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**MEDITERRANEAN ACTION PLAN**

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**MAIN WORKING DOCUMENT ON  
FIVE-YEAR STRATEGIC PROGRAMME OF WORK OF MAP**



## **CHAPTER 1**

### **Climate change in the Mediterranean**

#### **Introduction**

This draft medium-term programme of work on climate change in the Mediterranean is largely the result of the recommendations made by the Contracting Parties to the Barcelona Convention, who in January 2008 in Almeria:

- Welcomed the work of the 13<sup>th</sup> meeting of the Contracting Parties to the United Nations Framework Convention on Climate Change and the fourth report of the Intergovernmental Panel on Climate Change and in particular the adoption of the Bali Action Plan,
- Stressed the adaptation effort that all countries are required to make in order to reduce the impact of climate change,
- Decided to take the Tunis Declaration and Action Plan and the Rabat Declaration on Climate Change: Impacts, Preparedness and Adaptation Measures into consideration within the Mediterranean priorities.

#### **I. Programme objectives**

The general objectives of the proposed programme of work are:

- 1) To assess the foreseeable impact of climate change in the Mediterranean and ways of mitigating this impact at regional level.
- 2) To identify the vulnerable zones and develop specific adaptation strategies, whilst taking account of UNEP's adaptation action plan.
- 3) To build the capacity of Mediterranean States to include responses to climate change (mitigation and adaptation) in their development processes.

The focus of MAP's work will be to include strategies on climate change mitigation and adaptation in sustainable development strategies.

This work will in particular provide a back-up for efforts to create legislative, economic and institutional frameworks in line with the responses to be given to the climate change issue.

As a means of support for the Mediterranean States in their efforts to adapt to a more unstable climate, the programme will analyse the resilience of those sectors identified as priorities and the options for enhancing it, and will pay particular attention to ecosystem management, economic incentives and preparing for potential disasters.

On the mitigation front, the programme will assist the States in identifying the ways and means which will enable them to switch to lower greenhouse gas emissions (GGEs) production and consumption systems, making more rational use of energy and space whilst developing renewable forms of energy and reducing demand-side greenhouse gas emissions resulting from consumption.

The knowledge gleaned and passed on through this programme will allow the Mediterranean States to:

- Incorporate adaptation and climate change mitigation action within their national development processes, drawing on scientifically reliable information,
- Reduce their GGEs

- Use low greenhouse gas emitting technology, financed in particular by the Clean Development Mechanism (CDM) and develop activities eligible for the Adaptation Fund set up at the Bali Conference
- Better adapt to the consequences of a hotter, dryer climate
- Raise the awareness of their populations by promoting more sustainable ways of life,
- Increase carbon capture through better land use, halting deforestation and combating desertification.

The proposed programme comprises a «knowledge » section, one on « awareness raising and information » and a monitoring-assessment process for action undertaken:

**The « knowledge » section will comprise the following activities:**

- The creation of a working party, the dual role of which will consist of encouraging the exchange of information on vulnerability to climate change in the Mediterranean and assisting the states in drawing up their adaptation strategies. This group will draw in particular on the results of major regional research programmes (Hymex, Circe, Medpol etc.), CAMP projects, GEF vulnerability studies and especially the « Indicators of vulnerability » programme which has been got underway by the Blue Plan.
- An inventory by 2011 of the coastal and marine species and habitats most sensitive to climate change and the promotion of measures towards setting up a comprehensive network of MPAs in 2012.
- Evaluation of greenhouse gas emissions from international transport.
- Discussing the issue of possible inclusion of greenhouse gas emissions from international transport in national inventories.
- Analysis of the possibilities provided by underwater CO<sub>2</sub> capture
- Analysis of the links between climate change and consumption

**The « awareness raising and information » section will be structured around three types of action:**

- Presentations of examples of greenhouse gas emission reduction which are both environmentally and economically beneficial, as well as successful national and regional adaptation strategies in vulnerable coastal zones in order to produce a knock-on effect.
- Organisation of a regional seminar to present the financial mechanisms available for implementing UNEP's adaptation objectives and the Bali roadmap. This seminar would be organised by BP/RAC along with the major sponsors (World Bank, EIB, Arab Development Bank, etc.)
- Organisation of raising awareness activities on GGEs generated from international transport.
- Production of publications, brochures and audiovisual material on energy efficiency, the carbon footprint, sustainable ways of life and consumption and vulnerability and adaptation indicators.

Interest in this programme will be monitored by a set of indicators, which will reflect both the impact of climate change in the Mediterranean and what progress states have made on mitigation. BP/RAC will be entrusted with drawing up these indicators and, in conjunction with CP/RAC, will organise a series of scientific consultations in order to validate them as well as a seminar where they will be presented to the Contracting Parties. The Coordinating Unit will draw up a report on the implementation of all these climate change-related activities as a further tool to enable the Contracting Parties to monitor the progress of this programme.

**II. Roles of the various players (institutions and partners)**

<b>Political relevance</b>	<b>Activities</b>	<b>Expected results</b>	<b>Distribution of responsibilities and tasks</b>	<b>Indicators of implementation</b>	<b>Partnerships, associated initiatives</b>
Enhancing knowledge of CC in the Mediterranean. Recommendations of the Parties (Almeria 2008)	Set up a working group on adaptation. Propose «at risk » areas already identified and implement pilot adaptation projects	Pilot adaptation projects. Relevant data and information collected and made available to pilot projects	BP/RAC: coordination of work in cooperation with the other RACs	Number of projects. Pilot adaptation projects supported by data and information	CIRCE, CNRM, IPCT, Sésame, GIP-GECC, HyMex, MOON, MEDGOOS, MED POL reports
Enhancing knowledge of CC in the Mediterranean	Inventory of coastal and marine habitats sensitive to CC	Setting up of an MPA network	SPA/RAC: Initiate a climate change monitoring programme on key species or habitats in chosen protected areas BP and PAP/RAC: Analysis of the impact of this change on the populations concerned	Inventory of the marine biodiversity situation in response to climate change, number of sensitive habitats or species monitored and number of SPAs taken into account	CIRCE, IUCN, WWF
Enhance political decision-takers' knowledge of global warming  Examine the possibility of designating the Mediterranean Sea as an Emission Control Area (ECA) (Regional Strategy for Prevention of and Response to Marine Pollution from Ships, adopted by the Parties (Portoroz, 2005)	Evaluate greenhouse gas emissions from merchant ships in the Mediterranean, as well as other sources of international transport using a consumption-based approach  Raise awareness on the importance of ratifying and implementing MARPOL Annex VI (air pollution from ships)	Availability of sound and reliable information on GGE from ships which can be used to discuss and propose the designation of the Mediterranean Sea as an Emission Control Area (ECA).	REMPEC: Organisation of raising awareness activities leading to preparatory work for the ratification and implementation of MARPOL Annex VI on air pollution from ships.  REMPEC: Evaluation of GGE from commercial ships in the Mediterranean, by using the relevant databases, taking also into consideration previous inventories carried out.	Number of countries including GG emissions from international goods transport in their national GG emissions accounts, using the consumption- based approach.  Number of countries ratifying MARPOL Annex VI.	SAFEMED, IMO, shipping industry, EEA, OECD, IIOA

