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**COMPARATIVE ANALYSIS OF THE COMMITMENTS OF THE CURRENT SAP
WITH THE RELATED INTERNATIONAL, REGIONAL AND EUROPEAN LEGAL INSTRUMENTS AND
AGREEMENTS**

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I. MAJOR LAND-BASED SOURCES OF POLLUTION IN THE MEDITERRANEAN

Land-based sources of pollution in the Mediterranean region constitute important causes for the degradation of the Mediterranean marine ecosystem. Along the Mediterranean coastline, 131 “pollution hot spots” have been identified by the countries in the frame of the Strategic Action Programme (SAP) of UNEP. These hot spots are point pollution sources or polluted coastal areas, which may affect human health, ecosystems, biodiversity, sustainability, or economy. Of these hot spots, 26 % are urban, 18 % industrial and 56 % mixed (urban and industrial). Additionally, 59 sensitive areas (marine areas under threat to become pollution hot spots), have also been identified along the Mediterranean coastline. All these pressures have led to the degradation of environmental quality in certain coastal areas, while the impact on the open Mediterranean Sea environment is still uncertain.

From 601 coastal cities with a population of more than 10 000 inhabitants (total resident population of 58.7 million) in the Mediterranean coastal zone only 69 % operate a wastewater treatment plant. The problem is exacerbated due to the rapid growth of many coastal cities and towns, especially on the southern Mediterranean coast. The population of the Mediterranean countries was about 450 million in 1996 while it is estimated to reach 520-570 million by 2030. This constantly increasing population pressure is exacerbated because of tourism. The 135 million tourists visiting the area in 1996 are expected to soar to 235-300 million in the next 20 years.

Municipal solid waste produced in urban centres along the Mediterranean coastline is often disposed of in dumping sites with minimal or no sanitary treatment. Discharge of fine solids from coastal industrial plants or discharge of inert material from construction activities may lead to blanketing of the seabed with land-based material.

Most of the Mediterranean coastal areas host chemical and mining industries that produce important amounts of industrial effluents containing pollutants such as heavy metals, hazardous substances and POPs, which could reach the marine environments of the Mediterranean Sea directly or indirectly (i.e. through rivers and run-offs). In addition stockpiles of obsolete chemicals (such as POPs and pesticides) are considered a significant source of contaminants into the marine environment. In many cases, no measures have been taken to control and treat leachates from the dumping sites, which are polluting ground water and/or the coastal marine environment with organic pollutants and heavy metals.

II. OVERVIEW OF MEDITERRANEAN, EUROPEAN AND INTERNATIONAL LEGAL TEXTS

1. The LBS Protocol and the SAP

The Strategic Action Programme (SAP) is an action-oriented MAP / MED POL initiative identifying priority target categories of substances and activities to be eliminated or controlled by the Mediterranean countries through a timetabled schedule for the implementation of specific control measures and interventions. The SAP, adopted by the Contracting Parties in 1997, is the basis for the implementation of the **Land Based Sources Protocol** of the Barcelona Convention by the Mediterranean countries in the next 25 years. The key land based activities addressed in the SAP are linked to the urban environment, (particularly municipal wastewater treatment and disposal, urban solid waste disposal and activities contributing to air pollution from mobile sources) and to industrial activities, targeting those responsible for the release of toxic persistent and bioaccumulative (TPB) substances into the marine environment, giving special attention to persistent organic pollutants (POPs). Also addressed are the releases of harmful concentrations of nutrients into the marine environment, the storage, transportation and disposal of radioactive and hazardous wastes and activities that contribute to the destruction of the coastline and coastal habitats.

The operational long-term output of the SAP is the implementation by the countries of the adopted National Action Plans (NAPs) to combat pollution from land-based activities. These NAPs are intended to follow on from taking up, in each Mediterranean country, all the targets and activities of the nationally relevant components identified in the SAP.

In 2001 the Contracting Parties adopted an operational strategy, providing the institutional and technical basis for the implementation of the SAP. According to the SAP operational strategy the countries are expected to make "national budget commitments" to reduce by a certain percentage their aggregate industrial releases of each targeted SAP pollutant within a certain year. During the recent years, the countries calculated and defined a Baseline Budget, as the sum of emissions/releases into the Mediterranean Sea for each SAP targeted pollutant, at a specified time (base year 2003), against which the reductions in pollution releases will be measured. The Mediterranean countries have already prepared NAPs which have been officially adopted by the national authorities during the Contracting Parties Meeting in Portoroz, Slovenia (2005). Monitoring and follow up of the reduction of releases will be achieved through a certification process. Also two regional Plans have been adopted by the Contracting Parties (2003) to reduce by 2010 the BOD emissions (50% reduction) and hazardous waste generation (20% reduction) from industrial sources.

2. The Mediterranean Strategy for Sustainable Development (MSSD)

The 21 Mediterranean countries and the European Community decided, at the 12th Conference of the Contracting Parties to the Barcelona Convention (Monaco, November 2001), in line with the decisions of the World Summit on Sustainable Development (WSSD), to prepare a "Mediterranean Strategy for Sustainable Development" (MSSD). They requested the Mediterranean Commission on Sustainable Development (MCSD) of the Mediterranean Action Plan (MAP) to develop a draft of the Strategy. The 2nd Euro-Mediterranean Ministerial Conference on the Environment (Athens, July 2002) endorsed this initiative. The Mediterranean Strategy is a framework strategy. Its purpose is to adapt international commitments to regional conditions, to guide national sustainable development strategies and to initiate a dynamic partnership between countries at different levels of development. The Strategy calls for action to pursue sustainable development goals with a view to strengthening peace, stability and prosperity, taking into account the threats and

weaknesses in the region as well as its strengths and opportunities. It also takes into consideration the need to reduce the gap between developed and developing countries in the region.

The MSSD is based on the Vision and Framework Orientations, which have already been endorsed by the MCSD and the Contracting Parties. The Strategy takes into account recent developments in regional cooperation, with particular reference to the Mediterranean Action Plan and the Euro-Mediterranean Partnership, the Arab Initiative for Sustainable Development and the EU Sustainable Development Strategy. The implementation of the Strategy through a Euro-Mediterranean Partnership and the new EU Neighbourhood Policy focussing on sustainable development will help Mediterranean countries to achieve these aspirations. The Strategy could, in particular, facilitate the goal launched by the EU Initiative "Horizon 2020" to "de-pollute" the Mediterranean Sea.

3. European Union - Policy and Legislation

The environmental policy of the European Union includes a range of directives and measures which, taken together, are very similar to the Barcelona System for the protection of the marine environment and the sustainable development of the coastal areas of the Mediterranean. Existing EU legislation in the sectors of water, waste, industrial pollution, air and chemicals contains relevant provisions for the protection of the marine environment against pollution from municipal and industrial sources.

3.1. The EU Marine Strategy

The European Commission has proposed a strategy to protect more effectively the marine environment across Europe, setting objectives which should ensure sustainable and healthy seas and oceans and ecosystems as well as sustainable exploitation of their resources. The draft Directive of the European Parliament and the Council of the EU, which establishes a Community framework in the field of the marine environment, with the title "Strategy for the marine environment" or "European marine strategy" aims at maintaining or restoring the marine environment in good state at the latest by 2021. The Marine Strategy will constitute the environmental pillar of the future maritime policy the European Commission designed to achieve the full economic potential of oceans and seas in harmony with the marine environment. The overarching objective of the Marine Strategy will promote the sustainable use of the seas and conservation of marine ecosystems, including seabeds, estuarine and coastal areas, paying special attention to sites holding a high biodiversity value. The Marine Strategy Directive will establish European Marine Regions on the basis of geographical and environmental criteria. Each Member State, in close cooperation with the relevant other Member States and third countries within a Marine Region, will be required to develop Marine Strategies for its marine waters.

The Marine Strategy is consistent with the Water Framework Directive, which requires that surface freshwater and ground water bodies (lakes, streams, rivers, estuaries, coastal waters...) achieve a good ecological status by 2015 and that the first review of the River Basin Management Plan should take place in 2021.

