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Agenda item 5.6: Draft Decision on Regional Climate Change Adaptation Framework (RCCAF)

Analysis on how Regional Climate Change Adaptation Framework priority fields of action and climate-related issues in general are already reflected in Protocols and other strategic instruments of the MAP

UNEP/MAP
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TABLE OF CONTENTS

1 INTRODUCTION

Climate change poses significant challenges to the Mediterranean countries and is expected to worsen already acute situations present in the region. Essential resources like fresh water, agricultural production and fish provisions may become endangered while coastal communities, ecosystems and infrastructure will be challenged by increased physical risks. More importantly, human lives may become endangered and health risks increased in a warmer climate. The development of an adaptation strategy for the Mediterranean region should provide answers to the risks, reduce the exposure of the society and the ecosystems and increase the overall resilience of the Mediterranean marine and coastal areas.

The Mediterranean Changing Climate

In its Fifth Assessment Report IPCC has identified Mediterranean ecosystems among the most impacted by global climate change drivers. Climate variability and change is becoming increasingly evident in the Mediterranean. According to observations and studies referenced in the IPCC Fifth Assessment Report (AR5) and in IPCC's SREX Report, in recent decades, summer heat waves' intensity, number, and length have increased alongside extreme precipitation events and soil dryness. Major increases have been observed in warm temperature extremes including events such as hot days (Tmax >30°C) and tropical nights (Tmin>20°C). The shallow waters of the Mediterranean Sea have already warmed by almost 1°C since the 1980s. Trends of decreasing precipitation and discharge are consistent with increasing salinity in the Mediterranean Sea, indicating a trend toward increased freshwater deficits. The Mediterranean also exhibits variability regarding the observed sea level rise. According to the latest EEA indicators assessment, in the Mediterranean Sea there are areas with increases of more than 6 mm/year, and with decreases of more than -4 mm/year.

The IPCC AR5 considers the Mediterranean Region as "highly vulnerable to climate change" and states that it "will suffer multiple stresses and systemic failures due to climate changes". Different sub-regions of the Mediterranean will witness different changes to their climate. On average however for the whole Region, estimates mentioned in the IPCC AR5 for the medium-low emissions scenario (RCP 4.5) and for the period 2081-2100 compared to 1986-2005 include an increase in surface mean air temperature of 2-4ºC, 10-20% decreases in mean annual precipitation, increased risk of desertification, soil degradation, an increase in duration and intensity of droughts and floods, summer heat-waves and heavy precipitation events, changes in species composition, increase of alien species, habitat losses and agricultural and forests production losses.

Sea level rise in the Mediterranean Sea involves local as well as global contributions. Thus multi-decadal regional projections involve larger uncertainties than those for the global ocean. A rise of 0.4-0.5m is projected for most of the Mediterranean under IPCC AR5's medium-low emission scenario RCP 4.5. The effect of sea level rise due to global warming is more important in most of the Mediterranean Sea where, due to the small tidal range, coastal infrastructure and coastal communities are located closer to mean sea level. In addition vertical land movements caused by tectonic as well as other causes pose additional risks for such areas.

Climate change is expected to apply additional stresses on several sectors and systems by modifying land degradation rates and the recurrence of droughts, floods and other extreme climate events, as well as through changes in temperatures, in the precipitation regime and in the sea level.

The Mediterranean countries need to turn the challenges they face under a changing climate into opportunities to increase their resilience by addressing the reasons that have so far led many environmental parameters into almost critical status.

Regional Climate Change adaptation Framework for the Mediterranean

UNEP/MAP has been supporting actions to assess climate change impacts in the Mediterranean marine and coastal zone dating back to 1992. The work on the preparation of the *Regional Climate Change Adaptation Framework for the Mediterranean* (RCCAF) started in 2010.

The overall aim of the RCCAF is to provide a regional approach in coordinating and assisting policy makers and stakeholders at all levels across the Mediterranean in order to increase the resilience of the Mediterranean marine and coastal natural and socioeconomic systems to the impacts of climate change by identifying objectives and priority fields for action that:

- promote the right enabling environment for mainstreaming adaptation in national and local planning;
- promote and exchange best practices and low-regret measures;
- promote leveraging of necessary funding; and
- exchange and access best available data, knowledge, assessments and tools on adaptation.

The draft RCCAF is structured around four Strategic Objectives. Each Strategic Objective includes separate Operational Objectives and suggested priority fields of action for their realization. The development of the draft RCCAF has been closely linked with that of the revised MSSD and in particular its Climate Chapter, to ensure full coherence between the two strategic documents.

The development of the draft RCCAF is guided by the vision that by 2025 the Marine and Coastal Areas of the Mediterranean countries and their communities have increased their resilience to the adverse impacts of climate variability and change, in the context of Sustainable Development. This is to be achieved through common objectives, cooperation, solidarity, equity and participatory governance.

An essential aspect of the draft RCCAF is that it has been developed in a step-by-step consultation and review process including an ad hoc technical Advisory Panel, established in autumn 2014, involving key regional experts on climate adaptation. Following this consultation phase, which focused mainly on the scientific and technical integrity and state-of-the-art of the document, the draft RCCAF was shared for inputs and comments with national Focal Points of MAP and RACs, MCSD members and Focal Points of the MedPartnership project. On the basis of the feedback received, a final draft was submitted to the MCSD for its review, in order for it to be finally submitted to the MAP Focal Points Meeting in October 2015 and then adopted by the COP 19 (Athens, February 2016). The time scale of the RCCAF is in line with the revised MSSD (2016-2025).

2 WHAT IS TO BE ACHIEVED WITH THE REVIEW AND ANALYSIS?

The draft RCCAF was prepared by the MAP Secretariat and is being submitted to the MAP Focal Points Meeting (Athens, 13-16 Oct. 2015) and, subsequently, to the 19th Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (Athens, Feb. 2016).

In order to prepare the ground for the considerations of the draft RCCAF at the MAP Focal Points Meeting and the COP 19 Meeting the UNEP/MAP Secretariat undertook a review and analysis of MAP policy and regulatory and programmatic documentation, in order to identify the interlinkages between existing instruments and the draft RCCAF, so as to highlight the existing mandates and ongoing work and the way in which the draft RCCAF reflects them. This document on review and analysis incorporates the views of all the components of MAP.

The 53 documents that were reviewed and analyzed include:

(i) Mediterranean Action Plan Phase II;
(ii) Barcelona Convention;
(iii) Protocols to the Barcelona Convention;
(iv) Declarations of the COP 15, COP 16, COP 17 and COP 18;
(v) Adopted Strategies documents of the MAP;
(vi) Draft Strategic documents of the MAP:
(vii) Adopted Regional plan and Action plans of components of MAP;
(viii) Draft Action plans of components of MAP
(ix) Components of the MAP Phase II (MEDPOL, Regional Activity Centres, and MCSD); and
(x) Reports and studies on climate change prepared by the components of MAP.

3 REVIEW AND ANALYSIS

For each of the documents that were reviewed and analyzed a short description of the document will be presented and at the end an opinion will be given about its interlinkages with the draft RCCAF.

3.1 Mediterranean Action Plan (MAP) - Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II) (1995)

In 1975, 16 Mediterranean countries and the EU adopted the Mediterranean Action Plan (MAP) and in 1995 the Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II) was designed, taking into account the achievements and shortcomings of the MAP. Although the initial focus of the MAP was on marine pollution control, experience soon confirmed that socio-economic trends, combined with poor management and planning of development, are the root of most environmental problems, and that meaningful and lasting environmental protection is inseparably linked to social and economic development. Therefore, the focus of MAP gradually shifted from a sectoral approach to pollution control to integrated coastal zone planning and management as the key tool through which solutions are being sought.

Major shortcomings in the protection of the Mediterranean marine environment and its coastal region are the inappropriate management of the coastal zone due to the lack of adequate coastal zone planning and management; inadequate national legislation and its effective enforcement; weak institutional structures and inadequate human resources allocated for these types of activities; and lack of mobilization of adequate financial resources and clear political commitment to solve the existing problems. One of the major objectives of MAPII is to ensure sustainable management of natural marine and land resources and to integrate the environment in social and economic development, and land-use policies. These are extremely demanding tasks and such integration has to deal with the complex interaction between environmental components (water, soil, air, biota) and socio-economic sectors (agriculture, industry, energy, tourism, transport, settlements) and requires integration of environmental policies into development policies. Such integration could be achieved through the Integrated Coastal Zone Management (ICZM) which requires understanding of the links existing between coastal resources, their use and the mutual impact of development and environment. This approach has to deal with a number of important issues like development of coastal regions, effects of urban and touristic developments, destruction of habitats, effects on biodiversity, predictions and adaptation to floods and droughts, predictions and adaptation to sea-level rise, effects of tourism on marine environment and coastal regions, pollution of all kinds, effects of climate change, etc. Quite a number of these issues are strongly influenced by the effects of climate change and therefore it is clear that the adaptation to the effects of climate changes is a cross-cutting issue which has to be an integral part of sustainable development of Mediterranean marine environment and its coastal regions.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

One of the major objectives of MAP II is to ensure the sustainable management of the marine environment and coastal regions and to integrate the environment in social and economic development, and land-use policies. Through the implementation of this objective MAP II has been a significant instrument for the progress concerning environmental matters in the Mediterranean.

The draft RCCAF contributes to the implementation of the MAP II through its all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate

change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.2 Barcelona Convention - Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (1995)

The Barcelona Convention, under General Obligations states:

"The Contracting Parties shall individually or jointly take all appropriate measures in accordance with the provisions of this Convention and those Protocols in force to which they are party to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area and to protect and enhance the marine environment in that Area so as to contribute towards its sustainable development;

The Contracting Parties pledge themselves to take appropriate measures to implement the Mediterranean Action Plan and, further, to pursue the protection of the marine environment and the natural resources of the Mediterranean Sea Area as an integral part of the development process, meeting the needs of present and future generations in an equitable manner. For the purpose of implementing the objectives of sustainable development the Contracting Parties shall take fully into account the recommendations of the Mediterranean Commission on Sustainable Development established within the framework of the Mediterranean Action Plan;

The Contracting Parties further pledge themselves to promote, within the international bodies considered to be competent by the Contracting Parties, measures concerning the implementation of programmes of sustainable development, the protection, conservation and rehabilitation of the environment and of the natural resources in the Mediterranean Sea Area."

It is clear from these obligations that the final goal is to reach sustainable development of the Mediterranean Sea Area and that in order to reach this goal MAP II should be implemented. Consequently as elaborated in the MAP II section above quite a number of important issues have to be incorporated in the work, among those is also adaptation to the effects of climate change.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The final goal of the Barcelona Convention is to assist Mediterranean countries to develop and implement programmes of sustainable development, the protection, conservation and rehabilitation of the environment and of the natural resources in the Mediterranean Sea Area.

The draft RCCAF contributes to the implementation of the Barcelona Convention through its all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.3 Protocols to the Barcelona Convention

During their forty years of cooperation, the Contracting Parties to the Barcelona Convention have adopted following seven protocols which fostered cooperation:

- Dumping Protocol – Protocol for the Prevention and Elimination of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea (1995);
- Prevention and Emergency Protocol – Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution in the Mediterranean Sea (2002);
- LBS Protocol – Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (1996);
- SPA and Biodiversity Protocol – Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (1995);
- Offshore Protocol – Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (1994);
- Hazardous Wastes Protocol – Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal (2008); and
- ICZM Protocol - Protocol on Integrated Coastal Zone Management in the Mediterranean (2008).

These protocols are supporting the Mediterranean countries, in particular developing countries, in their efforts to develop and upgrade their environmental regulations related to the protection of the environment and sustainable development. Also, through those protocols the developing Mediterranean countries are provided with technical assistance in their attempts to enhance their national legislative provisions in the field of environmental protection and sustainable development.

The common denominator of the vast range of issues covered by the seven protocols is sustainable development of the Mediterranean marine environment and coastal regions. As explained above in the section on MAP the adaptation to the effects of climate changes is a cross-cutting issue which has to be an integral part of sustainable development of Mediterranean marine environment and its coastal regions.

3.3.1 Integrated Coastal Zone Management Protocol

The Integrated Coastal Zone Management Protocol states in relevance to the climate change:

- The risks threatening coastal zones due to climate change are worrisome, and they are likely to result, *inter alia*, in a rise in sea level, and adoption of sustainable measures to reduce the negative impact of natural phenomena are needed;
- It is necessary to act in cooperation for the development of appropriate and integrated plans for coastal zone management pursuant to Article 4, paragraph 1(e), of the United Nations Framework Convention on Climate Change, done at New York on 9 May 1992;
- In conformity with the objectives and principles set out in Articles 5 and 6 of this Protocol, the Parties, shall establish in coastal zones, as from the highest winter waterline, a zone where construction is not allowed. Taking into account, inter alia, the areas directly and negatively affected by climate change and natural risks, this zone may not be less than 100 meters in width, subject to the provisions of subparagraph (b) below. Stricter national measures determining this width shall continue to apply;
- It is necessary to prevent and/or reduce the effects of natural hazards and in particular of climate change, which can be induced by natural or human activities;
- Within the framework of national strategies for integrated coastal zone management, the Parties shall develop policies for the prevention of natural hazards. To this end, they shall undertake vulnerability and hazard assessments of coastal zones and take prevention, mitigation and adaptation measures to address the effects of natural disasters, in particular of climate change; and
- In conformity with the objectives and principles set out in Articles 5 and 6 of this Protocol, the Parties, with a view to preventing and mitigating the negative impact of coastal erosion more effectively, undertake to adopt the necessary measures to maintain or restore the natural capacity of the coast to adapt to changes, including those caused by the rise in sea levels.

In order to achieve the key objective of the ICZM – sustainable coastal development - concentration of the coastal development and preservation of some coastal zones for the benefit of future generations are essential. The most efficient low regret measure for the adaptation to sea level rise would require two things: setback from the coast and concentration of the development. Establishment of the setback zone is an important low-regret measure. The pressure to build as close to the sea as possible is not decreasing. Building awareness, creating laws to provide for setback zones, and exchange of experience among countries on these issues are among important tasks for PAP/RAC.

Coastal urban sprawl is one of the key problems around Mediterranean shores. Adaptation at such areas will require the most expensive adaptation measures. In all regards, solutions for adaptation to climate change are no different than solutions for sustainable coastal development. Therefore, synergies between the climate change adaptation and ICZM is the only smart way forward for the coastal zones of the Mediterranean.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

ICZM Protocol invites countries to prepare ICZM Strategies, Plans and programmes. These policy documents, whether they are on the national or local level, aim for sustainable coastal development, and therefore cannot omit adaptation to climate change for the coastal zones in question. Approach to adaptation should be comprehensive; therefore, RCCAF in its integrity is an important policy document for implementation of the ICZM Protocol, and in particular, for implementation of its most important articles.

Prevention and/or reduction of the effects of natural hazards and in particular of climate change, which can be induced by natural or human activities is one of the objectives and priorities of the ICZM.

The draft RCCAF contributes to the implementation of the Integrated Coastal Zone Management (ICZM) Protocol through its all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.3.2 Specially Protected Areas and Biodiversity Protocol

The Specially Protected Areas and Biodiversity protocol does not mention explicitly the problem of climate change but the following points in implicit way are mentioning issues with are actually closely related to the climate change:

- It is necessary to protect, preserve and manage in a sustainable and environmentally sound way areas of particular natural or cultural value, notably by the establishment of specially protected areas;
- It is necessary to protect, preserve and manage threatened or endangered species of flora and fauna;
- The Parties shall adopt strategies, plans and programmes for the conservation of biological diversity and the sustainable use of marine and coastal biological resources and shall integrate them into their relevant sectoral and intersectoral policies;
- It is an objective of this Protocol to specifically protect habitats which are in danger of disappearing in their natural area of distribution in the Mediterranean;
- It is an objective of this Protocol to specifically protect habitats critical to the survival, reproduction and recovery of endangered, threatened or endemic species of flora or fauna;
- In order to promote cooperation in the management and conservation of natural areas, as well as in the protection of threatened species and their habitats, the Parties shall draw up a "List of Specially Protected Areas of Mediterranean Importance", hereinafter referred to as the "SPAMI List";
- The Parties shall, in the zones subject to their sovereignty or national jurisdiction, identify and compile lists of the endangered or threatened species of flora and fauna and accord protected status to such species. The Parties shall regulate and, where appropriate, prohibit activities having adverse effects on such species or their habitats, and carry out management, planning and other measures to ensure a favourable state of conservation of such species;
- The Parties shall ensure the maximum possible protection and recovery of the species of fauna and flora listed in the Annex relating to the List of Endangered or Threatened Species by adopting at the national level the measures provided for in paragraphs 3 and 5 of Article 11 of this Protocol;
- The Parties shall take all appropriate measures to regulate the intentional or accidental introduction of non-indigenous or genetically modified species to the wild and prohibit those that may have harmful impacts on the ecosystems, habitats or species in the sea to which the Protocol applies; and
- The SPAMIs will have to constitute the core of a network aiming at the effective conservation of the Mediterranean heritage. To attain this objective, the Parties will develop their cooperation on bilateral and multilateral bases in the field of conservation and management of natural sites and notably through the establishment of transboundary SPAMIs.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The main goals of the Specially Protected Areas and Biodiversity Protocol are: (i) protection, preservation and management of threatened or endangered species of flora and fauna; (ii) conservation of biological diversity and the sustainable use of marine and coastal biological resources; (iii) protection of habitats which are in danger of disappearing; and (iv) regulation of the intentional or accidental introduction of non-indigenous or genetically modified species.

