



UNITED
NATIONS

EP

UNEP/MED WG.472/3



UNITED NATIONS
ENVIRONMENT PROGRAMME
MEDITERRANEAN ACTION PLAN

2 May 2019
English

Second Regional Meeting of Experts on the Six Pollution Reduction Regional Plans

Istanbul, Turkey, 28 May 2019

Agenda item 3: Proposed main elements of the six pollution reduction Regional Plans

- i. Municipal WWTP**
- ii. Sewage Sludge Management**
- iii. Agriculture nutrients Management**
- iv. Aquaculture nutrients Management**
- v. Urban Storm water Management**
- vi. Marine Litter**

Proposed Draft Main Elements of the six pollution Reduction Regional Plans

For environmental and economic reasons, this document is printed in a limited number. Delegates are kindly requested to bring their copies to meetings and not to request additional copies.

UNEP/MAP
Athens, 2019

Note by the Secretariat

The Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (LBS Protocol) provides for the Contracting Parties to take all appropriate measures to prevent, abate, combat and eliminate to the fullest possible extent pollution of the Mediterranean Sea Area caused by discharges from rivers, coastal establishments or outfalls, or emanating from any other land-based sources and activities within their territories.

To comply with this requirement, the Contracting Parties, in line with Article 15 of the LBS Protocol, after the entry into force of its 1996 amendments, adopted since 2009 ten legally-binding Regional Plans addressing mercury, BOD5 from urban wastewater as well as from the food sector, POPs and marine litter. The list of the adopted Regional Plans in 2009, 2012 and 2013 is included in document UNEP/MED WG.454/Inf.3.

Since 2008, the MAP Barcelona Convention system committed to implement the ecosystem approach with the overall objective of achieving and/or maintaining Good Environmental Status (GES). To this aim, eleven Ecological Objectives and related GES and targets were adopted in 2012 and 2013, four out of which address contaminants, eutrophication, marine litter and noise.

With the view to advancing the work of UN Environment/MAP and the Contracting Parties related to combating marine pollution; achieving and/or maintaining GES; contributing to SDGs; and fostering and leading the regional cooperation in the Mediterranean, COP 20 (Tirana, Albania, December 2017) gave a new mandate to the Secretariat for the development of the main elements of six new/updated Pollution Reduction Regional Plans (hereinafter referred to as the Regional Plans), specifying the respective categories of the sectors to be addressed:

- a) Municipal Wastewater Treatment;
- b) Sewage Sludge Management;
- c) Agriculture Nutrients Management;
- d) Aquaculture Nutrients Management;
- e) Urban Storm Water Management; and
- f) Marine Litter

The 85th Meeting of the Bureau of the Contracting Parties held in Athens, Greece in April, 2018, stated that “The Bureau requests the Secretariat to consider upstream pollution prevention measures on a priority basis for the development of the main elements of the six Regional Plans to reduce/prevent marine pollution from land based sources and invites the Contracting Parties to fully participate and contribute to this important process. To this aim, the Bureau requests the Coordinating Unit to invite MED POL Thematic Focal Points to designate experts for the participation in the **two meetings** to be held in 2018-2019 and to follow-up the drafting process.”

The First Regional Meeting of Experts on the Six Pollution Reduction Regional Plans (herein after referred to as the First Regional Meeting) was held in Athens, Greece in November 2018. It was preceded by preliminary discussions held by an Expert Meeting in September 2018 wherein a “Background Document” (UNEP/MED WG.454/Inf.3) was reviewed. The background document served as the starting point of discussions for potential new elements of the Regional Plans. Building on these discussions, a “Preliminary Report” (UNEP/MED WG.454/3) on new elements of the Regional Plans was produced for the First Regional Meeting. The “Preliminary Report” the 2017 MED QSR; the outcome of the Expert Meeting held in September 2018; as well as the following elements:

- a. National and Regional priorities as outlined in the NAPs/ Programmes of Measures and relevant Decisions of the Contracting Parties: focus on achieving and maintaining GES;

- b. The global work and developments on pollution (UNEA3 Resolutions adopted by the Member States at the third UN Environment Assembly in December 2017) including on plastics and microplastics;
- c. The ongoing evaluation processes of the status of the implementation of the Regional Plans and the LBS Protocol (Contracting Parties' reports are expected on this matter by end of December 2018);
- d. The need to use a combined approach to build the Regional Plans' measures around sectors rather than individual pollutants, as it was the case so far;
- e. Possible options of the relationship between the existing Regional Plans and the new/updated Regional Plans and relevant Regional Guidelines adopted by the Contracting Parties, particularly in the past 10 years;
- f. The need for a realistic timeframe for the development of Regional Plans and their implementation that should contribute to the achievement the GES as decided by the Contracting Parties and the 2030 SDG targets;
- g. Multiple benefits derived from preventing and managing marine pollution, including socio economic aspects and circular economy;
- h. The need for cross-cutting actions across the pollution dimension, including actions on climate change, and economic instruments/ cost benefit approaches; and
- i. Partnerships and collaboration.

