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programmes of measures and economic analysis in the NAP update

Athens, Greece, 11 – 13 May 2015

## Agenda item 4: Application of the National Action Plans (NAPs) update methodology including practical sessions

# Facilitating the implementation of NAP update Guidelines: from midterm benchmark to programmes of measures

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## 1. Introduction

With the adoption in 2014 of the "Guidelines for Updating National Action Plans for the Implementation of the LBS Protocol and its Regional Plans in the framework of SAP-MED to achieve Good Environmental Status for Pollution-Related EcAp Ecological Objectives" [UNEP(DEPI)/MED WG.393/10], the general methodology and the process were commonly agreed for the Mediterranean Countries to initiate the updating of the national action plans prepared in 2003-2005. However, it is important to provide specific details on the tasks to be undertaken by the NAP update teams, in a stepwise manner, in order to successfully and effectively update their NAPs. For this purpose, the following document has been prepared with a special focus on the following aspects:

a) Assessing midterm benchmark based, as appropriate, on NAP implementation 2003-2013 including the listing of existing measures;
b) Carrying out gap analysis and setting national operational targets to meet SAP-MED and Regional Plan commitments and to achieve GES targets;
c) Identifying and developing the required new measures to achieve the national operational targets;
d) Shortlisting the potential measures based on suggested common, as appropriate, criteria; and
e) Selecting the final measures based on economic analysis in order to strengthen NAP implementation prospects and its overall financial sustainability.

The National Action Plans, which are foreseen to be updated in 2015, represent an important step forward towards the implementation of the LBS Protocol of the Barcelona Convention. It is expected that the updated NAPs will constitute a powerful national marine pollution prevention and control policy tool that will promote strategic planning for sustainable development. They will incorporate new developments in particular the adoption of GES and Ecological Objective 5 on eutrophication, Ecological Objective 9 on contaminants and Ecological Objective 10 on marine litter, as well as the regional plans and decisions adopted in the framework of Article 15 of the LBS Protocol. In particular, the updated NAPs are intended to reflect and capture the new spirit and dimensions stemming from the important momentum that UNEP/MAP and the Region are experiencing through stronger regional governance and intensified efforts by several actors towards pollution prevention and control of the Mediterranean Sea.

## 2. Streamlining and Integrating EcAp/GES targets in the updated NAP within the framework of SAP-MED/LBS Protocol

With the view to facilitate the NAP updating process, and based on information contained in Annex A of the NAP Update Guidelines [UNEP(DEPI)/MED WG.393/10] regarding requirements of the EcAp targets and Regional Plans in the framework of SAP-MED, the Secretariat is recommending that NAP update teams undertake analysis of how SAP-MED sectors and priority substances can be linked to EcAp pollution-related ecological objectives and GES targets and vice versa.

Coverage of the SAP-MED sectors/substances and regional plans/decisions by the three pollution-related ecological objectives (EO5 on eutrophication, EO9 on contaminants and EO10 on marine litter), herein after referred to as EO5, EO9 and EO10, are illustrated in Figure 1. The legally binding regional plans are shown in light brown oval shapes. The obligations of the SAP-MED are illustrated in yellow oval shapes. Priority substances agreed by MEDPOL Focal points at their meeting held in Aix en Provence, France in November 2009 are underlined. As can be seen, municipal wastewater is addressed by all three EOs. Municipal solid waste is covered by EO9 and EO10. The two Regional Plans on BOD reduction, in addition to the SAP-MED requirements for reduction of nutrients from agriculture and aquiculture, are addressed by EO5 and EO9.

Details on the scope of bridging between the commitments under the SAP-MED, the regional plans and the EcAp/GES targets are tabulated in Annex A, Table 1. Specific details of inter-linkages between each of EO5, EO9 and EO10 with the LBS/SAP-MED commitments and regional plans requirements are included in Tables 2, 3 and 4 in Annex A.