Political relevance	Activities	Expected results	Distribution of responsibilities and tasks	Indicators of implementation	Partnerships, associated initiatives
			CP/RAC: awareness-raising and development to include emissions from international goods transport into national greenhouse gas emissions accounting, using the consumption-based approach		
Enhancing the knowledge of political decision-takers on climate change: Tackling the links between consumption and climate change	Evaluating consumption and climate change trends: Drawing up studies and initiatives on information from the consumption approach and greenhouse gases in the Mediterranean, identifying cooperation opportunities in the region (Barcelona Process, Free Trade Area, Med. Union)	Monitoring of GG emissions from consumption, identifying cooperation opportunities in the region, monitoring of MSSD objective 3	CP/RAC: Drawing up of studies and initiatives BLUE PLAN: involvement in the studies and initiatives	Studies and initiatives	EEA, OECD, IIOA, WWF, OCCO, MEDSTAT, etc
MED POL Phase IV programme adopted by the Parties	Drawing up a risk assessment framework and dealing with issues of liability and CO <sub>2</sub> storage under the seabed	Possible amendment of the Dumping Protocol to cover CO <sub>2</sub> storage under the seabed	MED POL: Analysis of changes required to existing legal texts on EEZs or the high seas to allow such activities to develop	Drafting of a risk assessment report and proposals to the CPs in order to include the development of underwater capture	Industry and Bellona Foundation
Awareness raising and information	Presentation of successful adaptation strategies and good practices for reducing GG emissions in coastal zones	Replication of good practices	PAP/RAC: Including CC in the « Coastal Zone Management » Protocol	Report and number of coastal zones including CC in their ICZM	Local and national governments

Political relevance	Activities	Expected results	Distribution of responsibilities and tasks	Indicators of implementation	Partnerships, associated initiatives
Awareness raising and information	Regional seminar on financing climate change response policies	Drawing up of national and/or regional strategies for funding the combating of climate change	CP/ RAC: Energy efficiency financial instrument under the GRECO initiative BP/RAC: Organisation of the seminar, design of the various sessions	Number of countries attending the seminar	Sponsors
Awareness raising and information	Awareness-raising material	Adoption of sustainable ways of life by the population	CP/RAC: Production of publications, brochures and audiovisual material on energy efficiency, the carbon footprint, sustainable ways of life and consumption	Amount of documents and material prepared	Consumer organisations, sustainable production and consumption research institutes, civil society, UNEP/DTIE
Awareness raising and information/programme monitoring	Drawing up indicators of impact and sources of climate change	Adoption by the states of some or all of these indicators Adoption and use of the consumption GG emissions indicator by the states, including the MSSD towards monitoring the MSSD's objective 3	BP/RAC in collaboration with CP/RAC: Drawing up these indicators CP/RAC: consumption GG emissions The other RACs: analysis and comments on the indicators	Number of countries using them and calculating them regularly	EEA, OECD, IIOA





## **CHAPTER 2**

### **Harmful substances and hazardous wastes**

#### **1. Introduction**

This proposal for the medium term management of harmful substances and hazardous waste falls in the framework of the effective implementation of the legal instruments of Barcelona Convention and its Protocols, specifically Art. 3, 4, 5, 6, 7, 8, 9, 11 and 12 of the Convention and the following Protocols:

- Protocol on prevention of pollution from Dumping
- Protocol on prevention of pollution from LBS
- Protocol of prevention of pollution from the transboundary movement of Hazardous waste
- Protocol on the prevention of pollution from ships in case of Emergency and,
- Protocol for the protection of the Mediterranean Sea against pollution resulting from exploration and exploitation of the continental shelf and the seabed and subsoil.

According to MAP governance system, MEDPOL, REMPEC and CP/RAC have to provide assistance to the CPs to facilitate the implementation of the abovementioned Protocols. Therefore, the issue is a cross-cutting one between the three entities.

#### **2. Overall Aims**

The overall aim of this work programme is to minimize the impact of harmful substances and hazardous wastes on the environment and human beings. This will be achieved through the following actions:

- 4) Minimize the impact of harmful substances and hazardous waste on the environment and human beings.
- 5) Increase the effectiveness of the implementation of the abovementioned Protocols by CPs.
- 6) Better management of harmful substances and hazardous wastes.
- 7) Reduce the amount of harmful substances and hazardous wastes in the environment.
- 8) Improve coordination between MEDPOL, REMPEC and CP/RAC from one-side and share efforts with other relevant MEAs in terms of sound management of harmful substances and hazardous wastes in the other side.
- 9) Increase visibility of MAP in the matter.

The Mediterranean Action Plan will take part on the global action against the effect of Harmful Substances and Hazardous Wastes by the implementation of the present programme of work.

#### **3. Specific Aims**

- 1) Development of relevant national legislations
- 2) Improve the effectiveness of the existent national legislations
- 3) Improve monitoring processes
- 4) Improve the decision making process
- 5) Improve the human resources capacities and capabilities in the relevant national institutions.
- 6) Joint Planning and joint implementation of activities

- 7) Exchange of information on common issues.
- 8) Liaison or coordinating groups.