The First Regional Meeting recommended to the Secretariat to conduct an in-depth assessment for the measures proposed for each of the new Regional Plans with the view of elaborating further the proposed measures, while taking into account the MAP and SDG objectives up to 2030 to achieve and maintain GES.

The updated main elements of the Regional Plans, herein presented, contain all the elements agreed by the First Regional Meeting, and newly introduced text. This is introduced in each section, as appropriate, placed after the corresponding related topic. The newly introduced text is presented in **bold** for ease of reference.

The updated main elements of the Regional Plans are submitted for discussion of the participants to the Second Regional Meeting of Experts on the Six Pollution Reduction Regional Plans with the aim of presenting the agreed proposals on the new elements, including timetable for preparation of each Regional Plan, to the MED POL Focal Points Meeting held back-to-back with this Meeting in Istanbul, Turkey from 29 to 31 May 2019.

Table of Contents

| | | |
|----|---|-----------|
| 1. | Outline of the Elements of the six Regional Plans..... | 1 |
| 2. | Possible Elements of the Regional Plan on Municipal Wastewater Treatment | 2 |
| 3. | Possible Elements of the Regional Plan on Sewage Sludge Management..... | 4 |
| 4. | Possible Elements of the Regional Plan on Agriculture Nutrients Management..... | 6 |
| 5. | Possible Elements of the Regional Plan on Aquaculture Nutrients Management..... | 9 |
| 6. | Possible Elements of the Regional Plan on Urban Storm Water Management..... | 11 |
| 7. | Possible Elements of the Regional Plan on Marine Litter (upgraded) | 12 |
| 8. | Way forward..... | 14 |

List of Abbreviations/Acronyms

| | |
|---------------------|---|
| BAT | Best Available Technique |
| BEP | Best Environmental Practice |
| BOD5 | Biochemical Oxygen Demand |
| COP | Conference of the Parties |
| ELV | Emission Limit Value |
| GES | Good Environmental Status |
| LBS Protocol | Land-Based Sources Protocol |
| MAP | Mediterranean Action Plan |
| MED POL | Programme for the Assessment and Control of Marine Pollution in the Mediterranean Sea |
| NAPs | National Action Plans |
| PoW | Programme of Work |
| SCP | Sustainable Consumption and Production |
| WWTP | Wastewater Treatment Plant |

1. Outline of the Elements of the six Regional Plans

1. Based on the approach already in place for the development of the 10 existing Regional Plans, the table of contents and provisions for the six Regional Plans may replicate the same outline, as follows:

- a. Definition of terms
- b. Scope and objectives of the Regional Plan
- c. Proposed measures including:
 - i. Regulatory measures (including where appropriate economic incentives):
 - ii. Technical measures (including efficient use of resources and energy): and
 - iii. Other type of measures (including monitoring, reporting and enforcement).
- d. Timetable for implementation of measures
- e. Support to implementation which may include:
 - i. Technical assistance;
 - ii. Scientific cooperation and research;
 - iii. Guidelines; and
 - iv. Stakeholders participation.
- f. Entry into force
- g. Annexes including:
 - i. Reporting templates (linkage to Barcelona Convention Reporting System and NAP Follow-up Indicators); and
 - ii. Other technical matters.

2. With regards to the geographical scope of the Regional Plans and taking into consideration that the legal basis for their development is the LBS Protocol (Art. 5 and 15), the geographical extent of the Regional Plans will apply to the area defined by Article 3 of the LBS Protocol, namely:

- a. The Mediterranean Sea Area as defined in Article 1 of the Convention;
- b. The hydrologic basin of the Mediterranean Sea Area;
- c. Waters on the landward side of the baselines from which the breadth of the territorial sea is measured and extending, in the case of watercourses, up to the freshwater limit;
- d. Brackish waters, coastal salt waters including marshes and coastal lagoons; and ground waters communicating with the Mediterranean Sea.

2. Possible Elements of the Regional Plan on Municipal Wastewater Treatment

3. The existing Regional Plan on the Reduction of BOD5 from Urban Wastewater may be expanded in scope/ upgraded in view of integrating the newly identified measures related to municipal wastewater treatment needed to ensure the achievement and/or maintaining of GES and addressing additional pressures and new elements, such as multiple benefits approach and stricter standards.