The draft RCCAF contributes to the implementation of the Specially Protected Areas and Biodiversity Protocol through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; and 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.3.3 Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution in the Mediterranean Sea

The Prevention and Emergency Protocol does not mention explicitly the problem of climate change but the following points in implicit way are mentioning issues which are actually closely related to the climate change:

- The Parties shall cooperate to implement international regulation to prevent, reduce and control pollution of the marine environment from ships;
- The Parties shall also take measure in conformity with international law to prevent the pollution of the Mediterranean Sea Area from ships in order to ensure the effective implementation in that Area of the relevant international conventions in their capacity as flag State, port State and coastal State, and their applicable legislation; and
- The Parties shall develop and apply, either individually or through bilateral or multilateral cooperation, monitoring activities covering the Mediterranean Sea Area in order to prevent, detect and combat pollution, and to ensure compliance with the applicable international regulations.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The draft RCCAF contributes to the implementation of the Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution in the Mediterranean Sea through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.3.4 Protocols on Dumping, Land-based sources, Offshore and Hazardous waste

The Dumping Protocol, Land-based Sources Protocol, Offshore Protocol and Hazardous Wastes Protocol do not mention climate change but since they are an integral part of the Mediterranean Action Plan II, with the final goal of the sustainable development it could be understood that the RCCAF could contribute to their implementation, in particular in connection with the climate-induced increases in the magnitude of extreme events.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework to the implementation of Dumping Protocol, Land-based Sources Protocol, Offshore Protocol and Hazardous Wastes Protocol

The draft RCCAF contributes to the implementation of these Protocols through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.4 Declarations and statements relevant to the climate change

3.4.1 Almeria Declaration - COP 15 (2008)

Recalling the adverse effects of climate change on coastal and marine ecosystems and on the environment in general and the negative consequences for sustainable development, particularly for developing countries in the Mediterranean basin,

Aware of the many and interlocking challenges that must be addressed in order to effectively mitigate, reduce and combat environmental degradation and to promote sustainable development in the Mediterranean region taking into account new threats, including the high levels of pollution which persist in our sea, water, air, soil and subsoil; the continued overexploitation of natural resources; unplanned and insufficiently integrated coastal development; disproportionate expansion of aquaculture; the introduction of invasive alien species; increase of maritime traffic; continued degradation of unique landscapes; loss of biodiversity; desertification; accelerated coastal erosion and negative effects of climate change,

Welcoming the work of the 13th 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 which launches a comprehensive process, to be completed by 2009, to enable the full effective and sustained implementation of the climate change convention through long-term cooperative action, now, up to and beyond 2012,

Seriously aware, on the basis of the most recent work of the Intergovernmental Panel on Climate Change, of the implications for the marine environment of climate change and ocean acidification due to elevated concentrations of carbon dioxide in the atmosphere, and in particular of their significant effects on the Mediterranean coastal zone, its ecosystems and biodiversity and the extreme sensitivity of the region to alterations in climate,

Considering the recommendations of the International Solidarity Conference on Climate Change Strategies for the African and Mediterranean Regions held in Tunis from 18 to 20 November 2007, with the participation of several Mediterranean countries, institutions and NGOs and the Mediterranean Action Plan,

Stressing the adaptation effort that all countries are required to make in order to reduce the impact of climate change,

Highlighting the importance of capacity building, technology transfer and mobilization of financial resources to enable developing countries, in particular, to meet such challenges as recommended in the Tunis Declaration and Action Plan,

Recalling the principle of common but differentiated responsibility in the area of climate change and the need to strengthen regional and international cooperation, in accordance with the spirit and the provisions of the United Nations Framework Convention on Climate Change,

Convinced that

(a) The problem of climate change should be seriously addressed, in order to reduce as rapidly as possible its effects on the Mediterranean coastal and marine environment,

(b) Promoting the implementation of early measures in the Mediterranean region to mitigate climate change is vital to the preservation of resources, biodiversity and protection of the coastal areas in the Mediterranean region,

(c) Strategies to mitigate climate change should include methods such as the ecosystem approach, risk management, strategic environmental assessment and integrated marine and coastal zone management,

(d) The adoption of the new Protocol on Integrated Coastal Zone Management constitutes a relevant legal tool that lays down binding regulations that are required to contribute to the sustainable development of the coastal zones of the Mediterranean Sea and to address the effects of climate change on these sensitive zones,

Decide

1. To initiate rapid ratification of the Protocol on Integrated Coastal Zone Management with a view to applying appropriate effective measures aimed at reconciling coastal preservation and sustainable development with the implementation of economic activities in the coastal zones and to triggering an immediate practical response to the impact of climate change on Mediterranean coastal ecosystems,

2. To identify by 2011 the coastal and marine species and habitats that are most sensitive to the changes that will result from the various scenarios described by the Intergovernmental Panel on Climate Change and to promote measures for the establishment of a comprehensive and coherent Mediterranean network of coastal and marine protected areas by 2012,

3. To undertake cooperative studies to estimate the economic value of the products currently derived from and the services rendered by the marine and coastal ecosystems and how that value will be affected by the disruptions that will result from climate change, and to report on those studies to each Meeting of the Contracting Parties to the Barcelona Convention,

4. To prepare for each Meeting of the Contracting Parties to the Barcelona Convention and to the Convention on Biological Diversity a report on the situation of biodiversity in the Mediterranean and the observed impact of climate change,

8. 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 for better adaptation and response to climate change.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Almeria Declaration of the COP 15 is very clearly and strongly supporting systematic work on climate changes and its effects on the marine environment and coastal region of the Mediterranean.

The draft RCCAF assists in the implementation of the Almeria Declaration through all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.4.2 Marrakesh Declaration - COP 16 (2009)

We, Ministers of the Environment and Heads of Delegation of the Contracting Parties to the Barcelona Convention and its Protocols, meeting in Marrakesh, Morocco, on 4 November 2009,

Also concerned at the effects of climate change on the ecosystems and resources of Mediterranean coastal areas resulting, among other factors, from the rise in the level of the sea, an increase in temperatures, the acidification of marine waters and the modification of the economic and social equilibrium of coastal communities,

Considering that it is necessary to continue research into the extent of the environmental and socio-economic impacts of climate change in the Mediterranean, while making full use of existing evaluations,

Emphasizing the importance of the adoption by all countries of further measures to combat climate change as a matter of urgency, taking into account their shared but differentiated responsibilities, their respective capacities and the principle of equity,

Considering that adaptation to climate change and its consequences is a high priority for all the countries in the Mediterranean region, and that the response should be such as to establish sustainable development and achieve the Millennium Development Goals and the objectives of the Mediterranean Strategy for Sustainable Development (MSSD), taking into account in particular the capacities and needs of the developing countries,

Aware that it is essential to reinforce regional cooperation to identify and assess the short-, medium- and long-term impacts of, and vulnerabilities to, climate change in the Mediterranean region, and to design and implement the best adaptation and prevention options,

Recalling the recommendations of the 13th Meeting of the Mediterranean Commission on Sustainable Development (MCSD - Cairo, September 2009), which call on the Contracting Parties to implement adaptation measures on an urgent basis with a view to strengthening the resilience of the Mediterranean region in the face of climate change,

We undertake to:

Promote Mediterranean cooperation to combat the effects of climate change in the region and enhance the institutional mechanisms, particularly to provide a mechanism for exchanges and the sharing of experience with other regions of the world;
Implement effective coordination to ensure the integration of climate change issues into development policies with the aim of achieving the Millennium Development Goals and the objectives of the MSSD, and *ensure* the strengthening of cooperation for the sharing of experience in the field of surveillance (early-warning systems) and the development and implementation of adaptation and risk-management strategies;

Call for adaptation to climate change to be fully taken into account in the review of the MSSD during the next biennium: this review should be broadened to include an analysis of the structuring of the Strategy, in order to integrate adaptation into development policies, including at the regional level.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Marrakesh Declaration of the COP 16 is very strongly supporting the work on the implications of climate change on the marine environment and coastal regions of the Mediterranean.

The draft RCCAF assists in the implementation of the Marrakesh Declaration through all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-

making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.4.3 Paris Declaration – COP 17 (Paris, 2012)

Deeply concerned by the threats which continue to menace the coastal and marine environment in the Mediterranean, including pollution from land-based sources, from offshore exploration and exploitation activities, waste, the over-use of natural resources and potentially dangerous exploitation of vulnerable habitats and ecosystems, the loss of biodiversity, soil and coastal degradation, the impacts of climate change, and *recalling* that if the Mediterranean Sea and its coastal zone ecosystems are protected and managed with a view to sustainable development, this will allow goods and services they provide to be used sustainably over the long term;

Also reaffirming the commitments made at the Meeting of Contracting Parties held in Marrakech in 2009 on actions related to climate change and the promotion of better governance within MAP.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Paris Declaration of the COP 17 is very clearly supporting work on the effects of climate change in the Mediterranean.

The draft RCCAF assists in the implementation of the Paris Declaration through all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.4.4 Istanbul Declaration - COP 18 (2013)

Being aware of the degradation of the marine and coastal environment posed by urban sprawl the continuous unplanned growth of coastal settlements during recent decades and adverse impacts of climate change on marine and coastal ecosystems

In the continuity of commitments made by previous COPs Declarations, we commit to take all the necessary measures to make the Mediterranean an exemplary model in implementing activities effectively protecting the marine and coastal environment as well as contributing to sustainable development and resolve to:

- *Make all efforts to accelerate* implementation of the Action Plan on Integrated Coastal Zone Management (ICZM) as adopted by the Parties in COP 17 and in particular define set back zones in accordance with the provisions of the ICZM Protocol and develop plans that protect coastal populations against the adverse effects of climate change such as rising seas and permit the integrated planning and the resolution of conflicts among the increasing multiple economic and social uses of the coastal zones

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Istanbul Declaration is very clearly supporting work on the effects of climate change in the Mediterranean.

The draft RCCAF assists in the implementation of the Istanbul Declaration through all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.4.5 Statements

COP 18 (Istanbul, 2013)

The 18th Meeting of the Contracting Parties to the Barcelona Convention in 2013 in Istanbul adopted the UNEP/MAP Programme of Work 2014–2015 and among the targets was *Climate Change Adaptation Framework prepared, reviewed by MCSD and submitted for consideration by COP19*.

Union for the Mediterranean Ministerial Meeting on Environment and Climate Change (Athens 2014)

In the Declaration of the Union for the Mediterranean Ministerial Meeting on Environment and Climate Change (Athens 2014) the Ministers "*support the regional climate change adaptation framework under development by UNEP-MAP*".

UNEP MAP's Program of Work for 2014-15

UNEP MAP's Program of Work for 2014-15 which was adopted at COP 18 had climate change as one of its seven themes and contained several mitigation and adaptation actions, including the preparation of the Framework and its review by the MCSD in order for it to be submitted for consideration by COP 19 (Athens, February 2016).

16th Meeting of the MCSD (Marrakesh, 2015)

The 16th Meeting of the Mediterranean Commission on Sustainable Development (June 2015) approved the Revised Mediterranean Strategy on Sustainable Development (MSSD). The MSSD is pointing to the fact that the Mediterranean region is at a crossroads with regard to climate change and development. If left unaddressed, climate change will pose a serious risk to economic growth and may jeopardize achievement of the Sustainable Development Goals in most Mediterranean countries. Climate change is no longer considered an environmental or scientific issue but rather a developmental challenge that requires urgent and dynamic policy and technical responses at the regional, national and local levels. The MSSD calls at a regional level for enhancing national structures and strengthening the implementation of commitments under the United Nations Framework Convention on Climate Change (UNFCCC), as well as implementing high-level regional initiatives including the UNEP/MAP Regional Climate Change Adaptation Framework, and other regional initiatives.

3.5 Adopted MAP Strategies

3.5.1 UNEP-MAP-RAC/SPA: Strategic Action Programme for the Conservation of Biological Diversity (SAP BIO) in the Mediterranean Region, Tunis, 2003, 55 pp

About 150 million people, one third of the population of the Mediterranean coastal states, live in the coastal regions and islands. Economic activities in the coastal areas are constantly expanding. In addition, the Mediterranean region is the destination of about 200 million tourists per year. A permanently increasing pollution has already resulted in disruption of or highly negative impacts on fragile ecosystems, impacts on quality of life of resident populations and loss of habitats and species. The resulting impacts on the Mediterranean coastal and marine biodiversity might be considered as dramatic.

The rich variety of life in the waters and coastal zone of the Mediterranean Sea faces a bleak future due to growing human exploitation of nature and natural resources; the heaviest pressure connected to human activity is now to a great extent concentrated along the coast. The sea and the coast can be considered among the most threatened sites in the Mediterranean region. Present and future trends concerning adverse global phenomena, climate change in particular, are expected to worsen the situation. The complex threats to biological diversity call for a wide range of responses across a wide spectrum of public and private sectors, the implementation of national and regional actions and the participation and involvement of all the countries, stakeholders and users.

The answer to this wide and complex issue was the preparation of the *Strategic Action Programme for the Conservation of Biological Diversity (SAP BIO) in the Mediterranean Region.* The elaboration process of SAP BIO consisted in an assessment at national and regional level of Mediterranean coastal and marine biodiversity, based on existing inventories and databases.

The principal objective of SAP BIO is establishing a logical base for implementing the 1995 SPA Protocol, that is providing Contracting Parties to the Barcelona Conventions, international and national organisations, NGOs, donors and all other actors involved in the protection and management of the Mediterranean natural environment, with principles, measures and concrete and coordinated actions at national, transboundary and regional level for the conservation of the Mediterranean marine and coastal biodiversity, within the framework of sustainable use and through the implementation of the 1995 SPA Protocol.

The basic objective of this Strategic Action Plan is to be used within the context of the SPA Protocol to: (i) Foster the improving of knowledge of marine and coastal biodiversity; (ii) Improve the management of existing, and favour the creation of new, Marine and Coastal Protected Areas; (iii) Enhance the protection of endangered species and habitats; and (iv) Contribute to the reinforcement of fund-raising efforts. The issue of climate change was introduced into SAP BIO because it is generally acknowledged that th**e** climate change affects the Mediterranean and its biodiversity as was documented by the International Panel on Climate Change (IPCC).

Some of the potential problems that might affect the Mediterranean region are: (i) The rise in sea level will certainly have a major impact, especially on coastal wetlands; (ii) Temperature increase will affect coastal vegetation (vegetation belts on the northern coasts shifting northward, on southern coasts will be affected by increased aridity); Rainfall pattern will be affected, soil humidity will decrease, water scarcity in some areas will increase; and (iii) Another event related to climate change is the "tropicalisation" of southern marine waters and the subsequent appearance of exotic species.

Examples of this are the recent observations of Atlantic fish species in south-western Mediterranean coastal waters, or the increasing spread of Lessepsian migrants in the Adriatic Sea. This phenomenon also constitutes a risk for the species situated close to the upper limit of their optimal thermal habitat. This is more evident in the marine environment, but also in the coastal and wetland one. The need for

adequate physical and biological monitoring of this trend has become evident; and there is little data that predicts effects on marine systems due to the increasing of UV-B radiation. It has been suggested that there will be reduced productivity of phytoplankton in surface waters, which includes the open ocean. There is also concern about impacts on diatoms on sand and mud flats. More research is needed before reliable predictions can be made of the effects on marine biodiversity.

At present, climate change is considered scientifically proven and its effects have started becoming visible at regional level. What remains to be estimated is the degree of change and its rate, so that sea level rise, temperature increase and associated extreme climatic phenomena (such as drought, storms and flooding), as well as changes in the distribution and quality of ecosystems, can be predicted with reasonable accuracy, and corresponding measures taken to alleviate negative impacts on coastal zones and wetlands. Obviously this cannot be achieved at regional level alone, but would require participation in the global climate change scientific and political forums. In the Mediterranean, an entity -possibly within the UNEP/MAP structure- must be designated to represent the region, co-ordinate efforts and spread information. As a first step, research on the impact of climate change in the region must be encouraged and systematised.

SAP/BIO contains quite a number of actions, objectives and targets which should be implemented in order to achieve its goals. The role of climate change on future Mediterranean conservation was born in mind, and some specific actions dealing with this issue were included in the SAP BIO document, among those the following priority action: Assess the potential impact of climate change and rise in sea level on Mediterranean coastal and marine biodiversity. Objectives of this action are: (i) Inventory and monitor of biodiversity elements and/or areas likely to be impacted by climate change; and (ii) Acquire the necessary knowledge to model and forecast likely effects of climate change. Specific actions of this priority are: (i) Geographical identification of priority areas likely to be threatened by climate change and rise in sea level; and (ii) Establish a monitoring network to describe long-term change.

Nevertheless the recent rising of climate change as one of the biggest threats for the biodiversity necessitated for an update of the SAP BIO document. Further to those actions already included in the original SAP BIO, the document was updated in 2009 on climate change issues based on an in-depth compilation of national overviews on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean region. Aimed to achieve that, a broad initiative was launched at the Mediterranean level, in order to prepare for these revisions. The riparian countries were invited to prepare national overviews on the impact of climate change on biodiversity. Three sub-regional exchange and meeting processes were organized for these procedures. Eighteen national contributions were submitted. Taking into account all facts of interest at the national level, sub-regional levels and the synthesis of all regions considered, the conclusions and recommendations reflected in the 2009 document *"UNEP (DEPI)/MED WG.331/13 Updating the Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAP/BIO) on Climate Change Issues" w*ere endorsed by the SPA focal points. That included reporting a list of vulnerable and critical sites in coastal and marine areas, provided by the participating countries, based on actual knowledge and predicted impacts of climate change on biodiversity, as well as a chart summarizing the needed general actions, relevant targets, objectives, and specific actions identified within the framework of climate change on biodiversity.

