**Framework Convention for the Protection of the Marine Environment of the Caspian Sea**

Tehran Convention

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**CONFERENCE OF THE PARTIES**
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# Regional project "Addressing Marine Litter in the Caspian Sea Region"

**(Note by the interim Secretariat)**

**Introduction:**

Marine litter today is one of the most challenging environmental issues of global concern. In the last decade, more attention was paid to this issue in terms of the amount of research devoted to it and the setting of obligations for the world community to tackle the problem. The issue of marine litter is also increasingly relevant in the Caspian Sea region.

It must be recognized that the efforts undertaken by the littoral countries of the Caspian region in combating the problem of marine litter are insufficient, fragmented, and not coordinated between the countries. The lack of an appropriate platform for the exchange of experience is also an obstacle to solving this problem. In addition, this problem is complicated by a lack of experts in the field of sustainable consumption and waste management in the region.

Therefore, at the end of 2018 the project "Addressing Marine Litter in the Caspian Sea Region" was launched, which is implemented by the Public Fund “Water Initiatives Center” - WIC (Republic of Kazakhstan) under the auspices of the interim Secretariat of the Tehran Convention and funded by the Coca-Cola Foundation through Global Water Challenge.

**Historic overview:**

As the challenges related to marine litter are not confined to national territories, regional cooperation among the Caspian countries is vital. Article 5.2 (a) of the Protocol for the Protection of the Caspian Sea Against Pollution from Land-Based Sources (Moscow Protocol) envisages adoption of regional/or national programmes or plans of action based on the pollution source control measures and containing corresponding measures. While preparing plans of action, programmes and undertaking measures to prevent, control, reduce and eliminate pollution from land-based sources to the maximum extent possible, the Protocol takes into account the categories of substances identified on the basis of their hazardous or other harmful characteristics, including marine litter (section B.6, Annex 1 of the Moscow Protocol).

At the 5th meeting of the Conference of the Parties (COP5) to the Tehran Convention, 28 - 30 May 2014, in Ashgabat, Turkmenistan, the Parties “welcomed the participation of relevant international organizations and the private sector, including the oil and gas industry and the maritime transport companies, and encouraged them to support the implementation of the Tehran Convention and its Protocols” as well as “called upon all donors to consider, continue, renew or increase bilaterally or multilaterally their support to the implementation of the provisions of the Tehran Convention and its Protocols”.

At the sixth Preparatory Committee Meeting (PrepCom-6) for the 6th Meeting of the Conference of the Parties (COP6) to the Tehran Convention (September 2018, Baku, Azerbaijan), the Tehran Convention

Parties were informed about and exchanged views on the projects under preparation, presented in the COP6 document (TC/COP6/Info2). The document contained information on the above-mentioned project on Addressing marine litter in the Caspian Sea region. The Tehran Convention Parties welcomed and supported the corresponding work and activities of the Tehran Convention interim Secretariat (TCIS).

By the letter of 5 December 2018, the Tehran Convention Parties were informed about the commencement of the project "Addressing Marine litter in the Caspian Sea region" (hereinafter – Project) and received the Project document.

**Objective and Tasks**

The main objective of the Project is to establish a sound network for addressing the marine litter and promoting cooperation of the relevant stakeholders as well as to develop a Caspian Marine Litter Action Plan to prevent and reduce marine litter in the Caspian Sea.

The specific objectives of the Project are as follows:

- Establishment of the Regional Network for addressing the marine litter in the Caspian Sea region. The network will also serve as a platform for engaging in a dialogue and enhanced cooperation with the business and industry, sea users, local communities and other relevant civil society groups as well as national stakeholders focusing on marine litter, at the appropriate level, to implement the Caspian Marine Litter Action Plan;
- Development of the Caspian Marine Litter Action Plan embodied in the Moscow Protocol against pollution from land-based sources.

The following tasks were outlined under the Project to achieve the above-mentioned objectives:

- E-meetings: a cloud-based software platform *Interprefy* is used to bring experts and stakeholders together and ensure smooth and regular communication including video and interpretation. Four e-meetings were held to date;
- Stakeholders identification: five National experts are contracted to facilitate the initial establishment of the Regional network on marine litter;
- CEIC Portal: an International Expert is contracted to develop a Concept Note for the creation and functioning of the Regional network on marine litter and provide a technical support to the Regional network on marine litter, including the development of a special section on the CEIC portal, its hosting and maintenance;
- Trainings on Marine litter: Massive Open Online Course on marine litter (UNEP & Open University) and sustainable tourism strategies (GSTC);
- Caspian Sea Day celebration and related events: facilitation of the organisation and holding of a coastal clean-up campaign and awareness raising activities;
- Caspian Marine Litter Action Plan: an International Expert is contracted to work on National Survey on Marine Litter, Bibliography relevant to Issue of Marine Litter in Caspian Sea Region; and Preparation, Adoption and development of the Caspian Marine Litter Action Plan.

At present 10 national government nominated experts and two international experts are formally contracted to assist in achieving the objectives of the Project. The list is contained in the Annexes I and II.

**Process**

The initial establishment of the Regional network on marine litter consisting of five national networks took around three months. For this purpose National Experts from five Caspian reparian countries and one International Expert were contracted.

The preparation of the draft Caspian Regional Marine Litter Action Plan (CRMLAP) was undertaken by the national experts from the Caspian Sea littoral states and an international expert. For that purpose, five National Experts were contracted to provide their national inputs and contributions for the

development of the Caspian Marine Litter Action Plan where the International Expert fully facilitates the development of the Caspian Marine Litter Action Plan.

To this end, a national survey was developed by the International Expert on the basis of a Questionnaire sent to the National Experts on 8 April 2019 which is contained in Annex III. To this moment, experts from Iran, Kazakhstan, Russian Federation and Turkmenistan provided their filled-up surveys. An overview of a survey results is presented in the Annex IV.

The process of developing the CRMLAP took almost a year where 6 drafts of the CRMLAP were developed by the International expert in cooperation with the National experts. During this process a number of online meetings were held on the Interprefy platform. The International Expert prepared also a bibliography which lists 107 documents with summaries relevant to the issue of marine litter in the Caspian Sea, contained in Annex V.

By the letter of 10 June 2020 addressed to the Tehran Convention Contracting Parties the interim Secretariat distributed the final draft Caspian Regional Marine Litter Action Plan developed by the National Experts nominated by the Caspian Sea littoral states with the assistance of the International Expert, contained in Annex VI.

**Suggested action:**

The Conference may wish to:

- Welcome the draft Caspian Regional Marine Litter Action Plan; request the Secretariat to coordinate the finalization of the Plan for its adoption at the COP7; and express their gratitude to the “New World Programme” for financial support to the project “Addressing the Marine litter in the Caspian Sea region”

**Annex I**

## List of National Marine Litter and Stakeholders Experts

**National experts:**

Mr. Faig Mutallimov, National Marine Litter and Stakeholders Expert from Azerbaijan

Ms. Zhanar Mautanova, National Marine Litter and Stakeholders Expert from Kazakhstan

Ms. Farnaz Shoaie, National Marine Litter and Stakeholders Expert from Iran

Center for International Projects, National Convention Liaison Office of the Russian Federation

Ms. Gozel Orazdurdyyeva, Acting National Marine Litter and Stakeholders Expert from Turkmenistan

**International expert:**

Mr. Vincent Lalieu, International expert to support CEIC portal

**Public Fund Water Initiatives Center:**

Ms. Sandugash Abdizhalelova, Project manager

Ms. Nurgul Tastenbekova, WIC manager

Mr. Meyram Arystanov, WIC manager

**Annex II**

## List of National Experts and International Expert for development of the draft Caspian Marine Litter Action Plan

**National experts:**

Mr. Faig Mutallimov, National Marine Litter and Stakeholders Expert from Azerbaijan

Ms. Zhanar Mautanova, National Marine Litter and Stakeholders Expert from Kazakhstan

Ms. Farnaz Shoaie, National Marine Litter and Stakeholders Expert from Iran

Center for International Projects, National Convention Liaison Office of the Russian Federation

Ms. Gozel Orazdurdyyeva, Acting National Marine Litter and Stakeholders Expert from Turkmenistan

**International expert:**

Mr. Ljubomir Jeftic, International expert for Caspian Marine Litter Action Plan development

**Public Fund Water Initiatives Center:**

Ms. Sandugash Abdizhalelova, Project manager

Ms. Nurgul Tastenbekova, WIC manager

Mr. Meyram Arystanov, WIC manager

**Annex III**

# Assessment to support development of a Caspian Marine Litter Action Plan

National Survey on Marine Litter

**Questionnaire**

Interim Secretariat of the Tehran Convention

April 2019

## Introduction & background

Marine litter, including plastic and microplastic, is a global concern affecting all the oceans and seas of the world. It poses environmental, economic, health and aesthetic problems that are rooted in poor solid waste management practices, lack of infrastructure, indiscriminate human activities and behaviours and an inadequate understanding on the part of the public of the potential consequences of their actions.

The Caspian Sea is the largest inland water body in the world, occupying a deep depression on the boundary of Europe and Asia with a water level approximately 27 m below the level of the world's oceans. The sea's surface is about 436,000 km², its volume is about 78,000 km³ and its coastal length is about 7,000 km. The maximum depth of the sea is 1025 m, and the average depth is 184 m. The geographical area where economic activities can have a noticeable impact on the environment of the Caspian region, i.e., the Caspian Economic Hinterland, is home to some 14.8 million people.

The sea is bordered by five countries (Azerbaijan, Iran, Kazakhstan, Russian Federation and Turkmenistan) that in 1998 established, in partnership with International Partners (EU, UNDP, UNEP, and WB), the Caspian Environment Program (CEP). The overall goal of the CEP is to promote the sustainable development and management of the Caspian environment.

During the first phase of CEP, 1998-2002, the programme created a regional coordination mechanism to achieve sustainable development and management of the Caspian environment; completed a Transboundary Diagnostic Analysis (TDA) of priority environmental issues and formulated for regional and national endorsement a Strategic Action Programme (SAP) and a National Caspian Action Plan (NCAP) for each of the five countries. The countries demonstrated their commitment to protecting and restoring the Caspian environment by signing the Framework Convention for the Protection of the Maritime Environment of the Caspian Sea (Tehran Convention) in 2003, which entered into force on 12th August 2006.

The second phase of the CEP witnessed the continued transition to enhanced regional ownership of the programme with its international partners, including GEF and the EU, playing supportive roles. This phase was also characterized by the enhanced focus on the implementation of the SAP and of the NCAPs developed earlier and fully updated, by the full ratification of the Tehran Convention, and by the constructive regional dialogue on four associated protocols dealing with biodiversity protection, land-based sources of pollution, EIA in transboundary context and emergency response to oil spills.

Of the issues that have received considerable attention during the two phases of the CEP, marine pollution and unsustainable coastal development activities stand out. Both have been ranked as two major regional environmental areas of concern in the SAP and a fairly large number of remedial and preventive measures and policies have been designed and recommended to deal with these issues.

## About this Survey

In recent years Caspian countries have scaled up efforts to address marine litter. Preparation of the Caspian Marine Litter Action Plan is under way and it merits collection of relevant national information. Such information is to be collected by National Consultants (point 5.4 of the ToR of National Consultants) and sent, through completion of this Questionnaire, to the Tehran Convention Interim Secretariat at the latest by 1 June 2019.

Responses to the Questionnaire will be used for the preparation of:

1. Bibliography on marine litter in the Caspian Sea region; and

2. Draft Caspian Marine Litter Action Plan.

**Survey Instructions**

- Please read this entire document and plan your approach before beginning to complete the Survey.

- This National Survey on Marine Litter has been designed to be completed by a national consultant in English, based on consultation with and input from relevant sectors, institutions and entities*.

- The content and quality of the Caspian Marine Litter Action Plan will be dependent on the content and quality of the responses to this National Survey.

- You are therefore kindly requested to make every effort to be as accurate, correct, complete and comprehensive as possible in responding to each Survey Question. This may require you to undertake literature search and review, as well as consulting extensively with other experts and officials in your country (please see table below).

- Please complete the survey electronically, in MSWord. Please use as much space as necessary for each question.

- Please feel free to add to the Questionnaire, and please include, as email attachments any additional scientific papers, studies, reports, policies, laws, regulations, maps, graphics, data and other relevant documents and material that might be useful.

- You are invited to contact the Tehran Convention Interim Secretariat with any queries.

Completed National Surveys should be submitted by email to the Tehran Convention interim Secretariat

by 1 June 2019 at the latest.

*In-country stakeholders that should be consulted in completing the Survey may include:

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| Environment administration | Port Authorities / Corporations | Municipal Councils |
| Maritime Transport administration & Coast Guard | Fisheries administration | Waste management sector |
| Shipping industry | Fishing and aquaculture sector | Coastal tourism sector |
| Marine scientists and research institutions | Environmental NGOs | Other stakeholders |

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**Survey Questions**

***1. Country Details***

1.1 Name of Country:

1.2 Name:

Please include name and full contact details of person filling in this questionnaire.

Also please provide updated information on national marine litter focal and contact points in your country.

1.3 Position:

1.4 Organization:

1.5 Address:

1.6 Tel:

1.7 Email:

1.8 Skype:

***2. State of the Problem***

(NB. Please attach any references, studies, reports, maps, graphs etc that relate to these questions)

2.1 Surveys and Monitoring:

Are there survey and monitoring data on the extent of the marine litter problem in your country? If so, please identify and describe:

2.2 International Coastal Cleanup:

Does your country participate in the International Coastal Cleanup (ICC) (www.coastalcleanup.org), organized annually by the Ocean Conservancy? If so, please list in-country ICC contact and locations cleaned-up, and describe what trends this activity has shown?

2.3 Other Cleanups:

Does your country organize / participate in any other, similar coastal cleanups? (e.g. Clean Up the World - www.cleanuptheworld.org, PADI Project AWARE - www.projectaware.org, Green Fins – www.greenfins.net or other programmes): If so, please list in-country contacts and locations cleaned-up, and describe the programme(s) and the results in your country, to date:

2.4 Source Differentiation:

Does any of the available data on marine litter in your country differentiate / identify sources (e.g. land-based versus ship-based)? If so, please describe (please provide data if possible):

2.5 Accumulation Zones:

Is there information available on ocean circulation patterns and accumulation zones for marine litter in your country's waters and along your coastlines? If so, please describe (include electronic copies of maps if possible):

2.6 Ecological and environmental impacts:

Are there any data / other information on the ecological and environmental impacts of marine litter in your country? If so, please identify the data sources and describe the main results (please list references):

2.7 Socioeconomic Impacts:

Are there any data / other information on the socioeconomic impacts of marine litter in your country? If so, please identify the data sources and describe the main results (please list references):

2.8 Other scientific data and studies:

Are there any data and results from other studies, research and monitoring that are relevant to assessing the State of the Marine Litter problem in your country? If so, please describe the programme(s) and the results to date (please list references):

***3. National Institutional Arrangements and Policy Framework***

3.1 Lead Agency

Does your country have a Lead Agency for marine litter issues? If so, please provide contact details:

3.2 Task Force

Does your country have a cross sectoral task force, working group, committee or similar group or groups with responsibility for, or interest in dealing with marine litter issues? If so, please name and describe (including functions and membership):

3.3 Policy and Laws on Marine Litter

Does your country have policy, legislation, regulations and/or other instruments directly addressing marine litter? If so, please name and describe:

3.4 Other policies and laws relevant in addressing marine litter

What other policies, legislation, regulations and/or other instruments provide a framework for addressing marine litter, in particular plastic? e.g. regulating plastic production, use, and disposal.

3.5 MARPOL

Has your country ratified the revised Annex V of MARPOL (which entered into force on 1 January 2013), and if so, on what date and what is the implementing National Legislation? Which government agency administers this legislation?

3.6 Port Reception Facilities

Do Ports in your country provide adequate Reception Facilities for garbage from vessels, as required under Annex V of MARPOL? If so, how are they funded? Please provide details and contacts:

Do ships that intend to use Reception Facilities have to pay for the use, and if so how much?

Are there any barriers to the effective provision and use of port waste reception facilities in your country? Please describe.

***4. International Agreements, Other Initiatives & Programmes***

4.1 Sustainable Development Goals including in particular SDG target 14.1

Has your country made commitments or taken action towards addressing marine litter in the context of SDG planning, implementation and reporting? Please describe

4.2 GPA

Is your country a participant in the Global Programme of Action (GPA) to address land-based sources of marine pollution? If so, what GPA activities have been undertaken in your country to address marine litter? Is your country a partner in the Clean Seas Campaign, and if so what is your national commitment in the context of the campaign?

4.3 Basel Convention

Is your country a Party to the Convention on the Transboundary Movement of Hazardous Wastes and their Disposal (Basel Convention) If so, what Basel Convention activities have been undertaken in your country to address marine litter?

4.4 London Convention with Protocol

Is your country a Party to the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) and 1996 Protocol? If so what activities have been undertaken in your country to address marine litter?

4.5 Other Global / Regional Programmes

Is your country involved in any other global, regional or sub-regional programmes to address marine litter? Please describe.

4.6 NGOs

Are there any marine litter activities by NGOs in your country? If so, please list NGO contacts, and briefly describe the relevant marine litter activities, and results to date.

4.7 Understanding & Awareness

What is the level of understanding and awareness about marine litter in your country?

Are there structured communication and awareness campaigns about marine litter in your country? If so, please describe. Please provide any samples of awareness products and materials.

4.8 Integrated Waste Management

Is there an integrated waste management system in your country, including at the national, provincial and/or municipal levels? If so, is coastal and marine litter managed within this system, and is waste management by ports and harbours integrated with such a broader system? Please describe:

4.9 Economic Instruments

Are there any economic instruments used in your country in relation to waste management, and are these applicable to marine litter? Please describe.

***5. Barriers, gaps and needs***

5.1 Barriers & Gaps

Please describe the main barriers to the effective prevention, reduction and management of marine litter in your country.

5.2 National Needs & Action Plan

Please describe, in priority listing, the main needs in your country for the effective prevention, reduction and management of marine litter, including the main elements that should be incorporated into a National Plan of Action on Marine Litter.

5.3 Regional Needs & Action Plan

Please describe, in priority listing, the main needs in your Region for the effective prevention, reduction and management of marine litter, including the main elements that should be incorporated into Caspian Marine Litter Action Plan.

***6. Additional Points***

Please fill free to add any additional points.

***7. References, Bibliography and Additional Materials***

Please include a list of all relevant references quoted in the responses to the Survey, as well as a bibliography of information sources on marine litter in your country, and any other material you think may be useful. References should be in English (if original reference is in Russian it should stay in Russian, but English version should be included). Whenever possible references should have a link.

**Annex IV**

## Responses by Caspian Countries to the Survey Questionnaire

Survey questionnaire was responded to by Islamic Republic of Iran, Republic of Kazakhstan, Russian Federation and Turkmenistan.

In the tables below are presented summaries/extracts of responses.

The full national survey responses are with the TCIS.

7 August 2019

**Framework Convention for the Protection of the Marine Environment of the Caspian Sea**

Tehran Convention

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**CONFERENCE OF THE PARTIES**
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**Table 1. Status and trends of marine litter. Summary of responses by Caspian countries**

| | **Republic of Azerbaijan** | **Islamic Republic of Iran** | **Republic of Kazakhstan** | **Russian Federation** | **Turkmenistan** |
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| 2.1 Surveys and<br><br>Monitoring | | 1. Unfortunately, no specific study has been done yet to accurately estimate the extent of marine litter in Iran.<br><br>2. All the existing data in this issue come from the project-based surveys. | 1. The lack of a garbage monitoring system is one of the key problems in the waste management system in Kazakhstan.<br><br>2. In the Environmental Code of the Republic of Kazakhstan (2007 with changes and additions 2018) a provision has been fixed on the conduct of state accounting of municipal waste, but it has not been completely settled. | 1. For the Russian coast of the Caspian Sea, research and monitoring of marine litter were not carried out, although coastal cleanups are regularly carried out by the municipalities.<br><br>2. It should be noted that, the Russian coast of the Caspian has various indicators of practical accessibility. It should be considered that the swampy, flooded and overgrown with reeds and other vegetation of the coast, as well as currently formed deltas and lagoons are difficult to access. Therefore, almost the entire northern and north-western coast (with the exception of small | 1. There is no large-scale problem of marine litter in the waters of the Turkmen sector of the Caspian Sea. Directly research and monitoring of the environment by the marine litter pollution is not carried out; for this reason, there is no data on the extent of marine litter.<br><br>2. According to the information, provided by the representative of the Service of the |

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| | | | 3. Different types of waste are taken into account and recorded by different government and non-state structures, which does not provide a single objective assessment of the state of affairs in handling production and consumption waste. | local areas), including almost the entire Kizlyar and Agrakhan bays, should be considered difficult to monitor and collect marine litter. South off the Agrahan spit, accessible coastal areas (beaches) alternate with relatively low and inaccessible areas. | Caspian ecological control (Service Caspecocontrol) their officers who carry out the state environmental control and monitoring by the pollution of the coastal area and waters of the Caspian Sea with plastic garbage (plastic bags and (or) plastic bottles, other plastic products) are detected in a single and small amount. |
| 2.2 International Coastal Cleanup | | 1. There is no coordinator for ICC in Iran.<br>2. This is a volunteer-based activity, some interested people joined it during the previous years. For example, there are 12 people who participated in the event as it is reported in the ICC report for 2018, but there is no information whether this happened on the coasts of the Caspian Sea or on the coasts of Persian Gulf and Oman Sea. | Kazakhstan does not participate in the ICC. | 1. ICC is carried out since 2000 within the framework of NOWPAP.<br>2. At the same time, every fourth year this campaign is held in Russia.<br>3. At the same time, every fourth year this campaign is held in Khasan district of Primorsky krai). | Turkmenistan does not participate in such events. |

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| 2.3 Other Cleanups | | No | 1. In the coastal zone of the Caspian Sea on the territory of Mangystau region on a regular basis, twice a year (in spring and autumn), measures are taken to clean up the coastal zone.<br><br>2. Also organized the world weekly action "We clean the world - clean the universe from litter". The campaign involves a wide range of stakeholders, including government officials, representatives of non-governmental public organizations, students, and all volunteers.<br><br>3. In addition, within the framework of the Caspian Sea Day on August 12, an action is held annually with a wide circle of interested parties to clear the coastal sea zone.<br><br>4. Coastal clean-up actions are organized in order to draw public attention to the | 1. In the Caspian littoral subjects of the Federation, the following events are held annually: “Clean Banks” campaign, the “Water of Russia”, and “We Can’t Live Without Water”. All participants of the actions cleaned the shores and coastal zone of the water body.<br><br>2. In 2018, as part of the International Youth Forum in Dagestan, which was attended by 250 young people from 28 regions of Russia, as well as from Azerbaijan, Egypt, Kazakhstan, Turkmenistan, and Moldova, the ecological quest “Clean Caspian” was held at the municipal beach of Manas village, the outcome of which was 82 bags with litter with a total weight of half a ton. | Turkmenistan does not participate in cleanups. |

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| | | | environmental problems of the Caspian Sea. | | |
| 2.4 Source Differentiation | | There are no documented data in Iran on the abundance, composition and sources of marine litter in the Caspian Sea. | 1. In accordance with the Environmental Code of the Republic of Kazakhstan, waste is classified as production and consumption waste. Waste is also classified into the four<br><br>categories. In terms of marine litter there are no differences between land or ship litter.<br><br>2. In the field of merchant shipping, the procedure for storage and processing of garbage on board, delivery of garbage to port reception facilities is governed by the provision of the Environmental Code of the Republic of Kazakhstan (2015). | 1. The Federal law "On environmental protection" provides for the formation of a fundamentally new system of regulation of adverse impact on the environment. It includes differentiation in the level of environmental pollution, the application of the state regulation measures to them, as well as economic incentives for entities that use BET.<br><br>2. Federal waste classification catalogue (FWCC), the state register of waste disposal facilities, as well as data bank on waste and technologies for disposal and neutralization of various types of waste represents the list of the types of waste which are in circulation in the Russian Federation and systematized by set of classification signs. | There is no use of term "marine litter" in Turkmenistan. With regard to pollution, a more acceptable term "land-based sources of pollution", "solid waste" are used and land-based objects that are potential polluters are monitored and controlled. |
| 2.5 Accumulation Zones | | There is no information available yet but at present, a project titled "Effects of sea currents on the distribution of marine litters in the | Information on the nature of ocean circulation and marine litter accumulation zones is not available. | In addition to marine litter generated on land and concentrated on the coastline and beaches, the generation of litter and waste from economic activities at sea is also important. | 1. There is no information on ocean circulation patterns.<br><br>2. In communication with the Foreign |

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| | | coastal waters of Mazandaran province" is underway. | | This material is distributed over the surface of the sea and on the seabed, although some part of the litter of marine origin could be concentrated on the coastline, and some part of the litter from land sources can migrate far on the sea surface or sink. | Economic Relations Department of "Turkmen maritime and river lines", Agency of the Ministry of Industry and Communication of Turkmenistan information was given that there were no zones for marine litter in the port territory. |
| 2.6 Ecological and Environmental Impacts | | No information is available. | Environmental impact assessment studies have not been carried out in Kazakhstan. | 1. The Caspian seal (Phoca caspica) is a special impact monitoring object specific to the Caspian Sea. This species is at the top of the trophic pyramid of the Caspian Sea, and therefore its population is of indicative value for assessing the overall wellbeing of the ecosystem of the Caspian Sea.<br>2. The abundance and diversity of planktonic organisms undergo qualitative changes depending on the season of the year and the area of the Caspian and type of exposure. Therefore, the plankton community is able to reflect short-term and/or limited in scope adverse impacts.<br>3. Benthic communities are most stable in time, often characterize the local ecological situation and are able to preserve retrospective | Such studies have not been done yet. |

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| | | | | information about previous exposure levels. These groups of organisms are sensitive to the granulometric composition of bottom sediments, including finely divided fractions, and, therefore, could be considered as potential indicators of the long-term technogenic load on the seabed.<br><br>4. Zoobenthos in the ecosystem of the Northern Caspian is also a potential "target" of impact.<br><br>5. The indicator related to cleaning the water area from litter was officially introduced into the state programme "Development of the fishery complex". | |
| 2.7 Socioeconomic Impacts | | 1. No solid information is available.<br><br>2. However, in the EIA reports for the evaluation of large projects in sea (including development of breakwaters, ports, opening of maritime routes in ports,…) when it comes to dredging issue, there are some parts available for the socio- | Studies on the impact of marine litter on socio-economic development have not been conducted. | 1. As part of the research work of the RAS in 2010-2015, assessments were made of the impact of marine litter on environmental management in the coastal zones, primarily in the suburban areas of large cities – Vladivostok, Nakhodka etc.<br>2. Studies have demonstrated that the short-term financial benefits of using plastic in the current economic system do not create incentives for the transition to phasing out the use of plastic or low-quality plastic or to prohibiting their one-time use. | No information available. |