The draft Directive provides for a precise timetable for the adoption of measures. In particular it provides for:

- the preparation of a report on the state of the marine environment, 4 years after the entry into force of the Directive at the latest,
- the definition, within the same deadline, of a satisfactory state of the environment,

- the setting, within a 5-year period, of environmental objectives and corresponding indicators,
- the establishment and implementation, in 6 years at the latest, of a monitoring programme for the marine environment.

In addition, concerning measures:

- the development by 2016 of a programme of measures to maintain or obtain a good state of the environment
- the commencement of this programme should be prior to 2018.
- In all phases of the implementation of the Directive, it is stipulated that the work carried out in the framework of the Regional Seas and, among them, the Barcelona Convention and its protocols, should be taken into consideration.

Furthermore, it should be pointed out that the Commission, in its draft Directive "Strategy for the marine environment", indicated in the preamble that the Directive should contribute to the respect of the obligations of the Community and the member States deriving from several international agreements under which they had contracted important commitments concerning the protection of nature against pollution with a specific mention of the Barcelona Convention and its LBS Protocol. The same text indicated that the Member States should establish and implement programmes and measures aiming at achieving a good environmental state for the targeted waters, while respecting Community and international requirements in force.

3.2. The EU Water Initiative (EU WI) and particularly its Mediterranean component (Med EUWI)

The EU Water Initiative was launched in Johannesburg in 2002, as a key contribution to the implementation of the World Summit on Sustainable Development (WSSD) targets and Plan of Implementation and to assist achievement of the water-related Millennium Development Goals, providing a platform for strategic partnerships. The MED EUWI is an integral part of the EU WI and shares its overall objectives. The Component gives particular emphasis to Mediterranean priorities, according to needs and strategies defined in partnership with governments, the Commission and major stakeholders, aiming to:

- assist design of better, demand driven and output oriented water related programmes,
- facilitate better coordination of water programmes and projects, targeting more effective
- use of existing funds and mobilization of new financial resources and,
- enhanced cooperation for project's proper implementation, based on peer review and strategic assessment.

The MED EU WI focuses on the following themes:

- Water supply and sanitation, with emphasis on the poorest part of the societies
- Integrated water resources management, with emphasis on management of transboundary water bodies
- Water, food and environment interaction, with emphasis on fragile ecosystems
- Non-conventional water resources

while as horizontal themes are identified

- Transfer of technology, transfer of know how, capacity building and training
- Education

The Initiative is built on existing mechanisms, institutions and regionally led processes and initiatives in the Mediterranean (e.g. the Euro-Med Partnership, UNEP/MAP etc), as appropriate.

After a design phase, the MED-EUWI entered into an implementation stage, with the development of regional and national activities scheduled in its 2005 work programme. A joint process between the Water Framework Directive and the EU Water Initiative was initiated in 2004. This process is aimed at making Mediterranean partners benefit from the principles, approach and experience of the water framework directive, to improve integrated water resources management in the region. The joint process was endorsed by EU Water Directors in December 2004 and will be further developed in the coming years.

3.3. The EU Water Framework Directive

The Water Framework Directive (WFD) establishes a framework for water policy based on the principle of integrated river basin management (Directive (2000/60/EC)), is currently in the initial phase of implementation in the Member States. The WFD introduces a regime for management of river basins and adjoining coastal areas based on their drainage basins rather than administrative barriers. It introduces the principle of the combined approach whereby emission controls and quality objectives are both applied. The objective of the directive is the attainment or preservation of good ecological and good chemical status. This directive also provides for the various monitoring, assessments and reporting requirements. The WFD replaces some earlier legislation dealing with different types of water, but pre-existing legislation on nitrate pollution from agriculture, urban wastewater treatment, bathing water, integrated pollution prevention and control (IPPC) will be retained to address specific threats to water quality.

3.4. The EU Policy on solid waste management

The EU is aiming for a significant reduction in the amount of waste generated, through new waste prevention initiatives, better use of resources, and encouraging a shift to more sustainable consumption patterns. The European Union's approach to waste management is based on three principles:

1. Waste prevention
2. Recycling and reuse
3. Improving final disposal and monitoring

The basic requirements are laid down in the Waste Framework Directive, which specifies that disposal or recovery should not endanger man or the environment. The runoff and land based discharges are addressed by the hazardous waste directive and the waste framework directive and specific instruments on waste oils, PCBs, batteries, sewage sludge, titanium dioxide and, recently, on waste electric and electronic equipment. The Commission's integrated product policy aims at a reduction of the impact of products across the whole life cycle.

3.5. The EU Policy on Industrial pollution (IPPC Directive)

Industrial production processes account for a considerable share of the overall pollution in Europe. The EU has a set of common rules for permitting and controlling industrial installations in the IPPC Directive of 1996. In essence, the IPPC Directive is about minimising pollution from various industrial sources throughout the European Union. About 50,000 installations are covered by the IPPC Directive in the EU. Operators of industrial installations covered by Annex I of the IPPC Directive are required to obtain an authorisation (environmental permit) from the authorities in the EU countries. New installations, and

existing installations which are subject to "substantial changes", have been required to meet the requirements of the IPPC Directive since 30 October 1999. Other existing installations must be brought into compliance by 30 October 2007. This is the key deadline for the full implementation of the Directive.

The IPPC Directive is based on several principles, namely (1) an integrated approach, (2) best available techniques, (3) flexibility and (4) public participation.

1. The integrated approach means that the permits must take into account the whole environmental performance of the plant, covering e.g. emissions to air, water and land, generation of waste, use of raw materials, energy efficiency, noise, prevention of accidents, and restoration of the site upon closure.
2. The permit conditions including emission limit values (ELVs) must be based on Best Available Techniques (BAT), as defined in the IPPC Directive. To assist the licensing authorities and companies to determine BAT, the Commission organises an exchange of information between experts from the EU Member States, industry and environmental organisations. This work is co-ordinated by the European IPPC Bureau of the Institute for Prospective Technology Studies at EU Joint Research Centre in Seville (Spain). This results in the adoption and publication by the Commission of the BAT Reference Documents (the so-called BREFs).
3. The IPPC Directive contains elements of flexibility by allowing the licensing authorities, in determining permit conditions, to take into account: (a) the technical characteristics of the installation, (b) its geographical location and (c) the local environmental conditions.
4. The Directive ensures that the public has a right to participate in the decision making process, and to be informed of its consequences, by having access to (a) permit applications in order to give opinions, (b) permits, (c) results of the monitoring of releases and (d) the European Pollutant Emission Register (EPER). In EPER, emission data reported by Member States are made accessible in a public register, which is intended to provide environmental information on major industrial activities. EPER will be replaced by the European Pollutant Release and Transfer Register (E-PRTR) from 2007 reporting period onwards.

4. European Union's Euro-Mediterranean policy

The Euro-Mediterranean, Conference which was held in Barcelona in November 1995, marked the starting point of the **Euro-Mediterranean Partnership** (Barcelona Process) (**EMP**), a wide framework of political, economic and social relations between the Member States of the European Union and Partners of the Southern Mediterranean. The Barcelona Process is a unique and ambitious initiative, which laid the foundations of a new regional relationship and which represents a turning point in Euro-Mediterranean relations. Its overall objective is to contribute through enhanced and regular dialogue, free trade and co-operation, to guarantee peace, stability and prosperity in the region. Accordingly, the Euro-Med encompasses three different aspects: i) a strengthened political dialogue; ii) the development of economic and financial co-operation; iii) greater emphasis on the social, cultural and human dimension. The sustainable development objective and its environmental dimension have been fully integrated in the new Euro-Mediterranean Partnership texts.

The Euro-Mediterranean Partnership now includes 35 members - 25 EU Member States and 10 Mediterranean Partners (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestinian Authority, Syria, Tunisia and Turkey). Libya has observer status since 1999.

The **Short and Medium Term Environmental Action Programme (SMAP)** constituted the environmental component of EMP. It is an operational tool for the implementation of the policy adopted by all Partners, and it forms the common basis for environmental purposes, at national and regional levels, as regards both policy orientation and funding in the Mediterranean region. Five fields of action were suggested, under which a number of most urgent actions to be undertaken in each sector were listed. Two of these fields cover major sectoral issues (water, wastes), one covers specific issues of an urgent nature (hot spots) while the fourth and fifth ones offer the opportunity of addressing inter-sectoral problems in an integrated way in specific - often sensitive or even vulnerable - geographical areas (coastal management, desertification). The important objective of protecting the biodiversity, having an inter-sectoral character, is dealt with under at least three of the selected fields of action.

