	
	108	R	Destination of household wastes	359		yes	
	109	R	Collection rate of household wastes	360		yes	yes
Air quality	**110**	P	Emissions of greenhouse gasses	102	yes	yes	
	111	P	Emissions of sulphur oxides	103		yes	
	112	P	Emissions of nitrogen oxides	104		yes	
	113	P	Consumption of ozone depleting substances	105	yes	yes	
	114	S	Frequency of excess over air standard (ozone)	268		yes	yes
	115	R	Expenditure on air pollution abatement	107		yes	
	116	R	Share of clean fuels consumption in total motor fuels consumption	270			
	117	R	Share of agglomerations over 100 000 inhabitants equipped with a air pollution monitoring network	361		yes	
Natural and technological risks	**118**	P	Number of sites with high risk	362			
	119	S	Economic impact of natural disasters	363			yes
	120	S	Burnt area per year	364	yes		yes
	121	R	Existence of intervention plans	365			
THE SUSTAINABLE DEVELOPMENT: ACTORS AND POLICIES							
Actors of the sustainable development	**122**	R	Number of direct employments linked to the environment	221			
	123	R	Number of associations involved in environment and/or sustainable development	369			yes
	124	R	Number of enterprises engaged in “environment management" processes	372			
Policies and strategies of the sustainable development	**125**	R	Public expenditure on environmental protection as a percent of GDP	59		yes	
	126	R	Existence of environment national plans and/or sustainable development strategies	120			
	127	R	Number of Agendas 21 adopted by local authorities	366			yes

CHAPTER AND THEME	N°	T	Indicator name	MCSD	BLUE PLAN	MED STAT	SUB NATIONAL
EXCHANGES AND COOPERATION IN THE MEDITERRANEAN							
International trade, Free trade zone and environment	**128**	P	Openness rate of GDP	44			
Other Mediterranean exchanges	**129**	P	Net migration rate	8	yes		yes
Mediterranean cooperation in the fields of environment and sustainable development	**130**	R	Public development assistance coming from abroad	367			