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| | | economic effects of dredging. | | 3. In addition, it is relatively difficult to estimate the economic losses caused by marine litter. Moreover, attributing economic damage caused by marine litter to the pollutant seems impossible. | |
| 2.8 Other Scientific Data and Studies | | 1. In 2017, a study was done by University of Tarbiat Modares as "Investigating Abundance, Distribution and Accumulation of Plastic Resin Pellets and Fragments in the Caspian Sea: A Case Study of Noor Shores". It was found that plastic debris and fragment are widely and unevenly distributed along shorelines of the Caspian Sea. 2. The following projects are currently underway: (i) Survey on abundance and types of Microplastics in the coastal sediments of south of the Caspian Sea-Phase I: Ramsar to Mahmood Abad by Iranian National Institute for Oceanography and Atmospheric Science; and (ii) Study on the situation of plastic debris in fish | Studies related to the assessment of the state of marine litter in Kazakhstan has not been conducted. | 1. In Russia, research on the issue of marine litter was carried out as part of the international NOWPAP Regional Marine Litter Action Plan which was initiated in programme in the region of the Sea of Japan (MALITA) which started in 2008.<br>2. Primorsky krai of Russia is fully covered by the geographical scope of the NOWPAP region. The most notable area of marine litter distribution in Primorsky krai is the Peter the Great Bay. River runoff and coastal sea currents lead to the formation of a local level of circulation in the Peter the Great Bay.<br>3. Another area within the Russian part of NOWPAP that is potentially contaminated with marine litter is the Tatar Strait. The qualitative and quantitative characteristics of marine litter vary depending on the distance from the coastline, as they are determined by the strength and speed of the currents, the | Regarding to this issue Turkmenistan may submit the only provision which was reflected in the Tehran Convention (Article 20), namely: (a) developing methods for the assessment of the toxicity of harmful substances and investigations of its affecting process on the environment of the Caspian Sea; (b) developing and applying environmentally sound or safe technologies; (c) the phasing out and/or substitution of substances likely to cause pollution; (d) developing environmentally sound or safe |

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| | | and water birds stomach on the southern shores of the Caspian Sea by DOE. | | distribution of pollution sources and some other factors.<br><br>4. Studies of coastal litter in the Amur Bay show that synthetic rubber tires make up about 60% of marine litter in this area in relation to other litter items.<br><br>5. Studies have confirmed that the discharge of the Tumannaya river is responsible for the distribution of litter transported along the southwestern coast of the Primorsky krai.<br><br>6. Of importance for the study of the marine litter problem is the development of environmental operational indicators and indicators of the state of the marine environment for regions, one of which is marine litter. Currently, a list of Ecological Operational Indicators and Indicators of the State of the Marine Environment of the NOWPAP Region has been compiled in the region of the Northwestern Pacific, including 12 operational indicators for assessing the environment of the region and 24 groups of indicators | methods for the disposal of hazardous substances; (e) developing environmentally sound or safe techniques for water-construction works and water-regulation; (f) assessing the physical and financial damage resulting from pollution; (g) improvement of knowledge about the hydrological regime and ecosystem dynamics of the Caspian Sea including sea level fluctuations and the effects of such fluctuations on the Sea and coastal ecosystems; and (h) studying the levels of radiation and radioactivity in the Caspian Sea. |

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| | | | | 7. Studies on marine litter were carried out by SOI of Roshydromet as part of the GEF/UNDP-EMBLAS international project on the Black Sea. Studies included the distribution of marine litter in the coastal zone, and visual monitoring of marine litter.<br>8. Relevant studies were conducted in the Baltic Sea region as part of the participation in the HELCOM Regional Action Plan on Marine Litter. | |

**Table 2. National institutional arrangements and policy framework. Summary of responses by Caspian countries**

| | Republic of Azerbaijan | Islamic Republic of Iran | Republic of Kazakhstan | Russian Federation | Turkmenistan |
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| 3.1 Lead Agency | | 1. According to the Iran's Waste Management Law, Department of Environment (DOE) is responsible for the supervision and good performance of collection, recycling and disposal of the wastes in Iran but the executive operations are carried out by | 1. There is no separate body responsible for marine litter in Kazakhstan.<br>2. At the same time, the issues of solid domestic waste (SDW) are within the competence of the Ministry of Ecology, Geology and Natural | 1. Ministry of Natural Resources and Environment of the Russian Federation<br>2. Federal Service for Nature Use Supervision (Rosprirodnadzor)<br>3. Ministry of Transport of the Russian Federation<br>4. Regional authorities | 1. The Service Caspecocontrol" is the Lead Agency at the Turkmen coastal zone, which could be engaged in marine litter issues in future.<br>2. Water quality, state control over the protection and rational use of water, |

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| | | municipalities that are subordinate to the Ministry of Interior.<br><br>2. DOE is the Lead Agency of marine litter issues in the country. | Resources of the Republic of Kazakhstan.<br><br>3. In addition, in accordance with the Environmental Code of the Republic of Kazakhstan and the Law of the Republic of Kazakhstan "On Local State Governance and Self-Government in the Republic of Kazakhstan", local executive bodies are charged with organizing a separate collection at the source of their education, disposal and recycling of SDW. | | land resources and atmospheric air in the Turkmen sector of the Caspian Sea is carried out by Caspecocontrol". The Service's activities extend to the waters of the Turkmen sector of the Caspian Sea from Cape Sue to Esenguly on the 52nd meridian, to enterprises, organizations, institutions, foreign companies, along the routes of oil pipelines and gas pipelines in the territory indicated waters of Turkmenistan and other floating craft, objects located in the Turkmen sector of the Caspian Sea, as well as on a two kilometres protected coastal strip of land, including other objects, which have a negative impact on sea waters and |

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| | | | | | departing from said zone.<br><br>3. Additional to the mentioned above the Service, the utilities of Turkmenbashi city are engaged in garbage cleaning up activities on the coastal zone and on the territory, adjacent to it. |
| 3.2 Task Force | | 1. There is an advisory committee in the DOE to consider implementation issues of London Protocol. Members of this committee are mainly from different sectors of the DOE and its provincial offices in coastal provinces in north and south of the country.<br><br>2. There is also a Marine Environment Protection Committee based in the Ports and Maritime Organization which follows the implementation and enforcement of the IMO decisions and resolutions including the new IMO action plan which | Separate target groups, working groups, committees responsible for marine litter do not exist. | | 1. There is no directly formed working group, committee or similar group or groups dealing with the marine litter issues.<br><br>2. Following organisations can be listed: (a) The Service “Caspecocontrol”, (b) The Balkan Hyakimlik (City administration); (c) Utilities of Turkmenbashi city; (d) Sanitary-epidemiologic Service of the Balkan region; (e) "Turkmen maritime and river lines" Agency of the Ministry of Industry |

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| | | contributes to the global solution for preventing marine plastic litter entering the oceans through ship based activities. This committee consists of representatives from different relevant authorities such as DOE, Fisheries Organization, shipping companies, academia and etc. | | | and Communications of Turkmenistan; (f) The International Marine Port Turkmenbashi which are also responsible for cleanness of the coastal zone of the Caspian sea; and (g) The Interdepartmental Commission on the Caspian Sea under the President of Turkmenistan (IDC) (2007). |
| 3.3 Policy and Laws on ML | | 1. Waste Management Law (2004): this law is developed to fulfil the fiftieth Principle of the Islamic Republic of Iran Constitutional Law (which links current and future generations to the environment and makes it a public duty to protect the environment) and in order to protect the environment from harmful effects of waste materials.<br><br>2. Waste Management bylaw (2005): The Waste Management Law | 1. In Kazakhstan, the problem of marine litter is not considered separately.<br><br>2. The state policy of Kazakhstan in the field of waste management is defined in the Concept for the transition of the Republic of Kazakhstan to a green economy, approved by Decree of the President of the Republic of Kazakhstan (2013, hereinafter - Concept) and aimed at introducing separate | 1. In the Russian legislation, the problem of 'marine litter' is not considered separately, it is an integral part of the legislation in the field of waste management.<br><br>2. From 2014 to 2017, the federal legislation in the field of waste management was radically changed against the background of the transfer of authority to regulate this industry to the regional level and introduction of the institute of "regional operators for management of solid municipal waste – an operator for solid municipal waste management". | 1. There are not yet policies, legislation, regulations and other legal instruments which address directly marine litter. 2. Laws and regulation which could be connected to marine litter issue are: (a). Law "On waste" (2015); (b). Law "On Nature Protection"; (c). "**Decree on State Ecological Examination No. 2864 (1996); (d). Law „Hydrocarbon Resource" (2010); (e).** Rules for the |

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| | | supplemented by an executive bylaw that contains specific provisions for the various types of waste in respect to waste avoidance, reduction, recycling, and disposal as well as collection and transport.<br><br>3. Due to the Article 9 of the Iran's Civil Code, all the treaties between the government of Iran and other governments, in accordance with the Constitutional Law, shall have the force of law. Therefore, the following conventions/protocols that have been ratified by Iran's Parliament are forcible: (i) London Protocol; (ii) Basel Convention; (iii) Moscow Protocol to the Tehran Convention; and Annex V of MARPOL Convention. | waste collection, developing the waste recycling sector with the production of recycled materials with the attraction of investments, including through public-private partnership. The concept provides target indicators for bringing the share of recycling up to 40% by 2030, 50% by 2050. In order to achieve the target indicators defined by the Concept, as well as for the integrated solution of problems with solid waste, the Road maps for the introduction of separate collection, sorting, recycling and recycling of solid domestic waste, the interaction of local executive bodies with specialized enterprises in the field of circulation were approved and implemented with SDW until 2020 and Complexes of measures for modern disposal and | 3. Changes in the legislation in the field of preventing pollution of the Caspian Sea from land-based sources in 2017 were based on changes in the environmental legislation and took place in 2017, which mainly affected two federal laws: “On environmental protection” and “On production and consumption wastes”.<br><br>4. The main tools for implementation of environmental policy, including in the field of waste management in the Russian Federation, is the State Programme of the Russian Federation “Environmental Protection for 2012-2020”.<br><br>5. Starting from 2017, the priority project “Clean Country” has been integrated into the structure of the State Programme “Environmental Protection for 2012-2020”.<br><br>6. The Decree of the President of 07.05.2018 “On national goals and strategic objectives of the development of the Russian Federation for the period through 2024” In the framework of this Decree the national project “Ecology” is being implemented. | protection of coastal waters of Turkmenistan from pollution from ships (2005); (f). Law “On approval and implementation of the Merchant Shipping in Turkmenistan”; (g). “Protocol for the conservation of biological diversity to the Tehran Convention”; (h). “Water Code” (2016); (i). Law “On fisheries and conservation of aquatic biological resources” (2011); and (j). “Law on Environmental Safety” (2017). |

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| | | | recycling of SDW with the wide involvement of small and medium-sized businesses.<br><br>3. In the Republic of Kazakhstan the basic laws and regulations governing the activities of the collection, recycling and processing of solid waste are: (i) Environmental Code of the Republic of Kazakhstan (2007, amended 2018) and (ii) Seven Orders of different Ministries. | 7. The priority project "Conservation and pollution prevention of the Volga river", which has been implemented since 2017 within the framework of the State Programme of the Russian Federation "Environmental Protection for 2012-2020", is of great importance for the Caspian Sea region.<br><br>8. Federal law of 24.06.1998 "On production and consumption wastes".<br><br>9. At the regional level, the near Caspian subjects within the framework of the formation of the regulatory legal framework in the field of waste management, adopted a number of regulatory legal acts. | |
| 3.4 Other Policies and Laws Relevant in Addressing ML | | 1. Disposable bags are a huge source of environmental pollution. In Iran, several NGOs have geared up to raise public awareness about the environmental impacts of plastic bags, which has helped designate July 12 as the National Plastic-Bag Free Day | 1. To achieve the target indicators defined in the Concept, to introduce the collection, transportation, processing, reclamation and disposal of solid waste, as well as to streamline and systematize the work of the secondary raw materials market, a | 1. To increase the efficiency of activities in the field of waste management, including combating litter, legal instruments related to minimization of offenses and implementation of relevant legislation are required.<br><br>2. The Codex on Administrative Offenses of 30.12.2001 provides for administrative offenses in the field of environmental protection. | See point "Policy and Laws on marine litter" above. |

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| | | 2. DOE has a three-year plan aimed at eliminating plastic shopping bags in the capital Tehran. The plan focuses on three main objectives: (a) reducing the production and distribution of plastic bags, (b) avoiding their use and replacing them with fabric bags and other reusable alternatives, and (c) reusing the existing bags. DOE will cooperate with supermarkets to phase out plastic bags and replace them with eco-friendly alternatives.<br><br>3. A prohibition is also imposed on the use of plastic water bottles in all the offices of DOE (headquarter and 31 provincial offices) across the country since mid-January 2018. | regulatory legal framework has been created. Thus, amendments were made to the Environmental Code on Waste Management.<br><br>2. The Environmental Code of the Republic of Kazakhstan and the Law of the Republic of Kazakhstan "On Local State Governance and Self-Government in the Republic of Kazakhstan" entrusted local executive bodies with the obligation to organize a separate collection at the waste generating sources, disposal and recycling of SDW.<br><br>3. The Law "On Government Procurement" provides for priority on goods produced from recycled materials in the territory of the Republic of Kazakhstan during public procurement. | Appropriate penalties for: (a) non-compliance with environmental and sanitary-epidemiological requirements under the production and consumption waste management; (b) violation of the rules for the protection of water bodies; (c) violation of water use rules; and (d). violations of the special regime for economic activities on the coastal protective strip of a water body, and in the water protective zone of a water body.<br><br>3. Sanctions are also provided for non-compliance with requirements, including water legislation and waste management. | |

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| | | | 4. Investment rationale development for the introduction of advanced technologies for collection and disposal of waste, with the production of compost, biogas and recycled products for Aktobe, Atyrau, Karaganda, Taldykorgan, Taraz, Kostanay. Government decrees justify investment transferred to the akimats of relevant areas to continue work. | | |
| 3.5 MARPOL | | 1. Iran ratified Annex V of the MARPOL Convention in 2015.<br>2. The implementing National Legislation for that is the "Executive Criteria for Waste Management in Ports".<br>3. The Ports and Maritime Organization (PMO) of Iran is the designated national authority with the responsibility to administer all Iranian ports and enforce the maritime conventions | 1. The Republic of Kazakhstan has been a party to the MARPOL Convention since 1994 and of revised Annex V since 2013.<br>2. The requirements of Annex V to MARPOL are implemented within the framework of environmental legislation and legislation in the field of merchant shipping of the Republic of Kazakhstan. Both of | 1. The Russian Federation acceded to the MARPOL Convention on 04.12.2011.<br>2. The amendments to Annex V to MARPOL 73/78, came into effect since March 1, 2018. The changes included criteria for determining harmfulness of cargo residues to the environment and a new format for the Garbage Record Book.<br>3. The activities associated with the implementation of the commitments of the Russian Federation on the implementation of activities under the Convention | 1. MARPOL Convention with all Annexes ratified in 2014.<br>2. Turkmenbashi International Marine Port Authority uses/refers to MARPOL Convention. |

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| | | such as MARPOL convention to which Iran is a party. All Port Authorities are regarded as subsidiaries of the PMO. | these laws are within the competence of the Ministry of Energy of the Republic of Kazakhstan and the Ministry of Industry and Infrastructure Development of the Republic of Kazakhstan respectively. | and the 1997 Protocol, are coordinated by the Ministry of Transport of the Russian Federation.<br><br>4. The Federal Agency for Maritime and River Transport organizes the implementation of works on ships control in the seaports of the Russian Federation to meet the requirements of the 1997 Protocol.<br><br>5. The main legal documents of the Russian Federation regulating issues related to the prevention, reduction and control of pollution from ships are: (a) “Strategy for development of the sea port infrastructure of Russia through 2030”; and (b) “Merchant Shipping Code of the Russian Federation”.<br><br>6. Important legal instruments for the implementation of MARPOL are: (a) “Strategy for development of sea terminals for integrated service of vessels of fishing fleet taking into account the coastal logistic infrastructure intended for transportation, storage and distribution of fish production”; (b) “Codex of inland water transport of the Russian Federation”; and (c) Federal law | |

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| | | | | "On amendments to the Federal law "On seaports in the Russian Federation and on amendments to certain legal acts of the Russian Federation" and certain legal acts of the Russian Federation". | |
| 3.6 Port Reception Facilities | | 1. There are reception facilities for receiving garbage from vessels in all the main ports of Iran. Different types of garbage separated and labeled in the waste bags will be placed on the quay, and the garbage collection contractor collects the waste regularly at specific times.<br><br>2. The port receives the costs of the waste from vessel itself, while the private sector who collect garbage for recycling also pay.<br><br>3. The Manual of Tariffs applicable to vessels and cargo in ports of Iran entered into force in 2014. Charges of garbage reception of MARPOL Convention Annex V must | 1. Nowadays garbage collection from ships is carried out only in the port of Aktau. In accordance with the order of the Ministry of Investments and Development of the Republic of Kazakhstan (2015) "On approval of the list of mandatory seaport services", the port provides services to receive from the vessel without any restrictions all types of pollution except for ballast water during the stay in the port.<br><br>2. For the collection of ship-generated waste at the port of Aktau 2 specialized vessels are used, which cover 100% of the need for ships entering the port to | 1. 1. For navigation, environmental safety in Russian seaports, including the Russian ports of the Caspian Sea, is ensured through the following main activities: (a) daily control and cleaning litter from harbours, access channels and fairways; (b) verifying on a voluntary basis of compliance with the rules of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) in the sea ports of Russia; and (c) implementation of the provisions of MARPOL Convention at sea ports through the development of Ship Waste Management Plans.<br>2. In the Caspian Sea, the largest Russian sea ports are the ports of Astrakhan, Makhachkala and Olya.<br><br>3. Environmental work in the seaports of the Caspian Sea is carried out by the Seaport | 1. There is no port reception facility at present.<br><br>2. Vessels' garbage and other solid waste are taken away upon the request of the vessel/ship owners and driven away to the landfill.<br><br>3. Oil and gas companies operating in the Turkmen sector of the Caspian Sea practice zero discharge, protecting the environment in the area of work.<br><br>4. Drilling sludge is collected on offshore platforms in metal containers, household waste is stored in storage tanks, and oily wastewater is |

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| | | be collected from all vessels.<br><br>4. Charges of solid cargo waste reception set out in annex III of MARPOL Convention shall be negotiated between the Port Authority and the Ship considering the IMDG Code classes.<br><br>5. Vessels/ crafts calling in Iranian port harbors for non-commercial purposes such as fueling, ballasting, crew-shifting, provision supply, repair, medical aids, research and training activities and the like are exempted from all tariff items except for garbage collection charges. | dispose of liquid and solid waste. Vessels pay for the delivery of waste in the port in accordance with the established tariffs. There are no barriers to the effective provision and use of port reception facilities. | Administration and business entities.<br><br>4. Removal of garbage from ships is possible in the following ways: accumulation in special containers with their subsequent transfer to the collecting vessel or to the shore; discharge overboard; thermal destruction in ship incinerators.<br><br>5. Plastic garbage shall remain on board the vessel until it is delivered to the port reception facilities without being converted to slag in the incinerator.<br><br>6. To conserve the environment, an environmental fee is charged per 1 cubic meter of the conditional volume of the vessel from ships.<br><br>7. In Russian ports of the Caspian Sea region, the control is carried out by the experts of the port control of the seaport (MPA “Astrakhan”) when registering the vessel for departure. | bunched into special containers. All of this is transported by special vessels or pumped through a pipeline ashore to industrial waste disposal sites. Factories for their acceptance are located in the cities of Turkmenbashi and Khazar.<br><br>5. In recent years, a cluster of modern industrial and transport enterprises has been created on the Turkmen coast of the Caspian Sea. The environmental safety system that is being implemented and embedded there is based on a set of measures aimed at eliminating damage to the natural environment, reducing risks and man-made impacts on the Caspian vulnerable ecosystem. |

**Table 3. International agreements, other initiatives and programmes. Summary of responses by Caspian countries**

| | Republic of Azerbaijan | Islamic Republic of Iran | Republic of Kazakhstan | Russian Federation | Turkmenistan |
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| 4.1 Sustainable Development Goals including in particular SDG 14.1 | | Iran is to take by 2025 thirteen actions toward the target 14.1 of SDG, amongst them: Develop and implement a comprehensive programme on management of marine litter. | The goals of sustainable development until 2030 are provided for in the Concept on the transition of the Republic of Kazakhstan to a "green" economy, approved by the Decree of the President of the Republic of Kazakhstan (2013). The Concept identifies target indicators that envisage bringing the share of waste processing to 40% by 2030 and 50% by 2050.. | 1. Currently, in the Russian Federation in the context of achieving the Sustainable Development Goals 2030, the problem of integrated management of coastal marine areas, including the waste management problems, in particular marine litter is becoming increasingly relevant and is reflected in strategic documents for the development of the country and regions.<br>2. Sustainable Development Goals 2030 are implemented within the framework of the implementation of such strategic documents as: (a) "The Strategy of Ecological Safety of the Russian Federation for the period until 2025"; (b) "Strategy of development of marine activity of the Russian Federation through 2030"; (c) "Marine Doctrine of the Russian Federation for the period up to 2020"; and (d) "Strategy for the development of industry for | No actions towards addressing marine litter in the context of the SDG. |

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| | | | | processing, disposal and neutralization of production and consumption waste for the period up to 2030".<br><br>3. The Sustainable Development Goals of the UN 2030 Sustainable Development Agenda are reflected in regional strategic documents such as: (a) "The Strategy for the Socio-Economic Development of the North Caucasus Federal District until 2025"; and (b) "Strategy for socio-economic development of the Southern Federal District until 2020 ".<br><br>4. These documents provide for: (a) development of a waste disposal management system, primarily in resort areas, including the construction of waste recycling plants; (b) construction of complexes for medical waste processing and destruction; (c) construction of landfills; and (d) support for existing and construction of new recycling plants. | |
| 4.2 GPA | | 1. Iran has participated in GPA meetings several times. The activities done under the GPA was mainly periodic monitoring of the | Kazakhstan does not participate in the Global Program of Action. | 1. Marine litter is one of the categories of sources of marine pollution in the GPA.<br>2. In the Caspian Sea region, using the GPA methodology, as | Country does not participate in GPA actions. |

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| | | main rivers to the Caspian Sea. As the majority of the rivers pass across densely populated areas in the Caspian region and consequently they transfer a very high load of pollution to the sea, the monitoring of the rivers is periodically done by the provincial offices of DOE. The parameters which are measured during these programmes are mainly air temperature, water temperature, pH, EC, dissolved oxygen, turbidity, salinity and nutrients.<br><br>2. Iran does not participate in the Clean Seas Campaign. | | part of the CEP activities, a review was carried out on a regional assessment of the levels of pollutants coming from land-based sources of pollution in the Caspian coastal zone.<br><br>3. The Russian Federation regularly participates in the intergovernmental meetings to review the implementation of the GPA.<br><br>4. Within the framework of the national project "Ecology", under the project "Clean Country", various measures are being taken in various marine regions of the country to clean up marine and coastal areas. | |
| 4.3 Basel Convention | | 1. Iran ratified Basel Convention in 1992.<br><br>2. Accordingly the following restrictions were imposed by the country on transboundary movement of hazardous wastes and their disposal: (a). Export for final disposal; (b). Export for recovery; (c). Import for | 1. Kazakhstan joined the Basel Convention (2003) on the basis of Law and is taking steps to fulfill the obligations.<br><br>2. At the legislative level, a number of changes and additions have been made to the Environmental Code of the Republic of | 1. Russia ratified the Basel Convention in 1994 by the Federal law.<br><br>2. Pursuant to the Article 5 of the Basel Convention, the competent authority is the Ministry of Natural Resources and Environment of the Russian Federation.<br><br>3. The implementation of the Convention is carried out by | 1. Party to the Basel Convention since 1996.<br><br>2. Country is not fully involved in the activities of the Basel Convention.<br><br>3. The movement of hazardous waste is recorded in a log, |

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| | | final disposal; (d). Important for recovery; and (e). Transit.<br><br>3. Basel Convention Regional Centre for Training and Technology Transfer in Iran (BCRC Iran) was established in 2004. The core functions of the center are including training of the staff in BCRC in Tehran and the representatives from member states and non-member states, technology transfer to the region, awareness raising, conducting workshops, seminars and associated projects and cooperating with UN and its bodies and other relevant intergovernmental and NGO's. | Kazakhstan (2011, 2012, 2016), including in the area of regulating the handling of hazardous waste and persistent organic pollutants.<br><br>3. The import, export and transit of waste is carried out on the basis of issuing a notification and a conclusion on transboundary movement of waste to the competent authorities of the country. | Rosprirodnadzor of the Ministry of Natural Resources and Environment of the Russian Federation.<br><br>4. At the fourteenth meeting of the Conference of the Parties to the Convention (2019), the Russian Party supported the decision of the fourteenth meeting to amend the relevant annexes regarding marine plastic litter, and the establishment of the Partnership on Plastic Waste.<br><br>5. Marine litter is considered in Russia as an integral part of waste, and relevant measures to minimize pollution of marine and coastal zones, including the western part of the Caspian Sea, are implemented as part of the relevant programmes.<br><br>6. Legislation on waste, including relevant to the implementation of the Basel Convention, is given in section 3.3 above. There are a number of relevant additional by-laws. | identifying the name of the waste, its volume / quantity, shipment dates and the country of origin and destination.<br><br>4. The country applies rules for the transport of dangerous goods, based on the agreement of the CIS countries. |
| 4.4 London Convention with Protocol | | 1. Iran has been party to London Convention since 1996 and London Protocol since 2015. | Kazakhstan is not a party to the London Convention. | 1. The Russian Federation is a party to the London Convention.<br><br>2. During the 40th Consultative Meeting of Representatives of the | Country did not ratify London Convention with Protocol. |

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| | | 2. An advisory committee was established in DOE.<br>3. According to LP requirements, there is a procedure for assessment and issuing permit for dumping of dredged material at sea in Iran to ensure that any adverse environmental effects are minimized.<br>4. Several training workshops were held with the cooperation of IMO. | | Contracting Parties to the London Convention (2018), in which the Russian delegation took part, much attention was paid to the issue of prevention of marine pollution from marine litter and microplastics.<br><br>Of importance to the provisions of the London Convention was the consideration of recommendations for reducing the discharge of plastic microparticles into the sea during dredging and from sewage sludge.<br><br>3. Russia suggested that it is necessary to separate the consideration of marine pollution with marine litter and microplastic, taking into account different sources, monitoring methods and the definition of measures to prevent marine pollution with marine litter and microplastic. It is advisable to involve representatives of various industries, such as chemical, pharmaceutical and medical, in matters of marine pollution with microplastics. The proposal was generally supported by the participants. | |

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| 4.5 Other Global / Regional Programmes | | For the Tehran Convention programmes and activities, Iran always took part in the coastal cleanup programmes for the celebration of Caspian Day along with other activities. | 1. Nowadays Kazakhstan participates in the implementation of the regional project “Addressing the problems of marine litter in the Caspian Sea region”, which is being carried out under the Tehran Convention with the participation of all five Caspian states. The goal of the project is to prevent and reduce pollution and the effects of litter on marine organisms, their habitat, public health and safety, and to reduce the socio-economic costs caused by marine litter pollution.<br><br>2. One of the main objectives of the project is to develop a draft Action Plan to combat marine litter in the coastal zone of the Caspian Sea. | 1. The basis for the development of this issue are UNEP events and documents.<br><br>2. The Russian Party supports all UNEP resolutions and events on marine litter at UNEA meetings, in particular the UNEP Global Marine Litter Partnership (GMPM) / Global Marine Litter Action Programme, the UNEA decisions on “Marine litter from plastic and plastic microparticles” and on “Oceans and seas”<br><br>3. The main findings of UNEP documents and resolutions can become the basis for the development of regional actions in the Caspian to combat marine litter, such as: (a) the need to prioritize actions to mitigate the problem of marine litter; (b) development of a marine litter monitoring programme to determine the amount of litter along the coastline, in the water column, on the ocean floor, in the upper layers of the ocean and biota; (c) the need to assess the socio-economic and environmental costs associated with the consequences of littering the marine environment; (d) application of a life cycle | Country actively participates in project «Addressing Marine litter in the Caspian Sea region". |