In 2004 the European Union launched the **European Neighbourhood Policy (ENP)**, whose aim is to strengthen relations between the EU and its neighbours. The policy covers Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestinian Authority, Syria and Tunisia. This policy reinforces the Euro-Mediterranean Partnership, while using all its institutions and mechanisms. The key element of the European Neighbourhood Policy is the bilateral ENP Action plan mutually agreed between the EU and each partner country. These set out an agenda of political and economic reforms with short and medium-term priorities. The ENP Action Plans include the environment component under sustainable development. The priorities identified in the Action Plans, agreed with the authorities of the country, are also useful in guiding the programming of assistance programs – including other donors and International Funding Institutions (IFIs). In the environment area, the action plans foresee cooperation in three key areas: environmental governance and strengthening of environmental administrative structures, improving environmental legislation and its implementation, and promoting global and regional environmental cooperation. Implementation of the national action plans will be discussed and monitored with each country inside the EMP environment subcommittees.

At the 10th Anniversary of the EMP a major, highly visible and ambitious **Initiative Horizon 2020** was launched, designed to improve the quality of life of the average citizen, by the de-pollution of the Mediterranean Sea by 2020. The goal is to tackle all major sources of pollution including industrial emissions, municipal waste, and particularly urban wastewater. This initiative would improve the prospects for the development of tourism, contribute towards stemming the decline in local fishery stocks as well as providing safe drinking water to millions of citizens. However, since there is already much activity in the Mediterranean, it was considered important to discuss the proposed initiative with all partners to clearly identify synergies before the initiative begins, as well as to build on and strengthen existing forms of cooperation to deliver the necessary capacity-building and support at local level, to transfer best practices (including in integrated coastal zone management), as well as to finance major investments in environmental infrastructure. The European Commission is envisaging supporting this important goal through a concerted effort of relevant actors and institutions in the Mediterranean. Key building blocks in this effort will be the work done under the Barcelona Convention and the MSSD. Another important contribution will come from the EU thematic strategy for the protection and conservation of the marine environment aimed at promoting sustainable use of the seas and conserving marine ecosystems. The Horizon 2020 initiative's planned activities fall under four headings:

1. Infrastructure development: projects to reduce the most significant sources of pollution. The initial focus will be on industrial emissions, municipal waste and urban wastewater, which are responsible for up to 80% of Mediterranean Sea pollution. The aim will be to develop a pipeline of projects in conjunction with the World Bank (WB) and the European Investment Bank (EIB) through their discussions with local authorities.

2. Capacity-building measures to help neighbouring countries create national environmental administrations that are able to develop and police environmental laws.
3. Using the Commission's research budget to develop greater knowledge of environmental issues relevant to the Mediterranean and ensure this is shared.
4. Developing indicators to monitor the success of Horizon 2020.

A precise timetable on the adoption of measures leading to the de-pollution of the Mediterranean Sea by 2020 has been agreed with Mediterranean partners and adopted at the Euro-Mediterranean Ministerial Conference on the Environment, in Cairo (November 2006). This timetable covers the initial phase of Horizon 2020, until 2013, corresponding to the period covered by the next EU financial perspectives. It is proposed that following a 2009 mid-term progress report to Euro-Mediterranean environment ministers, the initiative be reviewed, at a subsequent meeting of EMP environment ministers, to be held in 2012.

5. The Global Programme of Action (GPA)

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) was adopted by 108 Governments and the European Commission at an intergovernmental conference convened for this purpose in Washington, D.C., USA, in 1995. The GPA is designed to be a source of conceptual and practical guidance to be drawn upon by national and/or regional authorities for devising and implementing sustained action to prevent, reduce, control and/or eliminate marine degradation from land-based activities. The GPA aims at preventing the degradation of the marine environment from land-based activities by facilitating the duty of States to preserve and protect the marine environment.

The implementation of the GPA is primarily the task of Governments, in close partnership with all stakeholders including local communities, public organizations, non-governmental organizations and the private sector. Formulation of national and regional programmes of action is a necessity for successful implementation. UNEP, as the Secretariat of the GPA, and its partners facilitate and assist Governments in their tasks.

The Intergovernmental Review Meetings are forums where Governments and other stakeholders meet to review the status of the implementation of the GPA and decide on action to be taken to strengthen the implementation of the GPA. During the second IGR meeting held in Beijing (2006) the participants committed themselves among other things “to furthering the implementation of the Global Programme of Action in 2007–2011 by applying ecosystem approaches, to further the application of ecosystem approaches to watershed, coast, oceans and large marine ecosystems and island management, and to strengthen national, regional and global cooperation to help achieve increased application by 2010 of the ecosystem approach, as set forth in the Johannesburg Plan of Implementation.”

6. The Johannesburg Summit on Sustainable Development

The Johannesburg Summit 2002 – the World Summit on Sustainable Development – brought together tens of thousands of participants to focus the world's attention and direct action toward meeting difficult challenges, including improving people's lives and conserving our natural resources in a world that is growing in population, with ever-increasing demands for food, water, shelter, sanitation, energy, health services and economic security. The participants strongly reaffirmed their commitment to the Rio principles, the full implementation of Agenda 21 and the Programme for the Further Implementation of Agenda 21. The Summit decided on a **plan of implementation** to promote the integration of the

three components of sustainable development: economic development, social development and environmental protection as interdependent and mutually reinforcing pillars. Poverty eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base of economic and social development are overarching objectives of, and essential requirements for, sustainable development.

Included in the plan of implementation, was the renewal of the commitment, as advanced in Agenda 21, to sound management of chemicals throughout their life cycle and of hazardous wastes for sustainable development as well as for the protection of human health and the environment, inter alia, aiming to achieve, by **2020**, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment, and support developing countries in strengthening their capacity for the sound management of chemicals and hazardous wastes by providing technical and financial assistance. This would include actions at all levels to promote the ratification and implementation of relevant international instruments on chemicals and hazardous waste, including the Rotterdam Convention on Prior Informed Consent Procedures for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants.

Also it was decided to launch a programme of actions, with financial and technical assistance, to achieve the Millennium development goal on safe drinking water. In this respect, it was agreed to halve, by the year **2015**, the proportion of people who are unable to reach or to afford safe drinking water, as outlined in the Millennium Declaration, and the proportion of people without access to basic sanitation.

7. The Stockholm Convention on POPs

The Stockholm Convention on Persistent Organic Pollutants (POPs) was adopted in 2001 in response to the urgent need for global action to protect human health and the environment from "POPs". These are chemicals that are highly toxic, persistent, bioaccumulate and move long distances in the environment. The Convention seeks the elimination or restriction of production and use of all intentionally produced POPs (i.e. industrial chemicals and pesticides). It also seeks the continuing minimization and, where feasible, ultimate elimination of releases of unintentionally produced POPs such as dioxins and furans. Stockpiles must be managed and disposed of in a safe, efficient and environmentally sound manner.

The chemicals slated for elimination under the Stockholm Convention are the pesticides aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene (HCB), mirex and toxaphene, as well as the industrial chemical polychlorinated biphenyls (PCBs). Continued use of the pesticide DDT is allowed for disease vector control until safe, affordable and effective alternatives are in place. Countries must make determined efforts to identify label and remove PCB containing equipment from use **by 2025**. The Convention also seeks the continuing minimization and, where feasible, elimination of the releases of unintentionally produced POPs such as the industrial by-products dioxins and furans.

In accordance with paragraph 1 of Article 7 of the Stockholm Convention, each Party has to develop and endeavour **National Implementation Plans (NIPs)** for the implementation of its obligations under the Convention and to transmit its plan to the Conference of the Parties within two years of the date on which the Convention enters into force for it. In the Mediterranean Region NIPs have already been prepared by Albania, Egypt, the EU, France, Lebanon, Monaco, Morocco, Spain and Tunisia. The Convention is into force since 17 May 2004.