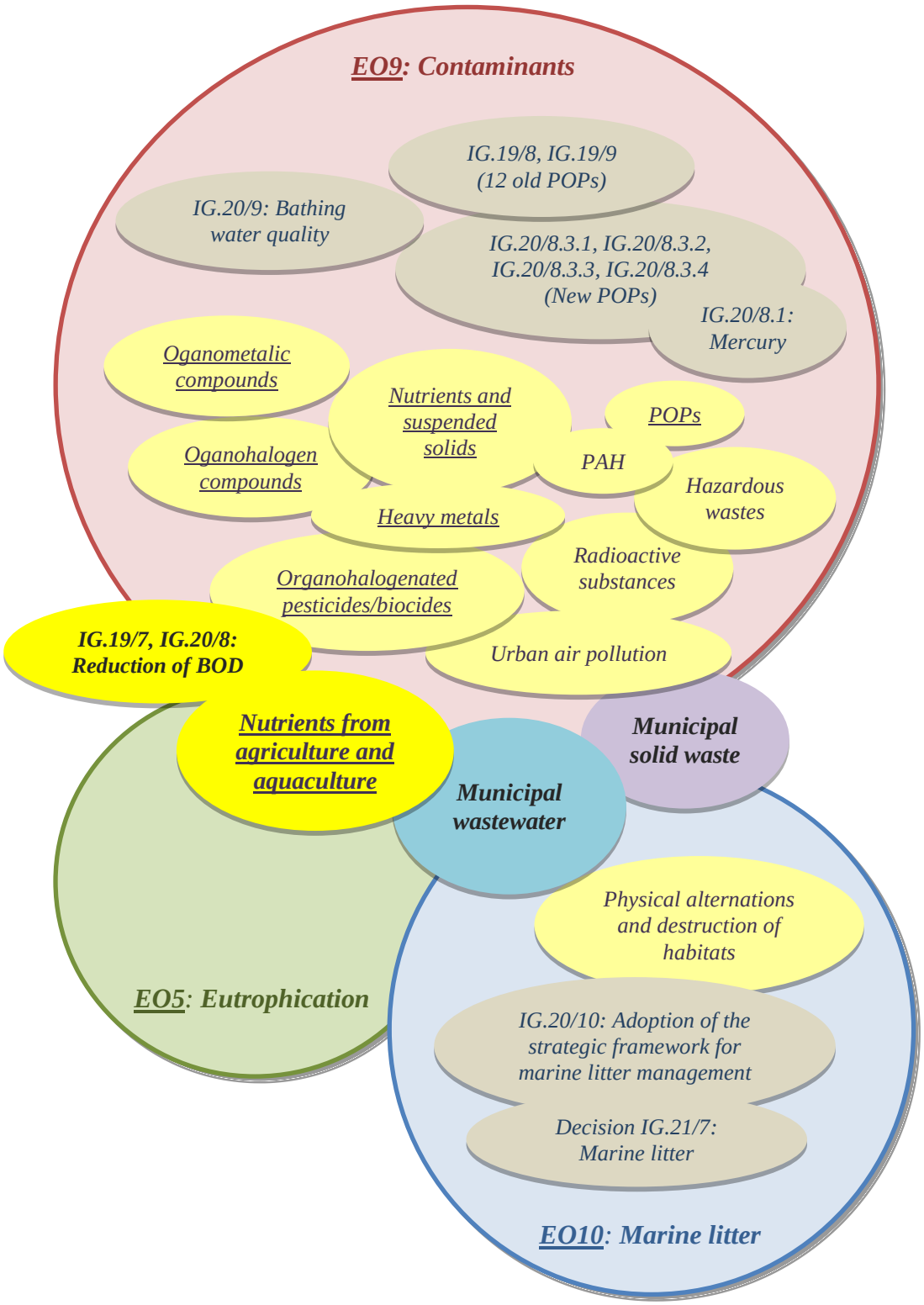


**Figure 1: Coverage of the SAP-MED sectors/substances and regional plans/decisions by the three pollution-related ecological objectives**

As can be deduced from Table 1, the bridging between EO5, EO9 and EO10 and the LBS Protocol targets and its Regional Plans are quite strong. The commitments under SAP-MED, the Regional Plans/Decisions and the EcAp GES targets are closely interlinked and contribute to the achievement of each other. Furthermore, Tables 2, 3 and 4 show that the commitments under SAP-MED and the Regional Plans/Decisions for each ecological objective contribute to the fulfillment of all related EcAp GES targets.

Therefore, the setting of operational targets as well as selection of measures in the updated NAPs shall be streamlined into EcAp GES targets.

## 3. Phased approach for development of the NAP programme of measures

In reference to the recommended six-step NAP update methodology proposed in the Guidelines, Figure 2 provides specific details on tasks to be undertaken for this purpose. This information should be considered in conjunction with the text provided in the relevant section of the NAP update guidelines document.[1]

### 3.1 Assessment of midterm baseline

Assessment of midterm baseline is a crucial step in the NAP updating process. If critical information is missing, the updated NAP may not succeed to take its proper place among national strategies as "the key policy document" for addressing land-based sources contributing to the pollution of the Mediterranean Sea. Hence, the objective of the midterm assessment is to collect and assess information necessary for the updating of the NAP. As a starting point, NAP update teams may consider to answer the following questions:

- What are the existing measures (i.e. policies, strategies, plans, programmes for pollution prevention and control) that should be considered for the NAP update?
- What are the existing sectorial or integrated operational targets and commitments of NAP-relevance which are in place at national level?
- What are the trends of pollutants' loads for key SAP MED/LBS sectors and priority substances, and what are their prospects in the years to come, including if possible an analysis of drivers?
- What is the most updated list of hotspots and sensitive areas?
- What are the major impacts on marine environment and ecosystems, and how are the trends of marine pollution levels according to monitoring data?
- Name ongoing projects and programmes, and what are their prospects in terms of timing and impacts?
- What are the potential prospects for development of drivers that would affect marine and coastal environment pollution levels?

The outcome of these questions would be:

- Description of existing measures implemented in the framework of SAP-MED (i.e. 2005 NAPs), Regional Plans and GES targets; and
- Description of the expected environmental status according to existing measures and policies; i.e. midterm baseline scenario.

[1] The NAP Update Guidelines is included in the Draft Report of the Second MED POL Focal Points meeting on NAP update [UNEP(DEPI)/MED WG.404/7].