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| | | | | approach to plastic products, taking into account the degradation of various polymers and fragmentation rate (in the marine environment), including improving the process of closing the development and manufacturing cycle of products, as well as increasing the service life of products; and (e) assessment of the effectiveness of relevant international, regional and subregional strategies and methods for guiding the combating scrap and microparticles of plastics in the marine environment, taking into account relevant legal regulatory frameworks and identifying possible gaps and options for addressing them, including through regional cooperation and coordination. | |
| 4.6 NGOs | | 1. There are many active NGOs in the field of environment protection in Iran. Many of them have been active in lots of coastal programmes in the coastal areas of the Caspian Sea or somehow working on the waste management issue. They have arranged many | 1. In Kazakhstan, clean-up campaigns are held on an annual basis with public participation. Public organizations are widely involved in the organization of such actions.<br>2. "Water Initiatives Center" Public Fund | 1. Non-governmental organizations of Russia on the issues of marine litter are actively involved in the activities of NOWPAP, and the regional conventions – Bucharest, HELCOM.<br>2. In the Caspian, public organizations, including those under the implementation of the | 1. The Nature Protection Society of Balkan region together with the city/village/schools' administration, closely works with schoolchildren, public society, etc. in clean-up activities at the coastal zone of the |

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| | | cleanup activities in the coastal areas or along the rivers heading to the sea. They have held some workshops for the local people, children and students to raise the public awareness on the importance of the issue of wastes.<br><br>2. Among them, the followings could be mentioned: Ramsar Green Watch Society; Sabzkaran Balan Institute; and Nature Cleaners: Mazandaran Province; Golestan Province; and Gilan Province. | participates in activities to celebrate the Caspian Sea Day, which is celebrated in Kazakhstan according to a decision of the Conference of the Parties to the Tehran Convention, including organizing a campaign to clean up the coast from marine litter. | Tehran Convention and its Public Strategy, implement various environmental measures to clean up the coast of the Caspian Sea and rivers.<br><br>3. In 2018 the following activities were carried out with the participation of public organizations: (a) Ecological campaign “Clean Shores to Our Rivers and Lakes”; (b) The all-Russian campaign “Water of Russia”; (c) cleanups of the Caspian shipping channel, the Lagansky Bank channel, Olya-Caspian irrigation canal were held in the coastal area of Lagansky district of the Republic of Kalmykia; (d) the Republic of Dagestan took part in the all-Russian campaign of the All-Russian Popular Front “General Cleaning of the Country”; (e) environmental actions to clean the banks of the Volga River – “Clean Banks” etc.<br><br>4. Such events were carried out annually, in 2017 – the “Year of Ecology” in Russia, they were also carried out in the framework of the national project “Ecology” and the project “Clean Country”. | Turkmen sector of the Caspian Sea.<br><br>2. In 2009 the Nature Protection Society of Turkmenistan implemented project: “Let’s Keep the Caspian Clean” at the coastal area of the National Tourist Zone “Avaza”.<br><br>3. The clean-up activities have been implemented with the Nature Protection Society of Turkmenistan and schoolchildren of the local schools of Turkmenbashi city. |

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| | | | | 5. The activities of public organizations carrying out their work in the Caspian region of Russia are closely related to the main activities of state universities and state natural reserves located in the region. In most cases, public structures are organized with their assistance and are mainly focused on enlightenment, research and education. | |
| 4.7 Understanding & Awareness | | 1. The problem of marine litter is quite a new issue for the public in Iran. There are some efforts to raise the public awareness by the government, academia and NGOs which are not enough at all.<br>2. One of the components of the local and national waste management plans of the country is promoting the level of understanding of the public on how they can play an important role in reducing waste production through correction the purchase pattern, reuse the products, less use of disposable products and participation in recycling | 1. An important role in the successful implementation of the waste management policy in Kazakhstan is played by the environmental awareness and culture of the population.<br>2. Despite the ongoing arrangements for the installation of containers and carrying out explanatory and other informational works, nowadays with a high level of production and consumption, the ecological culture of the population, the culture of respect for the | 1. The level of understanding and awareness of marine litter in Russia due to the geographical location of the country, the presence of marine and coastal zones and various anthropogenic pressures on them, participation in international programmes and projects is quite high in such stakeholder groups as government officials, scientific community, a number of industries, the public. The level of awareness among such population groups as the rural population, representatives of the tourism business, etc. is insufficient.<br>2. As mentioned above, in the framework of various national | 1. In connection with the project “Addressing Marine Litter in the Caspian Sea Region” meetings were held with parties concerned.<br>2. Before and during webinar communication with all partners was held. |

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| | | plans in order to separate the wastes from the source.<br>3. However, these are the issues considered as the waste management plans on the land and when it comes to the issue of marine litter, we can say that the level of understanding about the marine litter is so weak in Iran among the public.<br>4. Millions of visitors from across the country travel to the Iran's northern provinces along the Caspian Sea's southern coasts during the Persian New Year (Nowruz). Green-road, clean-beach national plan is designed to promote the environmental awareness of travelers to the Caspian Sea during this holiday time with respect to the elements of sustainable tourism and so far has been implemented for two years. The plan includes different tasks from providing environmental information in specific areas to the clean-up activities on cities' | environment remains at a low level.<br><br>3. Nowadays, an Action Plan for organizing outreach work among the population on waste management, the formation of ecological awareness and culture in society has also been adopted. The plan provides for the revision of curricula for pre-school, school institutions, and higher education institutions and the inclusion in them of topics related to environmental protection and the rational use of natural resources, including issues of safe waste management; conducting a broad communication company and educational programmes to increase public awareness of the use of natural resources and environmental problems; behavior | projects the level of education on this issue is quite high.<br><br>3. See also sections 2.2 and 2.3.<br><br>4. Currently, a significant number of organizations (public environmental organizations, libraries, educational institutions, etc.) operate in the near Caspian subjects of Russia, which conduct activities in this direction. | |

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| | | entrance and exit in cooperation with municipalities, districts, railways and other sectors along the different roads from Tehran to the main northern cities of the country. The main objective of this plan is to prevent pollution and damage to the environment as well as preserve the natural environment and ecological conditions of the rivers and the coasts of the Caspian Sea. 5. Caspian Sea Day Celebration: Every year on the occasion of the Caspian Day (12 August), many awareness raising programmes carry out to draw public attention to the need to safeguard the unique Caspian Sea environment and make the protection of the marine environment of the Caspian Sea a responsibility of each and every individual. | change regarding waste management. | | |
| 4.8 Integrated Waste Management | | 1. There is an integrated waste management plan at the national level. At the same time, each | 1. From 2016 it is forbidden to dispose mercury-containing lamps and devices, | 1. The effectiveness of actions to address the problem of pollution by waste, including marine litter, depends on the use of an | 1. Turkmenistan mainly implements a centralized waste management system |

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| | | province/city should have its own integrated waste management plan. However, it has not been developed for all the provinces/cities yet.<br>2. There is no specific term as for marine litter in the integrated waste management plans of the coastal provinces/cities but as the main sources for marine litter is from land based sources, then we can say that marine litter is somehow managed within these systems.<br>3. The integrated waste management plan at the national level does not include waste management by ports and harbors. This is an issue that should be met by the provincial integrated waste management plan. | metal scrap, waste oils and liquids, batteries, electronic waste at landfills.<br><br>2. Since January 1, 2019, the ban on the disposal of plastic, waste paper, cardboard, paper and glass were entered into force.<br><br>3. Since January 1, 2021 the ban on the burial of construction and food waste comes into force.<br><br>4. There are more than 130 enterprises sorting and processing waste, producing more than 20 types of products. Sorting complexes of various capacities are available in 18 more settlements.<br><br>5. From this year, a pilot project on organizing separate collection of solid waste, processing and recycling organic (food) waste is implementing by Akimat | integrated approach to managing activities in the marine and coastal zones, including litter entering ways, taking into account economic, social and environmental factors, coordinated actions of various competent industry management bodies.<br><br>2. The priority of an integrated approach to the processing, disposal and neutralization of waste, as well as to the return of secondary resources in production is envisaged by the “Strategy for the development of industry for processing, disposal and neutralization of production and consumption waste for the period up to 2030”.<br><br>3. An integrated approach to the processing, disposal and neutralization of waste includes the development of territorial schemes for waste management, including solid municipal waste, which are the most complete source of information on waste management (Decree of the Government of the Russian Federation (2016) “On approval of requirements for the composition and content of territorial schemes | at the national and provincial level.<br><br>2. Turkmenbashi International Marine Port has specific procedures for wastewater, garbage and other waste. |

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| | | | of Astana together with the EPR Operator LLP. | for waste management, including solid municipal waste". Such schemes were approved for Astrakhan oblast, Republic of Kalmykia, and Republic of Dagestan).<br><br>4. The integrated waste management system also suggests a system of measures for the construction and modernization of the system of municipal infrastructure and facilities used for waste disposal.<br><br>5. An important tool for an integrated approach is the approval at the level of the near Caspian subjects of regional operators for the municipal solid waste management and the Rules for the implementation of the activities of regional operators for the municipal solid waste management. | |
| 4.9 Economic Instruments | | 1. According to the waste management law of Iran and its bylaw, there are some economic instruments used in relation to waste management including municipal waste charges, recycling charges and | 1. For the sustainable operation of the SDW management system under the Concept on Transition to a Green Economy, it is planned to improve the pricing policy, which will simultaneously correspond to the | 1. Federal law "On environmental protection" (2002, amended 2017) provides the new edition of "Payment for negative impact on the environment".<br><br>2. The main principles of economic regulation in the field of waste management are: (a) reducing the amount of waste and | 1. Important component of the updated environmental legislation of Turkmenistan was the introduction of market mechanisms in the |

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| | | cash penalties for offenders.<br>2. These economic instruments could also be applicable to marine litter. | solvency of the population and ensure the attractiveness of this sector for private investors.<br><br>2. Activity on the formation of a sustainable financial system in the field of management of SDW should be aimed at ensuring full recovery of the costs of services provided for the collection, removal, sorting, disposal, recycling and disposal of SDW. The functioning of the system will be carried out by: (a) tariffs; (b) revenues; (c) the expense of manufacturers and importers.<br><br>3. Government procurement is another tool to stimulate the development of waste management, so the purchase of products produced on the basis of secondary raw materials should have | involving them in economic circulation; and (b) payment for waste placement (Federal law "On production and consumption waste", 1998, amended 2015).<br><br>3. The Federal law on waste also introduced the concept of "environmental fee".<br><br>4. The environmental fee rate is formed on the basis of the average amount of costs for the collection, transportation, processing and disposal of a single product or a unit mass of the product that has lost its consumer properties. The rate of environmental fee may include the specific amount of costs for the creation of infrastructure facilities intended for this purpose. Environmental fee rates are set by the Government of the Russian Federation.<br><br>5. For goods in packaging that are not ready-to-use products, the environmental fee is paid only in respect of the packaging itself, and is not paid in respect of goods that are subject to recycling and are exported from the Russian Federation. | field of environmental management.<br><br>2. The Law "On Nature Protection" (2014) and the Law "On wastes" have economic procedure for various aspects of pollution. |

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| | | | priority over analogues produced from primary raw materials.<br><br>4. In order to involve the public in the development of a separate collection system, it is necessary to introduce instruments to encourage the population for a separate collection, to introduce differentiated tariffs. | | |

**Table 4. Barriers, gaps and needs. Summary of responses by Caspian countries**

| | Republic of Azerbaijan | Islamic Republic of Iran | Republic of Kazakhstan | Russian Federation | Turkmenistan |
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| 5.1 Barriers & Gaps | | 1. Lack of proper routine monitoring programme and survey to investigate marine litter problem and provide data on the extent and nature of marine litter, source differentiation, zones of accumulation and its environmental, ecological | 1. Solid domestic waste has a huge negative impact on the environment with its multicomponent composition, released by harmful and toxic substances. In Kazakhstan, there is practically no integrated waste management | 1. The environmental problem of waste management is its location in landfills that do not meet the requirements or are not intended for this purpose. One of the reasons is the lack of special landfills for waste disposal. Thus, in the Astrakhan oblast there are 7 such landfills, including 2 – in the coastal area, in Kalmykia and in Dagestan – 1 special landfill | - |

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| | | and socio-economic impacts in the country.<br><br>2. Excessive consumption of plastic bottles and plastic disposable food containers in Iran mainly due to low prices of plastic.<br><br>3. Deficiencies in specific national legislation addressing the issue of marine litter as a separate concept.<br><br>4. Lack of guidelines, regulations, criteria and environmental standards for the management of marine litter.<br><br>5. Due to the absence of damage cost assessment for the marine litter, clean-up cost assessment and relevant fines, there is no operational guarantee to control, prevent and combat with marine litter in Iran.<br><br>6. Lack of integrated waste management in coastal provinces (although all the | system, including monitoring, storage, recycling and disposal of industrial and household waste, which hinders the transition to sustainable development.<br><br>2. Accumulated over the decades, the volume of municipal waste in Kazakhstan exceeds expert more than 100 million tons. Approximately 3 million tons of municipal waste is generated annually, according to the results of 2017, only 442.7 thousand tons or 13.7% is recycled, and 5.3 thousand tons (0.2%) of the received waste is sent to recyclable. The bulk of waste in Kazakhstan is stored in landfills and unauthorized landfills. | per subject, one of them – in the coastal area.<br><br>2. The problem is the lack of widespread use of modern industrial methods of waste disposal.<br><br>3. Violations of environmental legislation also hamper the effective management of waste, including marine litter. For example, violations related to waste disposal in water protective zones of rivers and seas. Placement of production and consumption waste in water protective zones is prohibited (household waste, construction waste, etc.) in accordance with provisions of the article 65 of the Water Codex of the Russian Federation.<br><br>4. Lack of legal and administrative mechanisms related to marine litter in the waste legislation system.<br><br>5. Lack of research on the effects of marine litter on biota, on monitoring and assessment of state of marine litter pollution.<br><br>6. Low demand for recycling materials, as only since 2019 the | |

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| | | provinces should have this instrument according to the law, some of them are still under preparation).<br><br>7. Inadequate public awareness regarding the magnitude of the marine litter issue and its negative socio-economic and public health impacts. | | law provides for separate waste collection, therefore currently there is no required amount of materials for recycling. | |
| 5.2 National Needs & Action Plan | | 1. Establishment of a national marine litter monitoring programme;<br><br>2. Establishment of a marine litter data bank;<br><br>3. Planning to reduce production and consumption of plastic bottles, bags and disposable containers;<br><br>4. Put more efforts to encourage private sectors to expand the plastic recycling industry;<br><br>5. Tagging all commercial fishing nets which helps to identify owners or users of the marked fishing gear and thus | For solving the problems of integrated management of SDW in Kazakhstan, the following is necessary: (a) the introduction of an effective system for the collection of SDW; (b) introduction of a regional approach in the treatment of SDW; (c) increase the volume of processing and disposal of waste; (d) development of cost-effective mechanisms for the collection, transportation and processing of SDW; (e) reclamation of landfills and construction of | 1. The National Caspian Action Plan, developed in accordance with the Tehran Convention on the basis of programmes for the development of the near Caspian subjects, in accordance with the strategies of socio-economic development of the near Caspian region of Russia includes activities related to pollution of the coastal environment, including waste.<br><br>2. The following is necessary to address the marine litter problem: (a) collection and review of data and information on marine litter in the marine and coastal environment of the near Caspian subjects, identifying gaps and needs for the scale of marine litter management; (b) establishment | 1. Development of industry positively impacts the environment, in terms of keeping cleanliness of Turkmen coastal waters/coastal zone, in terms of the planned and sustainable development of the Turkmen coastal zone, the development of aesthetic education among tourists and population, the coverage of a large area that is monitored and the management of facilities located on the shore. |

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| | | contributes to preventing fisheries-related marine litter being abandoned;<br><br>6. Conducting more awareness raising programmes including clean-up and participatory activities as well as educational and training programmes to help behavior changing of the people from different levels of society including relevant personnel from government, academia, local communities, NGOs and relevant industries. | SDW landfills that meet international standards; (f) increasing the culture of waste collection; (g) conducting research on marine litter. | of a marine litter monitoring programme to determine the amount of litter along the coastline; (c) further educational activities aimed at clarifying the problem of marine litter, sources of its formation, measures to reduce its release into the marine environment; (d) special attention to beach vacations, as beach tourism is the main source of garbage in the marine environment; (e) the need for a sufficient number of waste bins on the coast; (f) work with manufacturers of “potential” marine litter, aimed at reducing its quantity; (g) work with large chain shopping malls aimed at reducing the purchase of plastic packaging materials; (h) state support for enterprises engaged in recycling; and (i) improvement of legislation, including regional legislation, related to the problem of marine litter and regulating tourism activities in the region.<br><br>3. The problem of marine litter is largely related to the functioning of certain sectors of the economy, such as sea transport and port facilities, fisheries, health resorts, leisure industry and tourism, the exploitation of offshore oil and | 2. Some proposed interventions for National Action Plan are: (a) Create a network of marine litter national stakeholders; (b) Training of school teachers on the problem; (c) Introduction/ training the marine litter problem into school programme; (d) Development of educational programmes for schoolchildren/ students; (e) Terrestrial and Coastal Plastic Waste Management; (f) Marine Debris Management; (g) Development of financing and institutional support mechanism; (h) Holding of regular beach clean-up activities; (i) Setup one pilot project to show how to manage marine litter/plastic debris; |

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| | | | | gas fields, and it is here that the problems associated with marine litter should be given priority.<br><br>4. It is necessary to involve large oil and gas companies in addressing these problems. For example, such a major company as Lukoil has great capabilities in the field of monitoring marine pollution, which could also be used to monitor marine litter.<br><br>5. Further development of specially protected areas should also help alleviate the problem of marine litter, since a special regime and rules of conduct are established in these territories.<br><br>6. A wide involvement of public organizations and media is necessary to enhance the culture of the population, and activities related to cleaning the coast of garbage. One of the highest priority problems to be solved is to increase the capacity for sorting and processing waste. | and (j) Public awareness campaign: Organization of photo contest among schoolchildren in schools. |
| 5.3 Regional Needs & Action Plan | | 1. Caspian Sea is a common body of water and since the problem of marine litter is a transboundary issue, development, adoption | Key elements of a regional action plan on combating marine litter: (a) organization of research studies on the problems of marine litter | 1. In order to prevent and mitigate the potential adverse effects of marine debris on the marine and coastal environment of the Caspian Sea, the following proposals are presented, which | Following interventions are proposed to be included in the |

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| | | and implementation of a regional framework and Action Plan on marine litter is highly necessary for the Caspian Sea region to determine the actions that should be done at the regional level to tackle this problem.<br><br>2. The Regional Action Plan should define and select a common standardized methodology for monitoring and determining the nature and amount of marine litter in all the five countries of the region to make it possible to compare the results from every country.<br><br>3. Relevant capacity building and technical training should be carried out at the regional level. | and the impact of marine litter on the environment of the Caspian Sea; (b) adapted regional measures to combat marine litter based on international best practices; (c) development of measures for monitoring marine litter in the Caspian region; and (d) measures to improve national policies and legislation in the fight against marine litter. | may be reflected in the regional Caspian marine litter action plan: (a) adaptation of existing international and national developments on marine litter in other regions to the Caspian Sea region; (b) identification and systematization of baseline data on the main land-based sources of pollution of the marine and coastal environment of the Caspian Sea; and (c) identification of the main units of fishery and aquaculture waste that may contribute to the formation of marine litter.<br><br>2. The most important component of protection, conservation and restoration of the natural environment is scientific research. It is important to utilize the significant scientific potential generated in the Caspian littoral states to the problems of pollution of the marine and coastal environment of the Caspian Sea and to ensure sustainable development of the region: (a) organization of scientific research to study microplastics as persistent pollutants present in all marine habitats and trophic transmission of microplastics through benthic | Caspian Marine Litter Action Plan:<br><br>1. Strengthen regional cooperation on marine litter;<br><br>2. Choosing a methodology for its inclusion in national and regional programmes for monitoring and assessing the state of marine debris, including waste record;<br><br>3. Implementing programmes of interaction with civil society (private sector, NGOs and the scientific community) through the development of cooperation with key stakeholders;<br><br>4. Conducting awareness and education campaigns by preparing brochures in different languages, |

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| | | | | and pelagic food networks; (b) conducting research on marine litter as a vector for the movement of invasive alien species; (c) organization of studies on the impact of marine litter on marine and coastal biodiversity and habitats and studies on the rate of degradation or fragmentation of litter under various conditions; (d) studies on the sources of marine litter and amount of litter entering the marine environment; (e) assistance to researches aimed at the development of technologies to ensure the reduction of the environmental impact of plastic on the marine environment and to develop new or improved alternatives; (f) development of marine litter monitoring strategies; (g) development of harmonized approaches to monitoring marine litter, analysis and reporting based on standardized methodologies, taking into account existing guidelines for monitoring marine litter, such as the European Union Guidelines for monitoring marine litter in European seas etc.; (h) development and introduction of | using press, mass media, etc.;<br><br>5. Development of professional industry rules for competent management of marine litter (for example, for tourism, boating, fishing); and<br><br>6. Development and improvement of strategy and systems for the collection and disposal of marine litter/garbage. |

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| | | | | socio-economic incentives for the prevention of garbage entering the environment; (i) development of recommendations to stimulate structural economic changes, which should ensure a reduction in the production and consumption of plastics, increase in the production of more environmentally friendly materials, and on the expansion of recycling and reuse; (j) improvement of the legislation of the Caspian littoral states on marine litter in general, and on the regulation of various microplastics sources by legislative acts; and (k) use of existing platforms and tools for cooperation that will enhance collaboration on the issue of marine litter (such as the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, the Global Partnership on Marine Litter, regional seas action plans).<br><br>3. There is an urgent need to change attitudes and behavior of both individual groups of society and society as a whole towards a more reasonable attitude to the environment. It is necessary to improve a variety of educational | |

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| | | | | and practical training programmes for various groups of society in order to increase awareness of the obligation to prevent pollution of the marine environment. Raising public awareness can help decision-making in improvement of control and prevention of pollution of the marine environment.<br><br>4. Possible types of specific activities for this complex of problems – events to clean up marine litter on the coast, propaganda campaigns among the population and tourists, educational work with schoolchildren and youth. | |

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**Annex V**

# REGIONAL CASPIAN SEA MARINE LITER ACTION PLAN

# BIBLIOGRAPHY

Documents relevant to the issue of Marine litter in the Caspian Sea

References with summaries

September 2019

## Introduction

Preparation of the Bibliography of references relevant to the issue of marine litter in the Caspian Sea was suggested by the Tehran Convention Interim Secretariat and is to contain relevant references at the Global, Caspian regional and Caspian national levels.

Preparation of the Bibliography was undertaken as a desk-top study. Sources of information were:

(i) In depth review of the web and selection of the relevant documents and information;
(ii) Documents provided by Tehran Convention Interim Secretariat; and
(iii) Responses by Caspian National Experts to the National Survey Questionnaire.

A thorough survey of the web resulted in many relevant documents. Out of those 106 documents were selected to be presented in this Bibliography. The selected documents have high relevance to the issue of marine litter in the Caspian Sea.

The length of the selected documents varied from a few pages to several hundred pages. Also some documents covered only one issue but in some, quite a number of relevant issues were covered.

In order to make it more useful for readers it was decided to prepare two versions of the Bibliography:

(i) Document which has: (a) reference; (b) link (if available); and (c) short summary (up to about 20 lines). This was done in order to provide the reader with condensed relevant information so that the reader will not have to open the link to find out about the content of the document. This document has 106 references and 57 pages; and
(ii) Document which has: (a) reference; and (b) link (if available), but no summary. This document has 106 references and 15 pages.

In order to make it easier for the users of these references the selected documents were organized into the following chapters:

(i) Global
(ii) Four Successful Regional Marine Litter Action Plans
(iii) Tehran Convention and its Protocols
(iv) Caspian Regional
(v) Caspian Countries
- Republic of Azerbaijan
- Islamic Republic of Iran
- Republic of Kazakhstan
- Russian Federation
- Turkmenistan

**GLOBAL**

This chapter contains references, links (when available) and summaries of 51 documents of high relevance to the Caspian region.

Niaounakis (2017): Management of Marine Plastic Debris, Prevention, Recycling and Waste Management, Michael Niaounakis, Elsevier, 436 pp.

https://books.google.hr/books?id=hWI8DgAAQBAJ&pg=PA404&lpg=PA404&dq=China+Marine+Litter&source=bl&ots=N1HYBQG4WI&sig=g5B0vbAf0hGQIuQwVGWz4yXNres&hl=hr&sa=X&ved=0ahUKEwj0moTBsp3WAhUINxQKHYm1CGk4ChDoAQhNMAQ#v=onepage&q=China%20Marine%20Litter&f=false

(Last accessed 13 June 2019)

The book Management of Marine Plastic Debris addresses the global problem of marine plastic debris (MPD), a waste created by human activities in oceans, seas, lakes, waterways, and the coast lines. Most of the plastic debris, which are disposed deliberately or accidentally in water bodies remain in the water for a very long period. Floating, sunk, and stranded plastic debris in the oceans and the beaches have become a major environmental issue with serious societal and economic effects, which can be compared with other issues of modern time, including climate change, ocean acidification, and loss of biodiversity. Very little progress has been made in finding a technical solution for cleaning the oceans and the seas and implementing a proper prevention mitigation policy/strategy. This book provides an updated and detailed overview of the environmental, social, and economic problems created by the disposal of plastic debris in oceans, seas, and waterways, giving an analysis of the type, composition, and chemical identity of the constituting polymers, reviewing all available technologies for the treatment of MPD, and providing the regulatory framework to work within.

Galgani (2015): Global Distribution, Composition and Abundance of Marine Litter, François Galgani, Georg Hanke, Thomas Maes, Chapter 2 in Marine Anthropogenic Litter, 2015, 29-56 pp.

https://link.springer.com/chapter/10.1007/978-3-319-16510-3_2

(Last accessed 13 June 2019)

Marine debris is commonly observed everywhere in the oceans. Litter enters the seas from both land-based sources, from ships and other installations at sea, from point and diffuse sources, and can travel long distances before being stranded. Plastics typically constitute the most important part of marine litter sometimes accounting for up to 100 % of floating litter. On beaches, most studies have demonstrated densities in the 1 item m−2 range except for very high concentrations because of local conditions, after typhoons or flooding events. Floating marine debris ranges from 0 to beyond 600 items km−2. On the sea bed, the abundance of plastic debris is very dependent on location, with densities ranging from 0 to >7700 items km−2, mainly in coastal areas. Recent studies have demonstrated that pollution of microplastics particles <5 mm, has spread at the surface of oceans, in the water column and in sediments, even in the deep sea. Concentrations at the water surface ranged from thousands to hundred thousands of particles km−2. Fluxes vary widely with factors such as proximity of urban activities, shore and coastal uses, wind and ocean currents. These enable the presence of accumulation areas in oceanic convergence zones and on the seafloor, notably in coastal canyons. Temporal trends are not clear with evidences for increases, decreases or without changes, depending on locations and environmental conditions. In terms of distribution and quantities, proper

global estimations based on standardized approaches are still needed before considering efficient management and reduction measures.

