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**MEDITERRANEAN ACTION PLAN (MAP)  
REGIONAL MARINE POLLUTION EMERGENCY RESPONSE CENTRE FOR THE  
MEDITERRANEAN SEA (REMPEC)**

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Regional Workshop on Ratification and Effective Implementation  
of MARPOL Annex VI

REMPEC/WG.44/INF.6  
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Valletta, Malta, 11-13 December 2018

Original: English

Agenda Item 9

**SHIP AND PORT EMISSIONS TOOLKITS**

**Note by the Secretariat**

**SUMMARY**

**Executive Summary:** This document presents the Ship and Port Emissions Toolkits developed within the framework of the GEF-UNDP-IMO GloMEEP Project and in collaboration with IMarEST and IAPH.

**Action to be taken:** Paragraph 8

**Related documents:** MEPC 73/INF.30, REMPEC/WG.44/INF.7, REMPEC/WG.44/INF.8, REMPEC/WG.44/INF.9, REMPEC/WG.44/INF.10, REMPEC/WG.44/INF.11

**Background**

1 The overall goal of the Global Environment Facility (GEF), United Nations Development Programme (UNDP) and International Maritime Organization (IMO) Global Maritime Energy Efficiency Partnerships (GloMEEP) Project is to strengthen the national capabilities for countries to become Party to and effectively implement Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL). The project aims at contributing to a significant reduction of greenhouse gas (GHG) emissions from international shipping via supporting a number of Lead Pilot Countries (LPCs) in taking a fast-track approach to pursuing relevant legal, policy and institutional reforms, driving national government action and industry innovation to support the effective implementation of IMO's energy efficiency requirements.

2 The GEF-UNDP-IMO GloMEEP Project was officially launched in September 2015 at the IMO-Singapore Future-Ready Shipping 2015 Conference. The ten GloMEEP LPCs are: Argentina, China, Georgia, India, Jamaica, Malaysia, Morocco, Panama, the Philippines and South Africa.

3 Although originally established for a two-year time period, the project has been extended to 31 December 2018.

4 With a view to supporting countries in gaining a better understanding of emissions from ships and in ports, as well as developing strategies to reduce respective emissions, the GEF-UNDP-IMO GloMEEP Project has recently finalised the work on two Emissions Toolkits.

5 The *Ship Emissions Toolkit*, which was developed in collaboration with the Institute of Marine Engineering, Science and Technology (IMarEST), includes three practical guides. While these three individual guides are separate documents and can be used independently, they are complementary and in large parts based on each other, as follows:

- .1 Guide No.1: Rapid assessment of ship emissions in the national context, as set out in the Appendix to document REMPEC/WG.44/INF.7;
- .2 Guide No.2: Incorporation of MARPOL Annex VI into national law, as laid down in the Appendix to document REMPEC/WG.44/INF.8; and
- .3 Guide No.3: Development of a national ship emissions reduction strategy, as set out in the Appendix to document REMPEC/WG.44/INF.9.

6 The *Port Emissions Toolkit*, which was developed in collaboration with the International Association of Ports and Harbors (IAPH), includes two individual guides, as follows:

- .1 Guide No.1: Assessment of port emissions, as laid down in the Appendix to document REMPEC/WG.44/INF.10; and
- .2 Guide No.2: Development of port emissions reduction strategies, as set out in the Appendix to document REMPEC/WG.44/INF.11.

7 A summary of each toolkit is set out in document MEPC 73/INF.30, which is presented in the **Appendix** to the present document.

**Action requested by the Meeting**

8 **The Meeting is invited to take note** of the information provided in the present document.

**APPENDIX**

**Ship and Port Emissions Toolkits**

(MEPC 73/INF.30)



MARINE ENVIRONMENT PROTECTION  
COMMITTEE  
73rd session  
Agenda item 7

MEPC 73/INF.30  
17 August 2018  
Original: ENGLISH

## REDUCTION OF GHG EMISSIONS FROM SHIPS

### Ship and Port Emissions Toolkits

#### Note by the Secretariat

#### SUMMARY

*Executive summary:* This document informs the Committee of the two recently finalized Emissions Toolkits that were developed within the framework of the GEF-UNDP-IMO GloMEEP Project and in collaboration with IMarEST and IAPH