8. The Basel Convention on transboundary movement of hazardous wastes

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989, in response to concerns about toxic waste from industrialized countries being dumped in developing countries and countries with economies in transition. During its first decade, the Convention's principal focus was the elaboration of controls on the "transboundary" movement of hazardous wastes that is the movement of such wastes across international frontiers and the development of criteria for environmentally sound management of the wastes. More recently the work of the Convention has emphasized full implementation of treaty commitments and minimization of hazardous waste generation.

The Basel Convention covers hazardous wastes that are explosive, flammable, poisonous, infectious, corrosive, toxic, or ecotoxic. The categories of wastes and the hazardous characteristics are set out in Annexes I to III of the Convention. Lists of specific wastes characterized as hazardous or non-hazardous are in Annexes VIII and IX. The Convention entered into force 5 May 1992.

9. The Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade was adopted in 1998. Dramatic growth in chemicals production and trade during the past three decades had highlighted the potential risks posed by hazardous chemicals and pesticides. Countries lacking adequate infrastructure to monitor the import and use of such substances were particularly vulnerable. In the 1980s, UNEP and FAO developed voluntary codes of conduct and information exchange systems, culminating in the Prior Informed Consent (PIC) procedure introduced in 1989. The new Convention will replace this arrangement with a mandatory PIC procedure. At present the Rotterdam Convention subjects to the Prior Informed consent procedure the following 22 hazardous pesticides: 2,4,5-T, aldrin, captafol, chlordane, chlordimeform, chlorobenzilate, DDT, 1,2-dibromoethane (EDB), dieldrin, dinoseb, fluoroacetamide, CH, heptachlor, hexachlorobenzene, lindane, mercury compounds, and pentachlorophenol, plus certain formulations of methamidophos, methyl-parathion, monocrotophos, parathion, and phosphamidon. It also covers five industrial chemicals: crocidolite, polybrominated biphenyls (PBBs), polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs), and tris (2,3 dibromopropyl) phosphate. The Convention entered into force 24 February 2004.

10. The Strategic Approach to International Chemicals Management (SAICAM)

Adopted by the International Conference on Chemicals Management (ICCM) on 6 February 2006 in Dubai, United Arab Emirates, the Strategic Approach to International Chemicals Management (SAICAM) is a policy framework for international action on chemical hazards. SAICAM was developed by a multi-stakeholder and multi-sectoral Preparatory Committee.

The Strategic Approach supports the achievement of the goal agreed at the 2002 Johannesburg World Summit on Sustainable Development of ensuring that, by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health.

SAICAM comprises three core texts:

- The Dubai Declaration, which expresses the commitment to SAICM by Ministers, heads of delegation and representatives of civil society and the private sector.
- The Overarching Policy Strategy, which sets out the scope of SAICM, the needs it addresses and objectives for risk reduction, knowledge and information, governance, capacity-building and technical cooperation and illegal international traffic, as well as underlying principles and financial and institutional arrangements. The International Conference on Chemical Management (ICCM) (Dubai 2006) adopted the Overarching Policy Strategy, which together with the Dubai Declaration, constitutes a firm commitment to SAICM and its implementation.
- A Global Plan of Action, which sets out proposed “work areas and activities” for implementation of the Strategic Approach. The ICCM recommended the use and further development of the Global Plan of Action as a working tool and guidance document.

The Johannesburg Plan of Implementation (World Summit on Sustainable Development, Johannesburg, 2002), is a key political commitment underlying the SAICM Overarching Policy Strategy. In the Plan, it was agreed that “governments, relevant international organizations, the private sector and all major groups should play an active role in changing unsustainable consumption and production patterns.” This would include the actions at all levels.

III. COMPARATIVE ANALYSIS

1. Comparison between the general requirements of the LBS Protocol and the Water Framework Directive and other EU Measures

Both regulatory systems aim at achieving a high level of protection and at steadily improving the environmental conditions and are governed by common general principles and rules of environmental protection: sustainable development, prevention and precautionary principle (incl. minimization-elimination of pollution), polluter pays principle, environmental impact assessment, public information and participation, use of Best Available Techniques and Best Environmental Practices, integration principle. The comparative legal analysis of the two systems and the effort to fill in any possible gaps should thus be based on these common principles and rules and the concrete provisions adopted in the context of the Barcelona Legal System or the EC framework that aim at implementing them

The LBS Protocol is to be implemented on the basis of the Strategic Action Programme (SAP) of regional and national activities to address land-based marine pollution. The EU environmental law does not have special instruments dealing exclusively with land-based pollution of the marine environment. However, a number of EC legal acts from the sectors of water, waste, industrial pollution, air and chemicals contribute to the protection of the Mediterranean Sea from municipal and industrial, i.e. land-based, sources of pollution. The fact that the EU and Barcelona legal systems follow a systematically different approach in dealing with land-based pollution makes comparison of the two systems a complex exercise. However, the effective planning and implementation of the long-term activities of the SAP would not be hindered by possible contradicting commitments made by the Mediterranean countries that are EU Member States. The direct effect of those provisions of the LBS Protocol that are sufficiently precise, clear and unconditional will certainly strengthen the implementation process.

NDA (SAP) vs Analysis of human impact (WFD)

As already mentioned, one major input from the countries in the SAP for the preparation of the National Action Plans is the National Diagnostic Analysis (NDA). The objective of the NDA is to identify and assess the national conditions and major environmental and health issues including problems/impacts, specific contaminants, physical alterations and destruction of habitats, sources of degradation, significance of impacts, and areas of concern. Likewise, to co-ordinate the application of measures taken at Community level to tackle particular pollution problems such as eutrophication, microbial and chemical pollution, river basin management plans of the Water Framework Directive first require an analysis of human impact.

Common guidelines, standards and control (SAP) vs Control at sources and quality objectives (WFD)

In terms of the types of measure to be applied, in order to achieve the provisions of the LBS Protocol, the SAP requires the Parties to prepare and progressively adopt common guidelines, environmental quality criteria and standards, setting specific requirements for the quantities of the substances discharged, their concentration in effluents and methods of discharging them, as well as the quality of seawater used for specific purposes that is necessary for the protection of human health, living resources and ecosystems. It involves the control and progressive replacement of products, installations and other processes causing significant pollution of the marine environment.

Similarly, the Water Framework Directive adopts a combined approach, including both measures involving controls that concentrate on what is achievable at source through the application of technology (BAT), as well as measures involving controls that deal with the needs of the receiving environment in the form of quality objectives.

List of priority substances to be controlled or phased out at source (SAP) vs Phasing out of pollutants and good ecological status of waters (WFD)

Both the SAP and the WFD, in its "Strategy against pollution of water", establish a list of priority substances for which water quality standards and emission controls must be applied. Of these priority substances, certain will be subject to cessation or phasing out of discharges, emissions and losses within an appropriate timetable. In general these include toxic, persistent and bio accumulative substances, subject to phasing out at the latest around 2025 (SAP)-2027(WFD). For the remaining priority substances the SAP has predetermined percentage reductions to be achieved within a specified time schedule. The Water Framework Directive on the other hand has as a requirement the achievement of "good status" of waters, involving both good ecological status and good chemical status. As already mentioned good ecological status is defined in terms of the quality of the biological community, the hydrological characteristics and the chemical characteristics that would be expected to exist in conditions of minimal human impact. Good chemical status is defined in terms of compliance with all the quality standards established for chemical substances at European level.

Deviations in the timeframe for the implementation of key activities

The National Action Plans prepared in the frame of the SAP were adopted and made operational by 2005 in Portoroz Meeting, Slovenia, while the EU Mediterranean countries will also be preparing their river basin management plans for the WFD, to be finalized by 2009 and made operational by 2012. Such deviations in the timeframe for implementation will, however, be taken into consideration during the review of the SAP activities and time-schedule and are expected to be appropriately accommodated where possible, along with any other regional or international timeframes that apply to the implementation of the SAP by the Mediterranean countries.

Methodology for the control of pollution from the industrial sector (SAP vs IPPC Directive)

According to the SAP, by 2005, the countries should have at their disposal a set of guidelines on BAT and BEP to be adopted in industries for the control of pollution caused by POPs, TPB heavy metals (Hg, Cd, Pb), zinc, copper and chromium, organometallic compounds, other organohalogen compounds and nutrients.