Science Advances (2017): Production, use, and fate of all plastics ever made, R. Geyer, J. R. Jambeck and K. L. Law, Science Advances, Vol. 3, no. 7

http://advances.sciencemag.org/content/3/7/e1700782.full

(Last accessed 13 June 2019)

Plastics have outgrown most man-made materials and have long been under environmental scrutiny. However, robust global information, particularly about their end-of-life fate, is lacking. By identifying and synthesizing dispersed data on production, use, and end-of-life management of polymer resins, synthetic fibers, and additives, we present the first global analysis of all mass-produced plastics ever manufactured. We estimate that 8300 million metric tons (Mt) as of virgin plastics have been produced to date. As of 2015, approximately 6300 Mt of plastic waste had been generated, around 9% of which had been recycled, 12% was incinerated, and 79% was accumulated in landfills or the natural environment. If current production and waste management trends continue, roughly 12,000 Mt of plastic waste will be in landfills or in the natural environment by 2050.

UN Environment (2017): Combating Marine Plastic Litter and Microplastics: An Assessment of the effectiveness of relevant international, regional and subregional governance strategies and approaches, Summary for Policy Makers, UNEP/AHEG/2018/1/INF/3, 21 pp.

https://papersmart.unon.org/resolution/uploads/unep_aheg_2018_1_inf_3_summary_policy_makers.pdf

(Last accessed 13 June 2019)

This summary provides an overview of the key findings of the assessment “Combating marine plastic litter and microplastics: An assessment of the effectiveness of relevant international, regional and subregional governance strategies and approaches.” This assessment was developed in response to the resolution on Marine Plastic Litter and Microplastic adopted by the UNEA 2 and seeks to outline gaps and propose options for addressing these gaps for consideration of the UNEA 3. The assessments reviewed 18 international and 36 regional instruments and identified existing gaps and concluded that current governance strategies and approaches provide a fragmented approach that does not adequately address marine plastic litter and microplastics. This includes limitations in scope and mandate, broad and indirect application to the issue and variations in strategies and approaches incorporated in binding and/or voluntary instruments. Governance must, inter alia and in addition to managing what is already in the environment, reduce the risk of plastic becoming marine plastic litter and microplastic by factoring in production forecasts, setting global standards for design, provide security for end-markets and strongly support the 6R approach and policy frameworks must be designed to keep pace with innovation, from production to disposal, while providing the necessary environmental guidance. The assessment proposed three options for improved governance strategies and approaches: 1. Maintaining the status quo; 2. Review and revise existing frameworks to address marine plastic litter and microplastics and add a component to coordinate industry; and 3. A new global architecture with a multilayered governance approach.

Overview of the Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean. 16 pp.

https://papersmart.unon.org/resolution/uploads/un_environment_science_-_marine_plastics_guidelines_synopsis_18-03553_002.pdf

(Last accessed 13 June 2019)

The effort to promote a more harmonised approach to the design of sampling programmes for the monitoring and assessment of marine litter, including the selection of appropriate indicators (i.e. type of sample and litter item), the collection of samples or observations, the characterisation of sampled material, dealing with uncertainties, data analysis and reporting the results, is the direct result of UN Environment, supported by IOC-UNESCO being tasked with supporting countries to implement methodologies and procedures to report against target 14.1 'By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution' under Sustainable Development Goal 14. The report summarised the state of our knowledge on sources, fate and effects of marine plastics and microplastics, and describe approaches and potential solutions to address this multifaceted conundrum. A key intention of the guidelines is to support the further development of the marine litter monitoring framework under SDG 14.1.1.

19th Meeting of the Contracting Parties to the Barcelona Convention (2016), Decision IG.22/10: Implementing the Marine Litter Regional Plan in the Mediterranean (Fishing for Litter Guidelines, Assessment Report, Baselines Values, and Reduction Targets),

UNEP(DEPI)/MED IG.22/28, 523-554 pp.

https://wedocs.unep.org/bitstream/handle/20.500.11822/6072/16ig22_28_22_10_eng.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

Fishing for Litter (FfL) is referring to the removal of marine litter from the sea by the fishermen and is one of the most important measures that have the potential to reduce the amounts of marine litter at sea by involving one of the key stakeholders sectors, the fishing industry. Apart from removing litter from the sea, mainly from the seafloor, these practices substantially contribute to raising awareness on the problem within the sector and the need for better waste management. FfL initiative has demonstrated on a limited scale that the objectives and aims of the scheme can gain the support of the fishing industry, harbour authorities and local authorities. Furthermore, it can contribute to changing practices and culture within the fishing sector, provide a mechanism to remove marine litter from the sea, and raise awareness among the fishing industry, other sectors and the general public. FfL initiative integrates several benefits: environmental, social, economic and scientific. FfL activities have been widely applied mainly in NE Atlantic Ocean, and specifically in the North Sea. There are two types of FfL practices, active and passive: (i) Active practices are specifically performed to remove marine litter and fishermen involved are paid; and (ii) Passive practices are carried out by fishermen during their normal fishing activities without financial compensation. There are many environmental benefits of retrieval actions of marine litter, these benefits increase when developing in sensitive areas where protection and conservation of marine biodiversity are priority but the precautionary principle should be applied. The objective of this guide is two-fold: to provide technical guidance on the mechanism to remove litter from the sea in an environmentally friendly manner ensuring negative impacts on marine environment and ecosystems are avoided, and to provide guidance on the process of involving the stakeholders responsible for the implementation and coordination of FfL practices.

GESAMP (2019): Guidelines of the monitoring and assessment of plastic litter and microplastics in the ocean (Kershaw, P.J., Turra, A. and Galgani, F. editors), (IMO/FAO/UNESCO-IOC/UNIDO/WMO/IAEA/UN/UNEP/UNDP/ISA Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). Rep. Stud. GESAMP No. 99, 130 pp.

https://environmentlive.unep.org/media/docs/marine_plastics/une_science_dvision_gesamp_reports.pdf

(Last accessed 13 June 2019)

The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) has been involved in the issue of marine plastic litter and microplastics for over a decade. This report is a product of the GESAMP Working Group (WG40) on 'Sources, fate and effects of plastics and microplastics in the marine environment'. The report was prepared by 19 independent experts from 14 countries supported by a number of national and international bodies. The principle purpose of this report is to provide recommendations, advice and practical guidance, for establishing programmes to monitor and assess the distribution and abundance of plastic1 litter in the ocean. The main audience of the report is intended to be national, inter-governmental and international organisations with responsibilities for managing the social, economic and ecological consequences of land- and sea-based human-activities on the marine environment. The intention is to promote a more harmonised approach to the design of sampling programmes, the selection of appropriate indicators (i.e. type of sample), the collection of samples or observations, and the characterisation of sampled material, dealing with uncertainties, data analysis and reporting the results. It provides links to protocols and data recording sheets that are intended be used in the field. The scope is restricted to monitoring plastic litter in the marine environment. The report is intended to provide a step-by-step approach to designing and implementing a programme for monitoring marine plastic litter, assuming no prior knowledge.

UNEP (2016): Marine plastic debris and microplastics – Global lessons and research to inspire action and guide policy change, 274 pp.

http://wedocs.unep.org/bitstream/handle/20.500.11822/7720/-Marine_plasctic_debris_and_microplastics_Global_lessons_and_research_to_inspire_action_and_guide_policy_change-2016Marine_Plastic_Debris_and_Micropla.pdf?sequence=3&isAllowed=y

(Last accessed 13 June 2019)

Society's adoption of plastics as a substitute for traditional materials has expanded almost exponentially since the 1950s, when large-scale plastic production began. Durability is a common feature of most plastics, and it is this property, combined with unwillingness or inability to manage end-of-life plastic effectively that has resulted in marine plastics and microplastics becoming a global problem. As for many pollutants, plastic waste is a trans-boundary, complex, social, economic and environmental problem with few easy solutions. It is only in the past decade that the scale and importance of the problem has received due attention. This report was prepared at the request of the UNEA 1 (2014, Resolution 16/1). It is intended to summarise the state of our knowledge on sources, fate and effects of marine plastics and microplastics, and describe approaches and potential solutions. Marine plastics are distributed throughout the ocean, from the Arctic to the Antarctic. This is due to the durability of plastics, the global nature of potential sources and the ease to which surface currents will carry floating plastics. Improving wastewater and solid waste collection and management presents the most urgent short-term solution to reducing plastic inputs, especially in developing economies. Examples of measures are presented to bring about marine litter reduction

and removal. These include Best Environmental Practices (BEPs), Best Available Techniques/Technologies (BATs), Market-Based Instruments (MBIs), legislation or some other intervention.

UNEP GPA (2015): Biodegradable Plastics and Marine Litter, Misconceptions, Concerns and Impacts on Marine Environment, 38 pp.

http://wedocs.unep.org/bitstream/handle/20.500.11822/7468/-Biodegradable_Plastics_and_Marine_Litter_Misconceptions%2c_concerns_and_impacts_on_marine_environments-2015BiodegradablePlasticsAndMarineLitter.pdf.pdf?sequence=3&isAllowed=y

(Last accessed 13 June 2019)

The development and use of synthetic polymers, and plastics has conferred widespread benefits on society. One of the most notable properties of these materials is their durability which, combined with their accidental loss, deliberate release and poor waste management has resulted in the ubiquitous presence of plastic in oceans. As most plastics in common use are very resistant to biodegradation, the quantity of plastic in the ocean is increasing, together with the risk of significant physical or chemical impacts on the marine environment. Some common non-biodegradable polymers, such as polyethylene, are manufactured with a metal-based additive that results in more rapid fragmentation. This will increase the rate of microplastic formation but there is a lack of independent scientific evidence that biodegradation will occur any more rapidly than unmodified polyethylene. Other more specialised polymers will break down more readily in seawater, and they may have useful applications, for example, to reduce the impact of lost or discarded fishing gear. However, there is the potential that such polymers may compromise the operational requirement of the product. In addition, they are much more expensive to produce and financial incentives may be required to encourage uptake. A further disadvantage of the more widespread adoption of 'biodegradable' plastics is the need to separate them from the non-biodegradable waste streams for plastic recycling to avoid compromising the quality of the final product. In conclusion, the adoption of plastic products labelled as 'biodegradable' will not bring about a significant decrease either in the quantity of plastic entering the ocean or the risk of physical and chemical impacts on the marine environment, on the balance of current scientific evidence.

UN Environment (2017): Combating marine plastic litter and microplastics: An assessment of the effectiveness of relevant international, regional and subregional governance strategies and approaches, UNEP/EA.3/INF/5, 197 pp.

https://undocs.org/unep/ea.3/inf/5

(Last accessed 13 June 2019)

The negative impacts of marine plastic litter and microplastics are widely recognized as unacceptable at the biological, ecological and the socio-economic levels. Litter disposal and accumulation in the marine environment is one of the fastest-growing threats to the health of the world's oceans. The annual global rate of plastic production has continued to grow exponentially without a parallel increment in management measures, resulting in an ongoing contribution to marine plastic litter and microplastics from land, air and ocean. Long-term solutions include improved governance at all levels as well as behavioural and system changes, such as a more circular economy and more sustainable production and consumption patterns. The most urgent short-term solution to reducing plastic inputs, especially in developing economies, is improving waste collection and management. Efforts need to

be made to improve coordination of activities and finding synergies under multiple multilateral environmental agreements, as well as the monitoring of progress specific to the issue of plastic pollution. Harmonization of targets, reporting procedures, compliance and liability would be some of the challenges presented by a fragmented approach. The current framework needs to be strengthened to better address marine plastic litter and microplastics. An approach that engages all sectors, including the plastics industry, is more likely to be effective at a global level. An overarching international mechanism with a multilayered governance approach would provide opportunities for a cohesive and robust approach to reducing, if not eliminating, the ecological and socio-economic impacts of plastics by targeting urgent and significant global curtailment in the leakage of plastic waste into the environment.

UNEP (2014): Valuing Plastics: The Business Case for Measuring, Managing and Disclosing Plastic Use in the Consumer Goods Industry, 116 pp.

http://wedocs.unep.org/bitstream/handle/20.500.11822/9238/-Valuing%20plastic%3a%20the%20business%20case%20for%20measuring%2c%20managing%20and%20disclosing%20plastic%20use%20in%20the%20consumer%20goods%20industry-2014Valuing%20plasticsF.pdf?sequence=8&isAllowed=y

(Last accessed 13 June 2019)

Plastic is one of the most useful and important materials in modern society but the environmental impacts of plastic cannot be ignored. The objective of this report is to help companies manage the opportunities and risks associated with plastic use since the use of plastic causes environmental and social impacts. The analysis described in this document identifies a range of risks and opportunities facing companies that are intensive users of plastic. Risks include the impact of tougher environmental legislation such as bans on disposable plastic bags, carbon pricing schemes and chemicals regulation, damage done to the reputation of brands targeted by campaigners over their association with plastic litter, clean-up costs and disruption to the plastic supply chain caused by resource scarcity and price volatility. The research identifies where plastic is used most intensively by focusing on 16 consumer goods sectors where plastic is commonly used. This research then analyses the exposure of companies to these risks and opportunities by expressing quantities of plastic used as a natural capital cost. These findings hold significant impacts for companies. The research drills down into and assesses the main quantifiable impacts of plastic use in products and packaging. The research assesses the largest publicly-listed companies of each of the 16 target sector by revenue - 100 in total and currently there is no correlation between a sector's disclosure rate and its plastic intensity or absolute natural capital cost due to plastic. Based on findings, the research makes a series of recommendations to companies. The research includes several case studies of companies striving to implement good practice on plastic management, including Lush cosmetics, electronics companies Apple, Dell and Hewlett Packard, and soft drink company Coca Cola.

GEO 6 (2019): Healthy Planet, Healthy People, Front, 33 pp.

https://wedocs.unep.org/bitstream/handle/20.500.11822/27680/GEO6_front.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

The sixth Global Environment Outlook (GEO 6) shows clearly that our species now stands at a crossroads. It can choose a challenging but navigable path towards a new golden age of sustainable

development as envisaged by the United Nations' Agenda 2030 in which human hunger and poverty are consigned to history through the sustainable use of Earth's resources and the natural environment that leaves no-one behind. Or it can continue with current trends and practices, which will lead to a losing struggle against environmental disruptions, which threaten to overwhelm large parts of the world. GEO 6 clearly identifies the problems that have to be addressed if this latter outcome is to be avoided. But it also points to the solutions to these problems, to ways in which the aspirations of the Sustainable Development Goals (SDGs) can be realised and Earth's air, biodiversity, oceans, land and freshwater restored to health, to the incalculable benefit of Earth's people. The Chapters of the GEO 6 are: 1. Introduction and context; 2. Drivers of environmental change; 3. The current state of our data and knowledge; 4. Cross-cutting issues; 5. Air; 6. Biodiversity; 7. Oceans and coasts; 8. Land and soil; 9. Freshwater; 10. Approach to assessment of policy effectiveness; 11. Policy theory and practice; 12. Air policy; 13. Biodiversity policy; 14. Oceans and coastal policy; 15. Land and soil policy; 16. Freshwater policy; 17. Systemic policy approaches for cross-cutting issues; 18. Conclusions of policy effectiveness; 19. Outlooks in GEO-6; 20. A long-term vision for 2050; 21. Future development without targeted policies; 22. Pathways towards sustainable development; 23. Bottom-up Initiatives and Participatory Approaches for Outlooks; 24. The way forward; and 25. Future data and knowledge needs.

GEO 6 (2019): Healthy Planet, Healthy People, 745 pp. Chapter 7 – Oceans and Coasts, 176-198 pp.

https://wedocs.unep.org/bitstream/handle/20.500.11822/27658/GEO6_CH7.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

The amount of marine litter continues to increase – an estimated 8 million tons (Mt) of plastics enters the ocean each year, as a result of the mismanagement of domestic waste in coastal areas. Without intervention, the quantity of plastic in the ocean is expected to increase to 100-250 Mt by 2025. {7.3.3}. Cleaning up the oceans is not a sustainable option without action to stop litter from entering the oceans. Sources of marine litter can generally be correlated with the efficiency of solid waste management and wastewater treatment. Research suggests that up to 95 per cent of the plastic entering the ocean does not remain in the surface waters. Efforts to address marine litter should focus primarily on its prevention at source through sustainable consumption and production patterns, sound waste management, wastewater treatment and resource recovery using the principles of a circular economy. If nations do not take action to prevent litter from entering the ocean, it will continue to accumulate and compromise ecosystem health and human food security. Prevention involves ensuring recovery and recycling of all used plastic products, encouraging communities to reduce the volume of rubbish generated, and improving solid waste management and wastewater treatment. Cleaning up the oceans is not a sustainable option without action to stop litter from entering the oceans.

GEO 6 (2019): Healthy Planet, Healthy People, 745 pp. Chapter 14, Oceans and Coastal Policy, 349-370 pp.

https://wedocs.unep.org/bitstream/handle/20.500.11822/27666/GEO6_CH4.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

Problems involving numerous activities, sectors and sources (e.g. marine litter) may require policies involving comprehensive and coordinated measures. When such problems involve multiple jurisdictions, governance approaches to engage neighbouring countries (e.g. the Regional Seas Programme) may be appropriate. {14.2.2}. The impacts of human activities on the oceans have serious social and economic implications, which directly and indirectly affect human health and well-being. Marine litter and plastic pollution are rising to the forefront of pollution issues. With the Regional Plan on Marine Litter Management in the Mediterranean (the Plan), the UNEP Mediterranean Action Plan (MAP) was the first Regional Seas Programme and Convention to develop legally binding measures to prevent and reduce the adverse effects of marine litter on marine and coastal environments. Adopted in 2013, the entry into force of the Plan coincided with the update of national action plans of the Mediterranean countries to combat pollution from land-based sources and activities. The Plan involves some key principles on pollution control and prevention, including the integration of marine litter management into solid waste management and the reduction. Some regions have recently adopted a regional framework, such as the Plan in the Mediterranean, to coordinate and harmonize monitoring. In the case of the Plan in the Mediterranean, stakeholder collaboration to reduce plastic consumption is a key component of the Plan. However, more diverse stakeholders were only included in the VME process after the UNGA Resolution was adopted. Common to most of the cases was the involvement of relevant stakeholders, including resource users, businesses, experts, environmental NGOs and government, at some point in the policy process.

GEO 6 (2019): Healthy Planet, Healthy People, 745 pp. The threats to biodiversity from marine litter and microplastics (p. 151).

https://wedocs.unep.org/bitstream/handle/20.500.11822/27539/GEO6_2019.pdf?sequence=1&isAllowed=y

Marine litter, including marine plastic litter and microplastics, is considered a major threat to biodiversity, with serious impacts reported over the last four decades. Recent research shows that more than 800 marine and coastal species are now affected through ingestion, entanglement, ghost fishing or dispersal by rafting. Between 2012 and 2016, aquatic mammal and seabird species known to be affected by marine litter ingestion increased from 26% to 40%, respectively. Plastics, which constitute 75% of marine litter, have been shown to act as carriers for persistent bioaccumulative and toxic substances; provide habitats for unique microbial communities; act as a potential vector for disease; and provide a means to transport invasive alien species across oceans and lakes. Research on physical and toxicological effects of microplastic provides evidence of trophic transfer in planktonic food chains as well as the direct uptake of microplastics by marine invertebrates. Ingestion of microplastic by fish has been shown to cause physiological stress, liver cancer and endocrine dysfunction, affecting female fertility and the growth of reproductive tissue in mail fish. According to the United Nations 51 trillion microplastic particles, 500 times more than stars in our galaxy litter our seas, seriously threatening marine wildlife.

GEO 6 (2019): Healthy Planet, Healthy People, 745 pp. Marine litter (pp. 188-189).

https://wedocs.unep.org/bitstream/handle/20.500.11822/27539/GEO6_2019.pdf?sequence=1&isAllowed=y

Plastic pollution has been recognized for decades as a threat to marine biodiversity. One of the most visible impacts is death or injury of marine life from entanglement with derelict fishing gear and plastic packaging. Many animals also ingest litter, either accidentally or intentionally when it is

mistaken for food. This can cause starvation due to intestinal blockage or lack of nutrition. Recent reviews have found that a growing number of turtles, marine mammals and seabirds are endangered or killed by floating litter. Microplastics are now appearing in food consumed by humans; however, the impact on human health is uncertain. Plastic particles have been found in the intestines of fish from all oceans. There are currently no standard methods for assessing the health risks of ingesting plastic particles. For fish at least, people do not generally consume their digestive tract where plastic accumulates, so intake is probably limited. In instances where people consume whole organisms, such as mussels and oysters, ingestion rates could be higher. There are currently no proven toxic effects of chemicals sorbed by plastic particles found across a range of marine biota, but more data are needed to fully understand the relative importance of exposure to sorbed chemicals from microplastics compared with other exposure pathways. The economic and social costs of marine litter include indirect effects such as interfering with small-scale fishing opportunities, tourism and recreation. These costs are generally unquantified but may fall disproportionately on those with livelihoods most closely tied to coastal activities. Some direct economic costs include the cost of beach cleaning and accidents related to navigation hazards or fouling. The EU has estimated that every year up to €62 million are lost to the fishing industry from damage to vessels and gear and reduced catch due to ghost fishing (abandoned gear that continues to catch marine organisms as it drifts) and up to €63 million is spent on beach cleaning.

Jambeck et al. (2015): Plastic waste inputs from land into the ocean, J. R. Jambeck, R. Geyer, C. Wilcox, T. R. Siegler, M. Perryman, A. Andrady, R. Narayan, K. Lavender Law, Science, 5 pp.

https://www.iswa.org/fileadmin/user_upload/Calendar_2011_03_AMERICANA/Science-2015-Jambeck-768-71__2_.pdf

(Last accessed 13 June 2019)

Plastics (macro-, micro- and nano-plastic) in the marine environment are of increasing concern because of their persistence and effects on the oceans, wildlife, and potentially humans. The quantity of mismanaged plastic waste generated annually by population living within 50 km of a coast worldwide that can potentially enter the ocean as marine debris from waste generated on land was studied by linking worldwide data from 192 countries on solid waste, population density, and economic status. By applying a range of conversion rates from mismanaged waste to marine debris, it was estimated the mass of plastic waste entering the ocean from each country in 2010. In such list top four countries are COBSEA member countries (China, Indonesia, Philippines and Vietnam) and Thailand is sixth and Malaysia eight. It was calculated that 275 million metric tons (MT) of plastic waste was generated in 192 coastal countries in 2010, with 4.8 to 12.7 million MT entering the ocean. Population size and the quality of waste management systems largely determine which countries contribute the greatest mass of uncaptured waste available to become plastic marine debris. Without waste management infrastructure improvements, the cumulative quantity of plastic waste available to enter the ocean from land is predicted to increase by an order of magnitude by 2025.

FAO (2017): Microplastics in fisheries and aquaculture, FAO Technical Paper 615, A. Lusher, P. Hollman and J. Mendoza-Hill, 147 pp.

http://www.fao.org/3/a-i7677e.pdf

(Last accessed 13 June 2019)

Adverse effects of microplastics ingestion have only been observed in aquatic organisms under laboratory conditions, usually at very high exposure concentrations that exceed present environmental concentrations by several orders of magnitude. In wild aquatic organisms microplastics have only been observed within the gastrointestinal tract, usually in small numbers, and at present there is no evidence that microplastics ingestion has negative effects on populations of wild and farmed aquatic organisms. In humans the risk of microplastic ingestion is reduced by the removal of the gastrointestinal tract in most species of seafood consumed. However, most species of bivalves and several species of small fish are consumed whole, which may lead to microplastic exposure. A worst case estimate of exposure to microplastics after consumption of a portion of mussels (225 g) would lead to ingestion of 7 micrograms (µg) of plastic, which would have a negligible effect (less than 0.1 percent of total dietary intake) on chemical exposure to certain PBTs and plastic additives. Microplastic contamination of aquatic environments will continue to increase in the foreseeable future and at present there are significant knowledge gaps on the occurrence in aquatic environments and organisms of the smaller sized microplastics (less than 150 µm), and their possible effects on seafood safety. Currently there are no methods available for the observation and quantification of nanoplastics in aquatic environments and organisms.

Cheshire, A.C., Adler, E., Barbière, J., Cohen, Y., Evans, S., Jarayabhand, S., Jeftic, L., Jung, R.T., Kinsey, S., Kusui, E.T., Lavine, I., Manyara, P., Oosterbaan, L., Pereira, M.A., Sheavly, S., Tkalin, A., Varadarajan, S., Wenneker, B., Westphalen, G. (2009). UNEP/IOC Guidelines on Survey and Monitoring of Marine Litter. UNEP Regional Seas Reports and Studies, No. 186; IOC Technical Series No. 83: xii + 120 pp.

http://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/13604/rsrs186.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

Marine litter (ML) monitoring generally fall into one of three basic types: 1. Beach litter surveys; 2. Benthic litter surveys; and 3. Floating litter surveys. It is widely accepted that a major factor that limits our knowledge of (and therefore the ability to manage) ML results from inconsistencies in the design and delivery of sampling and assessment programmes. The objectives for this study were to develop a set of standardized operational guidelines for the conduct of beach, benthic and floating litter assessments and two classes of surveys were developed: 1. Comprehensive surveys for beach, benthic and floating ML; and 2. Rapid surveys for beach litter. This report aims to outline practical operational guidelines for the survey and monitoring of ML and in particular: 1) To collect information from around the world on existing experience and methods for the monitoring and assessment of ML drawing on information already compiled; 2) To develop a comparative analysis of selected methodologies on ML survey and monitoring, including reporting protocols and forms; and 3) To develop a set of practical operational guidelines on survey and monitoring of on-shore, floating and sea-floor ML for consistent application worldwide. The detailed review of 13 different sampling protocols that are currently being used around the world to survey beach cast, benthic and/or floating ML were undertaken. Survey protocols were assessed against 46 criteria related to the basic structure of the survey, the analysis of sampling units, the frequency and timing of surveys, the systems used for litter classification and the underpinning framework for facilitation and management of logistics. Four sets of guidelines have been developed: 1) Comprehensive assessments of beach cast litter; 2) Assessments of benthic litter; 3) Assessments of floating litter; and 4) Rapid assessments of beach cast litter. Guidelines include a comparative analysis of information from around the world on existing experience and methods for surveys, monitoring, reporting protocols and assessment of ML.

Human footprint in the abyss: 30 year records of deep-sea plastic debris, Marine Policy, Vol 96, Oct. 2018, pp. 204-212, Sanae Chiba, Hideaki Saito, Ruth Fletcher, Takayuki Yogi, Makino Kayo, Shin Miyagi, Moritaka Ogido, Katsunori Fujikura

https://doi.org/10.1016/j.marpol.2018.03.022

(Last accessed 13 June 2019)

This study reports plastic debris pollution in the deep-sea based on the information from a recently developed database. The Global Oceanographic Data Center (GODAC) of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) launched the Deep-sea Debris Database for public use in March 2017. The database archives photographs and videos of debris that have been collected since 1983 by deep-sea submersibles and remotely operated vehicles. From the 5010 dives in the database, 3425 man-made debris items were counted. More than 33% of the debris was macro-plastic, of which 89% was single-use products, and these ratios increased to 52% and 92%, respectively, in areas deeper than 6000 m. The deepest record was a plastic bag at 10898 m in the Mariana Trench. Deep-sea organisms were observed in the 17% of plastic debris images, which include entanglement of plastic bags on chemosynthetic cold seep communities. Quantitative density analysis for the subset data in the western North Pacific showed plastic density ranging from 17 to 335 items km−2 at depths of 1092–5977 m. The data show that, in addition to resource exploitation and industrial development, the influence of land-based human activities has reached the deepest parts of the ocean in areas more than 1000 km from the mainland. Establishment of international frameworks on monitoring of deep-sea plastic pollution as an Essential Ocean Variable and a data sharing protocol are the keys to delivering scientific outcomes that are useful for the effective management of plastic pollution and the conservation of deep-sea ecosystems.