At present, climate change is considered scientifically proven and its effects have started becoming visible at regional level. What remains to be estimated is the degree of change and its rate, so that sea level rise, temperature increase and associated extreme climatic phenomena (such as drought, storms and flooding), as well as changes in the distribution and quality of ecosystems, can be predicted with reasonable accuracy, and corresponding measures taken to alleviate negative impacts on coastal zones and wetlands. Obviously this cannot be achieved at regional level alone, but would require participation in the global climate change scientific and political forums. In the Mediterranean, an entity -possibly within the UNEP/MAP structure- must be designated to represent the region, co-ordinate efforts and spread information. As a first step, research on the impact of climate change in the region must be encouraged and systematised.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework to the implementation

The basic objective of the SAP BIO is to be used within the context of the SPA Protocol to: (i) Foster the improving of knowledge of marine and coastal biodiversity; (ii) Improve the management of existing, and favour the creation of new, Marine and Coastal Protected Areas; (iii) Enhance the protection of endangered species and habitats; and (iv) Contribute to the reinforcement of fund-raising efforts. The issue of climate change was introduced into SAP BIO because it is generally acknowledged that th**e** climate change affects the Mediterranean and its biodiversity as was documented by the International Panel on Climate Change (IPCC).

The draft RCCAF contributes to the implementation of the SAP BIO through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; and 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; and Operational Objectives 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; and 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge.

3.5.2 Strategic Action Programme to Address Pollution from Land-based Activities

The adoption by COP 10 Meeting (Tunis, 1997) of a Strategic Action Programme (SAP MED) of regional and national activities to address land-based pollution is one of the major breakthroughs in the Mediterranean countries' efforts to combat land-based pollution. SAP MED is an action-oriented initiative of the MED POL Programme - identifying priority target categories of polluting substances and activities to be eliminated or controlled by the Mediterranean countries through a timetable (up to the year 2025) for the implementation of specific pollution reduction measures and interventions.

The SAP MED is the basis for the implementation of the Land-based Sources Protocol by the Mediterranean countries. It is an action-oriented initiative translating the objectives of the 1995 Global Plan of Action (GPA) of UNEP into regional specific activities. The key activities addressed in the SAP MED are linked to the urban environment, and to industrial activities, targeting those responsible for the release of toxic, persistent and bioaccumulative substances into the marine environment. The SAP MED aims at improving the quality of the marine environment by better shared-management of the land-based pollution. Achievement of the aims of the SAP will contribute to maintaining and restoring the productive capacity and biodiversity of the marine environment, ensuring the protection of human health, as well as promoting the conservation and sustainable use of marine living resources.

The specific objectives of the SAP Programme are: (i) Formulation of principles, approaches, measures, timetables and priorities for action; (ii) Preparation of a priority list for intervention and investments ("investment portfolio"); (iii) Analysis of expected baseline and additional actions needed to resolve each transboundary priority problem; (iv) Identification of the elements and preparation of guidelines for the formulation of national action plans for the protection of the marine environment from land-based activities; and (v) Identification of potential roles for Non-Governmental Organizations in the implementation of the SAP.

Through the GEF Mediterranean Project for 2001–2005 countries have prepared an inventory and have quantified all pollution sources on the coast (the Baseline Budget of emissions and releases) and have prepared National Diagnostic Analyses indicating priority issues. But the major contribution was the preparation of National Action Plans (NAPs) to address land-based pollution. The NAPs were prepared during 2004-2005 by all Mediterranean countries through a participatory approach. They consider the environmental and socio-economic issues, policy and legislative frameworks, and the management, institutional, and technical infrastructure available in the country. The Plans were formally endorsed by the Contracting Parties to the Barcelona Convention in 2005. National Action Plans describe the policy and actions that each country intends to undertake to reduce pollution, in line with SAP targets. Their fundamental goal is to develop and implement concrete pollution reduction projects. The NAP implementation process is expected to greatly enhance economic, technological and social development at the local level, thus making a concrete contribution towards sustainable development.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Strategic Action Programme (SAP MED) of regional and national activities to address land-based pollution is one of the major breakthroughs in the Mediterranean countries' efforts to combat land-based pollution. SAP MED is an action-oriented initiative of the MED POL Programme - identifying priority target categories of polluting substances and activities to be eliminated or controlled by the Mediterranean countries through a timetable (up to the year 2025) for the implementation of specific pollution reduction measures and interventions. The SAP MED is the basis for the implementation of the Land-based Sources Protocol by the Mediterranean countries.

The draft RCCAF contributes to the implementation of the SAP MED through Operational Objectives 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress; 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; and 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge.

3.5.3 Strategic Framework for Marine Litter Management

Marine litter has been an issue of concern in the Mediterranean since the 1970s. With the entering into force of the Barcelona Convention's LBS Protocol (2008), the entry into force of the Integrated Coastal Zone Management (ICZM) Protocol in 2011 and the coming into effect in 2009 of the Mediterranean Sea as a *Special Area* (under Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL)), the issue of marine litter management got indeed strengthened. As a result the Secretariat of the Barcelona Convention was asked to prepare a strategy for the proper management of the marine litter in the Mediterranean region and to present it for adoption. The strategic framework was prepared and adopted at the COP 17 Meeting (Paris, 2012). The strategy is based on the overall goal to ensure that marine and coastal litter do not adversely affect the coastal and marine environment and the impacts related to properties and quantities of marine litter in the marine and coastal environment are minimized, controlled and eliminated to the maximum extent practicable through regional and national activities.

The strategic framework is divided into the following five sections: (i) Introduction to and historic evolution of the issue; (ii) Objectives and principles of the strategic framework; (iii) Strategic framework for attaining the objectives; goals have been identified and a list of activities, including proposed partners, as a means to attain the objectives; (iv) Log frame and work plan, developed to guide the implementation of this strategic framework; and (v) Envisioned implementation modalities.
The underlying concept of this strategic framework is that marine litter is a local, national as well as trans-boundary problem requiring specific measures at each level and across all levels; particular to the Mediterranean region is that due to the different levels of economic development amongst the countries a *partnership* approach is required. The management of marine litter is not a standalone activity; removing the eyesore which marine litter causes is only treating the symptom not the cause, therefore its management must fall under an integrated approach to solid waste management both on land and at sea For this reason there are numerous actors and activities in the management of marine litter that are interlinked and must be incorporated in any strategy which attempts to reduce marine litter.

The following specific objectives for meeting the overall goal have been developed based on the findings of the assessment report, questionnaires and additional literature: (i) Enhance the proper implementation of existing legislation dealing with municipal solid waste, as well as sea based solid waste, by building or further developing legal and institutional capacity in local and port authorities, and other institutional stakeholders, to manage marine litter within an integrated coastal zone management framework; (ii) Reduce, in view to eliminate, marine litter generated "in situ" (on beaches) with emphasis on plastics and smoking related marine litter; (iii) Influence environmental attitudes and behaviour of residents and tourists of coastal areas in the Mediterranean Region with regards to marine litter; (iv) Follow the trends of marine litter generation and distribution through the establishment of a monitoring programme for marine litter in the Mediterranean Sea based on the ecosystem approach; (v) Assess lost and abandoned fishing gear and identify and implement countermeasures against biological damage; and (vi) Establish synergies with on-going and planned initiatives in the Mediterranean Region as they relate to waste and marine litter, including the Marine Strategy Framework Directive.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Regional Plan on Marine Litter Management in the Mediterranean was adopted by COP 18 (Istanbul, 2013) and the base for the development of this Plan was the Strategic Framework for the Marine Litter Management in the Mediterranean and therefore there is no need for the contribution of the RCCAF to the implementation of the Strategic Framework.

3.5.4 Mediterranean Strategy on Ships' Ballast Water Management

Invasive alien species have serious economic, environmental and human health impacts and are now recognized as one of the greatest threats to biodiversity globally. In marine and coastal environments, invasive alien species have been identified as one of the four greatest threats to the world's oceans. Ships' ballast water is of particular concern as a vector of introduction of invasive alien species in the Mediterranean Sea because of the large quantities of ballast water coming from different marine environments around the world being discharged at Mediterranean ports. Ballast sediments are also of concern for management as they provide a substrate for a variety of marine species.

The 2004 Ballast Water Management (BWM) Convention, which will enter into force 12 months after ratification by 30 States, representing 35 per cent of world merchant shipping tonnage, provides a critically needed set of management tools to address the issue and calls for regional cooperation and harmonization of policies to attempt solving this transboundary marine environmental issue.

The Mediterranean region is one of the six high priority regions included in the GEF/UNDP/IMO Project entitled *"Building Partnerships to Assist Developing Countries to Reduce the Transfer of Harmful Aquatic Organisms in Ships' Ballast Water" ("GloBallast Partnerships" Project)*.

Mediterranean Strategy on Ships' Ballast Water Management, including its Action Plan and Timetable, was adopted by the COP 17 (Paris, 2012). As an integral part of the ballast water management Strategy is addressing the issue of the risk arising from the introduction of invasive alien species through ships' ballast waters which has been recognized as one of the four greatest threats to the world's oceans and which can cause extremely severe and irreversible environmental, economic and public health impacts. Strategy has high relevance to the process of gradual application by MAP of the ecosystem approach for the management of human activities in the Mediterranean region that includes ecological objectives and operational objectives with associated indicators for the introduction of non indigenous species in the ecosystem.

Strategy is composed of eight Strategic Priorities and amongst them the following two are covering the issue of invasive species: (i) Support international instruments developed to minimize the introduction of invasive alien species in the Mediterranean; and (ii) Develop advanced knowledge on environmental condition of the Mediterranean and ships' mediated introduction of invasive alien species.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

Mediterranean Strategy on Ships' Ballast Water Management, including its Action Plan and Timetable, was adopted by the COP 17 (Paris, 2012). As an integral part of the ballast water management Strategy is addressing the issue of the risk arising from the introduction of invasive alien species through ships' ballast waters which has been recognized as one of the four greatest threats to the world's oceans and which can cause extremely severe and irreversible environmental, economic and public health impacts. Strategy has high relevance to the process of gradual application by MAP of the ecosystem approach for the management of human activities in the Mediterranean region that includes ecological objectives and operational objectives with associated indicators for the introduction of non indigenous species in the ecosystem.

The draft RCCAF contributes to the implementation of the Mediterranean Strategy on Ship's Ballast Water Management through Operational Objectives 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress; 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; and 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge.

3.6 Draft MAP Strategies

3.6.1 Draft Mediterranean Strategy for Sustainable Development 2016-2025

The draft Mediterranean Strategy for Sustainable Development was adopted by the 16th Meeting of the Mediterranean Commission on Sustainable Development (Marrakesh, Morocco, 9-11 June 2015). This draft Strategy will be presented for adoption at the COP 19 (Athens, Feb. 2016).

Investing in environmental sustainability to achieve social and economic development

The first Mediterranean Strategy for Sustainable Development was adopted by the Contracting Parties to the Barcelona Convention in 2005. The need for the Strategy remains strong today, as while the global and regional context has changed significantly, the pressures are even more pronounced. At the same time, new regional instruments have been developed, such as the ecosystem approach roadmap and the Protocol for Integrated Coastal Zone Management in the Mediterranean under the Barcelona Convention. In 2013 the Contracting Parties to the Barcelona Convention requested, at their 18th Ordinary Meeting that a review of the Strategy be launched, with a view to submitting a revised strategy for consideration and adoption by the Contracting Parties at their 19th meeting, to be held in February 2016 in Greece.

The Decision emphasizes the importance of synergies with the global Sustainable Development Goals process, in order to ensure coherence between global and Mediterranean regional objectives and targets, while allowing for regional innovation and specificities. Also, in the Decision it was emphasised the need for synergies and coherence between the Strategy and other regional initiatives, both those led by MAP and those led by other actors, as well as the need to take on board key existing MAP initiatives and/or instruments, such as the roadmap for the implementation of an ecosystem approach in the Mediterranean, the Action Plan for the Implementation of the Protocol on Integrated Coastal Zone Management in the Mediterranean (2012-2019), and the upcoming RCCAF.

The revised Mediterranean Strategy for Sustainable Development 2016-2025 draws upon the findings of two assessments carried out to inform the review process, the first focussing on implementation between 2005 and 2011, and the second addressing the influence of the regional Strategy on national sustainable development strategies. The revised Strategy has been formulated taking into account the outcomes of the United Nations Conference on Sustainable Development (Rio +20), which put particular focus on the green economy in the context of sustainable development and poverty eradication, and included an agreement to draft Sustainable Development Goals.

The aim of the Mediterranean Strategy for Sustainable Development is to provide a strategic policy framework, built upon a broad consultation process, for securing a sustainable future for the Mediterranean region. The rationale behind the Strategy is the need to harmonise the interactions between socio-economic and environmental goals, to adapt international commitments to regional conditions, to guide national sustainable development strategies and to stimulate regional cooperation between stakeholders in the achievement of sustainable development.

The Strategy is underpinned by the conviction that investment in the environment is the best way to secure long-term, sustainable job creation and socio-economic development, and an essential vehicle for the achievement of social and economic objectives. For this reason, the Strategy focuses on addressing cross-cutting issues that lie in the interface between environment and development. It addresses issues across sectoral, institutional and legal boundaries, emphasizing the interlinkages between environmental issues and economic and social challenges, rather than specific economic sectors such as tourism or agriculture. The strategy is also expected to lead to synergies being forged between the work of important national and regional players and stakeholders, by providing a commonly-agreed framework, thereby leading to increased efficiency in the achievement of sustainable development in the Mediterranean.

The fragility of the Mediterranean region is aggravated by its sensitivity to climate change: in its Fifth Assessment Report, the Intergovernmental Panel on Climate Change has identified Mediterranean ecosystems among the most impacted by global climate change drivers.

The Strategy focuses on addressing cross-cutting issues that lie in the interface between environment and development and those issues have been used as a basis for formulating the six objectives of the Strategy as: (i) Ensuring sustainable development in marine and coastal areas; (ii) Promoting resource management, food production and food security through sustainable forms of rural development; (iii) Planning and managing sustainable Mediterranean cities; (iv) Addressing climate change as a priority issue for the Mediterranean; (v) Transition towards a green and blue economy; and (vi) Improving governance in support of sustainable development. These six objectives provide the backbone of the Mediterranean Strategy for Sustainable Development. These objectives correspond closely to those covered by the 2014 proposal from the United Nation's Open Working Group on Sustainable Development Goals, submitted for consideration by the United Nations General Assembly at its 69th Session in 2014.

For each of the six objectives of the Strategy a set of strategic directions has been formulated in order to ensure that the relevant issues are addressed. Due to the cross-cutting nature of the objectives, there are interlinkages between the strategic directions, and the implementation of one strategic direction may synergistically affect the implementation of another. The Strategy takes as a given the implementation of all national and international obligations, even if it does not explicitly mention them. These include the relevant European Union policies and strategies.

The actions proposed are aimed at providing guidance and inspiration, as they summarize the opportunities for developing national actions and regional collaboration within and outside the MAP system for the most effective implementation of the Strategy. It is understood that not all countries may have the necessity or the resources to undertake all the proposed national level actions. It may be preferable, in line with national planning procedures, to adapt the proposed actions to national needs. National actions should therefore serve as a reference framework to help countries design national policies to implement the strategic directions. For the purposes of this strategy, which has a focus on the Mediterranean region, sub-national regional authorities are included under the term 'local authorities'.

In addition, the global momentum behind assessing vulnerabilities and the impacts of climate change and delivering an effective and efficient response has grown rapidly over the last decade, leading to the increased inclusion and mainstreaming of climate change in many sectors associated with coastal and marine areas.

Depending on the extent of climatic disruption, the consequences of climate change are expected to worsen already critical situations present in the region. The Mediterranean will face an increased risk of desertification and soil degradation, sea level rise, an increase in the duration and intensity of droughts, changes in species composition, habitat losses, and agricultural and forests production losses resulting in an increased risk of coastal erosion, infrastructure damage and threatened water and food security. The Middle East and North Africa regions, which already have one of the lowest water availabilities per capita world-wide, are expected to be more severely affected.

Adapting to climate change is as important as addressing its root causes. The Mediterranean countries need to identify and develop a regional approach to climate change adaptation, with common regional priorities in order to increase the resilience of the Mediterranean to climate change. This is the main purpose of the RCCAF in the Mediterranean Marine and Coastal Zones, which is currently being developed by UNEP/MAP. This framework will assist stakeholders and policy makers at all levels across the Mediterranean in order to: (i) promote the right enabling environment for mainstreaming adaptation in national and local planning, (ii) promote and exchange best practices and low-regret measures, (iii) promote leveraging of necessary funding, and (iv) exchange and access best available data, knowledge, assessments and tools for effective and informed decision making on adaptation.

The Mediterranean region is at a crossroads with regard to climate change and development. If left unaddressed, climate change will pose a serious risk to economic growth and may jeopardize achievement of the Sustainable Development Goals in most Mediterranean countries. Climate change is no longer considered an environmental or scientific issue but rather a developmental challenge that requires urgent and dynamic policy and technical responses at the regional, national and local levels. Adaptation is not only about responding directly to the impacts of climate change but also about addressing wider sources of existing vulnerabilities. Mitigation is not only about avoiding dangerous climate change but also an opportunity to re-orientate the way natural resources are used, in more sustainable directions.