Accordingly the IPPC Directive bases the permitting system for industrial installations on the concept of Best Available Techniques (or BAT). The Directive grants the Member States an eleven-year transition period from the day that the Directive entered into force (year 1996) to impose BAT on all existing installations. BAT reference documents (BREFs) for the industrial sectors covered in Annex I of the Directive are expected to be completed by the end of 2005, while several have already been finalised.

Inventories of pollutants emissions and reporting

According to the SAP, the countries are expected to make or update inventories of point source discharges and emissions of industrial pollutants in hot spots and areas of concern and from the public industrial sector, as well as inventories of the uses and the quantities of pollutants produced or in stock for the following groups of substances: POPs and PAHs,

Organometallic compounds, Other Pesticides and Other organohalogen compounds (chlorinated paraffins), Obsolete Chemicals, Lube-oils, and Batteries. This activity is covered to a large extent by the countries through the preparation National Baseline Budgets for POPs, heavy metals, organometallic compounds, other organohalogen compounds, radioactive substances, nutrients and hazardous wastes. As part of the SAP reporting requirements, the Member States are encouraged to establish and then make publicly available an environmental database or inventory of potentially harmful releases or transfers to air, water and soil as well as wastes transported off site for treatment and disposal known as a **Pollutant Release and Transfer Register (PRTR)**.

Correspondingly, the IPPC Directive provides for the setting up of a **European Pollutant Emission Register**, also known as **EPER**. This is a public register intended to provide environmental information on major industrial activities and will contain the reported emission data from national governments of all EC Member States. The governments are required to maintain inventories of emission data from specified industrial sources and to report emissions from individual facilities to the European Commission.

Environmental quality criteria and emission limit values

According to the SAP the Parties are expected to prepare and adopt environmental quality criteria as well as emission limit values for point source discharges of substances from industrial installations into water and air by 2010.

There is a corresponding requirement in the IPPC Directive according to which the emission limits of a number of Directives apply as minimum values in installations, in the absence of Community emission limit values defined in the IPPC Directive following its entry into force. The Directive lists the main polluting substances for which emission limit values may also be laid down. In addition, the EU Directive on water pollution caused by certain dangerous substances discharged into the aquatic environment requires the establishment by Member States of pollution reduction programmes including water quality objectives for the pollutants in its list II. Most importantly, following adoption of the list of priority substances under the Water Framework Directive the Commission will propose community-wide water quality standards and emission controls for the priority substances.

Conclusions

There is a general similarity of approach in the SAP and the EU directives (WFD and IPPC), such that it may be considered that in implementing their obligations under the WFD and IPPC the EU Mediterranean countries would in effect be fulfilling to great extent their general obligations under the SAP. A comparative table of key milestones of the SAP, the WFD and other EU legislation is presented in Table 1.

Table: Key milestones of the SAP, Water Framework Directive and other EU Measures (relevant to municipal and industrial marine pollution control)

Strategic Action Programme		Water Framework Directive	Other EU Directives	Proposed EU Marine policy
Year	Issue			
1997	Adoption of the SAP			
2000		Directive entered into force		
2002	National Diagnostic Analyses			
2003	<ul style="list-style-type: none"> - Presentation of National Action Plans - Deadline for National budget commitments and Baseline budgets for each SAP target - Guidelines on alternatives to 12 Priority POPs - Guidelines on urban solid waste management 	<ul style="list-style-type: none"> - Transposition in national legislation - Identification of River Basin Districts and Authorities 		Proposals for chemicals policy and pesticides strategy
2004	SAP sustainability analysis, identification of national financial instruments	Characterisation of river basin: Pressures, impacts and economic analysis		Review of policy on radioactive substances
2005	<ul style="list-style-type: none"> - National Action Plans Operational -Guidelines for Industrial Wastewater Treatment and Disposal, BAT and BEP for industrial pollutants - 50% reduction of 12 Priority POPs, Hg, Cd, Pb and organometallic compounds (organomercuric phase-out) 		Completion of BREFS-IPPC Directive	
2006	<ul style="list-style-type: none"> - Sound disposal of all obsolete chemicals and 50% of used lube-oils -Public consultations completed 	<ul style="list-style-type: none"> - Establishment of monitoring network - Start public consultation (at the latest) 		Assessment of marine eutrophication
2007			BAT based permit	

Strategic Action Programme		Water Framework Directive	Other EU Directives	Proposed EU Marine policy
Year	Issue			
2007			conditions for existing industries - IPPC Directive	
2008		Present draft river basin management plan		
2009		Finalise river basin management plan, including programme of measures		
2010	<ul style="list-style-type: none"> - Phase-out of 12 Priority POPs - 25% reduction of PAH - 20% reduction of hazardous waste generated - Safe and sound disposal of 50% of hazardous waste - 50% reduction of other listed releases /emissions of pollutants - Environmental quality criteria and emission limits for point source discharges into water and air 	Introduce pricing policies		<ul style="list-style-type: none"> - Eliminate eutrophication - Eliminate pollution by litter
2012		Make operational programme of measures		
2015		Meet environmental objectives		
2020				Prevent pollution by radioactivity

2. Comparative analysis of measures for selected pollutants included in the SAP, the EU Legislation and International Conventions

i) Persistent Organic Pollutants (POPs)

According to the **SAP**, the input into the environment of the 12 Priority POPs, must be phased out by the year 2010. Their input into the environment must be reduced by 50% by the year 2005, while by that time all PCB waste must be collected and disposed of in an environmentally sound manner. By 2003, the countries are expected to make “national budget commitments” and prepare “national baseline budgets” for the 12 Priority POPs, as part of the preparation of their National Action Plans. By the same time the countries should have at their disposal a set of guidelines for the introduction of alternatives to the 12 Priority POPs.

A number of POPs among the priority 12 (including aldrin, dieldrin, endrin, hexachlorobenzene, chlordane, heptachlor and PCB) are included in List I of the **EU Directive** concerning dangerous substances in water (76/464/EEC). These substances have therefore been subject to elimination of pollution while for aldrin, dieldrin, endrin and hexachlorobenzene emission limit values and quality objectives were set on a Community level under the Specific Directive of 76/464/EEC (33). These were the first mandatory minimum requirements for an approach based on best available techniques (BAT).

Accordingly, the **IPPC Directive** includes the emission limit values for these substances as minimum requirements for large installations. The IPPC Directive foresees the setting of emission limit values for the remaining priority POPs, while all existing installations should meet permit conditions based on BAT and operate in accordance with the requirements of the Directive by 30 October 2007. Under the **Water Framework Directive** the priority POP hexachlorobenzene is listed as a priority hazardous substance requiring the review of the Specific Directive of 76/464/EEC on hexachlorobenzene by the end of 2003 in order to achieve the phase-out of discharges.

Council Directive 79/117/EEC (34) prohibits the sale and use of pesticides containing certain active substances, including persistent organochlorine compounds. As a result, some of the more dangerous substances including DDT, aldrin and endrin have not been produced or used in the EU for some time while most uses of other pesticides, including lindane, chlordane, dieldrin, HCH, hexachlorobenzene and campheclor have also been prohibited.

The use and marketing of PCBs was banned through **Directive 85/467/EEC** (35) amending Council Directive 76/769/EEC on the marketing and use of certain dangerous substances and preparations.

According to the **Stockholm Convention** on Persistent Organic Pollutants (adopted on 22 May 2001) to which the European Community is a signatory, the aim initially is to prohibit the production and use of the first nine POPs and to minimize the production and use (or unintentional production) of the tenth substance, DDT. In the case of the last two POPs, dioxins and furans, the sole objective is to minimize unintentional production. The goal for unintentionally produced hexachlorobenzene (HCB) and PCBs) derived from anthropogenic sources is to continue minimisation and, where feasible, ultimate elimination of the total releases. The goal of reducing or eliminating releases will be reached through the promotion of strategies and measures as reducing sources by feasible practical means or, preventing formation and releases. The goal for the 12 Priority POPs in stockpiles and wastes is their environmentally sound management as well as for products and articles, upon becoming wastes that consist of, contain or are contaminated by these POPs.