#### 4. Roles of Institutions

Many legal, political and financial instruments and initiatives are currently targeting directly and indirectly the reduction of the impacts of harmful substances and hazardous waste: Barcelona Convention and its Protocol, several MEAs, such as Basel, Stockholm and Rotterdam Conventions, Strategic Approach for International Chemical Management (SAICM), MIO, London Convention. the Union for the Mediterranean, the EU initiative "horizon 2020 " and its MeHSIP , the MAP-GEF-World Bank Partnership for Large Marine ecosystem of the Mediterranean and other bilateral initiatives. An effective coordination and synergies are, thus, needed to ensure the sustainability and the effectiveness of measures and activities.

The implementation of this project is in the hand of MEDPOL, REMPEC and CP/RAC. It is proposed to differentiate the topics between the three entities as follow:

- |  |               |
|--|---------------|
| - Activities related to the overall implementation of Dumping, LBS and Hazardous Waste Protocols Including monitoring of sources and marine environment. | MEDPOL        |
| - Cleaner Production for reduction of the generation of harmful substances and hazardous wastes for Dumping, LBS and Hazardous Waste Protocols.          | CP/RAC        |
| - SAICM  | CP/RAC        |
| - Control of transboundary movement of hazardous waste   | MEDPOL        |
| - Management of hazardous waste.   | MEDPOL/CP/RAC |

## 5. Proposed work programme

<b>Political Relevance</b>	<b>Activities</b>	<b>Expected Results</b>	<b>Distribution of responsibilities</b>	<b>Performance Indicators</b>	<b>Associated partnerships, initiatives</b>
5 MAP Protocols and relevant MEAs	Support countries in the accomplishment of relevant national legislations	Countries implement their environmental obligations	All MAP components	Number of assisted countries	MEAs Secretariats UNITAR
5 MAP Protocols and relevant MEAs	Improve the effectiveness of the existing national legislations	Countries implement their environmental obligations	All MAP components	Increased compliance with international regimes	MEAs Secretariats UNITAR
5 MAP Protocols and relevant MEAs	Improve monitoring processes	Improvement of the quantity and quality of data	MEDPOL		
5 MAP Protocols and relevant MEAs	Improve the decision making process	Increased coherence in decision making processes	All MAP components	Increased compliance with international regimes	MEAs Secretariats UNEP
5 MAP Protocols and relevant MEAs	Involve all stakeholders	Better access to environmental management for stakeholders	All MAP components	Number of new partnerships	MEAs Secretariats UNEP
LBS Protocol and relevant MEAs	Capacity building programmes on chemical management	Improve human resources capacities and capabilities in the relevant national institutions.	CPRAC	Number of workshops, training sessions and publications.	UNITAR Stockholm Convention centres MEAs Secretariats

<b>Political Relevance</b>	<b>Activities</b>	<b>Expected Results</b>	<b>Distribution of responsibilities</b>	<b>Performance Indicators</b>	<b>Associated partnerships, initiatives</b>
LBS and Hazardous Wastes Protocol Relevant MEAs	Promote training on sound management of harmful substances and prevention on releases of hazardous wastes in industry sector.	Improve human capacities in industry sector.	CPRAC	Number of training sessions and publications	UNITAR MEAs Secretariats
LBS and Dumping Protocol Relevant MEAs	Identification of hot spots	Better knowledge of country situation.	MEDPOL		
5 MAP Protocols and relevant MEAs	Increase monitoring programmes of POPs and heavy metals.	Increase capacities to manage chemicals	MEDPOL/CPRAC	Inventories Number of data collected	Stockholm Convention centres MEAs Secretariats
5 MAP Protocols and relevant MEAs	Assist countries to implement SAICM	Planning of national processes for the sound management of chemicals	CPRAC	Number of countries implementing SAICM	UNITAR
5 MAP Protocols and relevant MEAs	Collection of relevant data and information of chemicals and hazardous waste. Actualization and Standardization of waste generation data.	To provide countries with the information for decision making.	BLUE PLAN CPRAC	Number of studies and inventories of waste generation	Stockholm Convention centres MEAs Secretariats
Dumping and LBS Protocol Relevant MEAs	Reduce waste generation and harmful substances emissions in industries by promoting the appliance of best	Reduction of harmful substances and hazardous wastes in the	CPRAC	Number of published material and workshops.	National Cleaner Technologies Centres MEAs Secretariats UNIDO

<b>Political Relevance</b>	<b>Activities</b>	<b>Expected Results</b>	<b>Distribution of responsibilities</b>	<b>Performance Indicators</b>	<b>Associated partnerships, initiatives</b>
	environmental techniques and practices.	environment			
5 MAP Protocols and relevant MEAs	Promotion of progressive substitutions of very harmful substances for others less harmful or harmless.	Reduction of production, use and release of harmful substances	MEDPOL/CPRAC	Number of harmful chemicals for which production and use has been curtailed	MEAs Secretariats UNITAR
LBS and Hazardous Waste Protocol Relevant MEAs	Assist countries in the elimination or treatment of POP stocks.	Reduction of POPs present in the environment	MEDPOL/CPRAC	Number of POPs elimination projects	Stockholm Convention centres MEAs Secretariats Basel Convention Centres
Dumping and Transboundary movements of HW Protocol Relevant MEAs	Assist countries in controlling illegal dumping of hazardous waste in Mediterranean Sea.	Reduction of illegal dumping	MEDPOL		Stockholm Convention centres MEAs Secretariats Basel Convention Centres
5 MAP Protocols and relevant MEAs	Joint planning and joint implementation of activities	Efforts shared in a better coordination Multidisciplinary activities implemented	All MAP components	Number of established agreements Number of joint activities implemented	UNEP MEAs Secretariats UNITAR
5 MAP Protocols and relevant MEAs	Exchange of information on common issues.	Improvement of access to relevant information	All MAP components	Number of information networks	MEAs Secretariats UNITAR UNEP
5 MAP Protocols and	Awareness campaign to target groups:	Countries knowing about	CPRAC	Workshops Conferences	National Cleaner Technologies Centres