In view of the lack of specific mention of the scope of this Regional Plan in the previous Main Elements Document, and in line with the existing scope of the Regional Plan for Reduction of BOD from Urban Wastewater which does not include wastewater from industrial activities, the Secretariat proposes the following scope:

4. The scope of the Regional Plan covers “collection, treatment and discharge of urban waste waters and the treatment and discharge of waste water from certain industrial sectors.”

In view of the need to specifically mention the objective of the Regional Plan, as it is the case in the existing objective of the Regional Plan for Reduction of BOD from Urban Wastewater, the Secretariat proposes to maintain the same text for the objective of the new Regional Plan as it also encompasses industrial effluents and outline resource efficiency and circular economy as follows:

5. The objective of the Regional Plan is to “protect the coastal and marine environment and health from the adverse effects of the above-mentioned waste water direct and or indirect discharges, in particular regarding adverse effects on the oxygen content of the coastal and marine environment and eutrophication phenomena as well as promote resource efficiency.”

6. The upgraded Regional Plan should address priority substances identified in Annex I-C of the LBS Protocol (Categories of substances) with a particular focus on the list of priority substances, indicated in Annex I to the Decision IG. 21/3 adopted by COP 18 (Istanbul, Turkey, December 2013).

7. The proposed measures may include:

- a. Reuse treated municipal wastewater in agriculture (reclaiming nutrients as appropriate);
- b. Reuse/recycle treated wastewater to address regional water scarcity (e.g. aquifer recharge);
- c. Set appropriate quality standards for water reuse in agriculture irrigation, aquifer recharge or other uses;
- d. Apply BAT and BEP, including energy saving or renewable/ alternative energy sources in operating wastewater treatment plants (WWTP);
- e. Promote nature-based solutions (e.g. constructed wetlands) in small agglomerations as appropriate.
- f. Set Emission Limit Values (ELVs) for TOC, TN, TP and other priority substances/emerging contaminants based on sensitivity of the recipient environment, as need be;
- g. Set pre-treatment ELVs for industries to discharge their effluents to collection systems that can be treated in municipal wastewater treatment plants, particularly for small industries located in urban areas;
- h. Set timeframe(s) for implementation of technologies to reach ELVs (BOD, COD, TN, TP and other priority substances as appropriate).

In view of the need for developing specific regulations related to reuse of wastewater and lack of mention of necessary institutional arrangements for monitoring of wastewater quality; prior authorization for discharge; and enforcement to meet ELVs, the Secretariat proposes the following additional measures for consideration (continued from above list):

- i. Ensure that reuse of wastewater from urban waste water treatment plants is subject to prior regulations and/or specific authorization by competent authorities or appropriate bodies.**
- j. Ensure that competent authorities or appropriate bodies monitor reclaimed water to verify compliance with these quality requirements taking into account the minimum frequencies included.**
- k. Ensure that urban waste water collection and treatment is subject to appropriate monitoring and reporting systems.**
- l. Ensure that the discharge of industrial wastewater into collecting systems and urban wastewater treatment plants are subject to prior regulations and/or specific authorizations by competent authorities or appropriate bodies.**
- m. Ensure that competent authorities or appropriate bodies monitor discharges from municipal WWTP to verify compliance with ELV.**

8. Support to measures' implementation:

- a. Guidance and standards on the application of BAT and BEP that support reduced cost of energy and water saving;
- b. Technical Guidance for wastewater reuse.

In view of better clarifying specific details of the components of each of the two above support measures, the Secretariat proposes the following details for measures included under (8a) and (8b):

- a) Guidance and standards on the application of BAT and BEP in municipal wastewater treatment (including sewage sludge management) that support reduced cost of energy and water saving, specifically addressing:**
 - i. Energy performance.**
 - ii. Water consumption.**
 - iii. Waste water treatment efficiencies.**
 - iv. Treatment efficiency of flue gas treatment.**
- b) Technical guidance for water reuse, specifically addressing:**
 - i. Uses of reclaimed water.**
 - ii. Health and environment risk analysis for water reuse in agricultural irrigation and aquifer recharge.**
 - iii. Disinfection and filtration techniques.**
 - iv. Classes of reclaimed water quality and allowed agricultural use and irrigation method.**
 - v. Minimum quality requirements.**

9. In preparation for the development of this Regional Plan, the following assessments may be undertaken:

- a. Assessment of level of treatment of major agglomerations of the Mediterranean, including wastewater characterization;
- b. Assessment of the state of play of existing WWTP in major agglomerations; and
- c. Assessment of the situation regarding nutrients limitations in the sea for ELV planning.