According to the **SAP**, the input into the environment of **Polycyclic Aromatic Hydrocarbons (PAH)**, also a member of the POPs group, must be reduced by 25% by the year 2010 and phased out by 2025. In EU countries considerable reductions of PAH are expected to result from the requirements of the IPPC Directive, according to which all existing installations releasing PAH should meet permit conditions based on BAT and operate in accordance with the requirements of the Directive by 30 October 2007.

In addition, Polycyclic Aromatic Hydrocarbons are included as hazardous substances within the list of priority substances of the **Water Framework Directive** and are therefore, correspondingly to the SAP phase-out requirements, subject to cessation or phasing out of emissions, discharges and losses within a timetable that shall not exceed 20 years (by 2027 at the very latest).

ii) TPB Heavy metals (Cd, Hg and Pb)

Just as the **SAP** deals with Cd, Hg and Pb as priority TPBs subject to phase-out by the year 2025 by applying BAT and BEP, so the **EU Water Framework Directive** considers it as priority hazardous substances, subject to phase-out at the latest by the final deadline for meeting the WFD objectives (2027).

The emission limit values set for Cd and Hg in the common measures adopted by the Parties for which, according to the **SAP**, the Mediterranean countries are expected to adopt national regulations for their application are consistent with the limit values set in the relevant EU Directives, specifically the amendments to the Directive concerning dangerous substances in water (76/464/EEC) that entered into force in the early 1980s (37). The **IPPC Directive** includes the emission limit values for these substances of the "specific directives" of 76/464/EEC as minimum requirements for large installations. In addition, the Water Framework Directive requires the review of these directives by the end of 2003 in order to achieve the phase-out of discharges. The EU regulatory profile for Pb includes the introduction of marketing and use restrictions for the use of lead in most paints, limit values for lead in drinking water and sewage sludge as well as legislation regarding lead in ambient air. The Water Framework Directive requires the review of these directives by the end of 2003 in order to achieve the phase-out of discharges. A phase-out on the use of lead in petrol has been achieved through the EU Auto-Oil Programme.

The **SAP** stipulates that the Mediterranean countries that have not already undertaken pollution control measures are expected to make budget commitments to halve the discharges emissions and losses of these heavy metals by 2005, by applying BAT and BEP. In the EU the **IPPC Directive** is the only legally binding instrument that governs the phase-out of mercury cells. The mercury-cell process is not considered to be BAT for the chloralkali sector and it will be for the local competent authority to decide on BAT -based permit conditions for individual installations on a plant-by-plant basis. All existing installations should meet permit conditions based on BAT and operate in accordance with the requirements of the Directive by 30 October 2007.

iii) Other organohalogen compounds

In addition to the measures envisaged for persistent organic pollutants, the **SAP** requires the elimination to the fullest possible extent of marine pollution caused from other organohalogen compounds by 2025 and a reduction of discharges, emissions and losses by 2010, through measures that include, as adopted by the Parties in 1989, the application on a national level of an environmental quality objective for DDT in coastal waters (25 ng.l⁻¹), international codes of conduct on the distribution and use of pesticides, legal and administrative measures for the production, use and disposal of organohalogen compounds as well as best available

techniques in industrial installations. The SAP requires that the countries specifically regulate releases of organochlorines by the paper and paper pulp industry (1 kg/t of pulp of AOX release) and apply BAT. Special reference is made to the reduction and control of the manufacture and use of lindane, 2,4-D, 2,5-T, trichlorophenol, tetrachlorophenol and pentachlorophenol.

Likewise since organohalogen compounds are included in the List I substances of **EU Directive 76/464/EEC** concerning pollution caused by certain dangerous substances, Member States are therefore required to eliminate pollution by organohalogen compounds.

Emission limit values and quality objectives have been set on a Community level for a number of organohalogen compounds in addition to priority POPs, through specific Directives of 76/464. These include hexachlorocyclohexane (84/491/EEC) (40), carbon tetrachloride, DDT (25µg.l-1) and pentachlorophenol (86/280/EEC) (41), isodrin, hexachlorobenzene, hexachlorobutadiene and chloroform (88/347/EEC) (33), 1,2-dichloroethane (EDC), trichloroethylene (TRI), perchloroethylene (PER) and trichlorobenzene (TCB) (90/415/EEC)(42). These Directives were the first mandatory minimum requirements for an approach based on best available techniques or BAT. Council Directive 79/117/EEC (34) prohibits the sale and use of pesticides containing certain active substances, including persistent organochlorine compounds such as lindane.

Furthermore, the **Water Framework Directive** requires the review of those specific directives dealing with priority hazardous substances (hexachlorobutadiene, hexachlorocyclohexane, pentachlorophenol and trichlorobenzene) by the end of 2003 in order to achieve the phase-out of discharges. In general, the WFD lists a large number of priority substances that are organohalogen compounds, for which the Commission will propose Community wide water quality standards and emission controls. There are also a large number of organohalogen compounds that are listed as priority hazardous substances, subject to the cessation or phasing-out of discharges, emissions and losses within a timeframe of 20 years.

iv) Nutrients

a) According to the **SAP** reduction of nutrient from **urban sources** will be indirectly achieved through the establishment of secondary treatment Wastewater Treatment Plants serving cities or agglomerations with population above 100,000, until 2010.

In the EU, the objective of **Directive 91/271/EEC on Urban Wastewater Treatment** is to reduce the pollution of surface waters from nutrients, particularly nitrates and phosphates, in urban wastewater, one of the major sources of nutrient pollution and hence eutrophication, as well as wastewater from certain sectors of the agro-food industry. The Directive obliges Member States to provide prior regulation or specific authorization for all discharges of urban wastewater and wastewater from certain industrial sectors, as well as for all discharges of industrial waste water into urban waste water systems; Member States must provide urban wastewater collecting systems (sewerage) and treatment plants for all agglomerations above 2.000 population equivalents (measurement unit for the organic pollution of waste water equalling to the average pollution load of one person per day). The general rule for the level of treatment is Secondary (biological) treatment. However, the treatment must be more stringent (tertiary treatment) for discharges to the catchments of sensitive areas (prone to eutrophication) identified by Member States and as an exception may be less stringent (primary treatment), as a derogation option subject to Commission approval, for certain discharges to coastal waters and estuaries identified as less sensitive areas. The deadline for this application is 31/12/1998, 31/12/2000 or 31/12/2005 depending on the size of the agglomeration and the sensitivity of the receiving waters. As of 31/12/2000 the wastewater from industrial sectors of the agro -food industry shall before discharge respect the

established conditions for all discharges from plants representing 4.000 population equivalent or more.

The deadline for providing general rules or registration/authorisation for the sustainable disposal of sludge arising from wastewater treatment and phasing out any dumping or discharge of sewage sludge into surface waters was 31/12/1998. Urban wastewater discharges and their effects should be monitored, situation reports should be published every two years and implementation programmes should be established. Sensitive areas must be designated according to one or more of the following criteria:

- Water bodies found to be eutrophic or which in the near future may become eutrophic if protecting action is not taken,
 - Surface freshwaters intended for the abstraction of drinking water and which could contain more than 50 mg/l of nitrates if action is not taken,
 - Areas where further treatment is necessary, to fulfill other Council Directives.
- The list of sensitive and less sensitive areas must be reviewed every four years.

b) For **industrial nutrient containing effluents**, according to the **SAP**, the disposal of wastewater from certain sectors of the agro-food industry should be subject to authorization or regulation by the competent authorities of the Parties, to conform to the provisions of the LBS Protocol. The SAP stipulates that the Mediterranean countries that have not already undertaken pollution control measures are expected to make budget commitments to **halve** the discharges emissions and losses of nutrients from **industrial installations** by 2010, by applying guidelines for BAT and BEP.

In EU countries considerable reductions of nutrients are expected to result from the requirements of the **IPPC Directive**, since EU Member States must ensure that all the existing installations that may cause the discharge of substances causing eutrophication (in particular, nitrates and phosphates) should meet permit conditions based on BAT and operate in accordance with the requirements of the Directive by 30 October 2007. More specifically, the EU Urban Wastewater Treatment Directive to reduce the pollution of surface waters from nutrients, obliges Member States to provide prior regulation or specific authorization for all discharges of wastewater from the agro -food industry.

c) To reduce the input of nutrients from **agricultural activities** the Mediterranean countries are expected, according to the **SAP**, to apply codes of good agricultural practice for the rational use of fertilizers and manure and to participate in relevant international programmes such as the FAO programmes for sustainable agricultural development in the Mediterranean.