The Contracting Parties are invited to use the Strategy as a starting point for better integration of sustainable development into their national policies. The Strategy provides the Contracting Parties with tools to integrate sustainable development into their national policies and build horizontal synergies between different government sectors and vertical synergies between different levels of government, from local to central and vice-versa. That will allow for better coordination and integration of policies around the objective of sustainability.

The strategy calls at the regional level for enhancing national structures and strengthening the implementation of commitments under the United Nations Framework Convention on Climate Change (UNFCCC), as well as implementing high-level regional initiatives including the UNEP/MAP RCCAF, and other regional initiatives.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework to the implementation

The MSSD 2016 – 2025 focuses on addressing cross-cutting issues that lie in the interface between environment and development and is pointing to the need of Mediterranean countries to identify and develop a regional approach to climate change adaptation, with common priorities in order to increase the resilience of the Mediterranean to climate change.

The MSSD is pointing to the fact that the Mediterranean region is at a crossroads with regard to climate change and development. If left unaddressed, climate change will pose a serious risk to economic growth and may jeopardize achievement of the Sustainable Development Goals in most Mediterranean countries. Climate change is no longer considered an environmental or scientific issue but rather a developmental challenge that requires urgent and dynamic policy and technical responses at the regional, national and local levels.

The MSSD calls at a regional level for enhancing national structures and strengthening the implementation of commitments under the United Nations Framework Convention on Climate Change (UNFCCC), as well as implementing high-level regional initiatives including the UNEP/MAP RCCAF, and other regional initiatives.

The draft RCCAF contributes to the implementation of the Mediterranean Strategy for Sustainable Development 2016 – 2025 through all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.6.2 Draft Regional Strategy for Prevention of and Response to Marine Pollution from Ships

This draft Regional Strategy will be presented for adoption at the MAP Focal Points Meeting (Athens, 13-16 Oct. 2015) and at the COP 19 (Athens, Feb. 2016).

COP 14 (Portoroz, 2005) adopted the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2005-2015) ("the 2005 Regional Strategy"), which consists mainly of 21 objectives to be implemented by 2015, to facilitate the implementation of the 2002 Prevention and Emergency Protocol.

Following Decision IG.21/17 of COP 18 (Istanbul, 2013) on the Programme of Work and Budget 2014-2015, which mandated the revision and update of the 2005 Regional Strategy, the draft Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021), hereinafter referred to as the Draft Regional Strategy (2016-2021), was prepared by REMPEC through a wide consultative process with the Contracting Parties and partners.

The Draft Regional Strategy (2016-2021) was reviewed by the Meeting of National Experts on the Revision of the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (Malta, 11-12 March 2015), and by the Eleventh Meeting of the Focal Points of REMPEC (Attard, Malta, 15-17 June 2015). The Meeting of the MAP Focal Points (Oct. 2015) will review the related Draft Decision (UNEP(DEPI)/MED WG.421/7), prior to its adoption by the COP 19 (Feb. 2016).

The Draft Regional Strategy (2016-2021) contains twenty two objectives to be achieved by 2021, as well as a set of implementation goals, a list of relevant international Conventions and European Union legislation and a draft estimated cost of implementation of the Revised Draft Regional Strategy (2016-2021).

Of the areas identified in the development process of the UNEP/MAP's Midterm Strategy 2016-2021, amongst those referring to ships the following one is dealing with the effects of climate change: *To strengthen the resilience of the Mediterranean natural and socioeconomic systems to climate change by promoting integrated adaptation approaches and better understanding of impacts.*. Under the perspective of Specific Objective 15 - *To examine the possibility of designating the Mediterranean Sea or parts thereof as a Sulphur Oxides (SOx) emission control area under MARPOL Annex VI and effectively implement the existing energy efficiency measures,* of the Draft Regional Strategy (2016-2021), the climate change theme is limited to the contribution that a more efficient and cleaner shipping would make to the general efforts that Contracting Parties should make to stem the repercussions of climate change.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

Of the areas identified in the development process of the UNEP/MAP's Midterm Strategy 2016-2021, amongst those referring to ships the following one is dealing with the effects of climate change: *To strengthen the resilience of the Mediterranean natural and socioeconomic systems to climate change by promoting integrated adaptation approaches and better understanding of impacts.*. Under the perspective of Specific Objective 15 - *To examine the possibility of designating the Mediterranean Sea or parts thereof as a Sulphur Oxides (SOx) emission control area under MARPOL Annex VI and effectively implement the existing energy efficiency measures,* of the Draft Regional Strategy (2016-2021), the climate change theme is limited to the contribution that a more efficient and cleaner shipping would make to the general efforts that Contracting Parties should make to stem the repercussions of climate change.

The draft RCCAF contributes to the implementation of the Regional Strategy for Prevention of and Response to Marine Pollution from Ships through Operational Objectives 1.4: To improve the

implementation and effectiveness of adaptation policies through monitoring and reviewing progress; and 2.1: To identify adaptation needs and best practices.

3.7 Adopted Regional Plans / Action Plans

3.7.1 Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol

Marine litter is a complex problem with significant implications for the marine and coastal environment and human activities. Marine litter in the Mediterranean is in great part generated by cities and is associated with the growth of municipal solid waste which exceeds 3% annually.

The Regional Plan on Marine Litter Management in the Mediterranean was adopted by COP 18 (Istanbul, 2013). The rationale for the preparation of the Regional Plan was to improve the quality of the marine and coastal environment in accordance with the provisions of the LBS Protocol and to achieve the goals set by the decision of the 17th meeting of the COP in 2012, Decision IG 20/10: 'Adoption of the Strategic Framework for Marine Litter management', at the considerable lower cost than with the no action scenario. The ML Reg Plan contains, amongst others: (i) Eleven measures; (ii) Forty four specific tasks for the implementation of measures; (iii) Work plan and timetable with specifics for each task (deadline for implementation; lead authority; verification indicator; estimated cost; financial source); and (iv) potential research topics.

The main objectives of the Regional Plan are to: (i) Prevent and reduce to the minimum marine litter pollution in the Mediterranean and its impact on ecosystem services, habitats, species in particular the endangered species, public health and safety; (ii) Remove to the extent possible already existent marine litter by using environmentally respectful methods; (iii) Enhance knowledge on marine litter; and (iv) Achieve that the management of marine litter in the Mediterranean is performed in accordance with accepted international standards and approaches as well as those of relevant regional organizations and as appropriate in harmony with programmes and measures applied in other seas.

The Regional Plan has following eleven measures: (i) Integration of marine litter measures into the LBS National Action Plans (LBS NAPs); (ii) Removing existing marine litter and its environmentally sound disposal; (iii) Assessment of marine litter in the Mediterranean; (iv) Mediterranean Marine Litter Monitoring Programme; (v) Research topics and scientific cooperation; (vi) Specific guidelines; (vii) Technical assistance; (viii) Enhancement of public awareness and education; (ix) Major groups and stakeholder participation; (x) Regional and international cooperation; and (xi) Reporting. Effective implementation of the ML Reg Plan would require harmonization and coordination of activities among the Secretariat and countries, as well as regular consultations with the relevant international organizations and NGOs.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Regional Plan on Marine Litter Management in the Mediterranean was adopted by COP 18 (Istanbul, 2013) and came into force on 8 July 2014. The main objectives of the Regional Plan are to: (i) Prevent and reduce to the minimum marine litter pollution in the Mediterranean and its impact on ecosystem services, habitats, species in particular the endangered species, public health and safety; (ii) Remove to the extent possible already existent marine litter by using environmentally respectful methods; (iii) Enhance knowledge on marine litter; and (iv) Achieve that the management of marine litter in the Mediterranean is performed in accordance with accepted international standards and approaches as well as those of relevant regional organizations and as appropriate in harmony with programmes and measures applied in other seas.

The draft RCCAF contribute to the Regional Plan on Marine Litter Management in the Mediterranean through Operational Objectives 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress; 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; and 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge.

3.7.2 The Action Plan for the implementation of the ICZM Protocol for the Mediterranean (2012-2019)

The Action Plan for the implementation of the ICZM Protocol for the Mediterranean (2012-2019) was adopted by COP 12 (Paris, 2012). The implementation of the ICZM Protocol implies the integration of ICZM principles, objectives and actions into national policy frameworks and instruments, the enhancement of the governance mechanisms, the engagement of stakeholders and development of partnerships, as well as capacity building and awareness rising. The Action Plan identifies key priorities, expected major outputs and accomplishments, time frames for their achievement, necessary partnerships to be established and the potential financial resources required/needed for its successful implementation. The Action Plan reaffirms the commitments made at the Meeting of Contracting Parties (2009) on actions related to climate change and the promotion of better governance within MAP. The Action Plan will be implemented in connection with other MAP Global or sectoral strategies to be considered by the Conference of Parties, such as the MSSD, the SAP MED, i.e. legally binding measures under the LBS Protocol, the SAP BIO and RCCAF. In addition, it will also integrate those initiatives taken at the regional level to adapting to climate change in the context of the UN Framework Convention on Climate Change (UNFCCC) as well as recent developments affecting the development of the Mediterranean region and its environment.

One of the key focuses of the of the Action Plan is to provide assistance to eligible countries in advancing their ICZM and Integrated Water Resources Management (IWRM) plans with emphasis on the protection of biodiversity and the prevention of pollution from land-based sources. A related initiative will address ways to integrate Climate Variability and Change into National ICZM strategies. The MedPartnership gives an excellent opportunity for collaboration of UNEP/MAP with many other organisations such as GEF, WB, EU, UNIDO, UNESCO and FFEM, to induce the implementation of integrated approaches and boost environmental investment in the field of pollution reduction, ICZM and biodiversity conservation. Future risks and uncertainties, notably climate change and natural disasters such as floods, earthquakes and tsunami, need to be fully integrated into the ICZM process.

ICZM remains the key tool for delivering a wide range of sectoral and institutional policies in the coastal zone. Among activities in the Action Plan which are dealing with the problem of climate change are: (i) Provide an integrated methodological framework for the integration of key sectoral issues, notably but not exclusively: water, biodiversity, climate change, economic activities, agriculture and fisheries, energy, transport and infrastructure; (ii) Methodology and tools for mainstreaming climate variability and change developed; (iii) Awareness raising for Policy makers on implementation of climate variability and ICZM Protocol; and (iv) Integration of climate change issues and disaster prevention into ICZM Plans and Strategies.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

ICZM is the key tool for delivering a wide range of sectoral and institutional policies in the coastal zone. Among activities in the Action Plan which are dealing with the problem of climate change are: (i) Provide an integrated methodological framework for the integration of key sectoral issues, notably but not exclusively: water, biodiversity, climate change, economic activities, agriculture and fisheries, energy, transport and infrastructure; (ii) Methodology and tools for mainstreaming climate variability and change developed; (iii) Awareness raising for Policy makers on implementation of climate variability and ICZM Protocol; and (iv) Integration of climate change issues and disaster prevention into ICZM Plans and Strategies.

As for the financial resources needed for implementation of the Action Plan, it is stated that substantial funding is needed to deliver this Action Plan. Identifying complementary aspects and building synergies in the activities is one of the solutions for this disequilibrium. Climate variability and change will represent a crucial challenge for the future of the coastal zones.

The draft RCCAF contributes to the implementation of the ICZM Protocol through its all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.7.3 Action Plans under the Specially Protected Areas and Biological Diversity Protocol including Monk Seal, Cetaceans, Marine Turtles, Birds, Cartilaginous Fishes, Coralligenous and other Calcareous Bio-concretions, Marine Vegetation, and Dark Habitats

The Eighteenth Meeting of the Contracting Parties (Istanbul, 2013) decided to:

- Adopt the Regional strategy for the conservation of Monk Seals in the Mediterranean (2014-2019);
- Adopt the Work Programme and Implementation Timetable of the Action Plan for the conservation of Mediterranean Marine Turtles in the Mediterranean Sea for the period 2014-2019;
- Adopt the Work Programme and Implementation Timetable of the Action Plan for the conservation of Bird species listed in Annex II to the SPA/BD Protocol in the Mediterranean for the period 2014-2019;
- Adopt the Work Programme and Implementation Timetable of the Action Plan for the conservation of Cartilaginous Fishes in the Mediterranean Sea for the period 2014-2019;
- Adopt the Action Plan for the conservation of Habitats and Species associated with seamounts, underwater caves and canyons, aphotic engineering benthic invertebrates and chemo-synthetic phenomena, in the Mediterranean Sea (Dark Habitats Action Plan).

The COP 18 Meeting requested the Contracting Parties to take the necessary measures for the implementation of the updated Work Programme and Implementation Timetables, the Regional Strategy for the conservation of Monk Seals in the Mediterranean and the Dark Habitats Action Plan and report on their implementation according to the cycle and format of the MAP reporting system.

The COP 18 Meeting requested SPA/RAC to undertake the necessary actions to assist the Contracting Parties, at their request to fulfil their obligations pertaining to the implementation of the updated Work Programme and Implementation Timetables of the Mediterranean Strategy for the conservation of Monk Seals and the Dark Habitats Action Plan by supporting and/or coordinating actions where necessary and to further apply the ecosystem approach, in collaboration with the relevant organisations.

The COP 18 Meeting was inspired by the progress of the work carried out by the Barcelona Convention /UNEP-MAP to implement the Ecosystem Approach Roadmap with a particular focus on the commonly agreed ecological objectives, operational objectives, indicators, good environmental status and respective targets with regards to biodiversity and fisheries and the need to fully streamline their application in the work of all Barcelona Convention/UNEP-MAP components, as well as the need to fully harmonize the implementation of the Action Plans under the Biodiversity Protocol with the Mediterranean Ecosystems Approach (EcAp) cycle.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Action Plans under the Specially Protected Areas and Biological Diversity Protocol including Monk Seal, Cetaceans, Marine Turtles, Birds, Cartilaginous Fishes, Coralligenous and other Calcareous Bio-concretions, Marine Vegetation, and Dark Habitats aim to protect and improve the biodiversity and habitats of the marine environment.

The draft RCCAF contributes to the implementation of these SPA Action Plans through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; and 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; and Operational Objectives 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; and 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge.

3.7.4 UNEP-MAP-RAC/SPA. 2005: Action Plan concerning species introductions and invasive species in the Mediterranean Sea. Ed. RAC/SPA, Tunis, 30 pp

Aquatic organisms enter the Mediterranean from adjacent seas without human intervention through natural paths (e.g. the Strait of Gibraltar). The fauna and flora of the Mediterranean Sea are mainly of Atlantic origin. The entry of species into the Mediterranean Sea has been increasing over the last few decades because of various factors, mainly of anthropic origin. The main known vectors of species introduction into the Mediterranean Sea are: (i) Entry of Red Sea organisms through the Suez Canal, built in the 19th century; (ii) Shipping (ballast water and sediments, fouling); (iii) Aquaculture (both marine and brackish water); and (iv) Trade in live marine organisms (e.g. aquarium activities, fishing bait) and scientific research. Although only some of the non-indigenous species succeed in establishing viable populations, the environmental consequences are, in many cases, negative for the Mediterranean indigenous species. The invasive species are seen as being among the main threats to marine biological diversity in the Mediterranean. It is imperative to take immediate steps to prevent the introduction of non-indigenous species, control the spread of those already introduced and endeavour to mitigate the damage they cause to the marine ecosystem.

The SPA Protocol invites the Contracting Parties to take "all appropriate measures to regulate the intentional or non-intentional introduction of non-indigenous or genetically modified species into the wild and prohibit those that may have harmful impacts on the ecosystems, habitats or species". As to those species which have already been introduced, the SPA Protocol stipulates that when a scientific assessment has revealed that these are causing or are likely to cause harm to ecosystems, habitats or species, the Contracting Parties strive to implement all possible measures to eradicate them.

The Convention on Biological Diversity calls on in its Article 8 (h) each Contracting Party, as far as possible and as appropriate, to prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species. The introduction of non-indigenous species into Mediterranean coastal waters has recently increased, and certain of these have proved to be invasive. Whether intentional or non-intentional, the introduction of a non-indigenous species can cause often irreversible damage to the receiving ecosystem, with harmful effects both ecologically and socio-economically.

The main objective of the Action Plan is to promote the development of coordinated measures and efforts throughout the Mediterranean region in order to prevent, control and monitor the effects of species introduction, particularly by: (i) Strengthening the institutional and legislative frameworks at the level of the countries of the region; (ii) Collecting reliable and pertinent scientific data that can be used for decision-making where necessary; (iii) Setting up mechanisms for cooperation and the exchange of information between the states of the region; and (iv) Elaborating guidelines and any other technical documentation.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Action Plan concerning species introductions and invasive species in the Mediterranean Sea is a significant contribution to the implementation of MAP, Barcelona Convention and its Protocols and through it also contribution to the sustainable development of the marine environment and coastal regions of the Mediterranean.

The draft RCCAF contributes to the implementation of this Action Plan through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; and 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; and Operational Objectives 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; and 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge.

3.8 Draft MAP Action Plans

3.8.1 Draft Sustainable Consumption and Production (SCP) Plan for the Mediterranean

This Draft Action Plan will be presented for adoption at the MAP Focal Point Meeting (Athens, 13-16 Oct. 2015) and at the COP 19 (Athens, Feb. 2016).