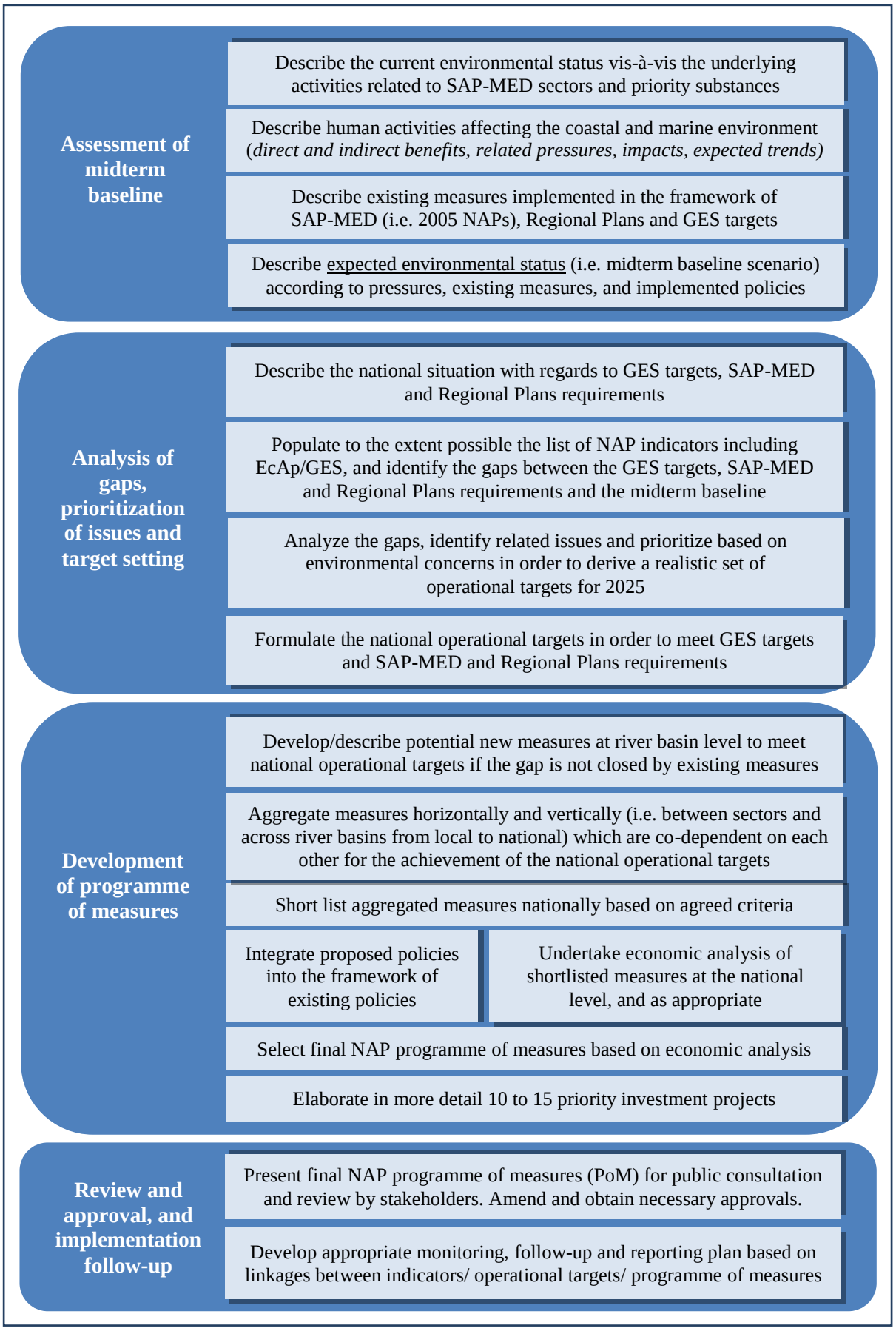


**Figure 2: Detailed steps for updating the NAP based on the methodological framework flow chart included in the NAP update guidelines**

As suggested in the NAP update guidelines, regarding the current environmental status (i.e. midterm baseline), countries are advised to make reference to national state of the environment reports prepared during the period 2003-2013; Mediterranean state of environment reports for 2009, 2011 and 2012; ECAP sub-regional reports on pollution prepared by UNEP/MAP MEDPOL in 2010-2011; the initial integrated assessment report elaborated under ECAP in 2011; the joint report EEA-UNEP/MAP on the progress of H2020; in addition to the UNEP/MAP transboundary analysis report and hotspots reports. Information on pollutants' releases and trends can be found in the initial assessment, GES and targets reports prepared in the framework of the EU Marine Strategy Directive (MSFD) by the respective EU member countries, as well as through EPRTR. Countries may also refer to the agreed indicators related to the NAP update process and populate them with the necessary data to define the midterm baseline.

In addition to the above, the MEDPOL Focal Point in their meeting in December 2014 agreed, in principle, on a number of NAP follow-up indicators. These are included in Appendix E to the NAP update guidelines.[2] NAP update teams are highly recommended to base the midterm assessment, to the extent possible, on the populated data of the most relevant indicators from this list. In so doing, the selected indicators would provide:

- A specific description of the current baseline;
- A tool for identifying gaps and defining underlying issues; and
- A midterm baseline from NAP 2003 which can be used in turn for assessing the status of implementation and for follow-up and reporting on the updated NAP targets until 2025.

Finally, and in order to support the countries in describing the above noted measures, the Secretariat, subject to final validation by the countries, prepared a report on midterm evaluation of SAP/NAP implementation;[3] in addition to country profiles and fact sheets for each of the Mediterranean countries. UfM also prepared national country and regional reports with regards to the investment portfolio of NAP implementation.[4] These reports provide a solid starting point for evaluating the effectiveness of implemented measures. In that respect, the midterm evaluation of SAP/NAP implementation provides the following technical conclusions at the regional level:

- PAH, Mercury, Cadmium, Lead, Zinc and Chrome showed a significant reduction of discharges into the Mediterranean Sea. However, it is difficult to assess at what extent discharges have been phased out and whether further efforts must be made.
- BOD5, PCB/PCT, Hexachlorobenzene, Hexachlorocyclohexane, PCDD/PCDDF, Butyltin compounds and Copper have not been achieved because an increase is observed.
- Other target substances, e.g. some POPs, could not be assessed due to the lack of NBB data for both years; however, it should be assumed that discharges must have followed a downward trend, as most of them should be banned.

And at the country level:

- Pollution related reporting capabilities of the Contracting Parties have improved and a recognized progress has been identified from 2003-2008.
- Gaps need to be addressed without delay, in particular their quality assurance.
- In terms of pollution reduction, and in spite of data gaps and some successes, pressures from land-based sources remain high and mitigation measures are required.

Regarding legal, institutional and policy aspects, the midterm evaluation report notes that:

- Over 80% of national laws and policy frameworks for the Mediterranean Countries support NAP implementation regarding protection of the marine and urban environments, and control of pollution by industrial development activities. However, 43% of these laws do not provide

[2] The NAP Update Guidelines is included in the Draft Report of the Second MED POL Focal Points meeting on NAP update [UNEP(DEPI)/MED WG.404/7].
[3] UNEP(DEPI)/MED WG.393 inf.3. Midterm Evaluation of SAP/NAP Implementation.
[4] UNEP(DEPI)/MED WG.393 inf.4. Final Report on Update Priority Investment Projects for Protecting the Mediterranean Sea from pollution.

for integrated monitoring programmes based on the ecosystem approach indicators, or incorporate in their policies the main principles of the ecosystem approach.

- Whereas over 85% of national laws and legislation support monitoring, permitting, inspection and application of sanctions; however, supporting institutional structures for enforcement of permitting and compliance are only found in 57% to 71% of the countries. This is manifested in:
    - Lack of systematic implementation of monitoring activities.
    - Inability to enforce permitting requirements.
    - Lack of transparent reporting measures taken and access by the general public.
- Threats from land-based sources as well as from other sources are not monitored in a regular and systematic manner.
- Legislation related to compliance and enforcement focuses on traditional pollution command and control tools and does not promote the use of economic instruments for pollution prevention and control.
- Only two thirds of the Countries promote their national policies public participation in decision-making processes and protect public's right to access to environmental data and information.

Concerning the economic aspects of the midterm baseline, NAP update teams are recommended to:

- Describe human activities that depend on the use of coastal and marine environment, including:
    - Distribution of population and key economic sectors and sub-sectors;
    - Assessment of direct and indirect benefits from different uses of marine environment (in quantitative and/ or qualitative terms) including standard measures of benefits such as revenues, turnover, gross value added, employment, direct and indirect contribution to GDP, etc., but also (to the extent possible) data on value of services provided by ecosystems;
    - Pressures (e.g. size of fishing fleet, total catches, number of overnight stays of tourists, type and capacity of tourist accommodation, type and size of coastal industries with related emissions) and related impacts (e.g. per sector/ sub-sector); and
    - Expected trends in human activities (demography, economy) with related pressures and impacts within the timespan of the updated NAP.
- Assess in more detail (developing further discussion from the first national workshop and/ or findings from UNEP/ MAP and UfM assessments) status of implementation of the original NAP from economic and financing perspective; and
- Compile information needed to estimate costs of implementing requirements of the Regional Plans.