3. Possible Elements of the Regional Plan on Sewage Sludge Management

In view of the need to define the scope of the Regional Plan, the Secretariat proposes the following:

1. The scope of the Regional Plan covers “management of sewage sludge from municipal wastewater treatment plants”

In view of the need to define the objective of the Regional Plan, the Secretariat proposes the following:

2. The objective of the Regional Plan is to “ensure maximum effective use of valuable substances and energy potential from sewage sludge, while preventing harmful effects on human health and the environment.”

3. The proposed measures may include:
- a. Reduce inflows of heavy metals, persistent organic pollutants and emerging pollutants, including microplastics in the collection system, taking into consideration discharges from urban centers, discharges from run-off rainwater into combined collection system, and discharges of industrial centers connected to municipal wastewater;

In view of the need to take measures for prior authorization for discharge of wastewater into public sewage systems, the Secretariat proposes the following:

b. Ensure that the discharge of industrial wastewater into collecting systems and urban wastewater treatment plants is subject to prior regulations and/or specific authorizations by competent authorities or appropriate bodies.

- c. Prioritize management alternatives for sewage sludge with a view to minimizing landfilling and limiting it only in cases where the following options are not feasible:
 - i. Reuse/valorization of treated sludge as fertilizer
 - ii. Energy recovery (incineration)
- d. Set ELVs for the use of sewage sludge as fertilizer and soil conditioner, as well other potential uses (e.g. concrete), including microbiological pollution where appropriate.

In view of the need to take specific measures on sludge treatment and ELVs for heavy metals in sludge intended for use in agriculture, the Secretariat proposes the following:

e. Ensure that sewage sludge is treated/stabilized before using in agriculture.
f. Ensure that maximum limit values for heavy metal concentration in sludge for use in agriculture are met (further to specific standards)

- g. Provide for measures addressing the whole chain of the sludge treatment, including dewatering, stabilization, microbiological disinfection, and energy recovery;
- h. Provide for enforcement measures, i.e. control, inspection, sanctions;
- i. Set conditions for the temporary/permanent storage for sludge.

4. Support to measures' implementation:
- a. Provide guidance on all aspects of sludge management.

In view of the need to provide clarifications and specific details of the required guidance on all aspects of sludge management, the Secretariat proposes to develop two technical guidelines, the first for sewage sludge use in agriculture, and the second for standards on the application of BAT and BEP on municipal wastewater treatment (including sewage sludge management) as follows:

- a) Technical guidelines for sewage sludge use in agriculture:**
 - i. Characteristics of sewage sludge**
 - ii. Sludge treatment**
 - iii. Sludge application**
 - iv. Effects of sludge on soils and crops**
 - v. Planting, grazing and harvesting constraints**
 - vi. Environmental protection**
- b) Guidance and standards on the application of BAT and BEP on municipal wastewater treatment (including sewage sludge management) that support reduced cost of energy and water saving, specifically addressing: ¹**
 - i. Energy performance.**
 - ii. Water consumption.**
 - iii. Waste water treatment efficiencies.**
 - iv. Treatment efficiency of flue gas treatment.**

5. In preparation for the development of this Regional Plan, an assessment may be undertaken of the state of play of existing sludge treatment and disposal facilities in municipal wastewater treatment facilities in major agglomerations around the Mediterranean.

¹ *Common guidance document recommended for use in the preparation of the Regional Plan for Municipal Wastewater Treatment Plants*

4. Possible Elements of the Regional Plan on Agriculture Management

In view of the need to define the scope of the Regional Plan, the Secretariat proposes the following:

1. The scope of the Regional Plan covers the agricultural sector in the coastal regions or hydrologic basins discharging into the Mediterranean Sea.

In view of the need to define the objective of the Regional Plan, the Secretariat proposes the following:

2. The objective of the Regional Plan is to “minimize water pollution caused or induced by the agricultural sector, and promote various aspects related to circular economy, resource efficiency and nature-based solutions.”

3. The proposed measures may include:

a. Minimize/ prevent agricultural runoff, which can include the following measures:

- i. Apply irrigation BAT (drip irrigation, humidity sensors);
- ii. Apply buffer zones and irrigation depending on cultivation patterns, land surface, geomorphology and climate (to minimize runoff impacts on water bodies). Transition to appropriate irrigation systems in economically irrigable areas, especially for sensitive areas and hotspots.