Since its adoption, the MAP has been a pioneer among the UNEP Regional Seas programmes in integrating Sustainable Consumption and Production (SCP) in its regional strategic framework. This forefront position has been confirmed by the assignment of a SCP mandate by the CPs to one of the RAC, the RAC for sustainable Consumption and Production, and by the establishment of SCP as a thematic pillar of the SAP of the UNEP/MAP and as an overarching objective and a cross-cutting theme of the MSSD.

In addition, during the COP 18 (Istanbul, 2013), the Contracting Parties requested the preparation of a specific Regional Action Plan on SCP. This aforementioned document was prepared following a large consultation process and thus constitutes a forward-looking framework addressing the Region's common priorities for Sustainable Development; it complements and works in full synergy with existing national and regional policy frameworks in general, and supports the implementation of the Barcelona Convention and its Protocols in particular.

The SCP Action Plan for the Mediterranean is embedded in the ongoing and upcoming initiatives and activities for sustainable development, in order to ensure the alignment with SCP related global processes and the streamlining of implementation at the regional and national levels. The timeframe for the SCP Action Plan is 2016-2027. The actions and regional activities suggested in the SCP Action Plan and its Roadmap for implementation are structured around 4 main areas of consumption and production that have been selected according to their contribution to the economy of the region but also as main sources of pollution in the coastal and marine areas and to their relevance with the LBS, HW and ICZM Protocols: (i) food, fisheries and agriculture, (ii) goods manufacturing, (iii) tourism and (iv) housing and construction.

The Strategic objectives of the SCP Action Plan are: Strategic Objective 1: Establish a regional SCP framework to ensure coherence, coordination and implementation of SCP activities at the regional and national levels, and thus translate the global commitments on SCP to the Mediterranean Region; Strategic Objective 2: Develop and implement SCP Operational Objectives in the Mediterranean in order to promote and strengthen circular and green economy and support the Barcelona Convention, its Protocols and Regional Plans, the MSSD and other regional policy framework for sustainable development; and Strategic Objective 3: Engage key stakeholders (international organisations, national and local public authorities, business sector, consumers, civil society, universities and research institution) in Sustainable Consumption and Production models and circular economy measures leading to high resource efficiency, reduced pollution, and decoupling the development process from environmental degradation and promoting sustainable lifestyles.

The SCP/RAC NFP Meeting (June 2015) acknowledged that the SCP Action Plan collects the recommendations and amendments made by the SCP/RAC NFP as regards to its structure and contents and recommend submitting it to the Ordinary Meeting of the MAP NFP. Furthermore, the 16th MCSD Meeting (June 2015) in considering the Draft SCP Action Plan for the Mediterranean welcomed the proposed SCP Action Plan for the Mediterranean, highlighting its importance for the region and for the transition towards a green and blue economy in the Mediterranean. It also supported its submission to MAP Focal Points and COP 19 for approval. The MCSD: (i) Emphasized the important role of education on SCP at all levels and recommended that the Mediterranean Strategy on Education for Sustainable Development is referred to; (ii) Recommended highlighting the synergies and complementarities with other UNEP/MAP strategic instruments and initiatives such as ICZM and EcAp; and (iii) Encouraged the inclusion of the 'natural resource base' and the notion of 'resources economy' in the strategic and operational objectives, as appropriate.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Draft Sustainable Consumption and Production Plan for the Mediterranean has as one of its strategic objectives "to promote and strengthen circular and green economy and support the Barcelona Convention, its Protocols and Regional Plans, the MSSD and other regional policy framework for sustainable development".

The draft RCCAF contributes to the implementation of the SCP Plan through its all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.8.2 Draft Mediterranean Offshore Action Plan in the Framework of the Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol)

This draft Action Plan will be presented for adoption at the MAP Focal Point Meeting (Athens, 13-16 Oct. 2015) and at the COP 19 (Athens, Feb. 2016).

The COP 17 Meeting (2012) decided to embark on an Offshore Action Plan with a view to facilitate the effective implementation of the Offshore Protocol (Decision IG 20.12). Based on this decision the UNEP/MAP Secretariat included a number of activities aimed at supporting the drafting of the Action Plan in the programme of the EcAp in the Mediterranean and established an *ad hoc* working group composed of representatives of the Contracting Parties and representatives of the concerned industries, relevant international organizations and MAP partners.

Following the same decision the following two documents were prepared: (i) An in depth assessment and stock taking analysis of the existing practical measures in place in the Mediterranean countries with regard to Offshore activities; and (ii) Identification of existing international rules, standards, and recommended practices and procedures relevant to the implementation of the Offshore Protocol. On the basis of this work the COP 18 (Istanbul, 2013) requested the UNEP/MAP Secretariat and the Working Group to continue the necessary work with a view to achieve the drafting of the Offshore Protocol Action Plan by the end of 2014. The Draft Offshore Action Plan (REMPEC/WG/35/4) was prepared and adopted by the 3rd Offshore Protocol Working Group, Malta, June 2015.

Following the review of the Draft Offshore Protocol Action Plan during the Joint Session MEDPOL and REMPEC Focal Point Meeting (Malta, June 2015), and the subsequent written consultations, the document has been reviewed by REMPEC and the related Draft Decision (UNEP(DEPI)/MED WG.421/6) has been submitted to the MAP Focal Point Meeting (Athens, 13-16 Oct. 2015) for further considerations prior to the submission to the COP 19 (Feb. 2016) for adoption.

The Draft Action Plan has the following General objectives: The Action Plan aims at defining measures which, if applied at regional level and by each Contracting Party within their jurisdiction will ensure the safety of offshore activities and reduce their potential impact on the environment and its ecosystems. These measures shall aim at regional level: (i) Setting-up a governance framework to support the implementation of the Action Plan and the adoption, enforcement and monitoring of regional standards, procedures and rules; (ii) Define commonly agreed regional offshore standards and guidelines to be integrated and used at national level; and (iii) Develop in conformity with EcAp and its relevant indicators a regional commonly agreed reporting and monitoring of the Action Plan.

The Draft Action Plan has the following Specific objectives: 1. To ratify the Offshore Protocol; 2. To designate Contracting Parties Representatives to participate to the regional governing bodies; 3. To establish a technical cooperation and capacity building programme; 4. To establish a financial mechanism for the implementation of the Action Plan; 5. To promote access to information and public participation in decision-making; 6. To enhance the regional transfer of technology; 7. To develop and adopt regional offshore standards; 8. To develop and adopt regional offshore guidelines; 9. To establish regional offshore monitoring procedures and programmes; and 10. To report on the implementation of the Action Plan.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Offshore Action Plan will ensure the safety of offshore activities and reduce/monitor their potential impact on the environment and its ecosystems, including air emissions, and through its General and Specific Objectives cover number of issues that are relevant to the climate change problems.

The draft RCCAF could contribute to the implementation of the Offshore Action Plan through Operational Objectives 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress; 2.1: To identify adaptation needs and best practices; 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge; and 4.4: To strengthen regional climate information at a resolution suitable for adaptation planning.

3.9 Components of the Mediterranean Action Plan II (MAP II)

The general objective of MAP II is to contribute to the improvement of the marine and coastal environment and the promotion of sustainable development in the Mediterranean region. In this context, over the years seven MAP II components were established in order to assist, within their respective fields of activity, Mediterranean countries to fulfil their commitments under the Barcelona Convention and its Protocols, and to implement the decisions of the meetings of the Contracting Parties, and the Mediterranean Strategy for Sustainable Development (MSSD) and the Mediterranean Commission on Sustainable Development (MCSD) recommendations.

The following are seven components of the MAP II:

- **MED POL** - Mediterranean Pollution Assessment and Control Programme (1975) (Located in the Coordinating Unit of the MAP (Athens, Greece);
- **REMPEC** - Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (1976) (Valletta, Malta);
- **BP/RAC** - Blue Plan Regional Activity Centre (1977) (Sophia Antipolis, France);
- **PAP/RAC** - Priority Actions Programme Regional Activity Centre (1980) (Split, Croatia);
- **SPA/RAC** - Specially Protected Areas Regional Activity Centre (1985) (Tunis, Tunisia);
- **SCP/RAC** - Regional Activity Centre for Sustainable Consumption and Procurement (2013) (Barcelona, Spain); and
- **INFO/RAC** - Regional Activity Centre for Information and Communication (2005) (Rome, Italy).

The 16th Meeting of the Contracting Parties (Marrakesh, 2009), acknowledged that MEDPOL Programme and six centres based in different Mediterranean countries have been acting as Regional Activity Centres (RACs) to support MAP II for the implementation of the Convention, its related Protocols as well as its strategies including the MSSD. At the same time the meeting noted that there is a need to better define the role and functions of the components of MAP II in order to ensure synergy, better integration, avoid overlapping and to improve the efficiency and impact of MAP II work and meeting approved the mandates of the MAP II components. Approved mandates are contained in the Decision IG. 19/5 of the Report of the COP 16. The analysis below of the mandates of the MAP II components will contain identification of areas to which the RCCAF could contribute to their implementation.

In addition to the analysis of official mandates an analysis of specific documents on climate change issues published by individual RACs will be presented.

3.9.1 MEDPOL-Mediterranean Pollution Assessment and Control Programme (1975)

The MED POL Programme is responsible for the follow up work related to the implementation of the LBS Protocol, the Dumping and Hazardous Wastes Protocols. MED POL assists Mediterranean countries in the formulation and implementation of pollution monitoring programmes, including pollution control measures and the drafting of action plans aiming to eliminate pollution from land-based sources.

The preparation and adoption by the Contracting Parties of the Barcelona Convention of a Strategic Action Programme (SAP MED) of regional and national activities to address land-based pollution is one of the major breakthroughs in the Mediterranean countries' efforts to combat land-based pollution. The SAP MED is an action-oriented initiative of the MED POL Programme - identifying priority target categories of polluting substances and activities to be eliminated or controlled by the Mediterranean countries through a planned timetable (up to the year 2025) for the implementation of specific pollution reduction measures and interventions. The SAP MED is the basis for the implementation of the LBS Protocol by the Mediterranean countries over the next 25 years. The reduction and phasing-out targets are formulated in accordance to related regional and international Conventions and programmes, such as the EU Directives, policies and strategies, and the Stockholm and Basel Conventions.

The key activities addressed in the SAP MED are linked to the urban environment, and to industrial activities, targeting those responsible for the release of toxic, persistent and bioaccumulative substances into the marine environment, giving special attention to persistent organic pollutants (POPs). The adoption of the SAP MED and the initiation of activities for its implementation is a clear indication of the determination of the countries to take concrete action to combat land-based pollution and at the same time contribute to maintaining and restoring marine biodiversity, safeguarding human health and promoting the sustainable use of marine living resource

A common Mediterranean Strategy to address land-based pollution

After the adoption of the SAP MED, the Global Environment Facility (GEF) approved a Mediterranean Project for 2001–2005, contributing and mobilizing funds for the implementation of field activities. The injection of funds and political support made by the GEF Project into the MED POL initiative has produced major results. Countries have in fact prepared an inventory and have quantified all pollution sources on the coast (the Baseline Budget of emissions and releases) and have prepared National Diagnostic Analyses indicating priority issues. But the major contribution was the preparation of National Action Plans (NAPs) to address land-based pollution. The Plans were formally endorsed by the Contracting Parties to the Barcelona Convention in 2005. National Action Plans describe the policy and actions that each country intends to undertake to reduce pollution, in line with SAP targets. They incorporate mechanisms for information exchange, technology transfer, and promotion of cleaner technology, public participation and sustainable financing. Their fundamental goal is to develop and implement concrete pollution reduction projects that: (i) Mobilise both stakeholders and resources; (ii) Become a cyclical process on which to build upon; (iii) Are mainstreamed into relevant institutional, budgetary and policy frameworks, and (iv) Incorporate lessons learnt in the process. The NAP implementation process is expected to greatly enhance economic, technological and social development at the local level, thus making a concrete contribution towards sustainable development.

The NAPs were prepared during 2004-2005 by all Mediterranean countries through a participatory approach. They consider the environmental and socio-economic issues, policy and legislative frameworks, and the management, institutional, and technical infrastructure available in the country. In the short-term, domestic financial resources are allocated to the actions from the annual budget; longer-term financial mechanisms are also identified, earmarked or developed, to ensure sustainability.

As key partner for sustainability, the private sector is specifically targeted and engaged in the development of the proposed actions as early as possible. However, the private sector is not approached merely as a potential source of financial resources, but as a partner that can benefit in terms, for example,

of corporate image, or of operational savings in possible fines for non-compliance with environmental regulations.

The long-term implementation of NAPs: What prospects?

The NAPs preparation process succeeded in creating a momentum at local, national and regional levels, with a remarkable level of involvement and participation of all stakeholders. In each country, national and local authorities, the industrial sector and NGOs discussed priorities, possible actions and opportunities for investment thus making NAPs a realistic initiative. Its success has already triggered potential donors to launch investments projects and initiatives, and has led to a new GEF Strategic Partnership, including the World Bank and a large number of international organisations, to support the long-term implementation of the NAPs. In addition, donor countries and other Institutions have shown interest and willingness to join, contribute and assist individual countries in the implementation of their NAPs. In addition to the above, the recent European initiative "Horizon 2020", with very similar objectives and targets of reducing and eliminating land-based pollution by the year 2020, was formally launched in close cooperation with MAP. The expected joint implementation of the SAP MED and the Horizon 2020 will increase the political support of the pollution reduction process already initiated in the region and will succeed in mobilising more national and international funds.

In conclusion, following the very successful preparation of the NAPs, the task is now to confront the challenge of implementation, through which to achieve concrete and lasting results. The issue of providing countries assistance (technical, legal and institutional) throughout the years for the implementation of the pollution reduction projects is a central issue as well as ensuring a fair and equitable pollution reduction process and financial sustainability. It is in that direction that MAP and the MED POL Programme are concentrating their efforts through capacity building programmes, the formulation of appropriate strategies and contacts with other international bodies and Organizations such as the GPA, the World Bank, the EIB, the European Commission as well as individual countries to pursue the very stimulating political momentum and finally witness a concrete reduction of pollution in the region in the years to come

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

Among many activities of the MEDPOL component are: (i) Assessment of the status and trends in the quality of the marine and coastal environment including health-related aspects of marine pollution; (ii) Regular assessment of loads of pollution reaching the Mediterranean, and the determination of trends in coastal areas including pollution hot spots; (iii) Collection, analysis and dissemination of data and information on pressures and state of the marine and coastal environment; (iv) Implementation of the SAP MED; and (v) Implementation of NAPs.

The draft RCCAF contributes to the implementation of the MEDPOL component through Operational Objectives 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress; 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge; and 4.4: To strengthen regional climate information at a resolution suitable for adaptation planning.

3.9.2 REMPEC-Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (1976)

The "Regional Oil Combating Centre" (ROCC) was originally established in 1976 by the decision of the Contracting Parties with the mandate to strengthen the capacities of coastal States in the Mediterranean region and to facilitate co-operation among them in order to combat massive marine pollution by oil, particularly by developing national capacities to combat oil pollution and by establishing a regional information system with a view to dealing with marine pollution emergencies. The Centre's mandate was extended over the years in conformity with the decisions of the Contracting Parties with a view to addressing relevant emerging issues and the respective global developments with a particular focus on preventive measures against pollution from ships. In 1989, the name of the Centre was changed to the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC). REMPEC is administered by the International Maritime Organization (IMO) in cooperation with UNEP/MAP.

In 2001, with a view to the adoption of the new Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, combating Pollution of the Mediterranean Sea (Prevention and Emergency Protocol, 2002), the Contracting Parties reaffirmed the involvement of the Centre in activities related to prevention of, preparedness for and response to marine pollution.

The objective of REMPEC is to contribute to preventing and reducing pollution from ships and combating pollution in case of emergency. In this respect, the mission of REMPEC is to assist the Contracting Parties in meeting their obligations under Articles 4(1), 6 and 9 of the Barcelona Convention; the 1976 Emergency Protocol; the 2002 Prevention and Emergency Protocol and implementing the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021), to be adopted by the Contracting Parties. The Centre will also assist the Contracting Parties which so request in mobilizing the regional and international assistance in case of an emergency under the Offshore Protocol.

REMPEC assists Contracting Parties to implement international regulation to prevent, reduce and control pollution of the marine environment from ships, including MARPOL Convention and its Annex VI which regulates the prevention of air pollution from ships in general and, in particular, establishes more stringent limits for emissions of sulphur oxides (SOx), nitrogen oxides (NOx) and particulate matter from ship engine exhausts. Another issue that REMPEC is dealing with is ballast waters, which means that the problem of invasive species is also partial responsibility of REMPEC.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The objective of REMPEC is to contribute to preventing and reducing pollution from ships, including air-pollution and combating pollution in case of emergency. The Centre will also assist the Contracting Parties which so request in mobilizing the regional and international assistance in case of an emergency under the Offshore Protocol. REMPEC assists Contracting Parties to implement international regulation to prevent, reduce and control pollution of the marine environment from ships, including MARPOL Convention and its Annex VI which regulates the prevention of air pollution from ships in general and, in particular, establishes more stringent limits for emissions of sulphur oxides (SOx), nitrogen oxides (NOx) and particulate matter from ship engine exhausts. Another issue that REMPEC is dealing with is ballast waters, which means that the problem of invasive species is also partial responsibility of REMPEC.

The draft RCCAF contributes to the work of REMPEC through Operational Objectives 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors and of possible impacts; 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge; and 4.4: To strengthen regional climate information at a resolution suitable for adaptation planning.