With this information at hand, it is possible to describe the expected environmental status (i.e. midterm baseline at the target date) according to currently implemented measures and policies. In that respect, it is recommended that the midterm baseline is determined at the river basin level, and if not possible, then the administrative region may be selected.

### 3.2 Analysis of gaps, prioritization of issues and targets' setting

Having determined midterm benchmark, the NAP update teams should assess the gaps to achieve the GES targets, SAP-MED and Regional Plans requirements. The gaps are determined between the GES targets, SAP-MED and Regional Plans requirements and the expected environmental status (i.e. midterm baseline). The presence of a gap depends on the extent to which existing measures have been implemented and their impact vis-à-vis the stated requirement. Gaps may be:

- Gaps at the policy/legal/regulatory levels;
- Gaps in pollution prevention and control measures;
- Gaps in hotspots evaluation based on updated criteria;

- Information gaps for optimal monitoring required under the ecosystem approach for EO5 regarding eutrophication, EO9 dealing with contaminants, and EO10 on marine litter and other LBS Protocol requirements; or
- Gaps in follow-up and reporting aspects on both pollution levels and loads.

Once the gaps are defined, issues behind these gaps can be identified. As the scope and number of issues obtained may be quite long, NAP update teams are advised to prioritize these issues according to national environmental concerns. This process would ensure the establishment of a proper framework for setting realistic quantifiable operational targets. The following are some suggestions for the NAP update teams to consider for prioritization of issues:

- Existing operational targets/measures and the new commitments taken under the Barcelona Convention, with a particular focus on Regional Plans;
- Significant deviations from the GES targets for key priority contaminants and related sectors;
- List of priority contaminants[5] currently under development;
- Higher focus on hotspots in comparison with sensitive areas, as appropriate;
- Worrisome and substantive increases of pollution loads for key contaminants over the last 10 years (increases in drivers and pressures exceed the measures); and
- Geographical categorization of direct and non-direct releases to the marine environment.

Having set the framework for the operational targets, the next step would be to establish these quantifiable targets that would meet the GES targets, SAP-MED and Regional Plans requirements. Operational targets should be SMART (specific, measurable, achievable, realistic and timely). NAP update teams may refer to the detailed requirements included in Tables 2, 3 and 4 of SAP-MED and Regional Plans for each of the three EOs (eutrophication, contaminants and marine litter). These can serve as a template for ensuring that the established operational targets do address legally binding obligations and commitments, as appropriate.

The operational targets are set at the national level, but if necessary, targets be may be also set at the regional level (i.e. river basin level, provided they are not less than national values). Operational targets may be set halfway in time prior to reaching the final target date. Operational targets may be duplicates to the regional requirements (SAP MED, Regional Plans, EcAp GES targets) or maybe less in quantifiable terms in case the existing measures are effective in pollution prevention and control.

Regarding economic aspects in the setting of operational targets, NAP update teams are advised to consider:

- Overall socio-economic conditions and expected trends as a framework for setting the targets;
- Objectives/ environmental improvements in light of economics benefits they bring (e.g. potential for development of existing/ new sectors, new jobs) or in light of avoided costs of environmental degradation (e.g. prevention of economic losses due to decrease in tourism, falling fish stocks, public health related expenditure); and
- Identified issues/ reasons for non-implementation (e.g. lack of funding, inadequate tariffs, lack of incentives, etc.) of original NAP measures.

With the view to organize the information collected which would lead to the midterm benchmark and the setting of operational targets, it is proposed to utilize the model template included in Annex B, titled "Midterm Baseline Fact Sheet (A)." This table provides for documenting/ organizing information related to the midterm baseline, gaps and operational targets for each legally binding requirement. Reference is also made through the identification numbers which are related to the requirements ID numbers tabulated in Tables 2, 3 and 4 in Annex A. In this regard, it is recommended that operational targets not exceed 3 to 5 targets for each ecological objective.

[5] Priority substances consist of: Nutrients (related to EO5); metals and related compounds (related to EO9); Organohalogen compounds (related to EO9); total suspended particulates (related to EO9); total Volatile Organic Compounds; nitrogen oxides, NH3, Sulphur oxide; Organohalogenated pesticides/biocides (related to EO9). Other substances for which there is sufficient evidence to its negative impact and emerging substances.

3.3 Development of programme of measures

*Identification of potential measures:* With the determination of operational targets and identification of gaps and underlying issues, potential new measures can be suggested to bridge each gap (unless the gap is closed already by an existing measure). Measures should be first developed at the river basin level. Potential New Measures Fact Sheet (B) included in Annex B can be used to document new measures for each operational target. This table links the potential measures to the operational target and related ecological objective. Measures may be legal, institutional, policy, economic or technical/ investment. These can be identified in the fact sheet. Each measure is given an identification number which is related to the ID number of the operational target.

*Aggregation of measures:* Once appropriate measures are established, they may be aggregated horizontally between sectors within a single river basin, and vertically from local to national levels (or from a single river basin to combined river basins). Integrated Measures Fact Sheet (C) included in Annex B can be used for that purpose. The fact sheet links the aggregated measures to the operational target noting the administrative hierarchy where the measure will be implemented (national, regional, local) and the type of measure (legal, institutional, policy, economic, technical/investment). One simple criterion to apply for aggregation is whether a single measure is dependent on another for the achievement of an operational target. In that regard, measures strictly of legal, institutional, policy or economic nature should be integrated into existing national/ regional policy frameworks and structures; hence, strengthening these frameworks.

*Shortlisting measures:* Aggregated measures can be shortlisted, prioritized and ranked based on the categories and criteria presented in Table 5. In principle, 6 categories and 4 criteria are suggested for indicative purposes in the Priority Fact Sheet (D) included in Annex B. Categories include overall GES achievements; elimination of hot spots/sensitive areas, contribution to ecological objectives; technical feasibility, geographical scope and implementation timetable. Scores from 1 to 4 are proposed along with the prioritization criteria; the highest score indicating the most favorable measure.

Based on the aforementioned criteria, measures with the highest scores are ranked first in the Shortlisted Measures Fact Sheet (E) included in Annex B; and hence are candidates for economic analysis. In this table, the prioritized measures are linked to the operational targets they intend to fulfill. The administrative hierarchy is also included. NAP update teams are recommended to develop weight factors for each of the six categories, if necessary.