<b>Political Relevance</b>	<b>Activities</b>	<b>Expected Results</b>	<b>Distribution of responsibilities</b>	<b>Performance Indicators</b>	<b>Associated partnerships, initiatives</b>
relevant MEAs	<ul style="list-style-type: none"> <li>- Industrial and business associations</li> <li>- NGOs</li> <li>- Media</li> </ul>	available tools for sound management			MEAs Secretariats
5 MAP Protocols and relevant MEAs	Cooperation with International Institutions	Participation in International plans and programmes	All MAP components	Number of legal and institutional frameworks adopted	MEAs Secretariats Regional Centres

## CHAPTER 3

### Resource Efficiency-sustainable consumption and production

#### Proposal for a medium term work programme

##### 1. Introduction

This proposal arises from the need to effectively apply Sustainable Consumption and Production and Sustainable Management of Natural Resources in the Mediterranean which is one of the main objectives of the Mediterranean Strategy for Sustainable Development (MSSD) and a top thematic priority of the following strategies and programmes that are relevant for MAP and the Mediterranean region:

- The UNEP's Medium Term Strategy 2010 - 2013
- The Marrakech Process, the UNEP's global initiative to support the elaboration of a framework of regional and national programmes to accelerate the shift towards SCP, as demanded by the WSSD's Johannesburg Plan of Action.
- The EU Sustainable Development Strategy, within which an EU SCP Action Plan was launched in the summer of 2008.

##### 2. Background and Justification

*Sustainable Consumption and Production (SCP), the right approach to encompass the three pillars of sustainability: economy, society and the environment*

Today is clear that, in absolute terms, the use of natural resources and land, high levels of pollution, CO<sub>2</sub> emissions and waste, continue to grow despite gains from projects for the remediation and mitigation of pollution and programmes for pollution control and abatement, cleaner production and eco-efficiency.

Figures on the Mediterranean confirm that trend to be especially critical in this region<sup>1</sup>. Statistics show a rapid growth in terms of:

- **GHG emissions** (between 2006 and 2025, CO<sub>2</sub> emissions from energy consumption could rise by 55% in the NMC and by 119% in the SEMC),
- **resource consumption trends** (e.g. electricity consumption in SEMC may triple by 2025),
- **water scarcity** (Mediterranean countries account for 60% of the population of the world's "water-poor" countries),
- **biodiversity loss** and changes in ecosystem services due to habitat degradation, pollution and overexploitation (e.g. over 65% of all fish stocks in the region are outside safe biological limits<sup>2</sup>) and
- **pollution generation** (e.g. waste generation will triple in SEMC while doubling in NMC). In SEMC pollution risks are expected to increase greatly given the strong industrial growth projected for those countries to meet increasing demands due to population

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<sup>1</sup> Data from *Sustainable Future for the Mediterranean*, Blue Plan, 2005

<sup>2</sup> European Environment Agency

growth and rising living standards (e.g. steel production could reach 50 million tonnes by 2025 and cement production increase by more than 150%).

Moreover those trends on the region's environmental degradation cohabite with other two facts of special concern: the uneven repartition of the natural resources - that is an intrinsic characteristic of the region - and the increasing differences between the Northern and Southern shores in terms of well being. On the one hand, concerning the natural resources distribution, the quality of the region's soil is much unbalanced following a gradient northwest-southeast, and the same situation appears with regards to continental hydric resources<sup>3</sup>. That natural situation is reflected in the sea, with a much productive northwest basin compared to the southeast one, which is much oligotrophic, also influenced by the winds trend which is mostly from northern components along most of the year. That facilitates deep-water upwelling in the north face of the Mediterranean, which increases production of life marine resources. On the other hand, as far as Mediterranean's standards of living are concerned, they are still 3-5 times lower in the developing and transition countries with regard to developed ones and the prospect is that social and economic disparity between the two shores will remain wide up to 2025.

Those inconvenient truths call for Mediterranean countries to take action and change a model of socio-economic development based on resource-intensive consumption and production patterns leading towards an increasing environmental degradation and a mounting polarisation between North and South.

Both at regional and global level, SCP has become a top priority in programmes for environment protection and sustainable development. Accordingly, UNEP has identified it as thematic priority in its Medium -Term Strategy for 2010-2013 while the European Commission has recently adopted an Action Plan on SCP (July 2008). Likewise, key actors to sustainable development as the business sector (e.g. World Business Council for Sustainable Development, BusinessEurope, Businessmed) and civil society (NGO's and consumer organizations) have largely recognized SCP to be the right approach to encompass the three pillars of sustainability: economy, society and the environment.

On the other hand, several regions of the world - Africa, Asia & the Pacific, Europe, Latin America & the Caribbean, North America and West Asia – have already joined the "Marrakech Process", the initiative launched by UNEP and UNDESA to support the elaboration of framework of programmes in support of regional and national initiatives to accelerate the shift towards SCP, as demanded by the WSSD's Johannesburg Plan of Action.

SCP involves a turning point in the way to tackle sustainable development. It refuses the erroneous assumption predominating during the last century that environmental problems could be solved by just combining actions mitigating pollution from human activities and making production processes more environmentally-friendly, through technological changes and eco-efficiency.

Indeed, it is broadly recognized that qualitative environmental improvements in terms of production are being offset by the quantitative increase in consumption (UNEP). Therefore, economies cannot be sustainable if efforts to make economic sectors more environmentally-friendly are not accompanied by a society-wide shift to sustainable consumption patterns<sup>4</sup>.

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<sup>3</sup> *Environment & development outlook*, Blue Plan, 2006

<sup>4</sup> According to the United Nations Development Programme (UNDP) *today's consumption is undermining the environmental resource base. It is exacerbating inequalities* (Human Development Report, 1998)



The fight against climate change shows a clear example of that. Policies focusing on the energy efficiency of production systems are, in general, contributing to stabilise GHG emissions from developed countries. However, global emissions continue to increase (by 24% between 1990 and 2004, IPCC 2007), since consumption levels and flows of raw materials, energy and products have experienced sustained growth, along with international trade, given that supply chains have become more and more international.

*Introducing SCP in MAP, a crucial element to find the balance between socio-economic development and the protection of the Mediterranean environment*

In the Mediterranean region, for over 30 years, MAP has coordinated the joined efforts of the neighbouring countries to protect the environment's region from the pressure and pollution of human activities. In this sense, many successful projects have been implemented to control and prevent pollution from urban and industrial development and to protect the region's natural areas and biodiversity.