3.9.3 BP/RAC-Blue Plan Regional Activity Centre (1977)

Blue Plan component does have a number of initiatives and activities that are very relevant to the development and implementation of the RCCAF. The Blue Plan was established as a regional cooperation programme with the aim of "putting at the disposal of political leaders and decision-makers all information that will enable them to develop plans likely to ensure sustained optimal socio-economic development without degrading the environment" and "helping governments of coastal states in the Mediterranean region to increase their knowledge of the joint problems they have to face, both in the Mediterranean Sea and in their coastal areas". In light of global and further MAP environmental challenges, especially those relating to sustainable development, the focus of the Blue Plan/RAC evolved as a Mediterranean observatory for environment and sustainable development and a centre for prospective studies). The objective of the Blue Plan/RAC is to contribute to raising awareness of Mediterranean stakeholders and decision makers concerning environment and sustainable development issues in the region, by providing future scenarios to assist in decision-making. In this respect and through its dual functions as an observatory of the environment and sustainable development and a centre for systemic and prospective analysis, the BP/RAC's mission is to provide the Contracting Parties with assessments of the state of the environment and development of the Mediterranean and a solid basis of environmental and sustainable development data, statistics, and indicators to support their action and decision making process. The effective protection of the marine and coastal environment and the sustainable development of the region require a long-term approach to decision-making for which a firm basis of reliable and comparable data offering a realistic assessment of the state of the environment and development is needed.

Within this context and in the framework of the implementation of article 4 of the Barcelona Convention, 1995, and of the MSSD, 2005, the BP/RAC's main fields of action are: (i) Ongoing identification, collection and processing of environmental, economic and social data and statistics for the use of stakeholders and decision-makers; (ii) Assessment of the interaction between the environment and economic and social development, and the building of relevant indicators and tools to measure progress towards sustainable development; and (iii) Preparation of analyses and prospective studies to assist in constructing visions of the future as an aid to decision-making.

Blue Plan published in 2008 a document *Climate Change and Energy in the Mediterranean*. Main topics covered are: (i) Climate change in the Mediterranean: scientific knowledge, impacts and green house gas emissions; (ii) Mitigation of climate change: toward a low carbon energy sector; and (iii) Vulnerability of, impact on and adaptation of the energy system. This is a very good and useful document. Also an excellent study *Adapting to climate change in water sector in the Mediterranean; situation and prospects* was published in 2011.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The objective of the Blue Plan/RAC is to contribute to raising awareness of Mediterranean stakeholders and decision makers concerning environment and sustainable development issues in the region, by providing future scenarios to assist in decision-making.

The draft RCCAF contributes to the work of the Blue Plan Regional Activity Centre through all four Strategic Objectives, i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.9.4 PAP/RAC- Priority Actions Programme Regional Activity Centre (1980)

PAP/RAC is the only component of the MAP that is specifically referring to climate change and objectives relevant to the RCCAF are presented below:

- The specific objective of PAP/RAC is to contribute to sustainable development of coastal zones and sustainable use of their natural resources. In this respect, PAP/RAC's mission is, amongst others, to assist in the implementation of the Mediterranean Strategy for Sustainable Development (MSSD); and
- PAP/RAC's main fields of action for the achievement of the sustainable development of coastal zones includes assistance to countries in the region in strengthening their capacities with a view of facilitating the sustainable development of coastal zones by ensuring that environment and landscapes are taken into account in harmony with economic, social and cultural development; ensuring the sustainable use of coastal natural resources; as well as addressing specific sectoral issues with a coastal focus in the framework of ICZM, such as urban development, natural resources management, sustainable tourism, landscape and heritage protection, coastal and soil erosion, infrastructure and transport, pollution and waste, climate change, and specific coastal ecosystems.

PAP RAC published the following studies dealing with the issue of climate change:

(i) Climate Change in Coastal Zones of the Mediterranean, Position paper, 2010;

(ii) Climate Change in Coastal Zones of the Mediterranean, Background Paper, 2010;

(iii) Integrating climate change into the ICZM planning process – Contribution to the Integrative Methodological Framework for coastal, river basin, aquifer and groundwater management, 2012;

(iv) Guidelines for Adapting to Climate Variability and Change along the Mediterranean Coast All four studies are important contribution to the study of the climate change in the Mediterranean, 2015;

(v) Application of Methodology for Climate Change Risk Assessment for ICZM in Buna/Bojana Region of Albania and Montenegro, 2012;

(vi) Assessment of Sea-Level Rise for the Coastal Area of Montenegro, 2013;

(vii) Elaboration de la stratégie nationale de GIZC: Les changements climatiques sur le Nord de l'Algérie, 2013;

(viii) Study of banking and insurance sector practices to address climate change variability in the context of ICZM in the Mediterranean Region, 2015;

(ix) MedOpen – a virtual training course on ICZM in the Mediterranean: Final report of the 2015 CV&C Advanced training session, 2015; and

(x) Final report Coast Day 2014.

PAP/RAC implemented several activities aiming for awareness raising, among which Coast Day campaign is the most important. In 2014, on September 25th, PAP/RAC, together with APAL, organised a central celebration of the Coast Day in Tunis, with the central topic of climate variability and change along Mediterranean coasts. The celebration was also organised in the city of Šibenik, Croatia, in collaboration with the Šibenik-Knin Regional Government.

As for the capacity building, in May 2015 PAP/RAC launched a new topic of the MedOpen, virtual training course on ICZM, this time focusing on adaptation to climate variability and change for the coastal zones.

All these activities and studies are important contribution to the study of the climate change in the Mediterranean, to building awareness, capacities and political will of the policy makers and general public to respond to the challenges of the climate change.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

PAP/RAC is the only component of the MAP that is specifically referring to climate change. The specific objective of PAP/RAC is to contribute to sustainable development of coastal zones and sustainable use of their natural resources. In this respect, PAP/RAC's mission is, amongst others, to assist in the implementation of the ICZM Protocol and the Mediterranean Strategy for Sustainable Development (MSSD). PAP/RAC's main fields of action for the achievement of the sustainable development of coastal zones includes assistance to countries in the region in strengthening their capacities with a view of facilitating the sustainable development of coastal zones and that work includes issues like adaptation to climate change.

The draft RCCAF contributes to the work of the PAP/RAC through its all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.9.5 SPA/RAC- Specially Protected Areas Regional Activity Centre (1985)

The specific objective of SPA/RAC is to contribute to the protection and preservation and sustainable management of marine and coastal areas of particular natural and cultural value and threatened and endangered species of flora and fauna.

The SAP/BIO specifies the policy and provides the operational basis for actions by the Contracting Parties to protect marine and coastal biodiversity through an extensive platform for collaboration with international and national organizations, NGOs, donors and all other stakeholders.

The SPA/RAC's main fields of action include: (i) Facilitating and contributing to the assessment and mitigation of the impact of threats on marine and coastal biodiversity, including from unsustainable fisheries practices; and (ii) contributing to and assisting countries in the conservation of sensitive habitats, species and sites. In order to implement these actions properly and efficiently it is certainly needed to include the climate change aspects.

SPA/RAC published following seven studies dealing with various aspects of the climate change and biodiversity: (i) *Mediterranean Marine Protected Areas and climate change: A guide to regional monitoring and adaptation opportunities,* 2013; (ii) *Impact of climate change on marine and coastal biodiversity in the Mediterranean Sea: Current state of knowledge,* 2010; (iii) *Synthesis of National overviews on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean region,* 2009; (iv) *Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean Adriatic countries,* 2009; (v) *Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the North Mediterranean non- Adriatic countries and Israel,* 2009; (vi) *Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean Arab Countries* 2009; and (vii) *Impact of climate change on biodiversity in the Mediterranean Sea,* 2008.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The specific objective of SPA/RAC is to contribute to the protection and preservation and sustainable management of marine and coastal areas of particular natural and cultural value and threatened and endangered species of flora and fauna. The SPA/RAC's main fields of action include: (i) Facilitating and contributing to the assessment and mitigation of the impact of threats on marine and coastal biodiversity, including from unsustainable fisheries practices; and (ii) contributing to and assisting countries in the conservation of sensitive habitats, species and sites. In order to implement these actions properly and efficiently it is certainly needed to include the climate change aspects.

The draft RCCAF contributes to the work of SPA/RAC , both through its mandate and on the basis of published studies dealing with issues of importance to the consequences of climate change, in particular through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.9.6 SCP/RAC- Regional Activity Centre for Sustainable Consumption and Production

The Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) is a centre for international cooperation with Mediterranean countries promoting development and innovation in the production sector and with civil society organisations, based on more sustainable consumption and production patterns. The Centre develops its activity under the Mediterranean Action Plan.

The CP/RAC (Cleaner Production) was established in 1996 by the decision of the Contracting Parties to the Barcelona Convention. In 2013, the Contracting Parties agreed to rename the centre as Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) in order to update the name according to its mandate. In 2009 the Stockholm Convention on Persistent Organic Pollutants (POPs) was included in the SCP/RAC's area of activity, upon being designated Regional Centre for application by the Parties. The SCP/RAC works to build capacity and contribute to the exchange of knowledge in such areas as:

- Adopting resource efficiency and cleaner production and pollution prevention as factors of competitiveness and economic performance for SMEs;
- Reducing the generation of hazardous chemicals and their use by means of the best available techniques (BAT) and the best environmental practices (BEP);
- Introducing environmental criteria in the purchasing processes of public authorities(green public procurement);
- Introducing the concept of sustainability on university and business school curricula; and
- Incorporating education on sustainable consumption and lifestyles into the work plans of civil society organisations.

Current consumption and production trends are the main causes of environmental degradation of the Mediterranean region. This is the reason why shifting to sustainable consumption and production (SCP) and thus decoupling development from environmental degradation and resource depletion has became an urgent need. SCP constitutes a turning point in the way sustainable development is tackled as it doesn't only address the question of what and where pollutant emissions and environmental degradation take place but also why those are generated. The SCP approach involves analyzing the way countries produce and consume goods and services, identifying how and why those patterns of production and consumption contribute to the environmental degradation and the generation of environmental and health risks due to chemical pollution and implementing technical, policy, market, economic and information mechanisms through which shifting to SCP.

Implementing SCP involves a range of actions such as cleaner production, energy efficiency, sound chemical management, sustainable public procurement, eco-labelling, sustainable lifestyles, education for sustainable consumption, etc. One of the projects undertaken by the SCP/RAC supports the mainstreaming of SCP within development policies, fosters the implementation of SCP policies, facilitate exchange of experience among the countries and the visibility and scaling-up of SCP actions. Furthermore, SCP/RAC is providing training to green business entrepreneurs and start-ups, empowering grassroots innovations..

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) is a centre for international cooperation with Mediterranean countries promoting development and innovation in the production sector and with civil society organisations, based on more sustainable consumption and production models patterns.

Given the transversal scope of action of SCP/RAC, the draft RCCAF contributes to the work of the SCP/RAC through its all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and

cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.9.7 INFO/RAC- Regional Activity Centre for Information and Communication (2005)

The INFO-RAC was established in 2005 by the decision of the 14th Meeting of the Contracting Parties and was mandated to establish a common information management infrastructure to facilitate and support information and communication activities across MAP. As approved by the 16th Meeting of the Contracting Parties (2009), the objective of INFO-RAC is to contribute to collecting and sharing information, raising public awareness and participation and enhancing decision-making processes at the regional, national and local levels. In this context, the mission of INFO-RAC is to provide adequate information and communication services and infrastructure technologies to Contracting Parties to implement Article 12 on public participation and Article 26 of the Barcelona Convention on reporting, as well as several articles related to reporting requirements under the different Protocols, thus strengthening MAP information management and communication capabilities.

Information and Communication capabilities are key components of environmental initiatives and sustainable development strategies. The supporting infrastructures when incrementally implemented and properly maintained, can mobilize data resources in a diverse range of application areas offering broad-based benefits.

INFO/RAC strives to apply various tools and methodologies to the essential challenge of promoting information sharing and communications between MAP stakeholders and the wider user community concerned with the future of the Mediterranean. These initiatives and projects do not only address technological (ICT) components but also procedures, partnerships, education and public exposure events (including specific media activities), skills development and the monitoring of impacts.

INFO/RAC scope of actions are: (i) Information and communication technology; (ii) Information sharing, communication, education, training and awareness-raising; and (iii) Dissemination of results from environmental research and from innovative observation and monitoring technology

INFO-RAC will promote the use of the best available ICT for the reduction of the overall ecological footprint of MAP's components, contributing to the greening of the Barcelona Convention

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

INFO/RAC's scope of actions are: (i) Information and communication technology; (ii) Information sharing, communication, education, training and awareness-raising; and (iii) Dissemination of results from environmental research and from innovative observation and monitoring technology. INFO-RAC will promote the use of the best available ICT for the reduction of the overall ecological footprint of MAP's components, contributing to the greening of the Barcelona Convention.

The draft RCCAF contributes to the work of the INFO/RAC through the Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.10 Reports and studies by RACs on climate change

3.10.1 UNEP-MAP-RAC/SPA, 2010: Impact of climate change on marine and coastal biodiversity in the Mediterranean Sea: Current state of knowledge. S. Ben Haj and A. Limam, RAC/SPA Edit., Tunis, 28pp

This document constitutes a summary of the work, studies and reflection initiated by the RAC/SPA following the recommendations of the COP 15 (2008). It provides answers to the request to assess the knowledge gathered on the effects of climate change on the Mediterranean coastal and marine biodiversity. This assessment is part of the present state of knowledge which is still insufficient as the challenges are relatively recent and the future prospects pose one big question. The effects of climate change on the sea and the Mediterranean littorals are already most perceptible and affect without exception the different components of the Mediterranean biome. They also affect the natural resources and threaten the benefits they have for the populations around the Mediterranean basin and there are also social as well as economic repercussions. There is unanimous opinion as to the adaptation aspects; knowhow is still at its beginning especially in connection with the adaptation to the effects of climate change of the biodiversity and natural resources where great efforts need to be deployed in terms of adaptation engineering. The programmes to be set up must contribute to improve the knowledge on the effects of climate change on the marine and coastal biodiversity and knowhow in terms of adaptation and implementation of solutions for the conservation of natural species, ecosystems, species and natural resources.

Today it is quite clear that the effects of climate change are perceptible in the Mediterranean at all levels; human health, animal health, water resources, biological resources, quality of the environment and economic activities (agriculture, industry, transport, insurance etc) and will become even more amplified and throughout the whole Mediterranean they will have particular impacts on supply and demand, the future quality of water resources and will modify the frequency, spatial distribution and intensity of droughts and flooding. This new emerging problem is highly complex and unevenly documented so that it is absolutely vital to expand the existing basic knowledge especially on the physical and biological aspects, effects of climate change on ecosystems and biodiversity and in particular the cross-over effects of climate change and other sources of disturbance. No decision should therefore be left pending until perfect and illusory knowledge is gathered in order to undertake ideal adaptation measures for a given coastal zone. Adopting action plans stemming from holistic concepts such as integrated management or the ecosystem approach are absolutely vital even if it means having complex governance mechanisms at several spatial levels. To obtain truly effective implementation it is also necessary to pool human, technical and financial resources and to set up a system to ensure an effective circulation of data and information in formats which are appropriate for each target group on a national and regional level.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

This study constitutes a summary of the work, studies and reflection initiated by the SPA/RAC following the recommendations of the COP 15 (2008). It provides answers to the request to assess the knowledge gathered on the effects of climate change on the Mediterranean coastal and marine biodiversity. This assessment is part of the present state of knowledge which is still insufficient as the challenges are relatively recent and the future prospects pose one big question.

The draft RCCAF contributes to the work on problems of climate change and biodiversity described in this SPA/RAC study through Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools; and Operational Objectives 1.1: To enhance awareness and engagement of key stakeholders on climate adaptation; and 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress.

3.10.2 UNEP-MAP-RAC/SPA, 2008: Impact of climate change on biodiversity in the Mediterranean Sea. T. Perez, RAC/SPA Edit., Tunis, 61pp

This study is a partial response to the recommendations made by the COP 15 Meeting 2008, particularly the request that a report be drafted on the situation of biodiversity in the Mediterranean and on the impact of climate change observed. In the context of the Mediterranean Strategy for Sustainable Development, aiming at paying greater attention to the sustainable development of the sea, the coast and marine resources, it appeared desirable to make an appraisal of the impact so far known of climate change on Mediterranean marine biodiversity. It is widely recognised that these changes will continue and even intensify. On the basis of a moderate climate change scenario, estimates anticipated an extinction of 15-37% of the species by 2050 that at present occupy this area. The Mediterranean is one of the regions most sensitive to climate change and shelters 4-18% of world marine biodiversity according to the taxonomical groups considered. The migrations of southern species were the first signs of the biological effects of warming in the Mediterranean and the most numerous reports are for the north-west Mediterranean and the Adriatic. It is thought that short-term modifications of the ichthyological populations reflect almost in real time changes in the hydrological conditions. In the north-western Mediterranean, the most recent list mentions several dozen species whose area of distribution has significantly changed since the 1970s.

Extreme climate events are experienced as acute stress that disturbs the normal functioning of a biological system. Today, heat stress is widely recognized as the main factor in triggering diseases at sea, with a visible tendency for these events to become increasingly frequent in the Mediterranean. It has been shown on several occasions that temperature anomalies could trigger the virulence and/or condition the propagation of pathogenic agents. Furthermore, the action of pathogenic agents could be facilitated by an inhibition of the defence capacities of organisms subjected to heat stress. It therefore seems necessary to develop epidemiological studies to decide which factors trigger and propagate pathogenic agents. Very generally speaking, it would be interesting to set up a georeferenced database on the distribution of species that are sensitive to climate change in the Mediterranean, and to perfect methods for monitoring their distribution boundaries, and models that will predict the risk of extinction in the Mediterranean.