*Final selection of measures (economic assessment):* After the short-listed measures are determined, it is recommended to apply economic analysis tools such as cost-effectiveness analysis (CEA), cost-benefit analysis (CBA) and/ or multi-criteria analyses (MCA) for final selection of programmes of measures. Depending on national priorities, specific country circumstances and strengths and weakness of these tools (including data requirements), national NAP update teams may decide to use these tools at different stages of the process and for different purposes. It is therefore important that decisions on the appropriate level (purpose, scope, tool to be applied) of economic assessments are brought to the National Steering Committee (or similar high level body) based on the proposal from the NAP update team. Examples of questions that need to be considered and agreed upon include:

- What specific tool (CEA, CBA or alternatives) will be used in selecting the programmes of measures and in which form (quantitative, semi-quantitative or qualitative)?
- What role will economic analysis tools play in the process, e.g.:
    - Results of CEA/ CBA (or alternatives) will be used to inform policy makers and other stakeholders and to create support for implementation;
    - Selected tool/s will be used as sole and/ or additional criteria for prioritizing measures?

**Table 5: Guideline for shortlisting and prioritizing pollution prevention and control measures**

| GUIDELINE FOR SCORING THE PRIORITIZATION CRITERIA | | | | |
|---|---|---|---|---|
| **Prioritization categories** | **Scoring criteria** | | | |
| | **4** | **3** | **2** | **1** |
| Achievement of pollution-related GES targets | Measure contributes more than 50% pressure reduction and substantial decreasing trends in GES targets | Measure contributes to 30% to 50% pressure reduction and decreasing trends in GES targets | Measure contributes to 10% to 30% pressure reduction or in maintaining the existing trends of GES targets | Measure contributes less than 10% to pressure reduction or no impact on GES target |
| Elimination of hotspots/ sensitive areas | The measure directly and significantly contributes to the elimination of hotspots/ sensitive areas of Category A[6] | The measure moderately contributes to the elimination of hotspots/ sensitive areas of Category B | The measure has weak and indirect contribution to the elimination of potential hotspots/sensitive areas (Category C) | The measure has no contribution to the elimination of hotspots or sensitive areas |
| Contribution to other pollution-related ecological objectives | Contributes directly to ecological objective EO1 on biodiversity | Contributes to other pollution-related ecological objectives/ GES targets [7] | Contributes to other non-pollution-related ecological objectives *(other than EO1)* | No contribution |
| Technical feasibility | Technology is mature and capacity to implement the measure is sufficient (BAT, BEP and SCP) | Technology is mature but capacity to implement the measure is moderate | Technology is not mature or in trial phase | Technology is not available |
| Geographical scope | National with transboundary impacts | Within national boundaries | Within regional boundaries | Local level |
| Implementation timetable/ urgency in line with the agreed national operational targets [8] | Deadline has passed | Deadline earlier than 2017 | Deadline is 2020 | Deadline is 2025 |

[6] Categories of hotspots are included in Appendix C of the NAP Update Guidelines included in the Draft Report of the Second MED POL Focal Points meeting on NAP update [UNEP(DEPI)/MED WG.404/7]

[7] Pollution-related EOs are eutrophication (EO5), contaminants (EO9) and marine litter (EO10)

[8] These deadlines are provided for indicative purposes based on regional targets. However, the countries may adjust them based on their national operational targets

- At which level should selected tool(s) be applied, e.g.:
    - for sets of measures identified under individual target;
    - for aggregation from regional to national level; and
    - for choosing between various policy approaches (or sets of measures) to address specific environmental problem (e.g. concentration of pollutants in a given hot spot area, identified gaps and/ or issues)?

3.4 Implementation follow-up and reporting

It is recommended that NAP update teams consider the NAP Follow-up and Reporting Fact Sheet (F) included in Annex B for the purpose of establishing a follow-up and reporting plan. In this plan, follow-up is based on the operational targets and the corresponding performance indicator(s) to be selected from the agreed indicators list[9] in order to evaluate the achievement of the target. The fact sheet provides for documenting the indicators and their related operational targets in addition to the ID numbers of aggregated measures to be followed-up through this indicator. Monitoring and reporting aspects are also specified in the fact sheet including frequency for reporting, responsibilities for data collection and reporting, and media to be used for public access to reported indicators. In order to ensure its sustainability, NAP update teams are recommended to undertake an assessment of costs of development and implementation of the follow-up and reporting system.

Upon completion of the aforementioned templates and tables, it is recommended that NAP update teams document details of selected measures to be included in the NAP on the Logical Framework for Implementation of Measures Fact Sheet (G) included in Annex B. In this template, information can be documented for each measure regarding related operational target, implementation timetable, link to SAP-MED/EcAp EO target, geographical scale, cost, capacity building needs, leading institution responsible for implementation, implementing partners, risks and assumptions for the successful implementation of the measure, monitoring tracking method to be applied for collection of the necessary information needed for populating the follow-up and monitoring indicators.

[9] The list of indicators to assess NAP implementation is included in Appendix E of the NAP Update Guidelines included in the Draft Report of the Second MED POL Focal Points meeting on NAP update [UNEP(DEPI)/MED WG.404/7]

# ANNEX I

## *Tables linking LBS Protocol/SAP-MED, Regional Plans and legally binding measures to pollution-related Ecological Objectives (EO5, EO9 and EO11) and GES targets*