Correspondingly the EU **Nitrates Directive** requires Member States to produce and promote Codes of Good Agricultural Practice in order to reduce the level of nitrate loss to surface water, including marine waters, and groundwater from agriculture. It contains monitoring requirements and, in areas identified as being vulnerable to nitrate pollution (N "vulnerable zones" or NVZ), it requires Member States to establish Action Programmes with legally enforceable constraints on agricultural practices (code(s) of good agricultural practice becomes mandatory) together with limits on the spreading of organic manure (< 170 kg N organic/hectare/year).

IV COMPARATIVE ANALYSIS OF NATIONAL PRIORITIES (FOR SELECTED POLLUTANTS) WITH GENERAL REQUIREMENTS OF THE SAP

Actions to control emissions of POPs and other organohalogenes

In the NAPs control of POPs is included in the actions related of Organohalogenes (emissions) and to the Hazardous wastes (stockpiles). Organohalogenes are expected to be emitted from some industries (organic chemicals, metal processing, electricity companies [PCBs], etc.) and from agriculture land runoff (pesticides). However, only in few NAPs there are specific actions directly targeting the control of these substances. In most NAPs the control of POPs emissions is expected to be achieved through general actions planned for the industrial sector (introduction of cleaner technology, BAT and wastewater pre-treatment) and actions for the environmental management of pesticide application in agricultures. Also PCBs related actions aim at the management of decommissioned PCBs bearing equipment.

On the other hand, hazardous wastes and stockpiles of obsolete chemicals is a problem, which is encountered in many Mediterranean countries. These stockpiles have been created for various reasons: PCB's bearing equipment (transformers) are stocked in the premises of National Electrical Companies awaiting to be destroyed; Obsolete Pesticides (including pesticides contained in the list of 12 POPs), which cannot be used any more, are stocked in many North African countries (but also in other Mediterranean countries); Obsolete chemicals are stocked without proper control in contaminated sites of closed industries (example Albania). Proper environmental management of these hazardous wastes/stockpiles is a first priority issue for some countries, because they may seriously affect human health. Most of the existing stockpiles are known, but a more detailed survey is needed to register the conditions of confinement of all obsolete chemicals.

Most Mediterranean countries have ratified the Conventions related to POPs and hazardous wastes transportation (Stockholm and Basel Conventions) and are in the process of preparing National Implementation Plans (NIPs) in the frame of the Stockholm Convention (9 NIPs are already submitted and 7 more are in preparation). Therefore it is expected that POPs control will be achieved through the NIPs. However, reporting on the implementation progress is lacking.

Compliance and implementation

According to the countries' NAPs, the SAP targets for emissions of organohalogenes will be fulfilled to a great extend, through industrial wastewater control actions. Also, according to the countries' NAPs the SAP targets for hazardous wastes and obsolete chemicals will be fulfilled to great extend. PCBs are banned in all Mediterranean countries, but because PCBs bearing equipment (mainly old transformers of National Electrical Companies) are stocked in many areas, almost all countries have included actions for the collection and destruction of these compounds. Also hazardous waste management systems (including the creation of specialized landfills) are proposed in many NAPs.

Actions to control emissions of Hg, Pb and Cd

Mercury, Pb and Cd are mostly emitted from industries, while Hg is also released from mining activities. Runoff from urban area with high traffic is also transferring Pb and Cd into the sea, mainly in the harbours. Phosphogypsum releases, from fertilizer producing units (example Lebanon, Tunisia) are considered as a potential source of Cd, while all metals may be present in the leachates of seafront dumping sites in many areas along the Mediterranean (example Lebanon, Libya, Morocco, Syria).

In most NAPs there are no specific actions directly targeting the emission of these metals, which are expected to be controlled through actions planned for the control of all industrial wastewater (introduction of cleaner technology, BAT and wastewater pre-treatment). All countries propose the introduction of legislation on Effluent Limit Values (ELV) for these metals (if not already in place), as well as Environmental Quality Standards (EQS) for the receiving water bodies. Compliance monitoring of industrial discharges, is also a tool to control metal emissions. Legislation enforcement is also considered as a major tool to meet the SAP targets.

Compliance and implementation

According to the countries' NAPs, the SAP targets for emissions of Hg, Pb and Cd will be fulfilled to a great extent. Almost all actions related to metal reduction are included in the industrial wastewater control actions (control of both BOD₅ and metals). This approach does not allow isolation of the actions that specifically target metal reduction. Furthermore, the lack of a regionally harmonised monitoring and reporting system does not allow the control of compliance to the SAP targets and the degree of NAP's implementation in the Mediterranean countries.

Actions to control emissions of nutrients (N)

Nutrients are not targeted directly in the NAPs, but indirectly through the control of urban and industrial effluents. In all Mediterranean countries environmentally efficient management of urban sewage is recognized as a priority issue. At least 108 Wastewater Treatment Plants (WWTPs) are proposed to be built until 2010 along the Mediterranean coastline and many more plants is planned to be upgraded (more advanced treatment, increase of treatment capacity, updating of equipment and process, etc). Therefore, the implementation of the NAPs will lead to an important reduction of the pollution load from these sources.

Nutrients are also emitted from industrial sources, especially in the sectors such as agro-food industry, fertilizers and tanneries. Nutrients emissions are expected to be controlled through actions planned for the control of all industrial wastewater (introduction of cleaner technology, BAT and wastewater pre-treatment). In the NAPs, all countries propose the introduction of legislation on Effluent Limit Values (ELV) for these metals (if not already in place), as well as Environmental Quality Standards (EQS) for the receiving water bodies.

Compliance and implementation

Although according to the countries' NAPs, the SAP targets for urban sewage will be fulfilled to a great extent, it is not clear whether nutrients (nitrogen) emissions will be substantially reduced. Very few actions aim directly at nitrogen control in the effluents, while the Water Frame Directive and the EU emission limits for urban and industrial effluents discharged into the marine environment will also lead to a control of nitrogen discharges in the EU Member States.

V. IMPLEMENTATION TOOLS

Implementation tools are very similar in the legal instruments of the SAP and the EU Euro-Mediterranean initiative. They include:

- Scientific and technical regional cooperation between States (Exchange of scientific and technical information; coordination of research programmes; promoting access to, and transfer of, environmentally sound technology including clean production technology.
- Monitoring mechanisms to follow the reduction of discharges from pollution sources and the state of the marine environment and reporting
- Granted access of the general public to information on the state of the Mediterranean marine environment
- Participation of stakeholders in the decision making process
- Capacity building of human and technical resources in the fields of public management institutions, monitoring and reporting, infrastructure to combat urban and industrial pollution
- Development of public and private partnership

VI. GAPS ANALYSIS

In recent years there has been a growing inter-connection between MAP activities and the EU, including the growth of overlapping membership between the two fora. Actually 7 CPs to Barcelona Convention and its protocol (Cyprus, France, Greece, Italy, Malta, Slovenia and Spain) are also EU Member States and 2 more countries are candidate Members (Croatia and Turkey). Furthermore, the EU interest on the environmental protection in the Mediterranean regions is growing in the recent years through the adoption of policies such as the Euro-Mediterranean Partnership, the European Neighbourhood Policy [ENP], the EU Marine Strategy, the EU Water Initiative and its Mediterranean component (Med EUWI), the EU Water Framework Directive, the EU Policy on industrial pollution (IPPC Directive) and the EU Initiative Horizon 2020 to de-pollute the Mediterranean Sea. Also EU established multilateral or bilateral financing mechanisms in the region that have influenced the environment oriented investments in the Region (the Short and Medium Term Environmental Action Programme [SMAP], the European Neighbourhood and Partnership Instrument [ENPI], the European Neighbourhood and Partnership Instrument (ENPI), LIFE-3rd Countries and recently the Initiative Horizon 2020).