Brouwer, R., Hadzhiyska, D., Ioakeimidis, C., and Ouder, H. (2017): The social costs of marine litter along European coasts, Ocean & Coastal Management, Vol. 138, pp. 38-49

https://www.sciencedirect.com/science/article/pii/S0964569117300297

(Last accessed 13 June 2019)

Highlights of the study: This study assesses the social costs of marine litter along European coasts; Social costs are based on public perception of the impact of marine litter on beach experience; A distinction is made between point (litter left by visitors) and diffuse source (marine debris washed ashore) pollution; Public willingness to pay for beach clean-up programs is estimated for comparison with the clean-up costs of beaches; and Significant differences exist in public perception and valuation across three European countries. This is the first study to assess the social costs of marine debris washed ashore and litter left behind by beach visitors along different European coasts. Three identical surveys, including a discrete choice experiment, are implemented at six beaches along different European coastlines: the Mediterranean Sea in Greece, the Black Sea in Bulgaria and the North Sea in the Netherlands. Beach visitors are asked for their experiences with beach litter and their willingness to volunteer in beach clean-up programs and their willingness to pay an entrance fee or increase in local tax to clean up marine litter. Significant differences are found between countries. This has important implications for the size and transferability of the estimated social costs of marine litter across Europe.

CSIRO (2017): World’s largest marine pollution project

https://www.csiro.au/en/News/News-releases/2017/Worlds-largest-marine-pollution-project

(Last accessed 13 June 2019)

CSIRO is undertaking the world's largest marine pollution survey, working with countries across the globe to help them assess and reduce the amount of litter entering the oceans. Some of the world's top 20 polluters will take part in the project including China, Bangladesh, Indonesia, Vietnam and the United States, plus other countries including Australia, South Korea and Taiwan. CSIRO senior scientist Dr Denise Hardesty said the project would provide hard numbers on the amount of litter entering the ocean by using real data collected on coastlines and cities across the globe. This will be the first time anyone has brought together a group of countries to look at exactly how much litter is entering the oceans," Dr Hardesty said. "We will be able to see where the hotspots lie by looking at how people, wind, the shape of the land and storm water moves rubbish into the ocean and then give advice on how to improve this based on science-based interventions. The project was announced two months after Dr Hardesty presented to the world's first G20 summit on marine pollution, and on World Ocean Day which in 2017 is focused on plastic pollution. Along with causing marine and environmental problems, things like plastic bags can also cause storm water drains to become blocked, leading to significant localised flooding and serious health risks for local people."The project follows years of marine debris research led by Dr Hardesty and her team. The project is collaboration between CSIRO, the Oak Family Foundation and Schmidt Marine Technology Partners.

GESAMP (2016): Sources, fate and effects of microplastics in the marine environment, part two of assessment (P. J. Kershaw and C. M. Rochman, Eds.), Rep. Stud. GESAMP 93, 220 pp.

http://www.gesamp.org/site/assets/files/1275/sources-fate-and-effects-of-microplastics-in-the-marine-environment-part-2-of-a-global-assessment-en.pdf

(Last accessed 13 June 2019)

This report provides an update and further assessment of the sources, fate and effects of microplastics in the marine environment, carried out by Working Group 40 of GESAMP. The distribution of microplastics in the five main ocean compartments (sea surface, water column, shoreline, seabed and biota) are described, together with the transport mechanisms that regulate fluxes between compartments. Regional 'hot-spots' of sources, distribution and accumulation zones are reported, in response to the UNEA request. The effects of microplastics on marine biota have been explored in greater detail. Possible effects of microplastics on commercial fish and shellfish were considered. The economic aspects of microplastic contamination are considered. This relies heavily on studies looking at the effects of macro-debris on various sectors, given the paucity of knowledge of direct economic effects of microplastics. Social aspects are focused around factors influencing long-term behaviour change, including risk perceptions, perceived responsibility and the influence of demographics. Good practice guidance on sampling and analysis at sea, in sediments and in biological samples are summarized. The section on initial risk assessment framework describes some basic principles about risk, likelihood and consequences.

Gilman et al. (2016). Abandoned, lost or otherwise discarded gillnets and trammel nets, E. Gilman, F. Chopin, P. Suuronen, and B. Kuemlangan, FAO 600, UNEP, 96 pp.

http://www.fao.org/3/a-i5051e.pdf

(Last accessed 13 June 2019)

The ecological and socio-economic problems caused by abandoned, lost and discarded fishing gear (ALDFG) are increasingly of concern. Used primarily by coastal, artisanal, small-scale fisheries worldwide, marine gillnets and trammel nets, which have relatively high ghost fishing potential, account for about one-fifth of global marine fisheries landings. FAO and the GPA/GPML7UNEP, commissioned this study to identify best practices to estimate ghost fishing mortality rates and levels, priority research needs, and the status of international monitoring and management of ALDFG and ghost fishing by marine gillnet and trammel net fisheries. Recommendations to improve estimates of regional and global rates and levels of ghost fishing from ALDFG from marine gillnet and trammel net fisheries were made. An assessment was made and opportunities were identified to improve intergovernmental organizations' data collection protocols and management measures to prevent and remediate ALDFG and ghost fishing by marine gillnets and trammel nets.

Sustainable Development Goals:

https://www.un.org/sustainabledevelopment/sustainable-development-goals/

(Last accessed 13 June 2019)

17 Goals to Transform our World. The Sustainable Development Goals are a call for action by all countries – poor, rich and middle-income – to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection. Goal 14: Conserve and sustainably use the oceans, seas and marine resources. The world's oceans – their temperature, chemistry, currents and life – drive global systems that make the Earth habitable for humankind. Our rainwater, drinking water, weather, climate, coastlines, much of our food, and even the oxygen in the air we breathe, are all ultimately provided and regulated by the sea. Throughout history, oceans and seas have been vital conduits for trade and transportation. Careful management of this essential global resource is a key feature of a sustainable future. However, at the current time, there is a continuous deterioration of coastal waters owing to pollution and ocean acidification is having an adversarial effect on the functioning of ecosystems and biodiversity. This is also negatively impacting small scale fisheries. Marine protected areas need to be effectively managed and well-resourced and regulations need to be put in place to reduce overfishing, marine pollution and ocean acidification. **Goal 14.1:** By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution. Indicator 14.1.1: Index of coastal eutrophication and floating plastic debris density.

UNEA 4 (2019): Ministerial declaration of the United Nations Environment Assembly at its fourth session**,** UNEP/EA.4/HLS.1, 3 pp.

http://wedocs.unep.org/bitstream/handle/20.500.11822/27925/K1901029%20-%20UNEP-EA.4-HLS.1%20-%20Advance.pdf?sequence=4&isAllowed=y

(Last accessed 13 June 2019)

Innovative solutions for environmental challenges and sustainable consumption and production: 5. We, the world's ministers for the environment, are determined to ambitiously scale up our efforts to overcome common environmental challenges, including health-related challenges, in a balanced and integrated manner through identifying and developing innovative solutions by fostering sustainable

and efficient resource management; promoting the use and sharing of environmental data; and engaging civil society, citizens, indigenous peoples and local communities, the private sector, academia and all other relevant stakeholders as appropriate; and we therefore decide, taking into account our national circumstances, to take the following actions: (i) We will improve national environmental monitoring systems and technologies, including for air, water and soil quality, biodiversity, deforestation, marine litter, and chemicals and waste, and we encourage the development of national environmental data management capacities; (l) We will address the damage to our ecosystems caused by the unsustainable use and disposal of plastic products, including by significantly reducing the manufacturing and use of single-use plastic products by 2030, and we will work with the private sector to find affordable and environmentally friendly alternatives.

UNEA 4 (2019): GEO 6 Key Messages (2019), UNEP/EA.4/INF.18, 4 pp.

https://wedocs.unep.org/bitstream/handle/20.500.11822/27692/GEO6_Key_Messages.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

Key message no. 8: Marine plastic litter, including microplastics, occurs in all levels of the marine ecosystem and also shows up in fisheries and shellfish at alarming levels and frequency. The adverse impact of marine microplastic on the marine system is unknown with potential health impacts through the consumption of fish and marine products. More research on the magnitude of the problem is still needed.

UNEA 4 (2019): Resolution: Marine plastic litter and microplastics, UNEP/EA.4/L.7, 4 pp.

https://papersmart.unon.org/resolution/uploads/k1900897.pdf

(Last accessed 13 June 2019)

The United Nations Environment Assembly: Noting with concern that the high and rapidly increasing levels of marine litter, including plastic litter and microplastics represent a serious environmental problem at a global scale, negatively affecting marine biodiversity, ecosystems, animal well-being, societies, livelihoods, fisheries, maritime transport, recreation and tourism, and economies; Calls upon Member States and other actors at local, national, regional and international levels, private sector, civil society, academia, and other stakeholders to address the problem of marine litter and microplastics prioritizing a whole life cycle approach and resource efficiency, building on appropriate existing initiatives and instruments, and supported by and grounded in science, international cooperation, and multi-stakeholder engagement. Quite a number of other points in this resolution are covering various aspects of marine litter, including plastic and microplastic.

UNEA 4 (2019): Addressing single-use plastic products pollution, UNEP/EA.4/L.10, 2 pp.

https://papersmart.unon.org/resolution/uploads/k1900861.pdf#overlay-context=node/271

(Last accessed 13 June 2019)

The United Nations Environment Assembly: (i) Encourages Member States to develop and implement national or regional actions, as appropriate, to address the environmental impacts of single-use

plastic products; (ii) Encourages member states to take comprehensive action, in regard to single-use plastic products, to address the waste through, where appropriate, legislation, implementation of international agreements, provision of adequate waste management infrastructure, improvement of waste management practices and support for waste minimization, and environmentally sound clean-up activities, as well as information sharing and supporting innovation; and (iii) Requests the Executive Director of the United Nations Environment Programme, in partnership with other UN agencies, funds and programmes, to: (a) Support Member States, upon their request, in the development and implementation of national or regional action plans to address the environmental impacts of single-use plastic products; and (b) Facilitate and/or coordinate technical and policy support to governments, especially of developing countries that so request, the scientific community, non-governmental organizations, the private sector and other stakeholders, regarding the environmental impact of single-use plastic products and the promotion of innovative and environmentally friendly solutions for their replacement, taking into account their full environmental impact.

UNEA 4 (2019): Progress in the work of the ad hoc open-ended expert group on marine litter and microplastics established by resolution 3/7. Report of the Executive Director, UNEP/EA.4/12, 4 pp.

https://undocs.org/UNEP/EA.4/12

(Last accessed 13 June 2019)

The experts of the ad hoc open-ended expert group on marine litter and microplastics established by the UNEA 3, 2017, pursuant to its resolution 3/7, met in Nairobi in May 2018 and in Geneva in December 2018 to further examine the barriers to and options for combating marine plastic litter and microplastics from all sources, especially land-based sources, and to provide options for continued work to the UNEA 4. The background information document for both meetings entitled “Combating marine plastic litter and microplastics: an assessment of the effectiveness of relevant international, regional and subregional governance strategies and approaches –a summary for policymakers” (UNEP/AHEG/2018/1/INF/3) assesses the effectiveness of the current legal and policy framework for combating marine litter and microplastics. It also identifies gaps in that framework and options for addressing them. There is a need to eliminate marine litter and microplastics from land-and sea-based sources through a holistic and evidence-based approach considering the full life-cycle to move to resource-efficient and circular management of plastic, avoiding leakage. The overall approach should be comprehensive and holistic, transparent and evidence-based. It should incorporate sea-based and land-based sources, the circular economy perspective and the full-life-cycle approach. It should target the elimination and prevention of plastic waste and marine litter, and should include immediate as well as sustained, long-term action. It should be supported by and grounded in a science-policy interface; international cooperation; multi-stakeholder engagement; and the realities of differences in regional and local contexts and (technical/financial) capacities.

UNEA (2018), First meeting of the Ad hoc open-ended expert group on marine litter and microplastics: Combating marine plastic litter and microplastics: an assessment of the effectiveness of relevant international, regional and subregional governance strategies and approaches - A summary for policymakers, UNEP/AHEG/2018/1/INF/3, 21 pp.

https://papersmart.unon.org/resolution/uploads/unep_aheg_2018_inf3_summary_assessment_en_rev.pdf

(Last accessed 13 June 2019)

This summary provides an overview of the key findings of the assessment “Combating marine plastic litter and microplastics: An assessment of the effectiveness of relevant international, regional and subregional governance strategies and approaches.” This assessment was developed in response to the resolution on Marine Plastic Litter and Microplastic adopted by the UNEA 2 and seeks to outline gaps and propose options for addressing these gaps for consideration of the UNEA 3. The assessments reviewed 18 international instruments as well as 36 regional instruments. The assessment identified existing gaps and concluded that current governance strategies and approaches provide a fragmented approach that does not adequately address marine plastic litter and microplastics. When looking forward, a progressive holistic approach is now urgently needed. Governance must, inter alia, reduce the risk of plastic becoming marine plastic litter and microplastic by factoring in production forecasts, setting global standards for design, and provide security for end-markets. This assessment has mapped the current governance strategies and approaches at the international, regional and sub-regional levels and outlined progress and efforts under a number of instruments. These efforts will provide some degree of progress, but combined may not reach the desired outcomes at a global level of protecting the environment, human health and food security. A long-term and holistic approach will begin with the strengthening of current efforts and focusing on each aspect of the lifecycle of plastics. Voluntary measures can provide a strong foundation for a new global architecture that combines voluntary, self-regulatory and binding measures. The United Nations Environment Assembly may consider possible policy options presented in this study to accelerate global efforts to address marine litter. The right to a healthy environment for current and future generations requires a shift in policy direction if the current flow of plastic litter and microplastics into the environment is to be checked.

UNEA 3 (2017): Resolution 3/7: Marine litter and microplastics, UNEP/EA.3/Res.7, 4 pp.

https://papersmart.unon.org/resolution/uploads/k1800210.english.pdf

(Last accessed 13 June 2019)

This resolution, amongst others: Stresses the importance of long-term elimination of discharge of litter and microplastics to the oceans and of avoiding detriment to marine ecosystems and the human activities dependent on them from marine litter and microplastics; Urges all actors to step up actions to “by 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution”; Encourages all member States, based on best available knowledge of sources and levels of marine litter and microplastics in the environment, to prioritize policies and measures at the appropriate scale to avoid marine litter and microplastics from entering the marine environment; Also encourages all member States and invites other actors, taking into account national conditions: To fully implement the recommendations and actions set out in its resolutions 1/6 and 2/11, as relevant, and emphasizes that those resolutions have important elements and guidance that are not repeated in the present resolution; To develop and implement action plans for preventing marine litter and the discharge of microplastics; To include marine litter and microplastics in local, national and regional waste management plans and in wastewater treatment where appropriate; To develop integrated and source-to-sea approaches to combat marine litter and microplastics from all sources, taking into account that plastic litter and microplastics are transported to the oceans from land-based sources by rivers and run-off or wind from land and that plastic litter is an important source of microplastics, and include the land/sea and freshwater/sea interface in action plans for preventing marine litter, including microplastics.

UNEA 2 (2016): Resolution 2/11. Marine plastic litter and microplastics, UNEP/EA.2/Res.11

http://wedocs.unep.org/bitstream/handle/20.500.11822/11186/K1607228_UNEPEA2_RES11E.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

This Resolution: (i) Recognizes that the presence of plastic litter and microplastics in the marine environment is a rapidly increasing serious issue of global concern that needs an urgent global response taking into account a product life-cycle approach; (ii) Stresses that prevention and environmentally sound management of waste are keys to long-term success in combating marine pollution, including marine plastic debris (MPD) and microplastics; (iii) Recognizes that education, capacity-building, knowledge transfer and awareness-raising regarding sources and negative effects of are crucial; (iv) Requests the ED, within available resources, to assist Member States, in the development and implementation of national or regional measures and action plans; and recognizes that targeted measures in regions that are the largest sources of ML are especially important for the global reduction of MPD and microplastics; (v) Recognizes the need to identify transport and distribution pathways and hotspots of ML, to cooperate regionally and internationally to clean up such hotspots; (vi) Encourages Governments at all levels to further develop partnerships with industry and civil society and establish public-private partnerships, including with regard to environmentally friendly alternatives to plastic packaging and deposit refund systems; (vii) Recognizes that Governments need to further identify the most significant sources, as well as important and cost-effective preventive measures at the national and regional levels; invites Governments to undertake such prioritized measures nationally and through regional and international cooperation and in cooperation with industry, as appropriate, and to share their experiences; (viii) Encourages product manufacturers and others to consider the life cycle environmental impacts of products containing microbeads and compostable polymers; and (ix) Invites those in a position to do so to provide financial and other support for follow-up of this resolution.

UNEA 1 (2014): Resolution 1/6: Marine plastic debris and microplastic, Resolutions and decisions adopted by UNEA 1, 40 pp.

http://wedocs.unep.org/bitstream/handle/20.500.11822/17285/K1402364.pdf?sequence=3&isAllowed=y

(Last accessed 13 June 2019)

This resolution: (i) Notes with concern the serious impact which marine litter, including plastics stemming from land and sea-based sources, can have on the marine environment, marine ecosystem services, marine natural resources, fisheries, tourism and the economy, as well as the potential risks to human health; (ii) Recognizes that plastics, including microplastics, in the marine environment are a rapidly increasing problem due to their large and still increasing use combined with the inadequate management and disposal of plastic waste, and because plastic debris in the marine environment is steadily fragmenting into secondary microplastics; (iii) Also recognizes the need for more knowledge and research on the source and fate of microplastics and their impact on biodiversity, marine ecosystems and human health, noting recent knowledge that such particles can be ingested by biota and could be transferred to higher levels in the marine food chain, causing adverse effects; (iv) Requests the Executive Director to support countries, upon their request, in the development and implementation of national or regional action plans to reduce marine litter; and (v) Encourages Governments to take comprehensive action to address the marine plastic debris and microplastic issue through, where appropriate, legislation, enforcement of international agreements, provision of adequate reception facilities for ship-generated wastes, improvement of waste management practices

and support for beach clean-up activities, as well as information, education and public awareness programmes.

Global Partnership on Marine Litter (GPML) (2012)

https://www.unenvironment.org/explore-topics/oceans-seas/what-we-do/addressing-land-based-pollution/global-partnership-marine

(Last accessed 13 June 2019)

The Global Partnership on Marine Litter (GPML), launched in 2012 at Rio + 20 in Brazil, is a global partnership gathering international agencies, Governments, NGOs, academia, private sector, civil society and individuals. Specific objectives of the GPML are: (i) To reduce the impacts of marine litter worldwide on economies, ecosystem, animal welfare and human health; (ii) To enhance international cooperation and coordination through the promotion and implementation of the Honolulu Strategy and the Honolulu Commitment; (iii) To promote knowledge management, information sharing and monitoring of progress on the implementation of the Honolulu Strategy; (iv) To promote resource efficiency and economic development through waste prevention e.g. 4Rs (reduce, re-use, recycle and re-design) and by recovering valuable material and/or energy from waste; (v) To increase awareness on sources of marine litter, their fate and impacts; (vi) To assess emerging issues related to the fate and potential influence of marine litter, including (micro) plastics uptake in the food web and associated transfer of pollutants and impacts on the conservation and welfare of marine fauna.

UN (2016): Marine Debris, Chapter 25 in First Global Integrated Marine Assessment (First World Ocean Assessment), J. Wang, K. Kiho, D. Ofiara, A. Bera, R. Lohmann, and M. C. Baker, 34 pp.

http://www.un.org/depts/los/global_reporting/WOA_RPROC/Chapter_25.pdf

(Last accessed 13 June 2019)

The content of the Chapter 25 is: 1. Overview (Definition of marine debris; Types of marine debris; and Sources of marine debris); 2. Environmental impacts (Entanglement and ingestion; Transport of chemicals; Habitat destruction; Introduction and spread of alien species; Socioeconomic impacts; Impacts on beach communities, Beach use, and Coastal tourism; Impacts on commercial fishing; and Impacts from invasive species); 3. Assessment of the status of marine litter (Floating marine debris; Beach debris; and Benthic marine debris); 4. Prevention and clean-up of marine debris; and 5. Gaps, needs, priorities.

NOWPAP MERRAC( 2008): Regional Report on Sea-based Marine Litter in the NOWPAP Region, 34 pp.

http://www.globalgarbage.org/NOWPAP/regional.pdf

(Last accessed 13 June 2019)

Marine Environmental Emergency Preparedness and Response Regional Activity Centre (MERRAC), one of four Regional Activity Centres of Northwest Pacific Action Plan (NOWPAP), has been designated to implement activities related to sea-based marine litter. The 9th MERRAC Focal Points Meeting decided to develop the National Reports on sea-based marine litter in NOWPAP region for understanding general situation (5-7 June 2006). Based upon the National Reports, MERRAC has

developed a regional report titled “Regional Report on Sea-based Marine Litter in the NOWPAP Region,” as background information for further works on sea-based marine litter issue. This report aims to provide such general information on sea-based marine litter in the NOWPAP region. Main chapters of the document are: 1. Marine Litter from Sea-based Sources in the NOWPAP Region; 2. Impacts of Sea-based Marine Litter; 3. Law and Policies to Manage Sea-based Marine Litter; 4. Port Reception and Treatment Facilities; 5. Outreach Programmes; and 6. Recommendations.

Ellen MacArthur Foundation (2016): The New Plastic Economy–Catalysing Action, 68 pp.

https://www.ellenmacarthurfoundation.org/assets/downloads/New-Plastics-Economy_Catalysing-Action_13-1-17.pdf

(Last accessed 13 June 2019)

The New Plastics Economy presents a bold and much-needed vision for a plastics system that works. It provides a new way of thinking about plastics as an effective global material flow, aligned with the principles of the circular economy. It aims to harness the benefits of plastics while addressing its drawbacks, delivering drastically better system-wide economic and environmental outcomes. This vision, laid out initially in the 2016 report, The New Plastics Economy – Rethinking the future of plastics, has inspired businesses, policy-makers and citizens worldwide. It forms the basis for the ambitious New Plastics Economy initiative, launched in May 2016 and supported by dozens of leading businesses, philanthropists, cities and governments. This report is the first to provide a concrete set of actions to drive the transition, based on three strategies differentiated by market segment. Thorough analytical work, including a detailed segment-by-segment analysis of the plastic packaging market, numerous interactions with players across the plastics value chain and discussions with experts revealed that a programme of concerted action across three key areas could trigger an accelerated transition towards the New Plastics Economy. The three key transition strategies and related priority action areas are: 1. Without fundamental redesign and innovation, about 30% of plastic packaging will never be reused or recycled; 2. For at least 20% of plastic packaging, reuse provides an economically attractive opportunity; and 3. With concerted efforts on design and after-use systems, recycling would be economically attractive for the remaining 50% of plastic packaging.

Derraik, J.G.B.: Marine Pollution Bulleting (2002), Vol. 44, pp. 842-852,: The pollution of the marine environment by plastic debris: a review

https://www.sciencedirect.com/science/article/pii/S0025326X02002205

(Last accessed 13 June 2019)

The deleterious effects of plastic debris on the marine environment were reviewed by bringing together most of the literature published so far on the topic. A large number of marine species is known to be harmed and/or killed by plastic debris, which could jeopardize their survival, especially since many are already endangered by other forms of anthropogenic activities. Marine animals are mostly affected through entanglement in and ingestion of plastic litter. Other less known threats include the use of plastic debris by “invader” species and the absorption of polychlorinated biphenyls from ingested plastics. Less conspicuous forms, such as plastic pellets and “scrubbers” are also hazardous. To address the problem of plastic debris in the oceans is a difficult task, and a variety of approaches are urgently required. Some of the ways to mitigate the problem are discussed.

Declaring war on plastic to save our oceans: EIB, KfW and AFD launch a 2-billion euros initiative, 2018

http://www.afd.fr/en/declaring-war-plastic-save-our-oceans-eib-kfw-and-afd-launch-2-billion-euros-initiative

(Last accessed 13 June 2019)

Ahead of the IMF/World Bank Group meetings, KfW Group on behalf of the German Federal Government, the European Investment Bank (EIB) and the Agence Française de Developpement (AFD) launched the Clean Oceans Initiative to support the development and implementation of sustainable projects that will reduce pollution in the world's oceans over the next five years. This partnership will provide EUR 2-billion long-term financing for projects aiming at reducing marine litter, especially plastics, as well as untreated wastewater discharge, with a view to crowding-in private sector investment. The Clean Oceans Initiative will notably target the following sectors: Collection, pre-treatment and recycling of waste and particularly plastics collected on land, from rivers and from the sea; Improved waste management in ports and harbours to support the reduction of marine littering from ships and transport on water; Support to plastic prevention measures, market development for recycling plastics and other materials and public awareness building; and Support to the implementation of wastewater treatment plants that enable reduction in the discharge of plastics and other pollutants to rivers and oceans. Over three billion people depend on marine and coastal biodiversity for their livelihoods and the market value of marine and coastal resources and industries is estimated at EUR 2 600 billion per year, so about 5 per cent of global GDP. Maintaining clean oceans is therefore crucial for sustainable development and poverty reduction by increasing people's income and improving health. An estimated 8 million tons of plastic waste and microplastics, is discharged into the world's oceans every year, threatening marine ecosystems, people and communities that depend on clean oceans. If we continue along this path, it is estimated that by 2050 there will be more plastics than fish in the oceans by weight.

Economic Times (2017): Indian Government makes use of plastic waste in road construction mandatory, Rajat Arora

https://economictimes.indiatimes.com/news/economy/infrastructure/government-makes-use-of-plastic-waste-in-road-construction-mandatory/articleshow/49919167.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

(Last accessed 13 June 2019)

The Indian government has made it mandatory for road developers to use waste plastic along with bituminous mixes for road construction to overcome the growing problem of disposal of plastic waste in India's urban centres. Road developers will now have to use waste plastic along with hot mixes for constructing bitumen roads within 50 km of periphery of any city that has a population of over half a million. India generates 5.6 million tonnes of plastic waste annually. As per a study by the Central Pollution Control Board, 60 large cities in India generate over 15,000 tonnes of plastic waste every day. Delhi generates close to 7,000 tonnes of waste every day, of which over 10 per cent is pure plastic but cannot be disposed even by waste-to-energy plants because of environmental reasons. In an observation earlier this year, the Supreme Court had said that the country was sitting on a plastic time bomb. Plastic will add to the longevity of roads by making them water resistant and also increasing the resistance of roads to change in weather. The ministry will also encourage state governments and rural development ministry to make use of plastic waste mandatory in construction of roads.