**Table 1: Bridging between LBS Protocol and Pollution-Related Mediterranean Ecological Objectives**

<table>
<tr><th rowspan="2">LBS Protocol/SAP MED/Regional Plans</th><th colspan="3">Pollution-related ecological objectives in the Mediterranean</th></tr>
<tr><th>EO5<br>GES targets</th><th>EO9<br>GES targets</th><th>EO10<br>GES targets</th></tr>
<tr><td rowspan="8">Agreed GES targets</td><td>Reduction of BOD emissions from land based sources</td><td>Reduction of contaminants emissions from land based sources</td><td>Decreasing trend in the number of marine litter items deposited on the coast</td></tr>
<tr><td>Reduction of nutrients emissions from land based sources</td><td>Decreasing trend in the occurrences of acute pollution events</td><td>Decreasing trend in the number of marine litter items in the water surface and the seafloor</td></tr>
<tr><td>Decreasing trend in Chlorophyll-a concentrations in high risk areas affected by human activities</td><td>Decreasing trend in the frequency of cases of seafood samples above regulatory limits for contaminants</td><td rowspan="4">Decreasing trend in the cases of entanglement or/and a decreasing trend in the stomach content of the sentinel species</td></tr>
<tr><td>Increasing trend of transparency in areas impacted by human activities</td><td>Increasing trend in the percentage of intestinal entorococci concentrations within established standards</td></tr>
<tr><td>Decreasing trend in the frequency of the occurrence of HABs</td><td rowspan="2">Decreasing trend in the frequency of the occurrence of HABs</td></tr>
<tr><td>Increasing trend in dissolved oxygen concentrations in areas impacted by human activities</td></tr>
<tr><td rowspan="11">Overall SAP MED targets (22 targets, including priority contaminants)</td><td>Municipal wastewater (3)</td><td>Municipal wastewater (3)</td><td>Municipal wastewater (3)</td></tr>
<tr><td rowspan="10">Nutrients inputs from agriculture and aquaculture (1)</td><td>Municipal solid waste (2)</td><td>Municipal solid waste (2)</td></tr>
<tr><td>Urban air pollution (4)</td><td rowspan="9">Physical alterations and destruction of habitats (2)</td></tr>
<tr><td>POPs (1)</td></tr>
<tr><td>Heavy Metals (Hg, Cd, Pb, Zn, Cu, Cr) (2)</td></tr>
<tr><td>Organometallic Compounds (1)</td></tr>
<tr><td>PAH (1)</td></tr>
<tr><td>Organohalogen compounds (1)</td></tr>
<tr><td>Radioactive substances (1)</td></tr>
<tr><td>Hazardous wastes (1)</td></tr>
<tr><td>Nutrients and suspended solids (2)</td></tr>
<tr><td>Regional Plan Marine Litter (12 targets)</td><td>None</td><td>None</td><td>Adoption of the strategic framework for marine litter management (0) (Decision IG.20/10)<br><br>Marine litter management in the Mediterranean (12) (Decision IG.21/7)</td></tr>
</table>

| LBS Protocol/SAP MED/Regional Plans | Pollution-related ecological objectives in the Mediterranean | | |
|---|---|---|---|
| | **EO5 GES targets** | **EO9 GES targets** | **EO10 GES targets** |
| *Regional Plan BOD (5 targets)* | Reduction of BOD5 from urban waste water (3) *(Decision IG.19/7)*<br><br>Reduction of BOD5 in the food sector (2) *(Decision IG.20/8.2)* | Reduction of BOD5 in the food sector (2) *(Decision IG.20/8.2)* | None |
| *Regional Plan Mercury (8 targets)* | None | Reduction of inputs of Mercury (8) *(Decision IG.20/8.1)* | None |
| *Regional Plan POPs (3 targets)* | None | Elimination and/or reduction of production and use of Alpha hexachlorocyclohexane; Beta hexachlorocyclohexane; Hexabromobiphenyl; Chlordecone; Pentachlorobenzene; Tetrabromodiphenyl ether and Pentabromodiphenyl ether; Hexabromodiphenyl ether and Heptabromodiphenyl ether; Lindane; Endosulfan, Perfluorooctane sulfonic acid, its salts and perfluorooactane sulfonyl fluoride (3) *(Decision IG.20/8.3)*<br><br>Elimination of Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, Mirex and Toxaphene (3) *(Decision IG.19/8)*<br><br>Phasing out of DDT (3) *(Decision IG.19.9)* | None |
| *Bathing Water Quality COP Decision (1 target)* | Criteria and standards for bathing waters in the Mediterranean (1) *(Decision IG.20/9)* | Criteria and standards for bathing waters in the Mediterranean (1) *(Decision IG.20/9)* | None |

**Table 2: Detailed analysis of LBS/SAP-MED and Regional Plans commitments for Ecological Objective EO5 (Eutrophication)**

| LBS Protocol/SAP MED/Regional Plans | Sector/ Substance | ID | EO5: Eutrophication | | | | | | Link to other Mediterranean Ecological objectives and other policy frameworks |
|---|---|---|---|---|---|---|---|---|---|
| | | | GES targets | | | | | | |
| | | | *Reduction of BOD emissions from land based sources* | *Reduction of nutrients emissions from land based sources* | *Decreasing trend in Chlorophyll-a concentrations in high risk areas affected by human activities* | *Increasing trend of transparency in areas impacted by human activities* | *Decreasing trend in the frequency of the occurrence of HABs* | *Increasing trend in dissolved oxygen concentrations in areas impacted by human activities* | |
| *Applicable SAP-MED requirements* | *Municipal wastewater (Urban environment)* | MW1 | Promotion of separate collection of rain waters and municipal wastewaters | | | | | | EO8, EO9, EO10 |
| | | MW2 | Promotion of reuse of treated effluents for the conservation of water resources | | | | | | - |
| | | MW3 | Coastal cities and urban agglomerations of more than 100,000 inhabitants are connected to a sewer system | | | | | | EO8, EO9, EO10, EU MSFD |
| | *Nutrients and suspended solids (industrial development)* | NU1 | Reduce nutrient inputs, from agriculture and aquaculture practices into areas where these inputs are likely to cause pollution | | | | | | EO4, EO9, EU MSFD |
| | | NU2 | Dispose all wastewater from industrial installations which are sources of BOD, nutrients and suspended solids | | | | | | EO4, EO9, EU MSFD |
| *Regional Plan Marine Litter requirements* | | SW1 | Take necessary measures to establish adequate urban sewer and wastewater treatment plants that prevent run-off and riverine inputs of litter | | | | | | EO9, EO10, EU MSFD |
| *Regional Plan BOD requirements* | | MW4 | Adopt emission limit values (ELV) for BOD5 in urban wastewater after treatment in accordance with the requirements of the "regional guideline on the reduction of BOD5 from urban waste water" | | | | | | - |
| | | MW5 | Enforce the adopted ELVs by monitoring discharges from municipal wastewater treatment plants into the environment | | | | | | EU MSFD |
| | | MW6 | Ensure that all agglomerations of more than 2000 inhabitants collect and treat their urban wastewater before discharging them into the environment | | | | | | EO8, EO9, EO10, EU MSFD |
| | | NU3 | Industrial Food Plants outlined in Appendix I which discharge more than 4 000 PE into water bodies shall meet the following requirements: COD 160 mg/l or TOC 55 mg/l and BOD 30 mg/l | | | | | | - |
| | | NU4 | In case the food sector installation discharges into the sewerage system, the competent authorities shall establish ELV and an authorization compatible with the operation and the emission discharge values of the urban waste water treatment plant | | | | | | EO9 |