*Strategic direction,  
if applicable:* 3

*Output:* 3.2 and 3.4

*Action to be taken:* Paragraph 37

*Related documents:* MEPC 73/13, MEPC 73/13/3 and resolution MEPC.304(72)

#### Introduction

1 The overall goal of the Global Maritime Energy Efficiency Partnerships (GloMEEP) Project is to strengthen the national capabilities for countries to become Party to and effectively implement MARPOL Annex VI. The project aims to contribute to a significant reduction of emissions from international shipping via supporting ten Lead Pilot Countries<sup>1</sup> in taking a fast-track approach to pursue relevant legal, policy and institutional reforms, driving national government action and industry innovation to support the effective implementation of IMO's air pollution and energy efficiency requirements. An update on the work of the GloMEEP Project is set out in document MEPC 73/13/3. Furthermore, the *Initial IMO Strategy on reduction of GHG emissions from ships*, adopted by MEPC 72 in April (resolution MEPC.304(72)), identifies GloMEEP as a project to facilitate implementation of the Initial Strategy.

2 With a view to supporting countries in gaining a better understanding of emissions from ships and in ports, as well as developing strategies to reduce respective emissions, the GEF-UNDP-IMO GloMEEP Project has recently finalized the work on two Emissions Toolkits.

<sup>1</sup> Argentina, China, Georgia, India, Jamaica, Malaysia, Morocco, Panama, the Philippines and South Africa.

3 The *Ship Emissions Toolkit* was developed in collaboration with the Institute of Marine Engineering, Science and Technology (IMarEST). The *Port Emissions Toolkit* was developed in collaboration with the International Association of Ports and Harbors (IAPH).

4 Both toolkits can be downloaded via the GloMEEP webpage (<http://glomeep.imo.org/resources/publications/>) and a summary of each toolkit is set out below.

### **Ship Emissions Toolkit**

5 The *Ship Emissions Toolkit* provides a structured framework, as well as decision support tools for evaluating emissions reduction opportunities in maritime transport. It offers guidance to countries seeking to develop and strengthen national policy and regulatory frameworks related to the prevention of air pollution and the reduction of greenhouse gas (GHG) emissions from ships.

6 This toolkit includes three practical guides. While these three individual guides are separate documents and can be used independently, they are complementary and in large parts based on each other:

Guide 1 – Rapid assessment of ship emissions: offers guidance for conducting a rapid assessment and generating both quantitative and qualitative information about a country's maritime emissions status at the time of analysis.

Guide 2 – Incorporation of MARPOL Annex VI into national law: provides useful information for policy makers and legislators in countries preparing for accession to the 1997 Protocol or for contracting Parties to the 1997 Protocol which have not yet developed the legal framework to implement the regulations in MARPOL Annex VI in the domestic legislation.

Guide 3 – Development of a national ship emissions reduction strategy: supports countries in developing a national ship emissions reduction strategy that can guide potential policy and investments options.

7 Each guide provides links to tools that assist the user in collecting and analysing relevant information and data, and presents assessment techniques to support development of a national ship emissions reduction strategy and related implementation plans. Many of these tools include references to websites where more detailed manuals, guidelines, references, studies, and presentations can be found.

8 The *Ship Emissions Toolkit* is drafted wider in the sense that it not only considers emissions from international shipping but also encourages the user to assess emissions from and identify emissions reduction opportunities for the domestic fleet. It may well be the case that domestic shipping represents the largest source of emissions in certain countries, and/or becomes the proving ground for low- or zero-carbon technologies that can subsequently be adopted by international shipping.

9 The objective of this toolkit is to support the development of a policy framework to guide near- and long-term emissions reductions in the shipping sector. By no means does this toolkit aim to promote any kind of unilateral or regional actions that conflict with the multilateral legislation mechanism under the framework of IMO. Instead, this toolkit provides guidance to interested countries seeking to take effective actions to achieve ship emissions reductions without promoting specific emission reduction measures or technologies.

10 Furthermore, the toolkit recognizes that ships and ports are intrinsically connected and as such also provides links to the *Port Emissions Toolkit* that has also been developed within the framework of the GloMEEP Project and aims to support countries in the quantification of emissions in ports and the development and implementation of a port emissions reduction strategy.