Zhenpeng Ge et al. (2016): Semi-automatic recognition of marine debris on beaches, Zhenpeng Ge, Huahong Shi, Xuefei Mei, Zhijun Dai, and Daoji Li, Sci Rep.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4860581/

(Last accessed 13 June 2019)

An increasing amount of anthropogenic marine debris is pervading the earth's environmental systems, resulting in an enormous threat to living organisms. Additionally, the large amount of marine debris around the world has been investigated mostly through tedious manual methods. Therefore, we propose the use of a new technique, light detection and ranging (LIDAR), for the semi-automatic recognition of marine debris on a beach because of its substantially more efficient role in comparison with other more laborious methods. Our results revealed that LIDAR should be used for the classification of marine debris into plastic, paper, cloth and metal. Additionally, we reconstructed a 3-dimensional model of different types of debris on a beach with a high validity of debris revivification using LIDAR-based individual separation. These findings demonstrate that the availability of this new technique enables detailed observations to be made of debris on a large beach that was previously not possible. It is strongly suggested that LIDAR could be implemented as an appropriate monitoring tool for marine debris by global researchers and governments.

MARPOL Annex V

http://www.imo.org/en/OurWork/environment/pollutionprevention/garbage/Pages/Default.aspx

(Last accessed 13 June 2019)

Persuading people not to use the oceans as a rubbish tip is a matter of education - the old idea that the sea can cope with anything still prevails to some extent but it also involves much more vigorous enforcement of regulations such as MARPOL Annex V. MARPOL Annex V seeks to eliminate and reduce the amount of garbage being discharged into the sea from ships. Unless expressly provided otherwise, Annex V applies to all ships, which means all ships of any type whatsoever operating in the marine environment, from merchant ships to fixed or floating platforms to non-commercial ships like pleasure crafts and yachts. Although the Annex is optional, it did receive a sufficient number of ratifications to enable entry into force on 31 December 1988. Today, more than 150 Countries have signed up to MARPOL Annex V. MARPOL Annex V generally prohibits the discharge of all garbage into the sea, except as provided otherwise in regulations 4, 5, and 6 of the Annex, which are related to food waste, cargo residues, cleaning agents and additives and animal carcasses. Under MARPOL Annex V, garbage includes all kinds of food, domestic and operational waste, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically. To assist Governments, ships and port operators in implementing relevant requirements under MAPROL Annex V, MEPC has developed and adopted the Guidelines for the implementation of MARPOL Annex V. Issues covered with MARPOL Annex V are: (a) Port reception facilities; b) Special areas; (c) Port state control; (d) Placard; (e) Garbage management plan; (f) Garbage Record Book; (g) Cargo residues; (h) Shipboard incinerator; (i) Verification of compliance; and (j) Polar Regions.

Ocean Conservancy (2017): Stemming the tide: Land-based strategies for a plastic-free ocean, McKinsey Center for Business and Environment, 48 pp.

https://oceanconservancy.org/wp-content/uploads/2017/04/full-report-stemming-the.pdf

(Last accessed 13 June 2019)

Because of its longevity, ubiquity, and sheer volume, plastic debris is now emerging as a new, truly global challenge. Growth in the global use of plastic-intensive consumer goods is projected to increase significantly over the next ten years, especially in markets where waste-management systems are only just emerging. We also now have research to suggest that the majority of plastic enters the ocean from a small geographic area, and that over half comes from just five rapidly growing economies—China, Indonesia, the Philippines, Thailand, and Vietnam. With a focus on where quick action would have the greatest impact, this report suggests that coordinated action in just these five countries could significantly reduce the global leakage of plastic waste into the ocean by 2025. Specifically, interventions in these five countries could reduce global plastic-waste leakage by approximately 45 % over the next ten years. The first step should focus on the five countries that together account for between 55 and 60 %t of the total plastic-waste leakage; this report describes an integrated set of measures that together could reduce leakage in these five countries by 65 % and reduce total global leakage by approximately 45 % by 2025. This is the prerequisite for successfully ending plastic-waste leakage entirely by 2035. For each lever, the report specifies costs and plastic-waste-leakage reduction potential. Total costs of implementing these levers could be contained at an estimated $5 billion a year—an investment with significant returns to the entire economy. That amount could largely be met through typical project-financing mechanisms involving the public, private, and multilateral sectors. Of the leakage that comes from land-based sources, we found that 75 % comes from uncollected waste, while the remaining 25 % leaks from within the waste-management system itself. In low-collection countries, the priority should be to push collection levels to 80 % over the next decade (the current average in these countries is about half that).

Ocean Conservancy (2017): The Next Wave: Investment Strategies for Plastic Free Seas, 97 pp.

https://oceanconservancy.org/wp-content/uploads/2017/05/the-next-wave.pdf

(Last accessed 13 June 2019)

This document, prepared by Ocean Conservancy and Trash Free Seas Alliance® is an excellent document providing outstanding analysis and proposals for solution. Ocean Conservancy had over 30 years brought together over 11 million volunteers from 153 countries in annual International Coastal Cleanup campaigns, picking up 100 million kg of trash from the world's beaches and waterways. But with 8 million metric tons of plastic trash entering oceans every year and prospect of 250 million metric tons of plastic in the oceans by 2025, cleanup alone will not be enough. Plastic waste's leakage must be tackled from all points in the pollution pathway. The goal suggested by the Trash Free Seas Alliance® is to sustainably reduce the amount of plastic waste leaking into the ocean annually by 50% by 2025. Although not easy, this goal is attainable if all stakeholders - government, development finance, the private sector, grant funders, private investors, academics, and civil society and community organizations work together using all available means.

Ocean Conservancy (2017): Together for our Ocean, International Coastal Cleanup for 2016, 28 pp.

https://oceanconservancy.org/wp-content/uploads/2017/06/International-Coastal-Cleanup_2017-Report.pdf

(Last accessed 13 June 2019)

In partnership with volunteer organizations and individuals around the globe, Ocean Conservancy's International Coastal Cleanup engages people to remove trash from the world's beaches and waterways, identify the sources of debris and change the behaviours that cause marine debris in the first place. In 2016 more than half a million volunteers made the International Coastal Cleanup a success. From 112 countries around the world, volunteers, site captains, state and county coordinators worked tirelessly to collect over 18 million pounds of trash. It was covered enough miles of coastline to walk around the moon twice. It was collected enough balloons to lift a 2,200 lb. walrus and enough fishing line to reach the bottom of the Mariana Trench – the ocean's deepest point – nine times over. It is people like volunteers that continue to inspire optimism for the future of our ocean. For more than 30 years, volunteers across the world have come together to become a global force for good. Together, we can achieve a positive future for our ocean In the 2016 Ocean Conservancy Campaign took part 504,583 persons; it was collected 8,346,055 kg of trash, it was covered 24,136 km, it was collected 13,840,398 items, 2,825 divers took part in the campaign, covering 236 miles of waterways and collected 41,141 pounds of trash (46,844 items). Main items collected were 1,863,838 cigarette butts, 1,578,834 plastic beverage bottles, 822,227 plastic bottle cups, 762,353 food wrappers, and 520,900 plastic grocery bags. Of the items collected were: 1,212,602 plastic pieces, 1.066,644 foam pieces, and 496,640 glass pieces. From Caspian countries Azerbaijan and Russia participated.

The Guardian (2017): A million bottles a minute: world's plastic binge 'as dangerous as climate change

https://www.theguardian.com/environment/2017/jun/28/a-million-a-minute-worlds-plastic-bottle-binge-as-dangerous-as-climate-change?utm_campaign=Facebook&utm_source=Link&utm_medium=AMS

(Last accessed 13 June 2019)

Annual consumption of plastic bottles is set to top half a trillion by 2021, far outstripping recycling efforts and jeopardising oceans, coastlines and other environments. A million plastic bottles are bought around the world every minute and the number will jump another 20% by 2021, creating an environmental crisis some campaigners predict will be as serious as climate change. The demand, equivalent to about 20,000 bottles being bought every second, is driven by an apparently insatiable desire for bottled water and the spread of a western, urbanised "on the go" culture to China and the Asia Pacific region. Fewer than half of the bottles bought in 2016 were collected for recycling and just 7% of those collected were turned into new bottles. Instead most plastic bottles produced end up in landfill or in the ocean. Scientists at Ghent University in Belgium recently calculated people who eat seafood ingest up to 11,000 tiny pieces of plastic every year. Shifting to a real circular economy for plastics is a massive opportunity to close the loop, save billions of dollars, and decouple plastics production from fossil fuel consumption. The amount of plastic produced in a year is roughly the same as the entire weight of humanity. It's clear that the soft drinks industry needs to reduce its plastic footprint.

BRAND AUDIT TOOL KIT

https://www.breakfreefromplastic.org/brandaudittoolkit/

(Last accessed 13 June 2019)

*Break Free From Plastic. The global movement working to stop plastic pollution for good is taking coastal cleanups a step further – by naming the brands most responsible for plastic pollution found on*

*our beaches and beyond.* Corporations like Coca-Cola, PepsiCo, Nestle, Unilever, Starbucks, Procter & Gamble, and McDonald's have a HUGE role to play when it comes to plastic pollution. We are sold coffee, soda, chips, candy, sandwiches, shampoo, soap, and even fruits and vegetables packaged in throwaway plastic. It's time for these corporations to invest in alternatives and phase out single-use plastic, don't you agree? Here's where we need YOUR help! By categorizing and counting branded plastic packaging during your cleanup efforts, you will help us identify the corporations most responsible. Steps to Conduct a Brand Audit: 1. First, it is important to make a waste deposit plan. Think ahead on how to properly dispose all waste from your clean-up activity. Note: this is not limited to plastics alone; 2. In any clean-up activity, it is important to have the proper gear to do your work and to protect yourself and your volunteers; 3. After you have identified the location of your clean-up, specify and measure the size of the designated clean-up area; 4. Make a plan for recording your data; 5. Train your volunteers on how to record the data; 6. Clean up all the waste in your designated site; 7. Take photos of the piles of plastic from each manufacturer and post it to social media; 8. Clean the audit area carefully and properly, remembering to leave the site cleaner than before you started; 9. In order for us to use your awesome information, **enter your data,** upload your photos along with a scanned copy/screenshot/excel file of the actual data form and submit them via our form; and 10. If you have the resources to do so, box up the branded items and send it back to the manufacturer. Include a letter to the company describing the purpose of your brand audit and urge them to **#breakfreefromplastic**!

UN General Assembly (2012): Resolutions adopted by the General Assembly on 27 July 2012, The future we want, A/RES/66/288, 53 pp.

http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/66/288&Lang=E

(Last accessed 13 June 2019)

The General Assembly endorses the outcome document of the United Nations Conference on Sustainable Development, entitled "The future we want".

The future we want. We, the Heads of State and Government and high-level representatives, having met at Rio de Janeiro, Brazil, from 20 to 22 June 2012, with the full participation of civil society, renew our commitment to sustainable development and to ensuring the promotion of an economically, socially and environmentally sustainable future for our planet and for present and future generations. V. Framework for action and follow-up. A. Thematic areas and cross-sectoral issues. Oceans and seas. 163. We note with concern that the health of oceans and marine biodiversity are negatively affected by marine pollution, including marine debris, especially plastic, persistent organic pollutants, heavy metals and nitrogen-based compounds, from a number of marine and land-based sources, including shipping and land run-off. We commit to take action to reduce the incidence and impacts of such pollution on marine ecosystems, including through the effective implementation of relevant conventions adopted in the framework of the International Maritime Organization, and the follow-up of relevant initiatives such as the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, as well as the adoption of coordinated strategies to this end. We further commit to take action to, by 2025, based on collected scientific data, achieve significant reductions in marine debris to prevent harm to the coastal and marine environment.

5th International Marine Debris Conference (2011), Honolulu, Hawaii,

https://5imdc.wordpress.com/about/commitment/

(Last accessed 13 June 2019)

The Honolulu Commitment: 1. Make choices that reduce waste in order to halt and reverse the occurrence of marine debris; 2. Encourage all citizens, industry and governments to take responsibility for their contribution and find solutions to the marine debris problem; 3. Share openly and freely technical, legal, policy, community-based and economic / market-based solutions that will help prevent, reduce and manage marine debris; 4. Advocate mechanisms that emphasise the prevention or minimisation of waste; 5. Facilitate initiatives that turn waste into a resource in an environmentally sustainable manner; 6. Develop global, regional, national and local targets to reduce marine debris; 7. Improve global knowledge, understanding and monitoring of the scale, nature, source and impact of marine debris, and raise awareness of its impact on public health, biodiversity and economic development; 8. Collaborate with global, regional and sub-regional organisations, to enhance the effectiveness of multi-lateral initiatives aimed at preventing, reducing and managing marine debris; 9. Encourage financial support for global, regional, national and local actions that contribute to the implementation of the Honolulu Strategy; 10. Encourage relevant intergovernmental fora, including those at global and regional scales, to express support for the Honolulu Commitment and encourage governments to take action consistent with the objectives and strategic activities outlined in the Honolulu Strategy; 11. Participate in a global network of stakeholders committed to understanding, preventing, reducing and managing marine debris in an environmentally sustainable manner; and 12. Contribute to the development and successful implementation of the Honolulu Strategy – a framework for the prevention, reduction and management of marine debris – and its periodic review.

G20 Action Plan on Marine Litter (2017)

http://www.g20.utoronto.ca/2017/2017-g20-marine-litter.html

(Last accessed 13 June 2019)

The G20 recognizes the urgent need for action to prevent and reduce marine litter in order to preserve human health and marine and coastal ecosystems, and mitigate marine litter's economic costs and impacts. The G20 stresses the direct relationship between the challenge of marine litter, environment, human health, economic development, social well-being, biodiversity and food security. Realizing the global nature of the challenge of marine litter, the G20 will work together to promote and initiate measures and actions at local, national, and regional levels to prevent and reduce marine litter. The G20 recognizes that the lack of effective solid waste management, wastewater treatment and storm water systems, and unsustainable production and consumption patterns, are primary land-based sources and pathways of marine litter. A lack of certainty in scientific evidence can no longer be accepted as an excuse for non-action. The G20 will take action to prevent and reduce marine litter of all kinds, including from single-use plastics and micro-plastics. The G20 reiterates its commitment to prevent and substantially reduce marine litter and its impacts by 2025 in support of the 2030 Agenda for Sustainable Development and its Sustainable Development Goals and targets related to marine pollution, waste management, waste water treatment and sustainable consumption and production by putting into practice the 'G20 Operational Framework' and the voluntary Global Network of the Committed (GNC).

FOUR SUCCESSFUL REGIONAL MARINE LITTER ACTION PLANS

This chapter contains references, links and summaries of four Regional Marine Litter Action Plans of Northwest Pacific (2008), Mediterranean (2013), Northeast Atlantic (2014) and Baltic (2015).

NOWPAP (2008): Regional Action Plan on Marine Litter, Northwest Pacific Action Plan

http://wedocs.unep.org/bitstream/handle/20.500.11822/26352/NOWPAP_RAPMALI.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

NOWPAP member states are Japan; People's Republic of China; Republic of Korea; and Russian Federation. The goal of the NOWPAP Regional Action Plan on Marine Litter (RAP MALI) is to improve the quality of the marine and coastal environment of the Northwest Pacific region by addressing the marine litter problem through cooperation and partnerships. The following three objectives are 1. To prevent the marine litter input into the marine and coastal environment; 2. To monitor the quantities and distribution of marine litter; and 3. To remove existing litter that was already discarded, disposed of and abandoned. The NOWPAP RAP MALI is a non-legally binding action plan for the NOWPAP member states. One of critical factors for success of NOWPAP RAP MALI is a combination of national and regional actions. RAP MALI WORK PLAN contains 3 Components (which are actually three Objectives mentioned above). Each Component contains Actions and each Action contains Activities. In total there are 3 Components, 13 Actions and 33 Activities. Each activity provides information on the deadline and participants. The Components and Actions are: Component 1. Prevention of the marine litter input to the marine and coastal environment (Actions: 1.1. Legal and administrative instruments; 1.2. Wise management of marine litter; 1.3. Information, education, outreach and public awareness; 1.4. Cooperation with civil society, and 1.5. Research activities); Component 2. Monitoring of marine litter quantities and distribution (Actions: 2.1. Marine litter monitoring using NOWPAP guidelines; 2.2. Maintenance of marine litter database; 2.3. Compilation of data from national monitoring programmes; 2.4. Regular assessments of current situation and trends in marine litter quantities and distribution; and 2.5. Collection of marine litter-related research outcomes); and Component 3. Removing existing marine litter and its disposal (Actions: 3.1. Beach cleanup campaigns; 3.2. Removal of existing marine litter; and 3.3. Research activities related to marine litter.

Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol (2013), 18th Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols, UNEP(DEPI)/MED IG.21/9Annex II–Thematic Decisions, Decision IG.21/7l, pp. 143-173.

http://ec.europa.eu/environment/marine/good-environmental-status/descriptor-10/pdf/decision_21_7_marine_litter_mediteranien.pdf

(Last accessed 13 June 2019)

The Contracting Parties to the Barcelona Convention are Albania, Algeria, Cyprus, Croatia, Bosnia & Herzegovina, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Morocco, Montenegro, Monaco, Slovenia, Spain, Syria, Tunisia and Turkey. The rationale for the preparation of this Regional Plan is to improve the quality of the marine and coastal environment in accordance with the provisions of the LBS Protocol and to achieve the goals set by the decisions of the 17th meeting of the Contracting Parties in 2012, Decision IG.20/4. The main objectives of the Regional Plan are to: (a) Prevent and reduce to the minimum marine litter pollution in the Mediterranean and its impact on

ecosystem services, habitats, species in particular the endangered species, public health and safety; (b) Remove to the extent possible already existent marine litter by using environmentally respectful methods; (c) Enhance knowledge on marine litter; and (d) Achieve that the management of marine litter in the Mediterranean is performed in accordance with accepted international standards and approaches as well as those of relevant regional organizations and as appropriate in harmony with programmes and measures applied in other seas. The Regional Plan covers quite a number of issues, amongst them: Integration of marine litter measures into the LBS National Action Plans (LBS NAPs); Legal and institutional aspects; Prevention of marine litter; Removing existing marine litter and its environmentally sound disposal; Assessment of marine litter in the Mediterranean; Mediterranean Marine Litter Monitoring Programme; Research topics and scientific cooperation; Specific guidelines; Technical assistance; Enhancement of public awareness and education; Major groups and stakeholder participation; Regional and international cooperation. The Regional Plan presents the Work Plan with timetable and cost for the implementation of relevant Articles of the Marine Litter Regional Plan. This Work Plan contains 44 tasks presenting for each task timetable, lead authority, verification indicator, estimated cost and financial source. Also in annexes are presented Potential research topics and Elements for national biennial reports.

OSPAR Commission (2014): Marine Litter Regional Action Plan, 18 pp.

https://www.ospar.org/documents?v=34422

(Last accessed 13 June 2019)

The OSPAR member countries (Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom) adopted in 2014 the Marine Litter Regional Action Plan. This Regional Action Plan (RAP) sets out the policy context for OSPAR's work on ML, describes the various types of actions that OSPAR will work on over the coming years and provides a timetable to guide the achievement of these actions. The RAP is organised in four sections: 1. Follows the brief introduction and sets the objectives, the geographical scope, principles and approaches that should frame implementation; 2. Presents the actions to be implemented. The actions have been grouped in four themes as follows: A. The reduction of litter from sea-based sources; B. The reduction of litter from land-based sources; C. The removal of existing litter from the marine environment; and D. Education and outreach on the topic of ML; 3. Describes the necessary monitoring and assessment; and 4. Outlines how the plan will be implemented and followed up by OSPAR. The sources of ML are diverse and ocean dynamics turn it into a transboundary issue requiring collective action. The RAP is designed as a flexible tool providing a set of actions to address ML. It contains actions requiring collective activity within the framework of the OSPAR Commission through, where applicable, OSPAR measures and/or other agreements such as guidelines. Other actions listed are those that Contracting Parties should consider in their national programmes of measures, including under the MSFD. In order to obtain reliable and comparable monitoring data within the OSPAR area to assess the state of ML in the marine environment and the effectiveness of the actions taken, it is important to coordinate monitoring programmes trans-nationally and, whenever possible, to adopt consistent methodologies to collect, record and report data.

HELCOM (2015): Regional Action Plan for Marine Litter in the Baltic Sea, 20 pp.

http://www.helcom.fi/Lists/Publications/Regional%20Action%20Plan%20for%20Marine%20Litter.pdf

(Last accessed 13 June 2019)

The HELCOM member countries (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, and Sweden) adopted in 2015 the Regional Action Plan for Marine Litter in the Baltic Sea). ML may seriously damage the environment as well as human health. The majority of litter are non-degradable items – mainly plastics. Small organisms living in the sea often mistake the tiny, possibly toxic particles of plastic litter for food and eat them. These microplastic pieces may then transfer along the food chain to other marine animals. The sources of litter in the Baltic Sea are many. Household waste – through sewage but also dumping – plays a prominent part, while shipping, fisheries and industries also have a considerable share in creation of the problem. HELCOM Regional Action Plan for Marine Litter now sets the standard for each HELCOM member country – all nine coastal states – to put the agreed commitments into action. Importantly, the action plan will make a difference only if many actors contribute to its implementation. While the major responsibility stays with the regional and upstream governments, all are invited–and needed –to cooperate with HELCOM for minimizing the effects of ML. The Structure of the Action Plan is: 1. HELCOM Recommendation 36/1: Regional Action Plan for Marine Litter; 2. Annex to the Action Plan: List of actions: a. Types of actions; b. Regional actions – HELCOM Collective Actions: i. Land-based sources of marine litter; ii. Sea-based sources of marine litter; and c. Education and outreach on marine litter; c. Voluntary national actions; i. Land-based sources of marine litter; ii. Sea-based sources of marine litter; iii. Education and outreach on marine litter. Appendix I. Reporting format in implementation of actions, Appendix II. Reporting format on the effectiveness of the implemented actions; and Appendix III. Definition of terms.

TEHRAN CONVENTION AND ITS PROTOCOLS

This chapter contains five references, links and summaries for the Tehran Convention and its Protocols.

Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention) (2003), 12 pp.

http://www.tehranconvention.org/IMG/pdf/Tehran_Convention_text_final_pdf.pdf

(Last accessed 13 June 2019)

The Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention) was adopted in November 2003 and came into force on 12th August 2006. It is the first legally binding agreement signed by all five nations surrounding the Caspian Sea, laying down the general requirements and the institutional mechanism for environmental protection in the Caspian region. The objective of the Tehran Convention is the protection of the Caspian environment from all sources of pollution including the protection, preservation, restoration and sustainable and rational use of the biological resources of the Caspian Sea. The Tehran Convention covers, amongst others: Pollution from land-based sources; Pollution from seabed activities; Pollution from vessels; Pollution from dumping; Pollution from other human activities; Prevention from introduction, control and combating of invasive alien species; Environmental emergencies; Protection, preservation, restoration and rational use of marine living resources; Coastal zone management; Caspian Sea level fluctuation; Environmental impact assessment; Co-operation between the contracting parties; Monitoring; Research and development; Exchange of and access to information; Conference of the parties; Secretariat of the convention; Adoption of protocols; and adoption of annexes and amendments.

Protocol for the Protection of the Caspian Sea against Pollution from Land-Based Sources and Activities to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Moscow Protocol), (2012), 23 pp.

http://www.tehranconvention.org/IMG/pdf/Protocol_on_Pollution_from_Land_Based_Sources_and_Activities.pdf

(Last accessed 13 June 2019)

This Protocol was adopted and signed at the fourth Meeting of the Conference of the Parties (COP4) in Moscow on December 12, 2012. The purpose of this Protocol is to prevent, control, reduce and to the maximum extent possible eliminate pollution of the marine environment from land-based sources and activities in order to achieve and maintain an environmentally sound marine environment of the Caspian Sea. The Contracting Parties shall individually or jointly take all appropriate measures in accordance with the provisions of the Convention to prevent, control, reduce and to the maximum extent possible eliminate pollution of and other adverse effects on the marine environment and coastal areas of the Caspian Sea from land-based sources and activities. In accordance with Article 3 of the Convention and pursuant to Article 1 of the present Protocol this Protocol shall apply to: (a) Emissions of polluting substances originating from land-based point and diffuse sources that have or may have an adverse effect on the marine environment and/or coastal areas of the Caspian Sea. These emissions shall include, those which reach the marine environment including brackish waters, marshes and coastal lagoons, inter alia through mouths of rivers, canals or other watercourses, groundwater flows, coastal disposals and outfalls, disposal under the seabed with access from land, or through run-off; (b) Inputs of polluting substances transported through the atmosphere into the marine environment of the Caspian Sea from land-based sources under the conditions defined in Annex III; (c) Pollution resulting from activities that affect the marine environment and/or coastal areas of the Caspian Sea, including physical alteration of the natural state of the coastline and alteration or destruction of the landscape or habitats. The Annex I of this Protocol covers the Activities and categories of substances of concern (In categories of substances, Section B, point 6 is „Marine litter (Any persistent, manufactured or processed, solid material which is discarded, disposed of, or abandoned).

**Protocol Concerning Regional Preparedness, Response and Co-operation in Combating Oil Pollution Incidents (Aktau Protocol), (2011), 9 pp.**

http://www.tehranconvention.org/IMG/pdf/Aktau_Protocol.pdf

(Last accessed 13 June 2019)

**The Protocol Concerning Regional Preparedness, Response and Co-operation in Combating Oil Pollution Incidents (Aktau Protocol)** was adopted and signed at the third Meeting of the Conference of the Parties (COP3) in Aktau, Kazakhstan on August 12, 2011 and entered into force on 25 July 2016. The objective of this Protocol is to provide regional measures for preparedness, response and co-operation for protection of the Caspian Sea from oil pollution caused by activities referred to under Articles 8 and 9 of the Convention and marine oil pollution originating from land-based sources. The area to which this Protocol shall be applied is the marine environment of the Caspian Sea, taking into account its water level fluctuations, the land affected by proximity to the sea, and marine oil pollution originating from land-based sources. This Protocol covers, amongst others: National systems and contingency plans for combating oil pollution incidents; Dissemination and exchange of information; Pollution reporting procedures; Operational measures; Oil pollution emergency plans on board ships,

Offshore units, in sea ports and at oil handling facilities; Institutional provisions; Functions of the regional mechanism.

**Protocol for the Conservation of Biological Diversity (Ashgabat Protocol) (2014), 19 pp.**

http://www.tehranconvention.org/IMG/pdf/Protocol_on_the_Conservation_of_Biological_Diversity_en.pdf

(Last accessed 13 June 2019)

**This Protocol** was adopted and signed at the fifth Meeting of the Conference of the Parties (COP5) in Ashgabat, Turkmenistan, on 30 May 2014. The objectives of this Protocol are to protect, preserve, and restore the health and integrity of the biological diversity and the ecosystem of the Caspian Sea as well as to ensure the sustainable use of biological resources and in that context: (a) To safeguard threatened species, and vulnerable ecosystems, to ensure their long–term viability and diversity; (b) To prevent decline, degradation and damage to species, habitats and ecological systems, directed by the precautionary principle; and (c) To protect and conserve those areas that best represent the high range of species, special habitats, ecological systems and natural and related cultural heritage. In accordance with Articles 3 and 15 of the Convention this Protocol shall be applied to the marine environment of the Caspian Sea taking into account its water level fluctuations and pollution from land-based sources as well as the land affected by proximity to the sea including wetlands of international significance as identified by national legislation or otherwise by the Contracting Parties. This Protocol covers, amongst others: Measures for the protection and conservation of species; Alien species; Genetically modified species; Designation of protected areas; Management of protected areas; Procedures for the establishment and listing of protected areas; Conservation of biological diversity in the framework of coastal zone management; Environmental impact assessment in the framework of conservation of biological diversity; Access to genetic resources; Access to and transfer of technology; Scientific and technical cooperation and assistance; and Institutional provisions. Annex I covers: Categories for the identification of threatened species and Annex II covers: Common criteria for inclusion in the PACS list.