**Table 3: Detailed analysis of LBS/SAP-MED and Regional Plans commitments for Ecological Objective EO9 (Contaminants)**

| LBS Protocol/SAP MED/Regional Plans | | Sector/ Substance | ID | EO9: Contaminants | | | | | Link to other Mediterranean Ecological objectives and other policy frameworks |
|---|---|---|---|---|---|---|---|---|---|
| | | | | GES targets | | | | | |
| | | | | *Reduction of contaminants emissions from land based sources* | *Decreasing trend in the occurrences of acute pollution events* | *Decreasing trend in the frequency of cases of seafood samples above regulatory limits for contaminants* | *Increasing trend in the percentage of intestinal enterococci concentrations within established standards* | *Decreasing trend in the frequency of the occurrence of HABs* | |
| *Applicable SAP-MED requirements* | *Industrial development* | *POPs* | PO1 | Application of BAT and BEPs for environmentally sound management of POPs | | | | | Hazardous Waste Protocol, Stockholm Convention, Basel Convention |
| | | | PO2 | Concentration of priority contaminants in biota, sediment or water is kept within acceptable limits | | | | | EO1, EO4, Stockholm Convention, EU MSFD |
| | | *Heavy Metals (Hg, Cd, Pb, Zn, Cu, Cr)* | HM1 | Phase out discharges and emissions and losses of mercury, cadmium and lead | | | | | Minamata Convention Basel Convention EU MSFD |
| | | | HM2 | Eliminate to the fullest possible extent pollution of the Mediterranean Sea caused by discharges, emissions and losses of zinc, copper and chrome | | | | | Basel Convention EU MSFD |
| | | *Organometallic Compounds* | OM1 | Phase out to the fullest possible extent discharges, emissions and losses of organomercuric compounds and reduce those of organolead and organotin compounds | | | | | Minamata Convention Basel Convention EU MSFD |
| | | *PAH* | PA1 | Phase out inputs of PAHs | | | | | EU MSFD |
| | | *Organohalogen compounds* | OH1 | Eliminate to the fullest possible extent pollution caused by discharges, emissions and losses of organohalogen compounds | | | | | Basel Convention, EU MSFD |
| | | *Radioactive substances* | RS1 | Eliminate to the fullest possible extent inputs of radioactive substances | | | | | - |
| | | *Hazardous wastes* | HW1 | Dispose all hazardous wastes in a safe and environmentally sound manner | | | | | Hazardous Waste Protocol, Basel Convention |

| LBS Protocol/SAP MED/Regional Plans | Sector/ Substance | ID | EO9: Contaminants | | | | | Link to other Mediterranean Ecological objectives and other policy frameworks |
|---|---|---|---|---|---|---|---|---|
| | | | GES targets | | | | | |
| | | | *Reduction of contaminants emissions from land based sources* | *Decreasing trend in the occurrences of acute pollution events* | *Decreasing trend in the frequency of cases of seafood samples above regulatory limits for contaminants* | *Increasing trend in the percentage of intestinal enterococci concentrations within established standards* | *Decreasing trend in the frequency of the occurrence of HABs* | |
| | *Nutrients and suspended solids* | NU1 | Reduce nutrient inputs, from agriculture and aquaculture practices into areas where these inputs are likely to cause pollution | | | | | EO5 |
| | | NU2 | Dispose all wastewater from industrial installations which are sources of BOD, nutrients and suspended solids | | | | | EO5, EU MSFD |
| | *Physical Alterations and Destruction of Habitats* | PY1 | Safeguard of the ecosystem function and maintenance of the integrity and biological diversity of species and habitats | | | | | EO1, EO2, EO4, EO6, EO8, EU MSFD |
| | | PY2 | Restore marine and coastal habitats that have been adversely affected by anthropogenic activities | | | | | EO1, EO2, EO3, EO4, EO6, EO8, EU MSFD |
| *Regional Plan BOD requirements* | | NU3 | Industrial Food Plants outlined in Appendix I which discharge more than 4000 PE into water bodies shall meet the following requirements: COD 160 mg/l or TOC 55 mg/l and BOD 30 mg/l | | | | | EO5, EU MSFD |
| | | NU4 | In case the food sector installation discharges into the sewerage system, the competent authorities shall establish ELV and an authorization compatible with the operation and the emission discharge values of the urban waste water treatment plant | | | | | EO5, EU MSFD |
| *Regional Plan Mercury requirements* | | HM3 | Prohibit the installation of new Chlor alkali plants using mercury cells and vinyl chloride monomer production plants using mercury as a catalyst | | | | | Minamata Convention<br>Basel Convention |
| | | HM4 | Adopt National ELVs for mercury emissions based on values included in the "regional plan on the reduction of inputs of mercury" from other than Chlor Alkali industry | | | | | Minamata Convention<br>Basel Convention<br>EU MSFD |
| | | HM5 | Cease releases of mercury from the activity of Chlor alkali plants | | | | | Minamata and Basel Conventions<br>EU MSFD |
| | | HM6 | Identify existing sites which have been historically contaminated with mercury | | | | | Minamata Convention<br>Basel Convention |
| | | HM7 | Apply environmentally sound management measures to sites which have been historically contaminated with mercury | | | | | Hazardous Waste Protocol, Minamata Convention<br>Basel Convention |

| LBS Protocol/SAP MED/Regional Plans | Sector/ Substance | ID | EO9: Contaminants | | | | | Link to other Mediterranean Ecological objectives and other policy frameworks |
|---|---|---|---|---|---|---|---|---|
| | | | GES targets | | | | | |
| | | | *Reduction of contaminants emissions from land based sources* | *Decreasing trend in the occurrences of acute pollution events* | *Decreasing trend in the frequency of cases of seafood samples above regulatory limits for contaminants* | *Increasing trend in the percentage of intestinal enterococci concentrations within established standards* | *Decreasing trend in the frequency of the occurrence of HABs* | |
| | | HM8 | Achieve environmentally sound management of metallic mercury from the decommissioned plants | | | | | Hazardous Waste Protocol, Minamata Convention<br>Basel Convention |
| | | HM9 | Progressively reduce total releases of mercury (to air, water and to products) from existing Chlor alkali plants until their final cessation | | | | | Minamata Convention<br>Basel Convention<br>EU MSFD |
| | | HM10 | Take appropriate measures to isolate and contain mercury containing wastes | | | | | Hazardous Waste Protocol, Minamata Convention<br>Basel Convention |
| *Regional Plan POPs requirements* | | PO1 | Prohibit and/or take legal and administrative measures necessary to eliminate the production and use, import and export of POPs and their wastes | | | | | Hazardous Waste Protocol, Stockholm Convention<br>Basel Convention |
| | | PO2 | Identify stock piles consisting of or containing POPs | | | | | Hazardous Waste Protocol, Stockholm Convention<br>Basel Convention |
| | | PO3 | Phase out inputs of the 9 pesticides and PCBs and reduce inputs of unwanted contaminants: hexachlorobenzene, dioxins and furans | | | | | Stockholm Convention<br>Basel Convention |
| *Bathing Water Quality COP Decision requirements* | | NU5 | | | | Adopts the criteria and standards for bathing waters in the Mediterranean region based on Intestinal enterococci | | EU MSFD |