In view of the fact that minimizing/ preventing agricultural runoff requires proper assessment of water quality in terms of presence of pollutants and particularly nitrogen, along with the need to implement mitigation measures to reduce this pollution, the Secretariat proposes the following additional measures for consideration:

- iii. **Identify waters which could be affected by pollution (vulnerable zones) in accordance with set criteria.**
- iv. **Establish and implement action programmes in order to reduce water pollution from nitrogen compounds in vulnerable zones including:**
 - a) **Periods when the land application of certain types of fertilizer is prohibited;**
 - b) **The capacity of storage vessels for livestock manure;**
 - c) **Limitation of the land application of fertilizers, consistent with good agricultural practice and taking into account the characteristics of the vulnerable zone concerned;**
 - d) **Transition to appropriate irrigation systems in economically irrigable areas.**

b. Fertilizers management, which may include the following measures:

- i. Set standards on the use of fertilizers depending on type of plants, nitrogen needs, soil properties, quality and quantity of irrigation water, and climate conditions;
- ii. Set restrictions to the use of fertilizers near water bodies, or seasonal bans;
- iii. Set requirements for proper storage of fertilizers (addressing distance from water bodies, packaging, waterproof storages, etc.);
- iv. Enforce the maintenance of records of purchases by farmers of fertilizers;
- v. Apply catch crops/ nitrogen fixing crops under specific conditions; and
- vi. Apply organic farming under specific conditions.

c. Pesticides management, which may include the following measures:

- i. Provide training to farmers on pesticides labelling instructions and when/ how to apply pesticides in line with good agricultural practices (GAP);

With regards to the training to be provided to farmers as described clause 3c(i), the Secretariat proposes the following topics for training:

- a) **Relevant legislation regarding pesticides and their use;**
- b) **Risks of illegal plant protection products;**
- c) **The hazards and risks associated with pesticides;**
- d) **Integrated pest management strategies and techniques;**
- e) **Procedures for preparing pesticide application equipment for work and its maintenance;**
- f) **Safe working practices for storing, handling and mixing pesticides, and disposing of empty packaging;**
- g) **Record keeping of any use of pesticides;**
- h) **Special care in vulnerable zones;**
- i) **Emergency action in case of accidental spillage.**

- ii. Provide for marketing and sale of pesticides to professional organizations (conditional to training/ certification);
- iii. Ban the use of pesticides during rainfall;
- iv. Set targets and timetables for reduction of pesticides use;
- v. Conduct regular inspection of farmers' equipment;
- vi. Ban the use of pesticides through aircrafts, with strictly regulated exemptions;
- vii. Monitor drinking water sources, protected areas and public spaces close to agricultural areas where pesticides are applied; and
- viii. Apply integrated pest management.

In view of the need to monitor the above programmes in order to ensure effective management of pesticides, the Secretariat proposes to include the following measure:

- ix. **Ensure that appropriate monitoring programmes related to the above measures are established in line with criteria to be set for that purpose.**

- d. Manure management (livestock breeding), which may include the following measures:
 - i. Apply adequate management techniques for cattle breeding, digestion and manure reuse;
 - ii. Apply BAT for large farms including anaerobic digestion and bio-energy production, followed by separation of liquid and solid fractions;
 - iii. Apply aerobic digestion for liquids, followed by evaporation lagoons or usage for soil improvement.

As livestock breeding installations contribute to production of manure, the Secretariat proposes the following additional measure to address this aspect:

- iv. **Take the necessary measures to provide that livestock breeding installations are operated in accordance with the Best Available Techniques (BAT), e.g. through permits for those livestock breeding installations exceeding certain threshold capacities.**

In view of the lack of mention of support measures in the text of the main elements, the Secretariat proposes the following support measure for implementation of the regional plan for agriculture management in terms of development of a guidance document for implementation of BAT and BEP in agriculture management encompassing the following points:

4. **BAT and BEP for the agriculture sector (farm and land management):**
 - a. **BEP for product groups and farm types.**
 - b. **Sustainable management: Land, energy, water and waste.**
 - c. **Soil quality management.**
 - d. **Nutrient management.**
 - e. **Soil preparation and crop planning.**
 - f. **Grass and grazing management.**
 - g. **Animal husbandry.**
 - h. **Manure management: anaerobic digestion and bio-energy production**
 - i. **BAT and BEP for irrigation practices in arid regions.**
 - j. **Crop protection products.**
 - k. **Protected horticulture (greenhouses).**

5. In preparation for the development of this Regional Plan, an assessment may be undertaken of the state of play of agricultural practices and discharged pollutants reaching the Mediterranean marine environment.