11 While the toolkit has been developed to support developing countries in particular (including through the Maritime Technology Cooperation Centres (MTCC) that have been established under the Global MTCC Network (GMN) Project, see document MEPC 73/13/3, and other technical cooperation activities implemented by IMO under its Integrated Technical Cooperation Programme (ITCP), see document MEPC 73/13), it can provide guidance to any country seeking to improve the environmental performance of its maritime shipping sector with regard to emissions. It is intended primarily for use by staff of maritime administrations. However, it is expected to be useful to other government officials and policymakers, investors, developers, local community leaders and international development assistance agencies involved in activities designed to address emissions reductions from ships.

12 This toolkit has been used and tested by the ten GloMEEP Lead Pilot Countries. Using the guides as a basis, each GloMEEP country has developed a rapid assessment and drafted a national ship emissions reduction strategy. Those GloMEEP countries that have not yet acceded to the 1997 Protocol or incorporated MARPOL Annex VI into national law have also undertaken a detailed legal assessment and drafted national legislation to domesticate MARPOL Annex VI.

13 In finalizing development of this toolkit, the GloMEEP countries' valuable feedback and questions have been incorporated as best as possible. Lessons learned and best practices that were identified over the course of the GloMEEP Project, have also been included.

14 The *Ship Emissions Toolkit* includes three individual practical guides as follows:

***Guide No.1: Rapid assessment of ship emissions in the national context***

15 This guide presents a framework for conducting a rapid assessment and generating information on a country's maritime shipping profile and environmental performance related to emissions from ships. It provides guidance on how to gather and analyse relevant information quickly; the data collection and analysis should not take more than four weeks.

16 The guide recommends the collection of both quantitative and qualitative information, and provides a rapid assessment template to help users arrive at an overview of a country's maritime emissions situation that can provide a foundation for the development and implementation of a national ship emissions reduction strategy. Developing a rapid assessment will help answering the following questions:

- .1 Which maritime sectors currently play the most important role for the country and why?
- .2 Which sectors, if any, could play a more important role and thereby contribute more to the country's economy in the future? How could these sectors be promoted?
- .3 How is the country's maritime industry expected to develop by 2050 and what impact will those developments have on the country? Which opportunities do these developments bring?

- .4 Who are the most important stakeholders, why are they important and how could they contribute to the reduction of maritime emissions?
- .5 Which fleet component(s), or hybrid thereof, seem to be most relevant for the country and why?
- .6 What are the emissions of the most relevant fleet component(s) and how are they likely to develop? How could these developments be influenced and emissions be reduced?

17 Furthermore, the rapid assessment findings will be important in order to monitor and report progress in relation to the implementation and effectiveness of a national ship emissions reduction strategy.

### ***Guide No.2: Incorporation of MARPOL Annex VI into national law***

18 This guide is a useful tool for States interested in acceding to the 1997 Protocol or for contracting Parties to the 1997 Protocol which have not yet developed the legal framework to implement the regulations in MARPOL Annex VI, and in particular chapter 4 on energy efficiency for ships, in the domestic legislation.

19 The guide recommends undertaking a detailed assessment of a country's existing policies, strategies, legislation and other measures that address emissions from ships. This legal and policy assessment will provide important information for the development of a national ship emissions reduction strategy.

20 If, as part of the strategy development process (see Guide No.3), it is identified that further action needs to be taken to implement and give full effect to MARPOL Annex VI, this guide outlines the steps States need to take at the national level in order to implement the provisions of MARPOL Annex VI and, in particular, the regulations on energy efficiency for ships, taking into account the particular legal system of the country.

21 The guide addresses the substantive provisions of MARPOL Annex VI, i.e. the provisions which require national action by an individual country in its capacity as a flag State and port State.

22 The guide also includes a brief review of the legal, policy and institutional arrangements in the ten GloMEEP Lead Pilot Countries with regard to MARPOL Annex VI.

### ***Guide No.3: Development of a national ship emissions reduction strategy***

23 The findings generated by methodologically working through the rapid assessment guide (Guide No.1) and the legal guide (Guide No.2) can inform the process of developing a national ship emissions reduction strategy.

24 While MARPOL Annex VI, and other international policies, regulations and strategies exist, they are by their nature often generic, in the sense that they are designed to apply as broadly as possible. They thus need to be operationalised within a national context, giving consideration to local, national and regional environmental, legal, institutional or other issues. Thus the purpose of a national ship emissions reduction strategy is twofold; on the one hand it can support transposing and implementing international requirements in a national context and, on the other hand, it can support the achievement of international goals and targets through complementary national action.