However, the above mentioned prospects warn on unprecedented environmental economic and social challenges that require MAP to not only just focus on preventing human activities from impacting to the region's environment but also on supporting Mediterranean countries to change unsustainable patterns of consumption and production on which those human activities are based.

Tackling SCP provides MAP with an added value to enhance new patterns of human and institutional behaviour and innovative productive and social practices and values that enable economic development, environmental protection and an equitable distribution of wealth among countries of the region. Likewise, integrating SCP as component in MAP sets up the appropriate framework of action for the Mediterranean region to join the efforts made by other world's regions within the framework of the Marrakech Process.

*Sustainable Management of Natural Resources (SMNR), a key element to decoupling economic growth and resource use from environmental degradation*

As recalled in the MSSD, the sustainable development is a global objective that aims to respond to the needs of current generations without compromising the abilities of future generations to meet their own needs. The proper management of natural resources constitutes one of the four sustainable development objectives, established with the aim of promoting progress towards sustainability and a specific priority field of action and synergy identified in this strategy focused on the sustainable management of the sea, coastal areas and marine resources. However few things have been done until now to implement new approaches for harmonizing resources conservation and development needs.

In order to clarify the scope of this medium term work programme, marine and coastal natural resources are herein defined as: Resources available to human profit, which have generated and/or evolved without human intervention, either in the sea, beneath it or along its interface with land, through the geological and biological progression path undergone by Earth. They comprise mainly the following:

- Inshore intertidal and open waters fishes-shellfishes, algae; offshore free-ranging or migratory resources like fish stocks.
- Mineral resources, marine waters for industrial installations cooling, desalination, sewage and other pollutants (such as CO<sub>2</sub>) absorption.
- Spatial resources such as coastal residential, tourist (including recreational natural landscapes and ecosystems), industrial and commercial development locations;

coastal agriculture (e.g. seaweeds, fibre) and aquaculture-fish farming settings; marine transportation paths.

The above subject embraces too vast components in relation to the SPA/BD Protocol, so the present work programme focus in particular on biodiversity aspects, including production and consumption, with regard to the sustainable management of natural resources.

Sustainable management of marine and coastal natural resources is a priority. Natural resources have a vital character for humans. Their degradation provokes poverty, illness, increase of catastrophe risks, amplified negative impacts, and induces emigration and instability. Food safety is important for peace on word, and it keeps close links with the preservation of natural resources.

### Pressures / threats

Unsustainable management of natural resources provokes the loss of biodiversity and impoverishment of the services provided by ecosystems to the society. The most important direct drivers of biodiversity loss and change in ecosystem services are: overexploitation, invasive alien species, pollution as well as habitat degradation and climate change (also induced by pollution). For most of these drivers, and for most coastal and marine ecosystems where they have been important, the impact of the driver is currently remaining constant or growing.

#### *Overexploitation of resources, especially through over-fishing*

For marine ecosystems the most important direct driver of change globally has been over-fishing. Demand for fish as food for people and feed for aquaculture production will expand, and the result will be an increasing risk of major, long-lasting collapse of regional marine fisheries.

#### *Alien species exchange*

Increased risk of biotic exchange is an inevitable effect of globalisation. While, there are increasing measures to control the pathways of invasive species, for example, through quarantine measures and new rules on the disposal of ballast water in shipping, several pathways are not adequately regulated.

#### *Pollution*

Since last century, nutrient loading has emerged as one of the most important drivers of ecosystem change in freshwater and coastal ecosystems, and this driver is projected to substantially increase in the future. Nutrient loading will become an increasingly severe problem, particularly in developing countries within the region. In addition, heavy metals and organic synthetic compounds have increased their presence in the Mediterranean waters and organisms, with new synthetic chemicals appearing continuously in the market without their long-term effects on aquatic ecosystems being sufficiently known. Only significant actions to improve the efficiency of nutrient use and toxics wasting reduction will mitigate these trends (as identified within the Horizon 2020 programme).

#### *Anthropogenic Climate Change*

By the end of the century, anthropogenic climate change and its impacts will be one of the most important direct drivers of biodiversity loss and change of ecosystem services. It increases the spread of pathogens and incidence of disease in human and non-human populations and the occurrence of alien species, some of which have negative impacts on

resources; directly alter ecosystem services; changes the frequency of extreme events, with associated risks to ecosystem services; indirectly affects ecosystem services in many ways, such as by causing sea level rising, which threatens coastal marshes, vegetation and sand belts that now protect shorelines; and by changing the pH of the oceans, which may deeply affect the cycle of carbonates needed by marine organisms.

#### Ascertained and envisaged impacts

##### *Resources deterioration*

In some marine systems the biomass of both targeted species, especially larger fish, and those caught incidentally (by-catch) has been reduced up to one or more orders of magnitude compared to pre-industrial fishing levels. About three quarters of the world's marine fisheries are either fully exploited or overexploited. More shoreward, the loss of biodiversity in coastal systems is driven by habitat loss and degradation, especially via pollution that leads to eutrophication, over-exploitation, and anthropogenic climate change. Excessive levels of nitrogen in water bodies, including rivers, wetlands and coastal zones frequently lead to algal blooms and eutrophication. Similar problems have resulted from phosphorus, the use of which has tripled. In addition, heavy metals and organic synthetic compounds have proved to have serious deleterious effects on marine organisms, including reproductive impairment. Toxicity through the trophic chain is accumulative and transferable to humans.

##### *Ecosystems modification*

Habitat loss continuously occurs in Mediterranean coastal and marine systems, though these transformations are less well seen at sea than on land. Bottom trawling, for instance, can reduce certain diverse benthic habitats into undersea deserts, while destructive fishing and coastal development can completely destroy littoral zone, reefs and seagrass beds, among others. The spread of invasive alien species and disease organisms has increased in the Mediterranean because of increased trade and travel, including tourism, and important changes in ecosystems structure can already be observed owed to aliens presence and overfishing of top predators.