Faced with the evolving Mediterranean environment, possible adaptation options deserve in-depth strategic reflection and following proposals are made: (i) Widen the base of knowledge, and study the effects that can result from other variables linked to climate change: modifications of rainfall regimes, currents, biogeochemical equilibria, etc.; (ii) Develop predictive models that incorporate aspects of the life-history features of sensitive species, intra- and inter-specific competition, or prey/predator relationships; (iii) Improve the visibility of Mediterranean marine biodiversity conservation issues in the context of climate change; (iv) Develop economic indicators to measure the consequences of modifications of biodiversity for the human activities that it underpins; (v) Give assistance to the developing countries to assess their vulnerability in the face of climate change; (vi) Develop correct ecological engineering; (vii) Reduce other sources of disturbance to marine biodiversity, minimize the fragmentation of habitats, and facilitate dispersion by maintaining connectivity between populations; and (viii) Protect relic systems (not impacted at all, or little impacted) by putting them into reserves.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The SPA/RAC study *Impact of climate change on biodiversity in the Mediterranean Sea* is dealing with the problem of climate change and biodiversity in the Mediterranean.

The draft RCCAF contributes to the work on problems of climate change and biodiversity described in this SPA/RAC study through Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools; and Operational Objectives 1.1: To enhance awareness and engagement of key stakeholders on climate

adaptation; and 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress.

3.10.3 Otero, M., Garrabou, J., Vargas, M., 2013: Mediterranean Marine Protected Areas and climate change: A guide to regional monitoring and adaptation opportunities. Malaga, Spain: IUCN. 52 pp

The world's atmosphere and oceans are warming, and the most immediate effects of this on the marine environment include rising sea levels, higher seawater temperatures and acidification, more frequent extreme events and changes in oxygen levels or deoxygenation processes. Due to these pressures and ecosystem responses, climate change is now considered a major driver of biodiversity change and loss. The latest assessment by the IPCC found that the Mediterranean will be strongly affected by climate change over the course of this century. Despite its importance for biodiversity conservation, little is yet known about the biological impact of climate change on Mediterranean coastal and marine biodiversity at all levels. Basin-wide monitoring and information gathering on key Mediterranean species and ecosystems therefore remains crucial for mitigating climate change effects and adapting to them. Furthermore, the region's marine and coastal environments are increasingly threatened by the impacts of a growing population and rising demand for natural resources. The combination of these pressures is likely to exacerbate the consequences of climate change.

There are still large gaps in our knowledge about the future impact of climate change, but we can already see some early signs of its effects on marine communities in the Mediterranean. Climate change is likely to have drastic effects on the habitat of the flora and fauna of MPAs but the impact will vary between different Mediterranean regions and between individual MPAs within each region. MPAs located in the more northerly Mediterranean areas could have an important role to play in preserving endemic and native species as they shift their ranges with warming temperatures. Effective management will thus require a flexible approach, in which capacity building and monitoring will be crucial for understanding the changes that occur and informing the conservation approaches to be adopted, which will have to be adjusted as new information becomes available.

Global warming is predicted to last for several centuries even if greenhouse gas emissions decline substantially, making further degradation of the marine ecosystem and some degree of change inevitable. Adaptation, as it moderates vulnerability to climate change, is therefore an essential strategy for reducing the severity and cost of climate change impacts. Adaptation actions and strategies provide a complementary approach to reducing the likelihood of adverse impacts. In recent years, some individual Mediterranean MPAs have started to gather information on the impact of climate change in their areas, but there have not yet been any significant efforts to establish a regional strategy to increase the capacity of MPAs to adapt, manage and monitor impact. To help focus this future strategy at the Mediterranean MPA network level, the following key actions are proposed: (i) Conserving and managing MPA habitats under climate change; (ii) Enhancing the capacity for effective management; (iii) Increasing knowledge and information on impacts for adaptive management; (iv) Using decision support tools for adaptive management and dialogue; (v) Increasing awareness and information; (vi) Building a Mediterranean monitoring framework that incorporates the variety of MPAs' situations; and (vii) Sharing experiences.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The SPA/RAC study *Mediterranean Marine Protected Areas and climate change: A guide to regional monitoring and adaptation opportunities* is dealing with the problem of climate change and Marine Protected Areas in the Mediterranean.

The draft RCCAF contributes to the work on problems of climate change and Marine Protected Areas described in this SPA/RAC study through Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools; and Operational Objectives 1.1: To enhance awareness and engagement of key stakeholders on climate adaptation; and 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress.

3.10.4 UNEP-MAP RAC/SPA, 2009: Synthesis of National Overviews on Vulnerability and Impacts of Climate Change on Marine and Coastal Biological Diversity in the Mediterranean Region. Pavasovic, A., Cebrian, D., Limam, A., Ben Haj, S., Garcia Charton, J.A., Ed. RAC/SPA, Tunis, 76pp

This study synthesizes the results of the RAC/SPA/MAP-UNEP action „Updating the SAP/BIO on Climate Change issues". The study is based on findings presented by: (i) National Overviews prepared as part of the action; (ii) Sub-regional (Cluster) Synthesis Reports; and (iii) Working meetings organized at Clusters and regional level. In addition, a large number of reference documents were consulted. The objectives of the action were: (i) To update SAP/BIO on issues related to climate change; (ii) To contribute to objectives of the Almeria Declaration (2008); (iii) To provide the basis for follow-up within SAP BIO; and (iv) To prepare a final Synthesis Document and an Appendix to SAP/BIO. The activities implemented were: (i) Preliminary RAC/SPA activities; (ii) Inception meeting; (iii) Preparation of National Overviews; (iv) Sub-regional meetings; (v) Regional Meeting to discuss Overviews and Cluster Syntheses; and (vi) preparation of final documents - the Regional Synthesis and the Appendix to SAP BIO. Eighteen riparian countries participated in the action.

The widely different national characteristics of the 21 riparian states were of essential importance when approaching the present action. The region is characterized by high geo-political and socio-economic heterogeneity and differences related to institutional, scientific and technical potential, capacities and expertise, such as a 10-fold difference in GDP between most developed countries and those less developed, and the 3-fold up to 6-fold difference of GNP per capita between W European countries and the other ones. The resilience of the ecosystems and biodiversity facing occurring and future CC impacts is reduced due to ever-increasing anthropogenic pressures. Despite gaps in knowledge and problems of monitoring and research, there is a general consensus on: (i) The CC as an occurring phenomenon, with little or no evidence about reducing or control of drivers; (ii) Seriousness of impacts, some already irreversible, other dependant on timely reduction of GHG emissions and implementation of adaptive measures; and (iii) Need for implementation of urgent actions based on existing knowledge.

Concerning the Mediterranean, the key facts are: (i) The region is among the richest in biodiversity of global importance, rich with endemism and autochthonous species; (ii) Biodiversity is rapidly declining, due to land-use change and other anthropogenic impacts, climate change, invasive species, overexploitation and pollution; (iii) A great number of globally important habitats, populations, species is already endangered, many species under risk of extinction; (iv) The nature, value and level of actual ecosystem services rendered by regional biodiversity is of paramount importance for the resident population and respective national economies; (v) The expected climate change impacts, those in m/c areas in particular, if not timely and appropriately dealt with, will result with negative effects to intensify with rates and amounts of change, with further reduction of resilience to changes, and an increasing and intensifying loss of biodiversity, resulting with a high reduction of the value of rendered ecosystem services; and (vi) Improved co-ordination across sectors and integrated management across scales are urgently needed.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

This SPA/RAC study is dealing with the problem of climate change and biodiversity in the Mediterranean.

The draft RCCAF contributes to the work on problems of climate change and biodiversity described in this SPA/RAC study through Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools; and Operational Objectives 1.1: To enhance awareness and engagement of key stakeholders on climate adaptation; and 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress.

3.10.5 UNEP-MAP RAC/SPA. 2009: Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean Adriatic countries. Pavasovic, A., Cebrian, D., Limam, A., Dedej, Z., Vucijak, B., Radovic, J., Guidetti P., Buskovic V., Dobrajc Z., Ed. RAC/SPA, Tunis; 48pp

The action on Updating on Climate Change (CC) issues of the Strategic Action plan for the Conservation and Protection of Biodiversity in the Mediterranean Region (SAP/BIO) is organized by Clusters: Cluster A, the Adriatic sub-region; Cluster B, the N and E Mediterranean; and Cluster C, the S Mediterranean. This Synthesis relates to the Adriatic, and relates to national Overviews, prepared by nominated national experts in consultation with and information of relevant national experts and responsible persons. The Overview for the Italian Adriatic coast is harmonized with the comprehensive National Overview covering all Italian c/m areas.

This activity includes Albania, Bosnia &Herzegovina, Croatia, Italy, Montenegro and Slovenia which are sharing the common sea, its natural resources and socio-cultural values. Differences among countries (political and administrative arrangements, economic / institutional potential, coastline length...) determine the approaches, achievement levels, the need for and priorities of biodiversity (Bd) protection and conservation, also related to CC/Bd issues. The Adriatic sub-region is very rich in biodiversity, in particular with endemic and autochthonous species (many of global importance), a large number of them endangered and/or under risk of extinction. The key Bd resources are concentrated in small areas, also along lengthy coastline stretches or in small and/or large marine areas.

Wide evidence indicates the Adriatic biodiversity being among the most endangered by CC in the Mediterranean, if not the most endangered one. A number of specific features and conditions contributes to it: (i) The semi-enclosed configuration; (ii) The prevailing shallow waters; (iii) The karst structure of coastal areas; (iv) A very indented coastline and large number of islands and islets; and (v) Still heavy inputs of pollutants (from the Black Sea, the Po watershed, and a great number of point LBSPs). Such a situation, also due to the actual state of art on CC/Bd and limited potential of all countries except one for implementation of appropriate measures, call for urgent and comprehensive actions at MAP, Adriatic and national levels.

RAC-SPA collected and distributed a number of relevant international documents, including two commissioned reviews. Additional national and international references were identified and commented by national experts. The information collected provides a good insight on impacts of CC in general, but is scarce at lower levels due to limited research on CC/Bd and absence of respective monitoring. At Med level, the NW area is best covered with information. At Adriatic level, information on CC/Bd are limited or very limited; no information on methodologies, measures and techniques, neither on CC/Bd in c/m areas. A number of information refers to separate Bd inventories and GHG inventories and/or emissions. While still a number of references remain to be identified, those available are not yet systematized and made user-friendly and updatable. Nevertheless, the information collected was appreciated and considered as a good base for follow up.

The action "National Overviews on Vulnerability and Impacts of Climate Change on Marine and Coastal Biodiversity in the Mediterranean Region" was implemented as part of activities for updating on Climate Change issues of the Strategic Action Programme for the Conservation of Biological Diversity (SAP/BIO) in the Mediterranean region. The action aims to contribute to the decisions of Almeria Declaration by providing an insight on state of knowledge and actions on impacts of Climate Change on Biodiversity (CC/Bd), as well as to serve as input for future activities on CC/Bd within SAP BIO, RAC-SPA and MAP.

In conformity with the MAP mandate, the National Overviews and the present Synthesis deal with national marine and coastal areas as defined by the revised Barcelona Convention (1995), i.e. as defined by each Contracting Party: countries define them mostly by following the borders of coastal administrative units; in some cases following watershed divide lines of mountains bordering the coastal

strip, and/or borders of the Mediterranean climate and vegetation. Accordingly, the reports do not include "continental" national areas.

This document also includes well organised information for each participating country on: (i) Available data and information; (ii) National activities on climate change and biodiversity; (iii) Vulnerability and impacts; and (iv) Needs identified and urgent actions propose.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The SPA/RAC study *Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean Adriatic countries* is dealing with the problem of climate change and biodiversity in the particular sub-region of the Mediterranean.

The draft RCCAF contributes to the work on problems of climate change and biodiversity described in this SPA/RAC study through Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools; and Operational Objectives 1.1: To enhance awareness and engagement of key stakeholders on climate adaptation; and 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress.

3.10.6 UNEP-MAP RAC/SPA, 2009: Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the North Mediterranean non- Adriatic countries and Israel. Charton-Garcia, J., Cebrian, D., Limam,A., Zenetos, A., Galil, B., Badalamenti, F., Ozturk, B., Marba Bordalba, N., Rizzo, M., Borg D., Saliba, S., Hajichristoforou M., Ed. RAC/SPA, Tunis, 44pp

The present study has been produced in the framework of the process promoted by RAC-SPA to update the "Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region" (SAP BIO), in particular with reference to expected impacts of climate change (hereafter CC), all in accordance with the Outline for the SAP BIO Operational programme for the 2008-09 period proposed for Parties' adoption by the 8th meeting of National Focal Points for Specially Protected Areas, held in Palermo on 6-9 June 2007. The action aims to contribute to the objectives of Almería Declaration by providing an insight on state of knowledge and actions concerning impacts of CC on marine and coastal biodiversity, as well as to serve as input when defining future activities on CC with regard to the protection of biodiversity within SAP BIO, RAC-SPA and MAP.

The aim of this study was to synthesize at the sub-regional level the findings presented in National Overviews of the so-called 'Cluster B' of countries, constructed 'ad hoc' (so that there is not a geographical criterion to establish a homogeneous sub-group of countries), and including: Greece, Israel, Italy (non-Adriatic coast), Malta, Spain, Turkey, and Cyprus. France and Monaco did not appoint national experts.

During the preparation of National Overviews, the authors were in contact with the national responsible, and, in some cases, benefited of the input from a number of national experts (as specified in each National Overview).

Further from the National Overviews, and in addition to the basic regional and national SAP BIO documents, a number of regional and international documents and scientific articles have been consulted by the author to complement the information provided by national experts.

This study also includes well organised information for each participating country on: (i) Available data and information, research and knowledge; (ii) National activities related to climate change and biodiversity; (iii) Vulnerability and impacts; (iv) Needs and urgent actions proposed; and (v) International co-operation, support and funding.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The SPA/RAC study *Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the North Mediterranean non- Adriatic countries and Israel* is dealing with the problem of climate change and biodiversity in the particular sub-region of the Mediterranean.

The draft RCCAF contributes to the work on problems of climate change and biodiversity described in this SPA/RAC study through Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools; and Operational Objectives 1.1: To enhance awareness and engagement of key stakeholders on climate adaptation; and 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress.

3.10.7 UNEP-MAP RAC/SPA. 2009: Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean Arab Countries. Ben Haj, S., Cebrian, D., Limam, A., Grimes, S., Halim, Y., Bitar, G., Bazairi, H., Ibrahim, A., Romdhane, M. S., Ed. RAC/SPA, Tunis, 40 pp

The present study summarises the national reviews of the Arabic countries of North Africa and the Middle East that border on the Mediterranean on vulnerability and the impacts of climate change on marine and coastal biodiversity. It is implemented as part of the SAP BIO activities selected in the context of the MAP biennium for the years 2008 and 2009. This action aims at making a contribution to the aims of the Almeria Declaration by assessing the state of knowledge and those activities related to the impacts of climate change on biodiversity that have so far been carried out. The other contribution agreed on is to define future activities relating to the "climate change/biodiversity in the context of SAP BIO, RAC/SPA and the MAP" stakes. The countries' considerations differ according to their own contexts: organisation, legislation, scientific and technical capacities, variability of their vulnerability, size and diversity of the stakes, etc. However, many suggestions emerge both concerning the needs expressed and as regards recommendations of urgent actions:

(i) To various degrees, but for all the countries, pursuing and structuring the acquisition of basic knowledge constitutes an urgent precondition in order to get a better knowledge of the specific nature of the protection stakes;
(ii) Awareness by actors (politicians, scientists, users) is needed for an appropriation of this crucial stake, hence in-depth work must be done to better individualise the problems, solutions and the why and the wherefore of solutions: knowing why one must protect – protect what – and how? in order to better define strategies and priorities at every level;
(iii) Organising institutions and setting up a system to take charge of the upstream and downstream assessment of the effects of CC on MCBD, and then identifying and implementing adaptation measures is necessary:
(iv) Updating legal texts;
(v) Enhancing scientific and technical skills and capacities as well as equipment ;
(vi) Updating national reference documents that take into account the effects of CC/MCBD with a view to ending up with a clear action strategy (research and monitoring and adaptation);
(vii) Mutualising information internally and at a regional and international level; cross-border and regional scientific networks;
(viii) Involvement in transnational and regional programmes;
(ix) Harmonising methods of data acquisition and monitoring;
(x) Fitting out experimental stations for monitoring the effects of CC/MCBD per kind of vulnerable environment; and
(xi) Need to identify and implement priority adaptation methods.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

This SPA-RAC study *Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean Arab Countries* is dealing with the problem of climate change and biodiversity in the particular sub-region of the Mediterranean.

The draft RCCAF contributes to the work on problems of climate change and biodiversity described in this SPA/RAC study through Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools; and Operational Objectives 1.1: To enhance awareness and engagement of key stakeholders on climate adaptation; and 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress.