25 For example, the development of a strategy could mobilise a broad range of national stakeholders to get involved in ship emissions reduction efforts, including those in shipping-related sectors that may not necessarily be covered by IMO Conventions, and thereby bring in new ideas, experience, capabilities and resources. Countries could also, through a targeted strategy, encourage and mobilise resources for research, development and deployment of low-emissions technologies and fuels at a national level, or from international donors. Through sharing research findings, best practices and lessons learned with the wider maritime community, countries could promote the global uptake of these technologies and fuels. These and other activities could facilitate the step change needed to significantly reduce ship emissions, achieve IMO's aims and commitments, and thereby contribute to global air pollution and GHG mitigation efforts.

26 In addition, a national ship emissions reduction strategy could help countries realize benefits not directly associated with reducing ship emissions, such as reduced health care costs, job creation in new sectors, creation of new business and investment opportunities, decreased energy dependency, and so forth. The strategy development and implementation process also has the potential to strengthen national institutional and technical capacity and transfer knowledge to sectoral organizations. It can also support countries coordinate among sectors and institutions that currently work in isolation from each other, and allow decision makers to identify synergies among emissions reduction sectoral plans. Furthermore, sending a credible signal regarding future plans to reduce ship emissions can stimulate investment and international support for mitigation activities, promote technological innovation, and engage the private sector.

27 This guide therefore provides information on the crucial planning, development and implementation phases involved in the creation of such a strategy. The guide also includes a template with recommended elements a national ship emissions reduction strategy could include, as well as information suggested for inclusion in each part of the strategy.

### **Port Emissions Toolkit**

28 Maritime ports are major hubs of economic activity and are usually located in the vicinity of highly populated areas. The growth of global trade has resulted in a corresponding rapid increase in the amount of goods being shipped by sea. Despite the enormous growth of the marine shipping sector, in many parts of the world pollution prevention efforts have not focused on port-related sources. As more attention is focused on reducing emissions from the marine shipping sector, ports are driven to understand the magnitude of the air emissions impact from their operations on the local and global community and to develop strategies to reduce this impact.

29 The key to this effort is to provide a systematic approach to the assessment of air pollutant emissions from port-related sources through the development of port emissions inventories that provide the basic building block to the development of a port emissions reduction strategy. Without an emission inventory, it may be difficult to determine where to best focus resources to reduce emissions. Further, without a baseline emission inventory, and subsequent updates, it will be difficult to monitor the effectiveness of any emissions reduction strategy that is implemented.

30 This *Port Emissions Toolkit*, therefore includes two individual guides as follows:

**Guide No.1: Assessment of port emissions**

31 This guide is intended to serve as a resource guide for ports intending to develop or improve their air pollutant and/or GHG emissions assessments. This guide builds on and updates previous work of IAPH and its members, incorporating the latest emission inventory methods and approaches.

32 Recognizing that ships do not operate independently from shore-based entities in the maritime transportation system, port emission considerations therefore must extend beyond the ships themselves to include all port-related emission sources including: seagoing vessels, domestic vessels, cargo handling equipment, heavy-duty vehicles, locomotives, and electrical grid.

33 This guide is intended to be relevant to users at different levels of experience, from those just beginning the emissions inventory process, to those having extensive experience with developing port-related emissions assessments.

34 This guide focuses on planning and key decision steps related to port emissions assessments. As the technical methods for estimating activity levels and related emissions from port-related sources continue to be updated and improved, this guide also points the reader to those organizations and ports that are at the forefront of emissions inventories, metrics, and forecasts and, through their published work, provide up-to-date methods and proxy data for the development of port emissions assessments.

**Guide No.2: Development of port emissions reduction strategies**

35 This guide is intended to serve as a resource guide for ports intending to develop an emissions reduction strategy (ERS) for port-related emission sources. This guide builds on the principles discussed in Guide No.1 and describes the approaches and methods that can be used by ports to develop, evaluate, implement, and track voluntary emission control measures that go beyond regulatory requirements.

36 This guide focuses on measures to be considered as part of an ERS Plan for those port-related mobile emission sources that are associated with cargo movement. This guide highlights key elements that ports should consider when developing an ERS, which includes evaluating, planning, and implementing mobile source emission control measures as part of an overall ERS. This guide also contains links to resources that provide further details into specific areas.

**Action requested of the Committee**

37 The Committee is invited to take note of the information provided.

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