**Protocol on Environmental Impact Assessment in a Transboundary Context** (2018), 15 pp.

http://www.tehranconvention.org/IMG/pdf/PROTOCOL_ON_ENVIRONMENTAL_IMPACT_ASSESSMENT_IN_A_TRANSBOUNDARY_CONTEXT_EN-2.pdf

(Last accessed 13 June 2019)

**The Protocol on Environmental Impact Assessment in a Transboundary Context** was adopted and signed at the Extraordinary Meeting of the Conference of the Parties in Moscow, on July 20, 2018. The objective of this Protocol is to implement effective and transparent EIA procedures in a transboundary context to any proposed activity which is likely to cause significant transboundary impact on the marine environment and land affected by proximity to the sea in order to prevent, reduce and control pollution of the marine environment and land affected by proximity to the sea, promote conservation of its biodiversity, and rational use of its natural resources, and protect human health. In accordance with Article 3 of the Convention this Protocol shall be applied to the marine environment of the Caspian Sea taking into account its water level fluctuations and pollution from land-based sources. Protocol covers, amongst others: Scope of application; General Provisions; Notification; Communication between concerned parties; Preparation and transmittal of draft EIA documentation; Review of EIA documentation and public consultations; Consultations between concerned parties;

Final decision on implementation of a proposed activity; Post project analysis; and Institutional provisions. Annex I covers: List of activities; Annex II covers: List of criteria to assist in determining significant transboundary impact; and Annex III covers: Minimum content of the EIA documentation.

**CASPIAN REGIONAL**

This chapter contains references, links (when available) and summaries of 22 documents of high relevance to the Caspian region.

GRID Arendal (2011): Caspian Sea State of the Environment, 102 pp.

http://www.tehranconvention.org/IMG/pdf/Caspian_SoE_Eng_fin.pdf

(Last accessed 13 June 2019)

The basic purpose of the Caspian State of the Environment Report (SoE) is to allow for regular reporting on an agreed set of regional indicators that show changes and trends in environmental conditions. It provides necessary information for developing, monitoring programs and policies implemented at local, national and regional levels. Furthermore, it increases the number of stakeholders involved in order to benefit from their significant feedback and valuable contributions. The SoE summarizes the findings of the different assessments and includes existing updated figures. It is based on the latest information on policy and legislative measures, institutional setup, stakeholder engagement, future challenges and barriers to the improvement of the state of the environment in the region, provided by the governments through a questionnaire. The SoE is an effort to highlight the main trends in the marine and coastal environment of the Caspian Sea. It provides a gap analysis, showing the needs and requirements of the countries, individually and collectively, in the areas of monitoring, information collection and management related to policy, decision-making and implementation of the Tehran Convention and its Protocols.

Transboundary Diagnostic Analysis for the Caspian Sea, Volume Two (2002), 132 pp.

http://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/9726/-Transboundary_Diagnostic_Analysis_for_the_Caspian_Sea-2002Caspian_TDAVolumeTwo_2002.pdf.pdf?sequence=3&isAllowed=y

(Last accessed 13 June 2019)

This TDA is not merely a State of the Environment report, but also a look into the future based on the current political situation, socio-economic conditions, and legal/regulatory framework. This TDA is a scientific and technical assessment, through which the water-related environmental issues and problems of the Caspian Sea region have been identified and quantified, their causes analyzed and their impacts, both environmental and economic, assessed. The analysis involves an identification of causes and impacts at national, regional, and global levels and the socio-economic, legal, political and institutional context within which they occur. The identification of the root causes specifies sources, locations, and sectors. This TDA provides the technical basis for development of the National Caspian Action Plans (NCAPs) and the Strategic Action Programme (SAP). In this TDA, the specific

combination of activities contained in an NCAP or SAP is also determined by both national and regional policy considerations that may affect programme direction, sustainability, and cost effectiveness. The TDA is based on extensive previous work. First, the Ramsar Steering Committee approved a Framework TDA in May 1998. Next, in May 2000, the Tacis Project prepared a Preliminary Draft TDA, which focused primarily on the significant advances made under Tacis support to the CEP during the previous two years. The TDA is also based on four regional TDA meetings held in Baku, Azerbaijan, to obtain regional input. Finally, the TDA is based on the many basis documents available from the CEP and other sources, gathered during the four years since the Programme's initiation. Much of the work developed in this section therefore is extracted or summarized from vast resource materials available to the CEP. The existing extent of data and depth of analysis far exceeds the capabilities of this short TDA and therefore it represents a succinct synthesis of this information.

The Caspian Environment Program (CEP)

http://web.worldbank.org/archive/website00983A/WEB/OTHER/THE_CASP.HTM?OpenDocument

(Last accessed 13 June 2019)

The Caspian states together with several international organizations (World Bank, UNDP, UNEP, EU/EuropeAid, GEF, bilateral donors, multinational companies, NGOs) have been working together for over 10 years to address some of the most urgent environmental and bioresources management problems confronting the region. The Caspian Environment Program (CEP) has been a prime vehicle for intra-regional and international cooperation. The CEP has produced a Framework Convention for the Caspian Marine Environment, signed by the five states in November 2003, a Transboundary Diagnostic Analysis (TDA) to identify and rank environmental problems, and a Strategic Action Programme (SAP) endorsed by all five littoral states. Each country has also prepared a National Caspian Action Plan (NCAP) to identify the national level investments and interventions needed to address national and regional priorities for the Caspian. The SAP identifies the national and regional interventions needed to address four priority regional environmental concern areas: Sustainable fisheries management (particularly sturgeon recovery); Biodiversity protection and invasive species; Sustainable coastal zone management; and Persistent organic pollutants (POPs) and other land-based sources of pollution. The Caspian states updated international organizations, the private sector and NGOs on their progress in implementing the NCAPs and the SAP during the Caspian Environment Program Investment and Donors' Forum held in Baku in November 2004. While notable progress has been made in some cases much remains to be done. Key obstacles to tackling the region's environment problems include competing public policy priorities, the relatively weak voice of environmental agencies, difficulties with cross-sector, inter-agency coordination, lack of an agreed regional fisheries management plan, and continued sturgeon poaching.

Caspian Environment Programme (2007): Caspian Strategic Action Programme Implementation: A Regional Review and Assessment, 44 pp.

http://www.ais.unwater.org/ais/aiscm/getprojectdoc.php?docid=1060

(Last accessed 13 June 2019)

The Caspian Environment Programme is a regional partnership between the five littoral states of the Caspian Sea and international organisations (the EU, UNDP, UNEP and the World Bank). The goal of the CEP is the environmentally sustainable development and management of the Caspian Environment. Part of the process in achieving this goal is identifying the priority environmental issues and developing a regional Strategic Action Programme and five National Caspian Action Plans, one for

each of the littoral countries. This report reviews and assesses the implementation of the SAP and the NCAPs in the Caspian littoral countries. The study has been commissioned by the GEF supported CEPSAP project under the umbrella of CEP. It has been carried out by an international consultant and is based on the National SAP Implementation Assessment Reports, these being national studies carried out in each littoral country to assess the implementation of the SAP/NCAPs. The study has also benefited from information collected through SAP/NCAP Implementation Assessment Questionnaires developed by the CEP Coordination Unit and completed by the SAP Implementation Coordinators in all the countries except Russia. It is important to note that the scope and detail of the National SAP Implementation Assessment Reports varied hugely. This varying quality has meant this report could not be precise and comprehensive. In addition, it hindered the ability to make robust comparisons between the different states' SAP/NCAPs implementation.

European Commission (2009): Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern, Regional Pollution Action Plan, TACIS/2005/109244, 277 pp.

https://ceic-portal.net/system/files/kmp/public/CEP%20%282009%29%20regional%20pollution%20action%20plan%20ENG.pdf

(Last accessed 13 June 2019)

This study, which is the Regional Pollution Action Plan for the Caspian Sea (RPAP), has been prepared within the project "Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern's (CaspianMAP)".The overall objective of the current project is to achieve improved quality of the marine and coastal environment of the Caspian Sea. In particular, the RPAP (current Report) provides recommendations to regional strategies for pollution reduction, with a focus on the identified Areas of Pollution Concern while the other particular aim of the project was to support the development of a regionally coordinated water quality monitoring program. As a first phase of the RPAP works, the earlier studies were analyzed for purpose inter alia to reveal the trends in environmental state vs. pollution loads in the Caspian Sea. The main regional studies were Rapid Assessment of Pollution Sources (RAPS) and Trans-boundary Diagnostic Analysis (TDA) along with some other studies. The Transboundary Diagnostic Analysis (TDA) provided the technical basis for the development of the National Caspian Action Plans (NCAPs) and the Strategic Action Programme (SAP). There were two TDA studies made (2002 and 2007). The marine litter project was developed with UNEP assistance towards the creation of a regional marine litter strategy. During CEP II implementation an assessment of regional marine litter in all 5 Caspian countries was conducted. This was to lead the preparation of a draft regional strategy and its integration of the strategy into the CEP SAP. However the lack of data prevented progression. It was recognized that marine litter is an emerging issue and that it is not yet addressed in a transboundary context. It is anticipated that this will impact coastal habitats, tourism and the fishing industries especially. It is recommended that a full assessment of the scale and scope of marine litter is conducted for the Caspian.

Pogrebov V.B., Dmitriyev N.V., Kiyko O.A., Filippov A.A., Usenkov S.M., Suleymanov M., Sedighi O., Vinogradova M., Babayev A. Environmental status of the coastal zone of littoral states in the Caspian Sea region under the impact of oil production and transportation // Paper: CD «RAO / CIS Offshore 2007»; No. 102. 10 p.

https://www.researchgate.net/figure/Sensitive-sites-studied-in-the-Caspian-Sea-Coastal-Sites-Inventory-CCSI-in-the-course_fig8_275348325

(Last accessed 13 June 2019)

Development of Caspian Sea Coastal Sites Inventory (CCSI) and identification of areas of special importance and/or sensitivity within an ecosystem approach and framework. The main objective of the CCSI was to develop a coastal sites inventory in the Caspian region with the aim to identify sensitive areas in need of future protection. The core of the CCSI was two-fold and included the following: (i) The ground-truthing (GT) phase of the project had to be carried out at five selected coastal sites of each country, participating in the CCSI project, with the aim to verify and document key characteristics of those sites. This had to be done through description of key habitats and species communities basing on existing publications and own field data; (ii) The biodiversity monitoring programme (BMP) had to be initiated with the aim to obtain key biodiversity data from five selected sites of each country over one full seasonal cycle. The detailed protocol for the programme (e.g., identification of key parameters and indicators for monitoring, frequency and methods of monitoring) had to be developed as a part of the project. All aims of the project were achieved and all reports produced by Consortium were adopted by both UNOPS and the Caspian Environment Programme (CEP). 76 environmentalists from all five littoral states of the Caspian Sea region had participated in this UN project during 2005-2007. After a year of work, majority of experts had assessed oil production and transportation as one of the most dangerous impacts for the Caspian Sea ecosystem if not for today, then – for future. Therefore, the results obtained in the course of the CCSI implementation are considered to be useful as a basis for planning of oil development in the Caspian Sea region in future, for environmental monitoring and assessment of consequences of possible oil spills.

UNEP (2009): Marine Litter: A Global Challenge, L. Jeftic, S. Sheavly, and E. Adler, 232 pp.

https://wedocs.unep.org/bitstream/handle/20.500.11822/10744/MarineLitterAglobalChallenge.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

The UNEP Global Initiative on marine litter (ML) has provided an effective framework for conducting regional activities addressing ML around the world, including those of the 12 participating Regional Seas programmes (Baltic Sea, Black Sea, Caspian, East African Seas, Eastern Africa, Mediterranean, Northeast Atlantic, Northwest Pacific, Red Sea and Gulf of Aden, South Asian Seas, South Pacific, and Wider Caribbean). These activities and the collection of relevant information were carried out by regional and national consultants. This review document is based on national reports compiled by national experts/consultants and where possible based on standard questionnaires and other available documents and information such as relevant scientific literature. All twelve participating regions prepared review documents by October 2008 and seven regions prepared Regional Action Plan (RAP) documents, with the other five proposing actions necessary for the management of marine litter. Nine regions organized regional meetings of national authorities and experts on marine litter. All twelve regions participated in the International Coastal Cleanup campaign as part of this initiative. Seven of the 12 participating regions (Black Sea, East Asian Seas, Northwest Pacific, Red Sea and Gulf of Aden, South Asian Seas, Southeast Pacific and the Wider Caribbean) prepared RAPs on the management of ML as part of their regional efforts. The remaining five Regional Seas did not prepare formal plans, but have reported on actions relevant to the management of ML within their regions. The section of this document on Caspian Sea (pages 54-66) includes: Introduction; Assessment of the status of ML (ML ”hot spots” in the Caspian region); Institutional arrangements (Governmental structures; ML research and monitoring; NGOs and ML activities); Legal and regulatory settings (Legal instruments; Administrative instruments; ML mitigating activities in the Caspian region (1997-2006); Local experts’ perception of ML in the Caspian region); Conclusions (What we know; What we do not

know); Proposals for action (Goals; Actions; Stakeholder involvement; Compliance and enforcement measures, including awareness raising; Research and development; Services and facilities).

Convention on the Legal Status of the Caspian Sea (August 12, 2018)

http://en.kremlin.ru/supplement/5328

(Last accessed 13 June 2019)

The Parties to this Convention are the Caspian littoral States – the Republic of Azerbaijan, the Islamic Republic of Iran, the Republic of Kazakhstan, the Russian Federation and Turkmenistan, Parties are convinced that this Convention will facilitate the development and strengthening of cooperation among the Parties, and promote the use of the Caspian Sea for peaceful purposes and rational management of its resources, as well as exploration, protection and conservation of its environment. Convention defines: Internal waters; Territorial waters; Fishery zone; Common maritime space; Sector; Aquatic biological resources; Shared aquatic biological resources; Harvesting; and Pollution. This Convention shall define and regulate the rights and obligations of the Parties in respect of the use of the Caspian Sea, including its waters, seabed, subsoil, natural resources and the airspace over the Sea. The Parties shall conduct their activities in the Caspian Sea for the purposes of navigation, harvesting, use and protection of aquatic biological resources, exploration and exploitation of the seabed and subsoil resources, as well as other activities in accordance with this Convention, other agreements between the Parties consistent with this Convention, and their national legislation. The water area of the Caspian Sea shall be divided into internal waters, territorial waters, fishery zones and the common maritime space. The geographical coordinates of areas along routes of submarine cables and pipelines where anchoring, fishing with near-bottom gear, submarine and dredging operations, and navigation with dredging anchor are not allowed, shall be communicated by the coastal State whose sector they cross to

all the Parties. The Parties shall take, jointly or individually, all necessary measures and

cooperate in order to preserve the biological diversity, to protect, restore and manage in a

sustainable and rational manner the biological resources of the Caspian Sea, and to prevent, reduce and control pollution of the Caspian Sea from any source. Any activity damaging the

biological diversity of the Caspian Sea shall be prohibited.

Framework Convention for the Protection of the Marine Environment of the Caspian Sea: Strategic Convention Action Programme (SCAP), TC/COP2/SCAP, 29 pp.

http://www.tehranconvention.org/cop2/Annex%202%20SCAP%20eng.pdf

(Last accessed 13 June 2019)

The assessment of the ecological condition of the Caspian Sea, survey of direct and indirect negative impacts on the ecosystem, examination of the ecosystem response to these impacts, and the study of the ecosystem's capacity of adaptation to contamination are the necessary activities for the sustainable and rational usage of its resources. Such actions need to be harmonised on a regional scale, reinforcing the importance of cooperation among the littoral states and with relevant international organizations, with the aim to protect and conserve the marine environment of the Caspian Sea. The basic framework of the SCAP mirrors the layout of the Tehran Convention. The actions are based largely on the CEP Strategic Action Programme. The SCAP is a comprehensive,

long-term agenda and framework for the implementation of the Tehran Convention and its Protocols over a period of 10 years to be translated and implemented through National Action Programmes supported by the biennial Programmes of Work of the Convention Secretariat. Intermediate revisions of the Action Programme may be decided upon by the meetings of the Contracting Parties in order to take into account new Protocols or other emerging developments related to the implementation of the Tehran Convention. The objective of the SCAP is to implement provisions of the Tehran Convention and its protocols upon their entry into force for the mid-term perspective in the area of the protection of the Caspian Sea from all sources of pollution as well as the protection, preservation, restoration and sustainable and rational use of the biological resources of the Caspian Sea by means of defining the main directions for the activities of the Contracting Parties under the Tehran Convention and future protocols upon their entry into force.

Caspian Environment Programme (2007): Caspian Strategic Action Programme Implementation: A Regional Review and Assessment, 44 pp.

http://www.ais.unwater.org/ais/aiscm/getprojectdoc.php?docid=1060

(Last accessed 13 June 2019)

The Caspian Environment Programme (CEP) is a regional partnership between the five littoral states of the Caspian Sea and international organisations (the EU, UNDP, UNEP and the World Bank). The goal of the CEP is the environmentally sustainable development and management of the Caspian Environment. Part of the process in achieving this goal is identifying the priority environmental issues and developing a regional Strategic Action Programme (SAP) and five National Caspian Action Plans (NCAPs), one for each of the littoral countries. This report reviews and assesses the implementation of the SAP and the NCAPs in the Caspian littoral countries. Study has been carried out by an international consultant and is based on the National SAP Implementation Assessment Reports. The study has also benefited from information collected through SAP/NCAP Implementation Assessment Questionnaires developed by the CEP Coordination Unit and completed by the SAP Implementation Coordinators in all the countries except Russia.

New e-portal for the protection of the Caspian marine environment, 2018

https://www.cleanseas.org/impact/new-e-portal-protection-caspian-marine-environment

(Last accessed 13 June 2019)

A new, upgraded, online platform was launched on 8 November 2018 to support joint action under the Tehran Convention. The objective of the completely revamped Caspian Environment Information Center is to provide the Parties to the Tehran Convention with an online collaborative information-sharing tool, making it easier for different stakeholders from the Caspian littoral states to collaborate on environmental issues. The platform has been developed by GRID-Arendal with the support of British Petroleum Exploration (Caspian Sea) Limited in Baku, Republic of Azerbaijan. The expanding work under the UN Environment-hosted Convention identified the need for a reliable and easy way to exchange information. An initial portal was set up in 2012. The Caspian Environmental Information Center is a portal that is a kind of library where you can find information related to the Caspian environment, biodiversity, monitoring, the economic potential of the region, etc. The portal also contains information on activities carried out in the Caspian littoral countries. The online portal contains a series of functions that enable easy access to Caspian Sea environmental data. The portal

aims at contributing to the achievement of several Sustainable Development Goals (SDGs), particularly number 17 “Partnerships for the goals” and 16 “Peace, justice and strong institutions”.

CEIC (2019): Caspian Environmental Information Center, Caspian Sea

https://ceic-portal.net/en/caspian

(Last accessed 13 June 2019)

**The Caspian Sea is the largest enclosed body of water on earth. Ecological system:** The isolation of the Caspian basin for over two million years and its climatic and salinity gradients has created a unique ecological system with more than 400 species endemic to the Caspian Sea. There are 115 species of fish. The Caspian sturgeon and the rare fresh water seal are among the most famous species indigenous to the Caspian. In fact, more than 90 % of the world resources of sturgeon originate from the Caspian Sea. **Natural Resources and main threats:** The Caspian basin is rich in commercially developable hydrocarbon deposits. But the increasing number of oil and gas producing industries as well as hydrocarbon productions and exports constitute serious environmental threats. Years of intensive oil production and refining at industrial sites has polluted ground water, led to widespread oil-mingled soil and the discharge of toxic drilling mud into the Caspian Sea. The mass mortality of more than 3 000 Caspian seals and various species of fish in 2000 was caused by a high amount of toxic substances discovered in the carcass. Today, Caspian biota is threatened by over-exploitation, habitat destruction and pollution. The traditional Caspian sturgeon fishery is well-known for its caviar production. In recent years, however, the Caspian region has witnessed a serious decline in fish stocks. Facts: Surface area - 436 000 km². While the North Caspian Sea with an average depth of only 6.2 m is rather shallow, the middle part has an average depth of 190 m and the South Caspian Sea reaches a maximum depth of 1 025 m and the level of the Caspian Sea is 27 meters below MS. Tributaries – around 130 rivers, The main rivers are Volga (241 km³), Kura (13 km³), Terek (8.5 km³), Ural (8.1 km³) and Sulak (4 km³) contributing to over 90% of the Caspian’s freshwater inflow.

CEIC (2018): Marine litter in the Caspian Sea

https://ceic-portal.net/en/news-events/news/marine-litter-caspian-sea

(Last accessed 13 June 2019)

Marine litter is getting a lot of attention globally these days, and this increased focus on the subject is spreading to the Caspian Sea region. The most widespread marine litter is plastics, which have negative effects not only on marine and coastal ecosystems but also create social and economic costs. This problem has been increasing globally due to unsustainable production and consumption patterns, an issue worthy of its own Sustainable Development Goal (SDG). Increases in production and consumption create a vast amount of waste, from metals to plastics, which all contribute to pollution of the environment. Looking at trends related to marine litter reveal severe challenges which must be tackled in order to create a sustainable future. The 12th of August, 2018 was the Caspian Sea Day. In this short Public Service Announcement (PSA), young children urge all of us to 'stop' marine litter and join efforts to combat marine litter in the Caspian Sea. Hopefully the future generations will avoid creating the same problems as past generations have.

Chevron (2016): Wild files: marine debris removal in the Caspian Sea

https://www.chevron.com/stories/wild-files-marine-debris-removal

(Last accessed 13 June 2019)

Kazakhstan, 2016. Tengizchevroil (TCO), a joint venture partnership formed in 1993 between the Republic of Kazakhstan and Chevron, began development of its Future Growth Project-Wellhead Pressure Management Project (FGP-WPMP), the next phase of expansion of the Tengiz Field – the world's deepest producing super-giant oil field. Supporting and enhancing habitats for endangered species was at the forefront of their environmental planning and management strategies as TCO began development of FGP-WPMP. The project required a cargo transportation route to be constructed 71 kilometres from the Northern Caspian basin to the Provra port, the location of a cargo offloading and storage facility. Actions taken: TCO identified removal of floating debris from the Caspian Sea as one of the key initiatives for its biodiversity action plan associated with FGP-WPMP. TCO conducted a pilot debris removal project in October 2017 with support from: **Kazakhstan's Mangystau Oblast Territorial Inspectorate of Forestry and Wildlife; Ghost Fishing Foundation**, an international non-governmental organization (NGO). The pilot mission enabled the team of Kazakhstani inspectors and NGO workers to: practice marine debris removal techniques; test equipment; assess the viability of the initiative. Marine debris removal activities conducted at sea and along the shoreline retrieved over 3,000 kilograms of marine debris. Suitable marine debris was recycled and used to create concrete for road and pavement repair. Debris not suitable for recycling was disposed of properly. Future activities will include removal of ghost nets and other debris found in the northeast Caspian Sea and its shoreline. Endangered sturgeons: 53 live sturgeons were released from ghost nets. Endangered Caspian seals: **Caspian seals are only found in the Caspian Sea. Their diet includes sculpins, gobies, herring, carp, smelt, and crustaceans.**

Zahra Jani Pour Eskolaki (2014): Marine litter policy network in the Caspian Sea; Enabling and constraining conditions to improve the policy network to deal with marine litter in the Caspian Sea, Master Thesis Environmental Policy, University and Research Centre, The Netherlands, 83 pp.

http://edepot.wur.nl/328448

(Last accessed 13 June 2019)

ML is a growing environmental problem all over the world. This problem originates from various sources and is composed by different materials which can lead to negative environmental, health and economic consequences. ML is a new and growing problem in the Caspian region which has been neglected. There are different possible actors involved in this problem from local NGOs in the littoral countries to international organizations such as UNEP. In this thesis the policy network of ML in the Caspian Sea is studied. The results show that the policy network of ML in the Caspian Sea is not currently an active network. A limited number of actors who are mostly governmental organizations have been involved in the policy network while NGOs and the private sector are absent in the power equation of the policy network. There is no sense of urgency to take the required actions to deal with the ML problem among the dominant actors. The existing rules of the network give limited access of non-governmental actors to influence decision making. There is a high level of interdependency among most of the actors involved in the policy network in case of dealing with the ML problem in the Caspian Sea. A few resources have been allocated to cope with the ML problem within the policy network so far but if ML problem of the Caspian Sea gets priority in the actors' list of environmental concerns, provision of the required resources does not seem difficult. While the policy network is passively dealing with the ML problem, the results of needs analysis of the Tehran Convention show that there is an appropriate legal setting for taking the required measures to deal with ML in the Caspian Sea. While the main constraining and enabling conditions of the policy network of ML in the

Caspian Sea are identified in this research, in order to activate and improve the current passive policy network to deal with the ML problem some strategies according the network management approach are provided.

Renewable and Sustainable Energy Reviews (2016): Marine Debris Occurrence and Treatment: A Review, Iniguez, M. E., Conesa, J. A., Fullana, A., 394-402 pp.

https://rua.ua.es/dspace/bitstream/10045/56736/2/2016_Iniguez_etal_RSER_preprint.pdf

(Last accessed 13 June 2019)

Marine debris produces a wide variety of negative environmental, economic, safety, health and cultural impacts. Most marine litter has a very low decomposition rate (as plastics, which are the most abundant type of marine debris), leading to a gradual, but significant accumulation in the coastal and marine environment. Along that time, marine debris is a significant source of chemical contaminants to the marine environment. Once extracted from the water, incineration is the method most widely used to treat marine debris. Other treatment methods have been tested, but they still need some improvement and so far have only been used in some countries. Several extraction and collection programs have been carried out. However, as marine debris keep entering the sea, these programs result insufficient and the problem of marine debris will continue its increase. The present work addresses the environmental impact and social aspects of the marine debris, with a review of the state of the art in the treatments of this kind of waste, together with an estimation of the worldwide occurrence and characteristics. Percentage of debris items represented by plastic in Caspian Sea is over 60%.

UNEP (2015): Terminal Evaluation of the UNEP Project (Interim) Secretariat services to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea

https://wedocs.unep.org/bitstream/handle/20.500.11822/231/Terminal_Evaluation_of_the_UNEP_Project_(Interim)_Secretariat_services_to_the_Framework_Convention_for_the_Protection_of_the_Marine_Environment_of_the_Caspian_Sea.pdf?sequence=1&isAllowed=y

(Last accessed 13 June 2019)

There are a number of important conclusions about the TCIS's overall impact in the implementation of the Tehran Convention and its Protocols and amongst them are: The TCIS succeeded in developing the institutional framework of the Tehran Convention. This effort is evidenced by the fact that despite multiple challenges and faced with minimal resources, the TCIS managed to successfully organise live COPs, three of which adopted Protocols; The TACIS's efforts in supporting national implementation structures were highly appreciated by the Caspian littoral States. The countries confirmed that the TCIS provided them with the support that they needed to adapt the NCAPs; The Tehran Convention's financial situation continues to be problematic. Parties have agreed to country contributions of 72,000 USD/per year. There has been a retreat of external donors due to political and economic factors and combined with the difficulties in mobilizing private sector financing, it is clear that Parties' contributions alone will unable only the most basic of services to the provided; As regards the TCIS's efforts to promote public awareness, it should be emphasized that civil society engagement is in an early phase in the region; The TCIS efforts in monitoring and information-sharing were very successful. The Caspian Environment Information Centre, the State of Environment reports and the Biodiversity Atlas, in combination with the training of information officers, have created the enabling environment necessary for the systematic monitoring of the Caspian Sea region; As reflected

throughout this evaluation report, interviewees were unanimous with their praise for the project management team.