##### *Accelerated biodiversity loss*

Added to the above impacts affecting ecosystems and species destruction, climate change increases the rate of species extinction and the loss of genetic diversity; Observed recent changes in Mediterranean climate, especially warmer surface and deep-water temperatures, have already affected biological systems in certain parts of the Sea. There have been changes affecting species distributions, population sizes, or migration events, and a possible increase in the frequency of disease outbreaks is ongoing, at least already in coralligenous and marine mammals.

All the above impacts accumulate to provoke a loss of life quality in the Mediterranean, which may be more conspicuous in the generations to come if more serious actions are not taken from now by all concerned actors.

According to economy experts "many of the challenges for improving the management of marine natural resources in the coming millennium involve development and application of appropriate economic measures. It is essential that natural resource managers, understand these economic issues or we will continue to fail to achieve the potential of our increasingly scarce marine resources. Society will increasingly demand more truly sustainable management of natural resources, along with a greater share of the rent from exploitation of those resources".

In relation to the above, sector approach to marine resources consumption and coastal and marine use planning has traditionally led to a separation between spatial and environmental management. However, economic activities in coastal and marine areas are strongly dependent on the natural availability and regeneration of natural resources. Consequently, the success of any development initiative in these areas involves sustainable management that strikes a balance between economic development and resource protection. That requires a transversal approach to natural resources consumption at MAP level, involving common involvement of all the Regional Activities Centres in activities planning and implementation. Such approach might improve orientations to the sustainable and integrated management of marine ecosystems and their natural resources.

Considering all these factors, it is a key priority for the MAP RACs to collaborate among them, in addition to other MAP components (Parties, partners, etc.), to address in common intertwining elements. A multidisciplinary work programme might be set, aimed to analyse priorities and develop themes to be addressed by thematic actions. Current topics such as the ones depicted herein below could be that way approached synchronously by the participants giving place to real MAP synergy.

### **3. Overall Aims**

- To create knowledge on the link between the current unsustainable patterns of consumption and production and the increasing region's environmental degradation and climate change.
- To progressively adapt human activities to the Mediterranean ecosystems' carrying capacities and enhance representative ecosystems integrity.
- To enhance the sustainable management of marine and coastal resources.
- To support Mediterranean countries, private sector, local agents and civil society in creating the conditions facilitating markets, companies and consumers to shift to SCP.
- To promote sustainable lifestyles in the Mediterranean population that really fit in the specific cultural, natural, economic and social heritage of their societies.

### **4. Specific Aims**

- To identify how climate change affects Mediterranean natural resources, and to monitor the trend.
- To assess and mitigate climate change effects on Mediterranean natural resources.
- To identify the consumption and production areas having the greatest impact on the Mediterranean's environment and climate change.
- To identify and respect the carrying capacity of the Mediterranean eco-systems according to which human activities must be regulated and adapted.
- To preserve the integrity, functionality and interconnectivity of a sound area of representative Mediterranean ecosystems.
- To identify and apply SCP and SMNR to the management of coastal and marine areas.

- To ensure the sustainable management of maritime transport as integral part of the production and consumption chains.
- To foster the shift to production of Mediterranean goods and services entailing the least environmental impact and the introduction of sustainable criteria within the supply chain management of companies and organisations.
- To take advantage of synergies and build cooperation among MAP components and the Marrakech Process mechanisms (task forces, business and NGO forums, cooperation dialogue) and other international organizations and initiatives for SCP and SMR.
- To create partnerships among representatives from the private sector, academia, local institutions and civil society for joint collaboration in the promotion of SCP.
- To create awareness and promote education on sustainable lifestyles and sustainable consumption among Mediterranean population, especially in youth.

## **5. Roles of the different actors (institutions and partners)**

Each MAP component owns a unique environmental and developmental expertise in different areas that is totally indispensable and complementary to successfully apply SCP and SMNR according to the Mediterranean needs and circumstances. In this sense, both the mandates of the Regional Activity Centres and of MED POL involve a key role in addressing SCP and SMNR from their own fields of work.

**Blue Plan's** studies and research on Mediterranean Environment and Development trends are valuable tools to understand the links between economic, environmental and social challenges faced by the region and to help countries and decision-makers in reorienting policies towards SCP and SMR. Likewise, the Centre's performs a leading task in the redefinition and adaptation of priority Mediterranean sectors - e.g. Tourism, Transport, etc- to SCP and SMNR models driving them to sustainable patterns of development.

**RAC/SPA** mandate of promoting protected areas, implementing action plans and building national capacities for the conservation of natural sites and threatened species is an essential contribution to the sustainable management of marine and coastal natural resources, a main component for SCP and SMR. Likewise, the Centre's work on marine resources alteration in relation to human exploitation and climate change constitutes valuable information to raise population's consciousness on how their consumption and production patterns and an unsustainable management of resources influence the vulnerability of marine fauna. Accordingly, RAC/SPA plays a crucial role in promoting SCP and SMNR patterns that fit within the Mediterranean marine eco-system's carrying capacity.

**PAP/RAC** task on a sustainable coastal management provides the Centre with an integrated focus to the environmental and socio-economic development of the Mediterranean littoral. That integrated focus is a cornerstone for the identification of SCP and SMNR priorities in human activities developed in coastal regions. Accordingly the Centre would coordinate the SCP and SMNR actions addressed to coastal areas that may be developed by the other MAP components.

**CP/RAC** mandate focus on contributing to the creation of knowledge on how the patterns of consumption and production impact the Mediterranean's Environment and on empowering Mediterranean companies, public administrations and civil society in SCP. Accordingly, CP/RAC works on boosting green competitiveness and corporate social responsibility among enterprises and fostering mechanisms as eco-labelling and sustainable procurement through

which sustainable criteria are progressively introduced within the whole production-consumption system of the region. On the other hand, the Centre is strongly working in creating awareness and promoting education among Mediterranean population on their role and responsibility as citizens and consumers in driving change towards sustainable development.

**REMPEC**, whose mandate relates to the preservation of the marine environment, contributes significantly to SCP and SMR SMNR by promoting sustainable shipping, which could be defined as the application of best practices recognised by industries and governments at international level, starting from the ship's design, continuing with its management and operation, to final recycling. By encouraging Contracting Parties to the Barcelona Convention to comply with international standards, the Centre helps create a consistent system that reduces the risk of maritime incidents. By enhancing the capability of the Mediterranean Coastal States to prepare for and react to a spill, the Centre contributes to protect the livelihoods of local communities.[v1]

Last but not least, the project leaded by **MAP**, with the involvement of al MAP components, for the application of the ecosystem approach in the Mediterranean will provide a set of indicators identifying the carrying capacity of the region's ecosystems according to which human activities must adapt and therefore change unsustainable patterns of consumption and production.