5. Possible Elements of the Regional Plan on Aquaculture Management

In view of lack of any specific mention of the scope of the Regional Plan, the Secretariat proposes the following:

1. **The scope of the Regional Plan covers aquaculture activities in the Mediterranean.**

In view of lack of any specific mention of the objective of the Regional Plan, the Secretariat proposes the following:

2. **The objective of the Regional Plan is to “minimize water pollution caused or induced by aquaculture sector.”**

3. The proposed measures may include:
 - a. Minimization of impacts from onshore (including hatcheries) aquaculture, which may include the following measures:
 - i. Alternative efficient feeding practices (this shall be based on a study in the field)
 - ii. Provide for installation of settlement tanks (to collect suspended soils) and filters (drum filters); and
 - iii. Optimize discharge systems, including:
 - Development of submarine pipeline systems.
 - Definition of appropriate sea depth.
 - Installment of diffusers at the end of the pipelines and pumps.
 - Improved abatement measures for the collection of oily residue
 - iv. Establish monitoring programmes both in discharge areas and on the end of the settlement tank.
 - v. Establish recirculating closed systems (allowing for cleaning and recycling of the same water).
 - vi. Plant blue catch crops (e.g. mussels).
 - vii. Reuse/recycle of water for irrigation purposes (possible treatment requirement).

In view of the lack of mention of a text on the need to undertake impact assessments for onshore aquaculture installations, in addition to monitoring and permitting, the Secretariat proposes the following additional measures:

- viii. **Adopt all measures necessary to ensure that, before development consent is given, aquaculture projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to environmental impact assessment.**
- ix. **Ensure that appropriate monitoring programmes are established.**
- x. **Ensure that the competent authority grants a permit for aquaculture installations and takes the necessary measures to provide that installations are operated in accordance with the following principles:**
 - a) **all the appropriate preventive measures are taken against pollution**
 - b) **the best available techniques (BAT) are applied**
 - c) **no significant pollution is caused**

- b. Minimize impacts from offshore aquaculture, which may include the following measures:
 - i. Establish criteria to be met in the selection of aquaculture site, including carrying capacity, appropriate species, and pollution baseline. and Environmental Impact Assessment (where applicable),

- ii. Apply Marine Spatial Planning for the identification of the appropriate zones for establishment of aquaculture plants;
- iii. Implement permitting schemes setting operational conditions;
- iv. Alternative efficient feeding practices (this shall be based on a study in the field)
- v. Control discharges through monitoring:
 - Sediments: phosphorus, carbon and nitrogen content, redox potential
 - Water column: oxygen, nutrients (inorganic nitrogen and phosphorus), total nitrogen and phosphorus, chlorophyll a, trix index, etc.
- vi. Establish Multitrophic Aquaculture Systems;
- vii. Control escapes (for prevention of Invasive Alien Species introduction and diseases/viruses spread);
- viii. Use new environmentally benign antifouling agents (TBT-free, preferably also copper free);
- ix. Ensure regular movement of cages in aquaculture sites to avoid development of anoxic zones; and
- x. Promote alternative disposal/ re-use of offal.

In view of the need to establish monitoring and permitting of offshore aquaculture installations, the Secretariat proposes the following measure:

- xi. Ensure that appropriate monitoring programmes are established.**

In view of the need to clarify support measures in the text of the main elements, the Secretariat proposes the following support measure for implementation of the regional plan for aquaculture management related to the development of a guidance document for implementation of BAT and BEP in aquaculture management encompassing the following points:

4. **Guidance on BAT and BEP for the aquaculture sector (onshore and offshore).**
 - a. **Benthic impacts and nutrients: efficient feeding practices, settlement tanks (to collect suspended soils) and filters (drum filters), regular movement of cages, optimization of discharge systems, blue catch crops (e.g. mussels);**
 - b. **Water: recirculating closed systems and reuse/recycle of water for irrigation purposes in onshore aquaculture;**
 - c. **Disease and parasites;**
 - d. **Chemical discharges: use of environmentally benign antifouling agents;**
 - e. **Escapees and prevention of Invasive Alien Species (IAS);**
 - f. **Physical impacts, disturbance and predator control;**
 - g. **Alternative disposal/ re-use of offal.**

5. In preparation for the development of this Regional Plan, an assessment may be undertaken of the state of play of aquaculture practices in the Mediterranean and their impact on the marine environment. If decided to be undertaken, this assessment should build on existing work undertaken by the Contracting Parties and relevant Regional Organizations.

6. Possible Elements of the Regional Plan on Urban Storm Water Management

In view of lack of any specific mention of the scope of the Regional Plan, the Secretariat proposes the following:

1. **The scope of the Regional Plan covers “management of urban storm water in urban agglomerations in the coastal areas.”**

In view of lack of any specific mention of the objective of the Regional Plan, the Secretariat proposes the following:

2. **The objective of the Regional Plan is to “minimize input of marine litter into receiving waters due to storm water.”**

3. The proposed measures may include:

- a. Develop storm water management plans, including risk management;
- b. Establish separate collection systems for run-off water under specific conditions;
- c. In case of combined collections system, install storm water treatment tanks which include decantation and filtering;
- d. Promote green infrastructure for small medium cities, such as wetlands, retention ponds, recharge of aquifers, etc.;
- e. Incorporate integrated coastal zone management (ICZM) plans into management schemes of storm water run-off or the other way around;
- f. Set technical standards for drainage of storm water to outlets on the beach; and
- g. Locate land-based activities, including industrial installations and civil infrastructures such as municipal wastewater treatment plants and landfills, potentially discharging contaminated run-off or wastewater to waterways so as to minimize their discharges and to protect the quality of ground and surface water including rivers, streams, wetlands, estuaries and the marine environment.