3.10.8 Climate Change and Energy in the Mediterranean, Blue Plan, 2008, 49pp

Blue Plan published in 2008 a study Climate Change and Energy in the Mediterranean. Main topics covered are:

(i) Climate change in the Mediterranean: scientific knowledge, impacts and green house gas emissions:

Ch.1: Mediterranean Basin: Climate change and impacts during the 21st Century;

Ch. 2 Review of the Economic Literature on Impacts of Climate Change in the Southern Mediterranean Countries (SMCs);

Ch. 3: Carbon Dioxide emissions from energy use in the Mediterranean economies: trends and pattern);

(ii) Mitigation of climate change: toward a low carbon energy sector:

Ch. 4: Energy in the Mediterranean: Situation and outlook;

Ch. 5: Economic simulation of energy development strategies in the Southern countries of the Mediterranean: Egypt, Morocco, Tunisia;

Ch. 6: Renewable energy and rational energy use in the South and East Mediterranean countries: current situation and outlook;

Ch. 7a: How much does cost the change of scenario toward a low carbon energy sector? Tunisia;

Ch. 7b: How much does cost the change of scenario toward a low carbon energy sector? Egypt;

Ch.8: The electricity sector challenges, related CO2 emissions and potential solutions; and

(iii) Vulnerability of, impact on and adaptation of the energy system:

Ch. 9: Wooded lands, climate change and energy in the Mediterranean;

Ch. 10: Water for energy/energy for water and climate change in the Mediterranean;

Ch. 11: Cross cutting challenges: energy/tourism/cities and climate change.

This is a very good study giving an overview of the climate change and energy in the Mediterranean.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

This Blue Plan study *Climate Change and Energy in the Mediterranean* is dealing with a very important issue of climate change and energy.

The draft RCCAF contributes to the work on problems described in this Blue Plan study through Strategic Objective 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools; and Operational Objectives 1.1: To enhance awareness and engagement of key stakeholders on climate adaptation; and 1.4: To improve the implementation and effectiveness of adaptation policies through monitoring and reviewing progress.

3.10.9 Blue Plan, 2011: Adapting to climate change in water sector in the Mediterranean; situation and prospects. Blue Plan, Valbonne, Blue Plan Papers 10, 64pp

Water resources in the Mediterranean basin are irregularly distributed in both time and space and most countries on Southern and Eastern shores are facing "chronic scarcity". Water resources in these countries are exposed to significant tension and the situation is expected to worsen in the future under the combined effect of increased demand for water and the impact of climate change.

According to the Blue Plan trend scenario published in 2005, water demand in the region should continue to grow. This scenario did not consider the effect of climate change on water resources or demand. Moreover, most climate scenarios concur on a drop in average rainfall, which would result in available water resources shrinking by as much as four-fold in certain countries to the South and East of the Mediterranean. As part of the Blue Plan programme of activities on water demand management and regional climate prospective analysis, the purpose of this study was to: (i) List and analyse technical, regulatory, institutional, economic and governance adaptation measures and as far as possible take stock of the progress made on these various fronts by the countries examined; and (ii) Identify avenues to be explored in order to promote the adaptation of water management in the Mediterranean. The study focused on the following seven countries: Spain, France and Albania from the northern coast; Morocco, Tunisia and Egypt for the Southern and Turkey for the eastern coast. The report present the state of adaptation strategies and measures implemented in the water sector in the Mediterranean. Recommendations emerging at the end of this study are: (i) The uncertainty surrounding impact and risk assessment should not be seen as hampering action. On the contrary, it should encourage the emergence of a dual approach: "no regret" action and adaptation as such; (ii) Climate change is bolstering the need for reform in the water sector which the Mediterranean Action Plan is promoting for fifteen years; (iii) Adaptation requires innovation in order to shape alternative futures in the water sector, which will enhance the management of a non-stable climate and uncertainty; (iv) What is at stake is the switch from a reactive attitude to crisis to a proactive one, drawing on a batter of tools including impact modelling, vulnerability assessment, prospective analysis tools, strategic environmental assessment; (v) The risk of maladaptation in the water field can be avoided through the development and promotion of uncertainty management tools for decision-making on investment and development matters; (vi) A comparative assessment of the cost of adaptation at a late or early stage should also be promoted, linked in particular to rational anticipation, the choice of "no regret" measures; (vii) Efforts to mainstream the adaptation of water management must also go hand in hand with a change in attitude aimed at taking a cross-cutting, integrated approach to water management and making it the focus of the various sectoral adaptations policies (tourism, agricultures, health, etc.), since water is the main vector in the Mediterranean through which the impact of climate change will be felt by people and socio-economic sectors; (viii) If this is to be achieved, new modes of governance will need to be designed, tested and promoted at all levels of decision making; and (ix) Regional cooperation has a key role to play in all of the above points.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

This Blue Plan study *Adapting to climate change in water sector in the Mediterranean; situation and prospects* is dealing with a very important issue of climate change and water in the Mediterranean

The draft RCCAF contributes to the work on problems described in this Blue Plan study through the Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; and 2:Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; and Operational Objectives 4.3: To strengthen science-policy interface by channelling and making accessible adaptation related knowledge; and 4.4: To strengthen regional climate information at a resolution suitable for adaptation planning.

3.10.10 Travers, A., Elrick, C. and Kay, R, 2010: Background Paper: Climate Change in Coastal Zones of the Mediterranean. Split, Priority Actions Programme, 2010, 129pp

This study provides background information on coastal climate change in the Mediterranean region. Before MAP may commence with detailed planning of its upcoming vulnerability and adaptation supporting initiatives it will be necessary to undertake a review exercise to determine the policies and strategies and projects and programmes active in the region at a range of temporal and spatial scales. This is the key aim of the current report. Additionally, an overview of impacts, threats and consequences of coastal climate change in the Mediterranean is provided with a summary of the status of coastal adaptation initiatives around the globe presented to highlight best practice. The overall purpose of the review is to inform the process of climate change adaptation for subsequent activities in the Mediterranean coastal zone. The foregoing review of coastal climate change in the Mediterranean proceeded through a series of systematic steps: The first step involved a review of the current national circumstances of MAP Contracting Parties, terms of their physical environment, their major ecosystems and their socioeconomic status. This information was subsequently considered in the context of predictions for changes in coastal climate to establish a broad indication of sensitivity. The next step was a consideration of the current status of vulnerability and adaptation initiatives across MAP Contracting Parties (CPs). This involved a review of the range of plans and strategies and projects and programmes operative in the region at various temporal and spatial scales. The purpose of the review exercise was to establish a broad measure of the potential adaptive capacity associated with specific CPs. That is, the status, or maturity of a countries institutional and operational capacity to adapt to the potential impacts of climate change was determined at a strategic level for each of the 21 countries under consideration. This review of vulnerability and adaptation initiatives in the Mediterranean region was accompanied by a concurrent overview of the status of coastal vulnerability and adaptation initiatives at a global scale. Through the course of this exercise, a number of approaches to coastal adaptation were show-cased with a view to highlighting best practice for subsequent application in a Mediterranean context.

The review has identified a number of key issues and information gaps that inhibit a proactive and co-ordinated approach to climate change adaptation in the Mediterranean coastal zone. For example: (i) Assessment of the impacts of climate change throughout the Mediterranean is driven by local priorities. Consequently, the assessments do not apply a consistent approach and therefore regional comparisons of relative impact cannot be produced. Therefore, it is difficult to prioritise activities or investments to address priority areas; and (ii) The development of adaptation architecture differs throughout Mediterranean countries.

Overall, the information contained within this report provides the necessary background information to develop recommendations for PAP/RAC, to support adaptation to climate change impacts in coastal zones.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

This PAP/RAC study gives excellent background information on the current national circumstances of MAP Contracting Parties, terms of their physical environment, their major ecosystems and their socioeconomic status and the current status of vulnerability and adaptation initiatives across MAP Contracting Parties.

The draft RCCAF contributes to the work on problems described in this PAP/RAC study through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.10.11 Travers, A., Elrick C. and Kay R., 2010: Position Paper: Climate Change in Coastal Zones of the Mediterranean. Split, Priority Actions Programme, 2010, 79pp

This Position Paper provides PAP/RAC with an overview of the situation related to climate change in the Mediterranean and proposed activities to be undertaken by PAP/RAC with the aim to adapt to climate change impacts in coastal zones. The activities align to the PAP/RAC mandate and to the requirements of the ICZM Protocol, and focus on the information needs to support the delivery of technical assistance to countries as well actions that can be taken to build capacity of relevant stakeholders at regional, national and local levels.

Developing a Mediterranean Coastal Adaptation Framework is seen as a key priority. This will encompass the need for sharing experiences and tools for adaptation, which is increasingly important at the regional level as work develops in the field. Although vulnerability and adaptive capacity to climate change varies widely depending on the context, as do the initiatives to be undertaken, the need to share experiences and build capacity encourages the issue to be put on the regional agenda.

Overall, climate change brings with it a whole range of new governance and management techniques; economic and financial mechanisms, and community action needs. MAP and specifically PAP/RAC are ideally placed to play an active mentoring and leadership role as the countries of the Mediterranean move towards adapting to the large-scale issues arising from climate change. Ultimately, the effectiveness of this role will be shaped by political will within the region that should be cognizant of the need for foresight. This will be essential to mitigate the potential for even greater expenditure of resources in the future should effective and "adaptive" adaptation not be instigated as a pressing concern.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The PAP/RAC Position Paper: Climate Change in Coastal Zones of the Mediterranean gives an overview of the situation related to climate change in the Mediterranean and aligns to the PAP/RAC mandate and to the requirements of the ICZM Protocol, and focuses on the information needs to support the delivery of technical assistance to countries as well actions that can be taken to build capacity of relevant stakeholders at regional, national and local levels.

The draft RCCAF contributes to the work on the problems described in this PAP/RAC study through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.10.12 Anil Markandya, 2012: Integrating climate change into the ICZM planning process – Contribution to the Integrative Methodological Framework for coastal, river basin, aquifer and groundwater management, Anil Markandya, MedPartnership / MAP / Priority Actions Programme, Split, 27pp

This study provides some guidance on the steps to be taken in including climate change related issues into the ICZM process. It is based on the view that climate adaptation should be an integral part of the process and not an add-on or a separate component. The structure adopted is that used by the Integrative Methodological Framework for coastal, river basin and aquifer management and by the Guidelines for the preparation of National ICZM strategies, which identify the following steps:

(i) Establishment. This is an important stage of the ICZM process. The aim is to set out an operational foundation for the subsequent preparation of the strategy or plan and its implementation, to begin the process of understanding the challenges facing the area and the differing perceptions of those challenges, and to begin building a constituency of support for the strategy or plan. The components of this step are: (a) Establishing coordination mechanisms; (b) Defining territorial scope; (c) Defining governance context; (d) Scoping; (e) Engaging stakeholders; (f) Proposing the vision; and (g) Decision on Strategic Environmental Assessment;

(ii) Analysis and Futures. The aim of this stage is to establish an operational foundation for the subsequent preparation of the plan and its implementation. The components of this stage are: (a) Building the evidence; and (b) Identifying futures;

(iii) Setting the Vision. The aim of this stage is to engage the stakeholders in setting the priorities and agreeing on the key policies and measures that should be considered in the analysis stage. The components of this stage are: (a) Building consensus; (b) Setting the direction; and (c) Measuring success;

(iv) Designing the Future. The components of this stage are: (a) Formulating ICZM Strategies, plans and programmes; (b) Establishing management structure; and (c) Embedding; and

(v) Realising the Vision. The components of this stage are: (a) Implementing; (b) Investment and infrastructure; (c) Acting; and (d) Monitoring and review.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The PAP/RAC study *Integrating climate change into the ICZM planning process* gives guidance on the steps to be taken in including climate change related issues into the ICZM process.

The draft RCCAF contributes to the work on the problems described in this PAP/RAC study through its all four Strategic Objectives; i.e. 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and 4: Better informed decision-making through research and scientific cooperation and improved availability and use of reliable data, information and tools.

3.10.13 UNEP/MAP/PAP, 2015: Guidelines for Adapting to Climate Variability and Change along the Mediterranean Coast, Split, PAP RAC, 70pp

The aim of this study is to provide planners and policy-makers in the Mediterranean with: (i) A guide to the impact of climate variability and change (CV&C) on coastal zones in the region; (ii) Information on how such impacts can be integrated into the Integrated Coastal Zone Management (ICZM) process; and (iii) Lessons learned from the experience of handling CV&C in specific locations in the region and elsewhere. This study presents the following stages envisaged for the preparation of national ICZM strategies, plans or programmes: (i) Establishment: Sets out the ICZM strategy and plans within the context of the ICZM Protocol; (ii) Analysis and Futures: Building the evidence and identifying the futures; (iii) Setting the vision: Engage stakeholders in setting priorities and agreeing on key policies and measures for the analysis stage; (iv) Designing the Future: Formulating plans to deal with climate impact and establishing a management structure; and (v) Realising the Vision: Implementing the strategy. The set of guidelines presented in this document described different stages of ICZM, showing how climate change is relevant to that stage, what kinds of actions are needed to address climatic effects, and what information is available in literature on these effects, especially in the Mediterranean region. It has also laid out the lessons learned from the management of CV&C in specific locations in the region and elsewhere.

Coastal zones are especially vulnerable to sea-level rise and storm surges, and flooding in estuaries and deltas. They are also affected by changes in the level and pattern of demand for tourism, land for residential purposes, and fisheries and shipping. This report has laid out the expected effects in the Mediterranean in these areas. Its key considerations are: (i) Investment in vulnerable areas may prove to be unwise if assets are subject to damages from the effects of climate change; and (ii) Private agents will have to be given the right information and incentives in order to make the best decisions. This report also lays out different ways in which the various instruments that it discusses can be combined for this purpose. The analysis of the location of vulnerable areas and what actions are justified to protect them has become a key part of mainstreaming climate change into ICZM.

The adaptation to climate change is a major activity in all countries and resources are available from different sources to finance it. The report provides details of these sources for EU members and other countries in the Mediterranean region. Appropriate adaptation policies and measures are first and foremost those which can be established as “no regrets”. It is surprising how many climate adaptation measures have benefits other than those related to reducing climate impacts. They include lesser impacts from the current variability of climate and better management of land and other natural resources from a sustainability perspective. Knowledge of climate change is expanding all the time, but we are still making decisions in a framework of uncertainty. Hence, it is important that the ICZM system be flexible and open to new information. Methods for decision making with incomplete and dynamic information must be part of the tool kit that planners have at their disposal.

Interlinkages with and Potential Contribution of the Regional Climate Change Adaptation Framework

The PAP/RAC study *Guidelines for Adapting to Climate Variability and Change along the Mediterranean Coast* gives guidance on the steps to be taken in including climate change related issues into the ICZM process.

The draft RCCAF contributes to the work on the problems described in this PAP/RAC study through Strategic Objectives 1: Promote appropriate institutional and policy frameworks, increase awareness and stakeholder engagement and enhance capacity building and cooperation; 2: Identify, assess and implement best practices (including low regret measures) for effective and sustainable adaptation to climate change impacts; and 3: Leverage existing and emerging finance mechanisms relevant to climate change adaptation, including international and domestic instruments; and Operational Objectives 4.1: To enhance the understanding of the vulnerability of natural and socioeconomic systems and sectors

and of possible impacts; and 4.2: To build capacities for and promote use of vulnerability and risk assessment at regional to local levels.

4. CONCLUSIONS

This document was prepared by the UNEP/MAP Secretariat in order to set the ground for the considerations of the draft Regional Climate Change Adaptation Framework (RCCAF) at the MAP Focal Points Meeting (Athens, Oct. 2015) and the 19 Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols (Feb. 2016). The main objective of this document has been to identify the interlinkages between the MAP policy and regulatory and programmatic documentation and the draft RCCAF, so as to highlight the existing mandates and ongoing work and the way in which the draft RCCAF reflects them. This document incorporates the views of all the components of MAP.

The overall aim of the RCCAF is to provide a regional approach in coordinating and assisting policy makers and stakeholders at all levels across the Mediterranean in order to increase the resilience of the Mediterranean marine and coastal natural and socioeconomic systems to the impacts of climate change by identifying objectives and priority fields for action.

For the preparation of this analysis, 53 documents were reviewed and analysed, in order to identify the interlinkages between the RCCAF with each of these documents and assess the potential contribution of RCCAF to the implementation of the issues covered in each of the analysed documents. The documents that were analysed included the Mediterranean Action Plan, Barcelona Convention and its seven Protocols, Declarations of the Contracting Parties Meetings and other relevant meetings, MAP Strategies and Action Plans, Components of the Mediterranean Action Plan and Studies on climate change issues prepared by the Regional Activity Centres. The analysed documents are of different nature, concepts and contents. They span over twenty years, and thus it is no surprise that climate change issues are not explicitly covered in all of them.

The general conclusion of this analysis is that there are strong interlinkages between the RCCAF and the majority of the analysed documents and that there is clear potential that the RCCAF could significantly contribute to their implementation. Climate change issues, particularly adaptation to the climate change implications, have to be among those to be covered by the components of the MAP system. It is clear from the analysis that some of the MAP Regional Activity Centres are already quite active and producing very good results in the work on various aspects of climate change and its impact.

The RCCAF, together with the results of this analysis, is expected to provide the basis for considering the need and appropriateness of a Regional Action Plan on Adaptation, which could inter alia describe in more detail the steps and requirements for stakeholders' involvement, a plan for implementation of activities and actions at the regional and national levels, as well as a monitoring and evaluation plan. Also linkages, contributions and competences towards delivery of the RCCAF's objectives as well as gaps that can be addressed by the MAP system and other actors should be identified.