Therefore, only the combined and coordinated action among all MAP components will effectively address the need for the Mediterranean region to tackle the necessary changes towards SCP and SMNR that will enable countries to attain sustainable development.

<b>To create knowledge on the link between the current unsustainable patterns of consumption and production and the increasing region's environmental degradation and climate change</b>						
<b>Political relevance</b>	<b>Aim</b>	<b>Actions</b>	<b>Expected results</b>	<b>Distribution of responsibilities and tasks</b>	<b>Performance indicators</b>	<b>Associated partnerships, initiatives</b>
<b>Barcelona Convention, MSSD, Almeria Declaration, Kyoto Protocol, Marrakech Process</b>	To identify how climate change affects Mediterranean natural resources, and to monitor the trend	Evaluation at riparian countries level the effects of climate change in regionally/sub-regionally selected natural habitats and spp	Identification of change trends in indicator spp and habitats across the region	SPA/RAC	Number of Parties actively contributing to select indicator spp and habitats. Idem undertaking monitoring within their (number of)MPAs	Parties' concerned Ministries and Agencies[v2]
	To mitigate climate change effects on Mediterranean natural resources	Protection of key-habitats (e.g. breeding and nursery areas) of selected commercial spp.	Improved resilience to population plunges induced by thermal anomalies and other CC effects	SPA/RAC	Number of fleets respecting measures. Change in status (catch Tons) of selected commercial spp stocks	GFCM, FAO[v3]
	To identify the consumption and production areas having the greatest impact on the Mediterranean's environment and climate change	To create knowledge and documentation on the link between the current patterns of consumption and production and the depletion of natural resources and land, levels of pollution, CO2 emissions and waste	Identification of priorities to address SCP in the Mediterranean	CP/RAC, Blue Plan and other MAP components	Number of reports and studies on consumption and production trends and patterns and on their link with the Mediterranean environmental degradation	EEA, Marrakech Task Forces, UNEP/DTIE, GFCM, FAO
	To preserve the integrity, functionality and interconnectivity of a sound area of representative Mediterranean ecosystems	Development of marine corridors among MPAs, both within country and transboundary	Improved exchange chances among meta-populations of selected commercial spp.	SPA/RAC	Number of contacted Parties and Agencies taking active role in the creation of corridors	Parties' concerned Ministries and Agencies, EC ,GFCM

<b>To progressively adapt human activities to the Mediterranean ecosystems' carrying capacities and enhance representative ecosystems integrity</b>						
<b>Political relevance</b>	<b>Aim</b>	<b>Actions</b>	<b>Expected results</b>	<b>Distribution of responsibilities and tasks</b>	<b>Performance indicators</b>	<b>Associated partnerships, initiatives</b>
<b>Protocol ASP/BD. SAP BIO Application of the ecosystem approach by the MAP system. Implementation of the programme of work on protected areas adopted by the CBD</b>	To identify and respect the carrying capacity of the Mediterranean eco-systems according to which human activities must be regulated and adapted	To define indicators of the carrying capacity for Mediterranean ecosystems and evaluate the main impacts affecting Mediterranean ecosystems	Baseline for monitoring the proper Implementation of the Ecosystem approach	MED POL, SPA/RAC and MAP components	Number of indicators being measured by number of countries. Volume of Mediterranean Sea managed applying the ecosystem approach to fisheries Coastal belt length managed applying the ecosystem approach to human activities	GFCM, FAO
	To identify and respect the carrying capacity of the Mediterranean eco-systems according to which human activities must be regulated and adapted	To identify priorities in the adaptation of human activities to the carrying capacity for Mediterranean ecosystems	Identification of human activities to be adapted in order to fit in the carrying capacity for Mediterranean ecosystems	Blue Plan, CP/RAC, PAP/RAC and MAP components	Reports and studies on the adaptation of human activities to the carrying capacity for Mediterranean ecosystems	GFCM, FAO, WWF, IUCN
	To preserve the integrity, functionality and interconnectivity of a sound area of representative Mediterranean ecosystems	To create marine and coastal protected areas, including pelagic and deep habitats and high sea zones through ad-hoc projects	Support Replicable pilot projects on MPAs creation undertaken in several countries. Process to create MPAs in the open seas , including deep seas catalysed	SPA/RAC	Number of protected areas being created with RAC/SPA support, both in coastal and open sea areas	OSPAR, HELCOM, UNEP-Regional Seas Programme, EC, WWF, GFCM
	To preserve the integrity, functionality and interconnectivity of a sound area of representative Mediterranean ecosystems	To increase the number of protected areas to reach 10% of coastal and marine habitats surface protected	New areas proposed for listing in the SPA and SPAMI lists at the Contracting Parties meetings	SPA/RAC	Surface of MPAs listed under the umbrella of the SPA/BD Protocol	Parties to the SPA BD Protocol, WWF, IUCN



	To preserve the integrity, functionality and interconnectivity of a sound area of representative Mediterranean ecosystems	To promote a representative network of protected marine and coastal areas by strengthening institutional and human capacity	Countries officers and MPAs managers assisted to achieve networking processes	SPA/RAC	Number of capacity building activities to facilitate MPAs networking in the region	WWF, IUCN
	To preserve the integrity, functionality and interconnectivity of a sound area of representative Mediterranean ecosystems	To promote the creation of new types of protected spaces	Areas managed by local authorities and residents agreed with national authorities	SPA/RAC	Fishing restriction schedules and/or other activities managed in a number pilot areas in a number of countries with local support and participation	GFCM, NGOs