**Table 4: Detailed analysis of LBS/SAP-MED and Regional Plans commitments for Ecological Objective EO10 (Marine Litter)**

| LBS Protocol/SAP MED/Regional Plans | Sector/ Substance | ID | EO10: Marine Litter | | | Link to other Ecological objectives and other policy frameworks |
|---|---|---|---|---|---|---|
| | | | GES targets | | | |
| | | | *Decreasing trend in the number of marine litter items deposited on the coast* | *Decreasing trend in the number of marine litter items in the water surface and the seafloor* | *Decreasing trend in the cases of entanglement or/and a decreasing trend in the stomach content of the sentinel species* | |
| *Applicable SAP-MED requirements* | *Municipal solid waste (Urban environment)* | SW13 | Urban solid waste management is based on reduction at source with the following waste hierarchy: prevention, re-use, recycling, recovery, and environmentally sound disposal | | | EO9 |
| | | SW14 | Establish environmentally suitable and economically feasible systems of collection and disposal of urban solid waste in cities of more than 100,000 inhabitants | | | EO9 |
| *Regional Plan Marine Litter requirements* | | SW1 | Take necessary measures to establish adequate urban sewer and wastewater treatment plants that prevent run-off and riverine inputs of litter | | | EO5, EO8, EO9, EU MSFD |
| | | SW2 | Minimization of impacts related to properties and quantities of marine litter in the marine and coastal environments | | | EO1, EO4, EO8, EU MSFD |
| | | SW3 | Control of impacts of litter on marine life to the maximum extent practicable | | | EO1, EO4, EU MSFD |
| | | SW4 | Reduction of fraction of plastic packaging waste that goes to landfill or incineration | | | EO9 |
| | | SW5 | Ensuring adequate urban sewer systems, WWTP and waste management systems to prevent run-off and riverine inputs of Marine Litter | | | EO5, EO8, EO9, SCP AP, EU MSFD |
| | | SW6 | Application of cost effective measures to prevent any marine littering from dredging activities | | | EO6, EO7, EO8, Dumping Protocol, EU MSFD |
| | | SW7 | Adopt preventive measures to minimize inputs of plastic in the marine environment | | | EO1, EO4, EU MSFD |
| | | SW8 | Enforce measures to combat illegal dumping including littering on beaches and illegal sewage disposal in coastal zones and rivers | | | EO1, EO6, EO7, EO8, EO9, Dumping Protocol, EU MSFD |
| | | SW9 | Implement programmes on regular removal and sound disposal of accumulations/hotspots of marine litter | | | EO1, EO4, EO6, EU MSFD |
| | | SW10 | Implement adequate waste reducing/reusing/ recycling measures in order to reduce the fraction of plastic packaging waste that goes to landfill or incineration without energy recovery | | | EO9 |
| | | SW11 | Close to the extent possible existing illegal solid waste dump sites | | | EO9, Hot spots |
| | | SW12 | Remove existing accumulated litter from Specially Protected Areas of Mediterranean Importance (SPAMI) and litter impacting endangered species | | | EO1, EO4, EO6, EU MSFD |

# ANNEX II

## *Fact sheet tables addressing midterm benchmark and PoM in different aspects of their development*

| MIDTERM BASELINE FACT SHEET (A)<br>at the water basin/administrative region level | | | | |
|---|---|---|---|---|
| **Legally binding requirement/obligation**<br>*include ID number* | **Midterm baseline** | **Existing gap** | **Operational target** | |
| | | | **Description** | **ID** |
| | | | | |
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| POTENTIAL NEW MEASURES FACT SHEET (B)<br>to fulfill a single operational target<br>at the water basin/ administrative region level | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Related ecological objective(s)** | **Operational targets** *include ID number* | **ID Number** *of potential measure* | **Potential measures at regional level** *to close the gap identified in the midterm baseline fact sheet (A)* | **Type of measure** | | | | | |
| | | | | legal | Institutional | policy | economic | technical | |
| | | | | **L** | **I** | **P** | **E** | **T** | |
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| INTEGRATED MEASURES FACT SHEET (C)<br>to fulfill the operational targets at the national level | | | | |
|---|---|---|---|---|
| **Operational targets** *include ID number* | | **ID Numbers** *of aggregated measures* | **Potential measures at national level** *classified based on "type" of measure shown in Fact Sheet (B)* | **Administrative hierarchy** *national, regional, local* |
| Legal | | | | |
| | | | | |
| Institutional | | | | |
| | | | | |
| Policy | | | | |
| | | | | |
| Economic | | | | |
| | | | | |
| Technical | | | | |
| | | | | |

| PRIORITY FACT SHEET (D) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **ID No.** *of measure* | **Integrated measures at the national level** *as tabulated in fact sheet (C)* | **Scores of the prioritization categories** | | | | | | **Total Score** |
| | | Achievement of pollution-related GES targets | Elimination of hotspots | Contribution to other pollution-related ecological objectives | Technical feasibility | Geographical scope | Implementation timetable/ urgency | |
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| SHORTLISTED MEASURES FACT SHEET (E) | | | | | |
|---|---|---|---|---|---|
| **Priority number** | **Operational target** | **Follow-up indicator** | **Programme of measures**<br>*ranked based on total score in fact sheet (D)* | *New or existing measure* | **Administrative hierarchy** *national, regional, local* |
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| NAP FOLLOW-UP AND REPORTING FACT SHEET (F) | | | | | | |
|---|---|---|---|---|---|---|
| **Operational targets** | **ID Numbers** *of aggregated measures* | **Indicators** | **Monitoring and Reporting** | | | |
| | | | Frequency | Responsibility for collection and analysis | Responsibility for reporting on indicator | Media for public access |
| | | | | | | |
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| | | | | | | |

| LOGICAL FRAMEWORK FOR IMPLEMENTATION OF MEASURES - FACT SHEET (G)[10] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Measure*** | ***Operational Target*** | ***Implementation Timetable*** | ***Link to SAP/ECAP EO target/RP*** | ***Geographical scale*** | ***Cost*** | ***Capacity Building Needs*** | ***Leading institution*** | ***Partners*** | ***Risks and Assumptions*** | ***Monitoring tracking method*** | ***Follow-up and Monitoring indicator*** |
| | | | | | | | | | | | |
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[10] Log frame table included from the NAP update guideline