Furthermore, EU Member States have to implement EU Directives because sanctions for non-compliance are imposed by EU institutions. Therefore, EU Directives are a priority for EU Member States and drive their environmental policies and actions in the region. Recently MAP and EU made attempts to explicitly address the linkage between MAP's and EU's policies in the Mediterranean region and seek to harmonize MAP and EU requirements. These positive developments are recently reflected in the mention on the of the MAP's Strategic Action Programme (SAP) in the recent Ministerial Declaration for the EU's Initiative Horizon 2020 (Cairo Declaration, November 2006).

Following these developments in the Mediterranean region, the new legally binding text should be considered in relation with the development of the relevant European legislation and the Euro-Mediterranean EU policy. The new SAP should:

- **Reconsider the protection philosophy**

The LBS Protocol and SAP system is organised around land-based sources and activities contributing to marine pollution, while current EU law is organised mainly around, on one hand, water management (Directive 2000/60), including abatement of water pollution (e.g. Directives 91/271 and 91/676), and, on the other, control of polluting activities (Directive 96/61) with several horizontal instruments (EIA/SEA Directives etc.) contributing to the objective of eliminating pollution whatever its origin and preserving ecological integrity. Therefore, although the EU legal framework is largely in conformity with the LBS Protocol, there are many differences in the general approach for combating pollution in the Mediterranean region, the priorities and the timetable for implementing actions.

Most important, the LBS Protocol makes no direct mention or reference to the necessity to arrive at a good environmental state for the Mediterranean. It is for this reason that in the current SAP the objectives and the targets adopted refer to the reduction of pollutant inputs and not to the quality of the marine environment. However, the ecosystem approach is not only included in the EU legislation but its application was recommended by the Johannesburg World Summit in 2002 and the GPA (IRM, 2006). Therefore the combination of the philosophy underlying the LBS Protocol on the one hand and on the other the new orientations, such as the ecosystem approach to the management of human activities and the objective of a good environmental state of the marine environment, could be considered as the spirit of the new SAP.

- **Reconsider priorities (substances and sectors) to be controlled**

The priorities to be included in the new SAP will take into account the amended LBS Protocol and particularly the priorities indicated in its Annex I. Within this framework, the treatment of urban wastewaters and industrial effluents, the reduction and elimination of substances that are toxic, persistent and likely to bio-accumulate, especially the POPs, should remain priority items in the new legally binding text. The list of activities in Annex I remains the mandatory framework; the same goes for the characteristics of substances in the environment and the categories of substances. However, the international priorities, the evaluations of the marine environment after 1997 and finally, a detailed analysis of the NAPs should lead to a more specific selection of the priorities.

- **Reconsider timetables**

To ensure coherence between the SAP, the EU Directives and the Euro-Mediterranean initiatives in the Mediterranean region, it is important to ensure that the timetable for the implementation of actions in the new SAP is harmonized with the timetables of the other legislations and initiatives.

- **Close the gaps in data generation (monitoring) and reporting**

Regarding hazardous substances in the Mediterranean region, data are available on heavy metals (especially mercury), PCBs, DDT and PAHs, but they are plagued with large time gaps and geographical gaps, and often based on different criteria for measurement and reporting. For other target substances there is much less information and in some cases there are no data at all. This lack of available data is due to the fact that most Mediterranean countries lack an adequate national monitoring system for hazardous substances.

Additionally, an important problem is the lack of fulfilment of the Parties of the reporting requirements stipulated in the Barcelona Convention and its associated Protocols, including reporting on which domestic implementation actions that have been taken with regards to SAP target substances (especially hazardous substances). A new reporting system is actually under preparation and testing by the MAP. However, a complicated factor is that many Contracting Parties have ratified only few of the protocols and therefore, a significant number of states are not required to submit reports on several important requirements under Protocols that they have not ratified. As a result, information about compliance of obligations and implementation of the protocols and common measures remains scarce and, where it exists, quite uneven in coverage.

- **The importance of implementation tools**

Though implementation tools are similar between Barcelona system, the LBS Protocol and the SAP from one side and the EU legislative texts in the following fields:

- Scientific and technical regional cooperation between States (Exchange of scientific and technical information; coordination of research programmes; promoting access to, and transfer of, environmentally sound technology including clean production technology.
- Monitoring mechanisms to follow the reduction of discharges from pollution sources and the state of the marine environment and reporting
- Granted access of the general public to information on the state of the Mediterranean marine environment
- Participation of stakeholders in the decision making process
- Capacity building of human and technical resources in the fields of public management institutions, monitoring and reporting, infrastructure to combat urban and industrial pollution
- Development of public and private partnership

There is a need that the new SAP would emphasis the importance of the cooperation between EU and Non EU and Non European Mediterranean Countries.

VII. SUMMARY TABLE

Agreements	POPs	Heavy metals	Organohalogenes	Nutrients
SAP	Phase out inputs of the 9 pesticides and PCBs and reduce to the fullest possible extent inputs of hexachlorobenzene, dioxins and furans by 2010. Input into the environment of PAH must be reduced by 25% by the year 2010 and phased out by 2025.	Cd, Hg and Pb to be reduced by 50% by the 2005 and phased-out by 2025, by applying BAT and BEP. Phase out uses of organomercuric compounds (2005) Phase out discharges, emissions and losses of organomercuric compounds (2010) Reduce by 50% organometallic compounds (2010) Adopt environmental quality criteria as well as emission limit values for point source discharges of substances from industrial installations into water and air by 2010.	Reduction by 20% of discharges, emissions and losses of organohalogenes by 2010. Elimination to the fullest possible extent of marine pollution caused from organohalogenes by 2025 Adopt environmental quality criteria as well as emission limit values for point source discharges of substances from industrial installations into water and air by 2010.	Dispose sewage from cities and agglomerations with population above 100,000 in conformity with the LBS Protocol (2010). Dispose all municipal sewage in conformity with LBS Protocol (2025). Reduce by 50% nutrients from industry (2010) Dispose all industrial wastewater in conformity with the LBS Protocol (2025). Reduce nutrient inputs from agriculture
EU Directives	Eliminate aldrin, dieldrin, endrin, hexachlorobenzene, chlordane, heptachlor and PCB. Also setting emission limit values and quality objectives for aldrin, dieldrin, endrin and hexachlorobenzene (76/464/EEC) . Setting emission limit values for the remaining priority POPs, while all existing installations should meet permit conditions based on BAT (IPPC) . Phase out hexachlorobenzene by 2003 (WFD) Phase out of hazardous substances and cessation of emissions,	Emission limit values (IPPC) Review Directive 76/464/EEC in order to achieve phase out of the metals (WFD) Member States make budget commitments to halve the discharges emissions and losses of these heavy metals by 2005, by applying BAT and BEP. Make budget commitments to halve the discharges emissions and losses of these heavy metals by 2005, by applying BAT and BEP. Phase-out of mercury cells in chloralkali sector and introducing BAT by 30/10/2007 (IPPC) Introduction of marketing and use restrictions for the use of Pb in most paints, limit values for Pb in drinking water and sewage sludge	Eliminate pollution by organohalogen compounds (76/464/EEC) . A large number of organohalogen compounds that are listed as priority hazardous substances are subject to the cessation or phasing-out of discharges, emissions and losses within a timeframe of 20 years (WFD) .	Provide urban wastewater collecting systems (sewerage) and treatment plants for all agglomerations above 2.000 population equivalents (91/271/EEC) (2005) Industrial installations that may cause the discharge of substances causing eutrophication (in particular, nitrates and phosphates) should meet permit conditions based on BAT and operate in

Agreements	POPs	Heavy metals	Organohalogenes	Nutrients
	discharges and losses within a timetable that shall not exceed 20 years (by 2027 at the very latest) (WFD)	(WFD)		accordance with the requirements (IPPC) (2007) Produce and promote Codes of Good Agricultural Practice in order to reduce the level of nitrate loss (Nitrate Directive)
Stockholm Convention	Identify label and remove PCB containing equipment from use by 2025. Prohibit the production and use of the first nine POPs. Minimize the production and use of DDT. Minimize unintentional production of dioxins and furans. Minimise and where feasible eliminate unintentionally produced hexachlorobenzene (HCB) and PCBs from anthropogenic sources			
Johannesburg WS	By 2020 chemicals have to be used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment		By 2020 chemicals have to be used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment	Halve by 2015 the proportion of people without access to basic sanitation.

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