In view of the need to maintain storm water networks as an effective measure to reduce marine litter, the Secretariat proposes the following additional measure in that regard:

h. Ensure that storm water systems are kept clean and functioning correctly to prevent flooding during rain events.

In view of the need to clarify the scope of support measures in the text of the main elements, the Secretariat proposes the following support measure for implementation of the regional plan for storm water management in terms of development of a guidance document/manual for storm water management encompassing the following points:

4. **Development of a Manual/Guidance on Stormwater Management including:**

- a. **Integrating Stormwater Management;**
- b. **Stormwater management plans;**
- c. **Recommended structural controls: storage, use, infiltration; and**
- d. **Recommended non-structural best management practices: maintenance, awareness.**

5. In preparation for the development of this Regional Plan, various studies and assessments may be undertaken at national level to:

- a. Evaluate the locations of effluent points of storm water sewers along the coastline; and
- b. Prepare drainage features plans to illustrate the broad geographic pattern of key drainage features.

7. Possible Elements of the Regional Plan on Marine Litter (upgraded)

1. The ongoing evaluation of the status of implementation of the existing Regional Plan on Marine Litter Management in the Mediterranean (Decision IG.21/7), adopted by COP 18 (Istanbul, Turkey, 2013) is expected to provide substantive evidence that should be taken into account while defining the need for additional measures, as described above.

2. The proposed measures may include:
 - a. Ban single use plastic items most found in the Region;
 - b. Set targets for plastic recycling and other waste items to avoid ending-up as marine litter in the marine and coastal environment;
 - c. Introduce environmental taxes, e.g. plastic tax on virgin plastic, extended producer responsibility schemes, refund schemes;
 - d. Promote new technologies for the removal of marine litter from the marine and coastal environment in an environmentally sound way, particularly the retrieval, recycling and reuse of ghost gears;
 - e. Strengthen sanctions in case of non-compliance with the respective national regulations;
 - f. Include in the MPA Management Plans stricter measures to combat marine litter and related monitoring;
 - g. Reduce packaging;
 - h. Promote voluntary agreements with industry at national and regional levels;
 - i. Strengthen measures related to SCP programmes to raise awareness and enhance education;
 - j. Introduce a concrete measure on microplastics reduction, e.g.
 - i. Promote research and identification of the different sources of primary and secondary microplastics (industrial pellets and personal care products related micro litter particles, fibers from clothing.).
 - ii. Ban on microplastics addition to cosmetics.
 - iii. Assess if primary and secondary microplastics are covered or not by legislation, and act, if appropriate, to influence the legal framework, or identify other necessary measures such as the promotion of voluntary commitment (e.g. Assess potential of certification schemes)
 - k. Set targets for plastic waste collection;
 - l. Replacement of plastics in accordance with national waste management systems, i.e. taking into consideration availability of compositing facilities in the case of substituting with biodegradable plastics’;
 - m. Investigate and promote with appropriate industries the use of Best Available Techniques (BAT) and Best Environmental Practice (BEP) to develop sustainable and cost-effective solutions to reduce and prevent sewage and storm water related waste and entering the marine environment, including micro particles as well as improving current management in waste water treatment plants.

The Secretariat proposes the following additional issues to be considered in formulating specific measures when upgrading the Regional Plan for Marine Litter Management in the Mediterranean:

- n. Changes towards a more circular economy were observed in the recent years, but important gaps remain. Political, environmental and operational targets must be set nationally to drive the necessary actions in this direction.**
- o. Informal economy, informal recycling networks around the basin, illegal manufacturing and black markets is a reality in some Mediterranean areas and jeopardizes solutions to marine litter, making even clearer that the waste management schemes at national level need to become more effective and efficient. These informal networks should be taken over by national policies.**
- p. Open dump sites should be closed as a matter of urgency due to their contribution for generating marine litter by wind action or flowing water. Related institutional and enforcement mechanisms should be further strengthened.**
- q. Regional, IMAP-based, marine litter monitoring should become fully operational in all Mediterranean countries.**
- r. The Mediterranean region may have to face new challenges, such as the increase of plastics production, the use of new materials (bio- plastics, copolymers, etc.) that may not have been produced to be environmentally relevant and may mislead consumers. A clear guidance of the available solutions should be prepared.**
- s. Industry-based solutions and large-scale green economy initiatives should be strengthened to support the transition towards a more sustainable economy, promoting the transfer of Environmentally Sound Technology to the industry, policy changes and incentives to enable the Circular Economy, providing innovative and long-term solutions.**
- t. The need to better understand the links between marine litter fluxes and regional economy, as well as for coordination in establishing and implementing national programmes of measures to maximize transboundary benefits should be continuously addressed at the regional governance level.**