<b>To enhance the sustainable management of marine and coastal resources</b>						
<b>Political relevance</b>	<b>Aim</b>	<b>Actions</b>	<b>Expected results</b>	<b>Distribution of responsibilities and tasks</b>	<b>Performance indicators</b>	<b>Associated partnerships, initiatives</b>
<b>Barcelona Convention, ICAM Protocol, ASP/BD Protocol, SAP BIO, MSSD, Marrakech Process</b>	To identify and apply SCP and SMNR in the management of coastal areas	Integration of SCP and SMNR mechanisms in the management of coastal areas	SCP and SMNR in the management of coastal areas identified and applied	PAP/RAC and MAP components	Number of projects for the management of coastal areas integrating SCP and SMNR	Marrakech Task Forces, African and Arab initiatives for SCP, etc
	To enhance the sustainable management of marine and coastal resources	To strengthen cooperation between MAP and the GFCM	Fishing and aquaculture practices compatible with biodiversity protection encouraged	SPA/RAC	Number of fisheries management actions implying strengthened cooperation MAP-GFCM-FAO Number of sustainable aquaculture processes implemented through MAP involvement. Number of Spp of Annex II To SPA/BD Protocol effectively protected by each Party to that Protocol. Number of changes in species' listing-delisting in Annexes II and III	FAO, GFCM, IUCN
	To enhance the sustainable management of marine and coastal resources	To strengthen cooperation between MAP and the GFCM	Appropriate GFCM periodic regulations on fisheries exploitation benefiting Annex III spp.	SPA/RAC	Number of fisheries management actions implying strengthened cooperation between MAP and the GFCM. Number of Species of Annex III To SPA/BD Protocol subject to effectively regulated exploitation by each Party to that Protocol	FAO, GFCM

<b>To support Mediterranean countries, private sector, local agents and civil society in creating the conditions facilitating markets, companies and consumers to shift to SCP</b>						
<b>Political relevance</b>	<b>Aim</b>	<b>Actions</b>	<b>Expected results</b>	<b>Distribution of responsibilities and tasks</b>	<b>Performance indicators</b>	<b>Associated partnerships, initiatives</b>
<b>Barcelona Convention, LBS Protocol, HW Protocol, ICAM Protocol, MSSD, Marrakech Process</b>	To foster the shift to production of Mediterranean goods and services entailing the least environmental impact and the introduction of sustainable criteria within the supply chain management of companies and organisations	To increase awareness on the economic, environmental and social benefits from the application of SCP	Dissemination of successful cases on SCP in different areas, particularly on the MSSD priority fields for action	All MAP components	Number of SCP cases published and disseminated	Marrakech Task Forces, African and Arab initiatives for SCP, public sector, local agents, businesses, NGOs, etc
	To foster the introduction of sustainable criteria within the supply chain management of companies and organisations	To enhance the development and application of Corporate social responsibility, eco-labelling and sustainable procurement as tools introducing environmental criteria within the circle provider-producer-consumer and facilitating consumers to adopt sustainable consumption	Increased awareness and commitment from Mediterranean countries and businesses to implement CSR, SPP and labelling schemes for sustainable Mediterranean products (industry, tourism, food, fishing, etc)	CP/RAC	Number of studies and capacity building activities on SCP mechanisms	Marrakech Task Forces, African and Arab initiatives for SCP, public sector, local agents, businesses, NGOs, etc
	To foster the shift to production of Mediterranean goods and services entailing the least environmental impact	To boost the adoption of green competitiveness (GRECO) by Mediterranean companies	Increased awareness and commitment from Mediterranean countries and businesses to shift to GRECO	CP/RAC	Number of SME 's joining GRECO. Number of GRECO seminars and workshops	Ministries of Industry, Ministry of Environment, BusinessMed, ASCAME, Cleaner Production Centres

	To decouple industrial development from pollution and environmental degradation	To provide technical assistance to the public and private sectors in Mediterranean countries for the reduction of land-based pollution, particularly of harmful substances and hazardous wastes, through the application of Best Available Techniques (BATs), Best Environmental Practices (BEPs), Cleaner Production (CP), the sustainable management of industrial areas, the IPPC principles and the sound management of chemicals	Improved human resources capacities and capabilities in the relevant national institutions and the business sector on the application of BAT, BEP, CP, the sustainable management of industrial areas, the IPPC and sound chemicals management.	CP/RAC	Number of projects, training and capacity building activities.	EC, Ministries of Industry, Ministry of Environment, BusinessMed, ASCAME, Cleaner Production Centres
	To decouple industrial development from pollution and environmental degradation	To establish Emission Limit Values (ELV) based on BAT	To be completed by MED POL	MED POL and CP/RAC	To be completed by MED POL	To be completed by MED POL
	To strengthen the synergies and built cooperation between MAP components and international organizations and networks for SCP and SMNR developing joint actions and Memoranda.	To create partnerships and to implement joint projects addressed to the private sector, academia, local institutions and civil society.	Enhanced involvement of Mediterranean regional organizations and networks in SCP and SMNR topics	All MAP components	Number of partnerships and projects adopted by MAP components in cooperation with relevant organizations and networks working in SCP	Marrakech Process task forces, business and NGO forums, African and Arab initiatives for SCP and SMR.

<b>To promote sustainable lifestyles in the Mediterranean population that really fit in the specific cultural, natural, economic and social heritage of their societies</b>						
<b>Political relevance</b>	<b>Aim</b>	<b>Actions</b>	<b>Expected results</b>	<b>Distribution of responsibilities and tasks</b>	<b>Performance indicators</b>	<b>Associated partnerships, initiatives</b>
<b>Barcelona Convention, LBS Protocol, HW Protocol, ICAM Protocol, MSSD, Marrakech Process</b>	To promote sustainable lifestyles in the Mediterranean population that really fit in the specific cultural, natural, economic and social heritage of their societies	To build capacities to introduce education and information on sustainable lifestyles (SL) and sustainable consumption (SC) in the formal and informal education of Mediterranean population, especially in youth.	Enhanced awareness of Mediterranean population on SL and SC. Increased commitment from public and private institutions to introduce education on SL and SC	CP/RAC, SPA/RAC, INFO/RAC and PAP/RAC	Number of capacity building, training activities, workshops, awareness material, etc	Marrakech Process task forces, business and NGO forums, African and Arab initiatives for SCP and SMR, Universities, schools, consumer organizations GFCM, FAO



**CHAPTER 4**

**Integrated coastal zone management/ecosystem management**