8. Way forward

1. The process of development, negotiation and adoption may take two to three years for each of the six Regional Plans, although aggregated in terms of substance; and some may even require a specific thematic assessment prior to elaboration. In this respect, several approaches may be followed to set priorities in view of their timely and differentiated development and negotiations.

2. The time required for the implementation of the technical measures at national level is a crucial consideration and key factor taking into account that the implementation of some measures may require important investments and long processes for both public and private sectors.

3. Based on the conclusions of the present Regional Meeting of Experts, the Secretariat will continue the work to define and finalize the main elements of the technical measures and related timetable for their implementation. It is safe to anticipate an overall assessment, to the extent possible, of the potential impacts (GES and SDG targets related) of their implementation in a time frame extending between 2024 and 2030. This maybe an approach for setting priorities in terms of development and negotiation timing for each Regional Plan.

4. There are several existing Regional Guidelines related to the management of obsolete chemicals, hazardous waste and environmental management of industrial sectors already adopted by the Contracting Parties. A possible approach would be to start developing the Regional Plans that address issues not yet covered by the existing Guidelines already adopted by the Contracting Parties.

5. Another approach would be to start upgrading the existing Regional Plans with the new elements/measures and/or to transform, modify, and upgrade the provisions of the existing Regional Guidelines to fulfill the requirements of the relevant Regional Plans.

6. The Table below proposes possible scenarios regarding the time frame for the development, negotiation and adoption of the Regional Plans for a first preliminary exchange of views with the Contracting Parties:

| Regional Plan | 2018- 2019 COP 21 | 2020-2021 COP 22 | 2022-2023 COP 23 | 2024-2025 COP 24 |
|---|---|---|---|--|
| <i>Municipal Wastewater Treatment</i> | Develop the main elements of the Regional Plan. Mandate to upgrade the BOD Regional Plan. | Upgraded Regional Plan developed and submitted to COP 22. | | |
| <i>Sewage Sludge Management</i> | Develop the main elements of the Regional Plan. Mandate to develop the new Regional Plan. Mandate to develop technical annexes (2020 - 2023). | Regional Plan developed and submitted to COP 22 (without technical annexes). Work ongoing to finalize the technical annexes. | Technical annexes of the Regional Plan finalized and submitted to COP 23. | |
| <i>Agriculture Nutrients Management</i> | Develop the main elements of the Regional Plan. | Mandate to undertake an Overall Assessment. | Mandate to develop the Regional Plan/Guidelines. | Regional Plan/Guidelines developed and submitted to COP 24 |
| <i>Aquaculture Nutrients Management</i> | Develop the main elements of the Regional Plan. | Overall Assessment and mandate to develop technical | Mandate to develop the Regional Plan. | Regional Plan and its technical standards developed |

| Regional Plan | 2018- 2019 COP 21 | 2020-2021 COP 22 | 2022-2023 COP 23 | 2024-2025 COP 24 |
|-------------------------------------|---|--|--|--|
| | | standards for Aquaculture. | Work ongoing on technical standards. | and submitted to COP 24. |
| <i>Urban Storm Water Management</i> | Develop the main elements of the Regional Plan. Sharing of best practices ongoing. | State of play report and exchange of best practices; capacity building activities. | Mandate to develop the Regional Plan. | Regional Plan developed and submitted to COP 24. |
| <i>Marine Litter (upgraded)</i> | Preparations of relevant Guidelines as provided for in the existing Marine Litter Regional Plan ongoing. <u>Option 1:</u> Mandate to upgrade the Marine Litter Regional Plan or to add technical annexes to incorporate the new elements. | <u>Option 1:</u> Upgraded Marine Litter Regional Plan or technical annexes to the existing Regional Plan submitted to COP 22. <u>Option 2:</u> Mandate to upgrade the existing Marine Litter Regional Plan or to add technical annexes to incorporate the new elements. | <u>Option 2:</u> Upgraded Marine Litter Regional Plan or technical annexes to the existing Regional Plan submitted to COP 23. | |