Tehran Convention, Conference of the Parties, Fifth Meeting (2014): Framework for the implementation of the Caspian Environmental Monitoring Programme (EMP), Note by the interim Secretariat, TC/COP5/5, 9 pp.

COP4 welcomed the Caspian Environmental Monitoring Programme (EMP) contained in document TC/COP4/7 as "the basis for continuation of this activity and capacity-building and regional cooperation for monitoring the parameters which determine the quality of the marine environment of the Caspian Sea"; and requested the (interim) Secretariat "to coordinate and promote its implementation with the involvement and/or support of CaspCom, the GEF, the EU, and other stakeholders". The Tehran Convention and the Coordinating Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea (CaspCom) signed the Memorandum of Understanding (MoU) recognizing the uniqueness and integrity of the Caspian Sea, its significant natural resource and economic potential, whose rational use is of paramount importance for the sustainable development of Caspian littoral states. The Parties will: Provide effective contributions to implementation of the objectives under the Tehran Convention, as well as the objectives under the Integrated Programme on Hydrometeorology and Pollution Monitoring of the Caspian Sea (CasPas); and Cooperate in the field of hydrometeorology and pollution monitoring of the Caspian Sea. It was agreed that the Regional framework and network for the Tehran Convention and Protocol Compliance Monitoring and Assessment will have following two Outputs: 1. Operational Environmental Monitoring Programme (EMP) integrated with current national and private sector monitoring. Monitoring and reporting capacity upgraded in the Caspian countries and harmonized methodologies applied; and 2. The next Caspian State of Environment Report based on agreed procedures. Operational Caspian Environment Information Centre (CEIC) as the central hub and database for national reporting, SoE-Reporting, policy making and public information exchange.

Tehran Convention, Conference of the Parties (2012): Unified, integrated and affordable Caspian environment monitoring programme among the contracting parties to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea, Note by the interim Secretariat, TC/COP4/7/ed., 33 pp.

The Strategic Convention Action Programme, adopted as a comprehensive ten year agenda and framework for the implementation of the Convention and its future Protocols at COP2, reaffirms the Caspian littoral States' commitment "to ensure regional cooperation in the elaboration and implementation of harmonized regional monitoring programmes of pollutants, of rules and standards, and recommended practices and procedures consistent with the Tehran Convention". The Working Group on Caspian Environment Monitoring Program (EMP) further reviewed the First State of the Environment (SOE) report prepared by UNEP/Grid-Arendal on the basis of the replies received on a questionnaire and already available publications, and acknowledged that a full and comprehensive SOE report can only be prepared once the proposed EMP is operational and the legal framework, in particular the protocols, with specific commitments related to monitoring, is in force. The Caspian EMP proposal was presented at the Final Steering Committee Meeting of the GEF/UNDP Caspeco Project in March 2012. Final comments were received by mid April 2012 and incorporated in the final version of the Caspian EMP proposal. The objectives of the Caspian EMP among the Contracting Parties to the Tehran Convention is to develop a framework providing the necessary data and

information on the Caspian environment in order to: initially provide data on the state of the Caspian environment, highlight pollution problems, provide biological related data which will support the broad objective of tracking changes of the health and diversity of ecosystems in, and adjacent to, the Caspian Sea. Proposed Caspian EMP contains, amongst others: Time table of Caspian EMP development plan; Sampling media, parameters and frequencies in Phase-I of proposed Caspian EMP; Common guidelines for survey/observation, sampling, sample handling and analyses for Caspian EMP; QA/QC procedures and reference laboratory for Caspian EMP; Proposed institutional framework for Caspian EMP; Research needs; and Evaluate and refocus monitoring programme.

Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern

Regional Water Quality Monitoring Plan (2009), TACIS/2005/109244, 78 pp.

This Regional Water Quality Monitoring Plan has been developed as part of the project “Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern’s (CaspianMAP)” with one of the main objectives to support the Caspian Environment Programme (CEP) and International Partners like EU, UNDP, UNEP, and the World Bank. One of the most important project activities has been the inter-calibration exercise between the laboratories that are expected to play a role in a future regional monitoring program. This activity was carried out under the methodological supervision of the IAEA Marine Environment Lab, Monaco. The outcome shows that the analysis of a wide range of the proposed pollutants is not attainable yet for most of the analytical laboratories in the area. In the Project experts from twelve labs, consulting companies, independent experts, and specialists from various ministries, departments and agencies, along with international experts, were involved in achieving the objectives of the project. The main bottleneck remains the inadequate management structure. The further development of the Regional Water Quality Monitoring Program (RWQMP) will enhance the efficiency of the national programs in water quality monitoring. The program will also not be implemented effectively, if arrangements for coordination and data exchange are not properly elaborated between the partners in regional water monitoring. The program can also not be effective if no further development takes place of related monitoring programmes. Such a broad basis is needed for effective environmental management of the Caspian. Enhancing regulation and establishing such requirements is a task for regional cooperation in the next stages of development.

GRID – Arendal, Support on the Tehran Convention

http://www.grida.no/activities/286

(Last accessed 13 June 2019)

GRID-Arendal has been working on two specific aspects to support the Tehran Convention. First, we focus on assisting the Secretariat and Parties to the Tehran Convention in the implementation of its Convention Program of Work, in particular in areas where the expertise and capacity of GRID-Arendal is solicited and can make a difference. These areas include monitoring, assessment, reporting, information exchange, back-up networking and research, and environmental management and administration related work. The Convention Secretariat, according to the decisions of the previous Conference of the Parties (COP5), is planned to move to Baku, Republic of Azerbaijan. Consequently, it is to be expected that the present ad-hoc engagement of GRID-Arendal with the Convention process will be turned into a more permanent support structure captured in an Memorandum of Understanding (MoU) negotiated and concluded between GRID-Arendal and the UN Environment administered Secretariat. However, this arrangement has not been confirmed and will be debated at sixth Conference of the Parties to the Tehran Convention (COP6). Second, quantifiable data on the state of

the marine environment of the Caspian Sea – essential for sound collective decision-making - are scarce. National monitoring programmes do exist, but are conventional and focus on compliance monitoring; they are not consistent and the data are often not available. As a response to this issue, in 2017 and 2018 GRID-Arendal implemented a project funded by BP Exploration (Caspian Sea) Limited in Baku, Republic of Azerbaijan. This project aimed to establish an upgraded and improved Caspian Environment Information Center, support the creation of a draft Protocol on Monitoring, Assessment and Information Exchange to the Tehran Convention and draft the second State of the Environment (SoE) of the Caspian Sea report. The portal was launched at a consultative meeting on the Caspian Region and the Tehran Convention in the Europe Office of UN Environment in Geneva on November 8, 2018. The process of the protocol and the SoE report continues towards COP6 expected to happen in the first half of 2019. GRID-Arendal is continuing to support the establishment of the protocol and the final acceptance of the second SoE of the Caspian Sea report with the financial support of UN Environment.

N. Jafari (2010): Review of pollution sources and controls in Caspian Sea region, Journal of Ecology and the Natural Environment Vol. 2(2), pp.25-29, Department of Biology, Faculty of Basic Sciences, University of Mazandaran, Babosar, Iran.

https://ceic-portal.net/system/files/kmp/public/review-of-pollution-sources-and-controls-in-caspian-sea-regionpdf.pdf

Experts believe that the release of over one billion cubic meters of industrial, chemical and household wastewater into the Caspian Sea per annum has polluted the water, and reduced the level of oxygen jeopardizing over 400 aquatic species including sturgeons. Extraction and transportation of oil in the Sea are one of the pollution sources in the seawater. Caspian Sea contains about 100,000 million barrels of oil. It also contains over 35,000 million cubic meters of flue gas. Daily extractions of crude oil and gas and transportation of them are the main pollution sources of the Caspian Sea. Many trucks for charring oil from ports along the Caspian Sea are considered as point and nonpoint sources along the seaboard. In addition, many ships, which are navigating in the Sea, are emitting pollution to the Sea. Many cities and industries surround the Caspian Sea. Pollution from these cities and industries enter the Caspian Sea either directly or through rivers. The purpose of this paper is to look at the benefits of environmental management strategies in pollution prevention such as waste minimization and clean technologies. This minimizes the environmental problems due to waste generation and eliminates the cost of treatment and disposal of the waste. The benefits of the environmental management program along the Caspian Sea will ensure the clean water and the better environment of the Sea.

**CASPIAN COUNTRIES**

This chapter contains references, links (when available) and summaries of 24 documents of high relevance to the Caspian region.

REPUBLIC OF AZERBAIJAN

Framework Convention for the Protection of the Marine Environment of the Caspian Sea (2018): The Second State of the Environment Report of the Caspian Sea, The Republic of Azerbaijan, DRAFT, 56 pp.

This document covers in the Table of Contents quite a number of issues, among them Marine litter and microplastics, but unfortunately there is no text on this two subchapters. Document contains a lot of very useful information on quite a number of issues. Among issues covered are Socio-economic situation; Direct drivers (sectors); Indirect drivers; Fishing; Non-living resources extraction; Transportation and infrastructure; External inputs: Discharges and run off; Air emissions; Solid waste; Changes in bioresurces; State of marine water quality and incoming freshwater; State of air quality; State of sediment quality; Status of biodiversity; Climate change; Consequences for the social and economic sectors; Impact on environmental services and bioresources; Regional governance; National governance; Policy and legislation; Monitoring and compliance; Participation and outreach (private sector, and information sharing); and Recommendations (Should be regional).

UN (2011): UNECE, Environmental Performance Review Azerbaijan, Second Review Synopsis, 59 pp.

http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/Synopsis/Azerbaijan%20ECE.CEP.158.synopsis%20english.pdf

(Last accessed 13 June 2019)

The second Environmental Performance Review (EPR) of Azerbaijan began in November 2009 with a preparatory mission. During this mission, the final structure of the report was discussed and established. The first Environmental Performance Review (EPR) of Azerbaijan was carried out in 2003. The second review was intended to measure the progress made by Azerbaijan in managing its environment since the first EPR, and in addressing upcoming environmental challenges. With its strategically important pipeline infrastructure, Azerbaijan is becoming an increasingly important transit corridor for oil and gas. Environmental authorities have been considerably strengthened since the first EPR, both institutionally and in terms of funding. Significant progress has been made in developing a national legislative framework. Integrating environmental concerns into economic and social sectors remains a key objective. Progress has taken place in the use of economic instruments for environmental protection in the period since the first EPR. The legislative framework for waste management has been significantly improved. The system of municipal solid waste management is receiving much more attention than previously. The changes in waste management in Azerbaijan, especially on the Absheron peninsula, are impressive and have the potential to considerably decrease the environmental impact from waste generation and disposal. Due to accumulation of problems in the past, current activities are focused on the most severe and visible cases and the results are positive. Conclusions and recommendations are main section of this document and it contains 12 Chapters and 63 recommendations.

European External Action Service (2018): EU Delegation initiates beach clean-up campaign in Azerbaijan

https://eeas.europa.eu/delegations/azerbaijan_en/50582/EU%20Delegation%20initiates%20beach%20clean-up%20campaign%20in%20Azerbaijan

(Last accessed 13 June 2019)

On 15 September 2018, the International Coastal Clean-up day, the European Union Delegation with the support of the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan, EkoSfera Social and Ecological Centre mobilized the staff of the Embassies of the European Union Member-States and the European Bank of Reconstruction and Development for beach cleaning campaign. Over

200 representatives of the diplomatic community and their family members joined the campaign by cleaning up one of the beaches in Novkhani settlement of Baku. Students of the French-Azerbaijan University, participants of the “Young European Neighbours” network run by the Open Neighbourhood, former alumni of the EuroSchools organized by the EU Delegation also joined the initiative. It should be noted that the EU Delegation is one of 40 Delegations that joined the EUBeachCleanup Campaign globally.

CEIC (2019): Caspian Environmental Information Center, Azerbaijan

https://ceic-portal.net/en/caspian/countries/azerbaijan

(Last accessed 13 June 2019)

Azerbaijan. **The eastern part of the country leads out to the Caspian Sea with a shoreline of 955 km.** Environment – Current Issues: The country is currently experiencing economic growth, urbanization and population growth. These trends are mainly expected to take place in the most densely populated area, the Absheron Peninsula leading out to the Caspian Sea. The Azerbaijani territory of the sea entails significant oil and gas reserves, which is highly important for the national economy. The exploitation of these reserves entails however a need for environmental protection. Such needs are increasingly being met by the implementation of national initiatives for environmental protection. National concerns related to the Caspian Sea not only involve the risk of, and damages from, flooding or the impacts from the oil and gas production but also the decline of biodiversity, the pollution from municipal and industrial wastes and wastewater as well as emission of harmful gases. Azerbaijan is a party to 18 Multilateral Environmental Conventions.

Neft Daslari (Oil Stones)

https://en.wikipedia.org/wiki/Neft_Da%C5%9Flar%C4%B1

(Last accessed 13 June 2019)

Neft Daşları (Oil Stones) is an industrial settlement in Azerbaijan. It lies 100 km away from Baku, and 55 km from the nearest shore in the Caspian Sea. A full town on the sea, it was the first oil platform in Azerbaijan and the first operating offshore oil platform in the world, incorporating numerous drilling platforms. It is featured in Guinness World Records as the world's first offshore oil platform. The settlement began with a single path out over the water and grew into a system of paths and platforms built on the back of ships sunk to serve as the Oil Stone's foundation. The most distinctive feature of Oil Stones is that it is actually a functional city with a population of about 2,000 and over 300 km of streets built on piles of dirt and landfill.

ISLAMIC REPUBLIC OF IRAN

Waste Management Law, Iran, 5 pp.

http://www.vertic.org/media/National%20Legislation/Iran/IR_Law_Waste_Management.pdf

(Last accessed 13 June 2019)

The Law consists of twenty three articles and nine notes. The Law was approved by Parliament on May 9, 2004, confirmed by the Guardian Council on May 29, 2004, and was finally signed on June 6, 2004 by the leader of the Islamic Parliament. The main issues covered with the Law are: 1. Executive managers for wastes should adopt arrangements based on the standards and regulations of the Ministry of Health; 2. Involvement of the Iran Broadcasting Organisation; 3. Responsibility of municipalities and rural government bodies; 4. Received relevant costs from waste generation shall be spent for wastes management affairs; 5. Schedule for planning and strategies for separating ordinary waste should be made; 6. Instructions for organizing wastes executive management in municipalities, countries, rural governing and rural district governing bodies should be provided; 7. The Environmental Protection Organisation, in cooperation with relevant Ministries should compile standards and methods for wastes executive management; 8. Landfill sites for wastes should be determined; 9. Mixing of medical wastes with other wastes is prohibited; 10. Extraterritorial transportation of special wastes should be subject to the regulations of Basel Convention; 11. Generators of special industrial wastes should minimize their wastes; 12. Storage, mixing, transportation, selling and purchasing, disposal, exportation and discharging of wastes in environment should be according of the regulations of Act; 13. Offenders of the ordinance in Article 14 should return wastes, enlisted in Base1 Convention, to the country of origin.

Khayamabshi, E. (2016): Current Status of Waste Management in Iran and Business Opportunities, Municipality waste management in Iran, 50 pp.

http://www.unido.or.jp/files/Iran-updated.pdf

(Last accessed 13 June 2019)

This presentation covers very well the issue of waste management in Iran. In this summary will be presented three section of the presentation: Waste management in Iran: (i) In Iran most of the waste generation is through commercial activities rather than household consumption; (ii) Provincial Government & Municipalities are responsible for the management and disposal of waste; (iii) Waste Management began about 100 years ago; (iv) With the growth of urban population (70% of total population), particularly in big cities like Tehran, municipalities have started mechanical collection of waste which is then transported outside the city for disposal; (v) Since 35 years ago, municipalities of big cities established Waste Management Organization; Plans and objectives for waste management in Iran in next 5 years: (i) Reduce non-organic waste from 60% to 45%; (ii) Increase source separation from 7% to 30%.; (iii) Increase recycling from 13% to 30%; (iv) Increase Formal Landfills from 2% to 20%; (v) Promote new technologies for waste disposal such as incinerators, digester, biogas, recycling, etc.; (vi) Optimize waste collection, increase awareness of people; and Opportunities: (i) Cooperating with Iranian consulting companies for technical training and awareness in waste management; (ii) Cooperating with Iranian consulting companies and municipalities to find the best solution for various cities in modern methods of waste disposal; (iii) On site assessment and negotiation with municipalities; (iv) Cooperating with Iranian companies in supplying waste management equipment such as machinery, tanks and....to Japanese companies for waste management projects being executed in Iran and neighbouring countries; (v) Use Iran as a hub for the export of services to neighbouring countries such as Afghanistan, Pakistan, Iraq, Turkmenistan, Azerbaijan, etc.; (vi) Investment on waste management services such as incinerators, digesters, formal landfill, etc.

Ports and Maritime Organization Ports and Special Economic Zones Affairs Deputy MANUAL OF Tariffs applicable to vessels and cargo In Ports of the Islamic Republic of Iran March 21, 2010 to March 21, 2011, 71 pp.

https://shahidrajaeeport.pmo.ir/pso_content/media/image/2011/08/11879_orig.pdf

(Last accessed 13 June 2019)

Ports and Maritime Organization (PMO) is the port-and-maritime authority of the I.R. Iran with the responsibility to administer all Iranian ports and enforce the maritime conventions to which PMO is a party. All Port Authorities are regarded as subsidiaries of the PMO. Ports and Maritime Organization (PMO) is affiliated to the Ministry of Roads and Transportation. PMO Managing Director is Deputy Minister of Roads and Transportation. PMO's Board of Directors on behalf of the Supreme Council (comprising of: Minister of Roads & Transportation, Minister of Defence, Minister of Economy, Navy Commander of I.R. Iran and the Management & Planning Deputy of President) formulates and ratifies rules, regulations, orders and ordinances to be applied in Iranian ports. Tariff setting PMO: Supreme Council has the authority to set the tariffs which can be delegated to the PMO Board of Directors. This Tariff includes two Sections: Marine-related Tarrif and Operation Related Tariff which include port dues, duties and charges. Dues: means tariff levied on the ships calling and cargos transported into the ports within Jurisdiction of the I.R. Iran for which no services are provided. Duties: means tariffs levied on the incoming ships and in-bound cargo to cover the associated costs of construction and maintenance of port infrastructures. Charges: means tariffs levied on the services provided to ships and cargos charged charges against the provisions of the services. Note: as the present Tariff Book has been developed to contain the tariffs items on the basis of the orders of the PMO Board of Directors as well as PMO Supreme Council, all directives not dealing with tariff related issues remains in force as before.

Masoudnik, M., Riyahi Bakhtiari, R. and Abdollah, M. (2017), Journal of Oceanography of Iran, Vol. 8, 29 (2017), pp. 43-53: Investigating Abundance, Distribution and Accumulation of Plastic Resin Pellets and Fragments in the Caspian Sea: A Case Study of Noor Shores

http://joc.inio.ac.ir/article-1-1103-en.pdf

(Last accessed 13 June 2019)

This study was an attempt to investigate abundance, distribution and accumulation of plastic resin pellets and fragments in the Caspian Sea on the basis of color, size and shape. Therefore, using National Oceanographic and Atmospheric Association (NOAA) method, the plastic debris samples were collected from two separate stations with eighteen quadrants and in a range of two kilometres. The results of study showed that microplastics (whose size is less than 5 millimetre) were more abundant than meso and macro plastics. Also, it was found that plastic resin pellets (N=4263) were the most frequent microplastics. In addition, color analysis of the samples showed that white resin pellets and fragments have the highest frequency. In sum, it was found that plastic debris and fragment are widely and unevenly distributed along shore lines of the Caspian Sea. It seems that this phenomenon is the result of some factors such as characteristics of the Caspian Sea, climate change, vicinity to land mass and land sources, marine activities, geomorphology of the region and physical factors such as shape, size and density of debris rather than human activities.

Slowly Cracking the Chains – Iran‘s Waste Management is Going to Awake

https://global-recycling.info/archives/378

(Last accessed 13 June 2019)

This document is providing lots of useful information about waste management in Iran. According to the information from the Tehran Waste Management Organization, the annual waste production rates in Iran are 7,200,000 tons, of which 70-75 % are organic material convertible to compost, 20-25 % recyclable dry materials and 5-10 % other wastes. In Tehran, 68 percent of total household waste analyzed 2013 was organic. Excluding PET treatment, most of (municipal) waste was and is brought to landfills. According to the Islamic Republic News Agency, 50.000 tons of Tehran construction waste – six times more than the household waste – are to be treated daily. The 18 sites near south Tehran have merely capacity to handle 20 % of the waste; the rest has to be transported to landfills. About 62 % of industrial solid waste is buried, ten percent burned, and eleven percent disposed in an unknown manner. Following an analysis on the "Status of Waste Governance System in Iran" in 2013, Iran has initiated significant progress in the legal and institutional framework during the last few years. A waste law was ratified targeting necessary structures, responsible organizations, committees for inter-agency communication and the role for an increasing private sector in service provision. But the governance still is hierarchic, leaving the MSW management system top-down organized. Although the generation of municipal solid waste in Tehran increased by ten percent during the five-year period, the amount of waste directly disposed of to landfill halved and resource recovery almost doubled. An increase in the capacity of a waste-processing facility contributed significantly to these changes. The estimated result of biodegradable fraction going to landfill in 2012 decreased to 49 percent of its value in 2008.

CEIC (2019): Caspian Environmental Information Center, Iran

https://ceic-portal.net/en/caspian/countries/iran

(Last accessed 13 June 2019)

Iran. Iran borders the Southern shore of the Caspian Sea with a coastline of about 1000 km, and 11% of the terrestrial territory holds the southern Caspian watershed. Environment – Current Issues: The Iranian area of the Caspian Sea is the most biologically productive area of the sea and the focal point of economic activities in North Iran. Tourism and fisheries are primary economic activities and the health of the Caspian Sea environment is therefore of high importance to the country. The Iranian area of the sea also offers hydrocarbon reserves. Exploitation of these reserves has however in some cases been halted in order to protect the environment. National concerns regarding the Caspian Sea involve the potential changes in sea level and sea currents. This could potentially result in more frequent occurrences of diseases and the extinction of plankton and benthos species, which influence the rest of the food chain. A rise in sea level will as well have severe consequences for the coastal inhabitants of 2 mill people as well as important infrastructure and maritime industry structures. Environment – International Agreements: Party to: Biodiversity (CBD), Climate Change (UNFCCC), Climate Change-Kyoto Protocol (KP), Desertification (CCD), Endangered Species (CITES), Hazardous Wastes (Basel), Marine Dumping (MARPOL), Ozone Layer Protection (Montreal), Ship Pollution, Wetlands (Ramsar). *Signed but not ratified: Environmental Modification, Law of the Sea, Marine Life Conservation.* Source: Iran's Second National Communication to UNFCCC, 2010, Department of Environment and National Caspian Action Plan, 2002, Islamic Republic of Iran.

REPULIC OF KAZAHSTAN

UN (2000): UNECE, Environmental Performance Review Kazakhstan, 242 pp.

https://www.unece.org/fileadmin/DAM/env/epr/epr_studies/kazakhstan.pdf

(Last accessed 13 June 2019)

The EPR project in Kazakhstan had originally started in September 1997, but had to be interrupted for organizational reasons. A second preparatory mission therefore had to be organized and took place in October 2000. It resulted in a new structure for the report, which was adapted to the many changes in the country that had occurred in the meantime. The review of Kazakhstan's environmental performance in many ways concentrated on the difficulties of national environmental management in a country of a considerable surface but low population density. The intensity of many problems of environmental degradation adds to the problems. The adopted recommendations therefore often focus on questions of how to cope with strong regional differences in environmental conditions as well as with the most complex threats to human health and nature. In general, the report conveys the need for well-coordinated and decisive action in many areas, if the requirements for an improved and sustainable socio-economic development are to be met. The document covers fourteen issues of importance to Kazakhstan concerning: 1. Legal instruments and institutional arrangements for environmental protection; 2. Regulatory and economic instruments; 3. International cooperation; 4. Air management; 5. Municipal and industrial waste management in the Eastern oblasts; 6. Management of radioactively contaminated territories; 7. Management of water resources and quality; 8. Management of selected problems in the Aral and Caspian Sea regions; 9. Management of mineral resources; 10. Nature and forest management; 11. Introduction of cleaner technologies in industry; 12. Agriculture and desertification; 13. Environmental concerns in energy; and 14. Health and the environment.

CEIC (2019): Caspian Environmental Information Center, Kazakhstan

https://ceic-portal.net/en/caspian/countries/kazakhstan

(Last accessed 13 June 2019)

Kazakhstan: Kazakhstan borders the Northeastern part of the Caspian Sea with a coastline of 2320 km, which is approximately one third of the total Caspian coastline. The most Northern part of the territory is shallow and accommodates a wide range of biological species. Environment – Current Issues: National concerns regarding the Caspian Sea involve a potential fluctuation of sea level, environmental pollution, degradation of ecosystems and loss of biodiversity. Hydrocarbons are increasingly being exploited and a concern for the potential risks that follows rise with it. It is evident that the major threat for the Caspian environment is impacts from human activities, and the degraded environment again impacts on the population of Kazakhstan with regard to living conditions as well as medical and demographic situations. Environment – International Agreements: Party to: Air Pollution (UNECE-CLRTAP), Biodiversity (CBD), Climate Change (UNFCCC), Desertification (CCD), Endangered Species (CITES), Environmental Modification (ENMOD), Hazardous Wastes (Basel), Ozone Layer Protection (Montreal), Ship Pollution, Wetlands (Ramsar). Signed but not ratified: Climate Change-Kyoto Protocol (KP). Source: National Action Programme on Enhancement of the Environment of the Caspian Sea 2003-2012, 2003, Ministry of Environmental Protection.

RUSSIAN FEDERATION

(International Project “Caspian Environment Programme” (2007), UNDP/GEF Project “Implementation of Convention and Action Plan on Caspian Sea Environment Protection – Phase II”, UN Office for Project Services (UNOPS), State Oceanographic Institute (SOI) of Federal Service on Hydrometeorology and Monitoring of Environment (Roshydromet), Report, Project Ref. 00034997/2006/004, A Desk Study Project to determine the fluxes of major contaminants from the Terek River into Caspian Sea

In the frame of the current Project the estimation on contents of nutrients, petroleum hydrocarbons, phenols and heavy metals in water and bottom sediments in the basins of rivers Terek, Sulak and Samur over the last years was carried out. Research was conducted within a framework of the State Monitoring Programme on Roshydromet in the central and lower parts of the Terek delta. The data of Roshydromet standard investigations was used to assess the concentration of pollutants, namely petroleum hydrocarbons, heavy metals, phenols, detergents, nutrients (nitrites, nitrates, ammonium and total nitrogen) and silicates, and also expenditure of river water during the estimation of their flows at hydrological Karagalinsky hydro system and Alikazgan stations in the Terek delta. The Roshydromet data cover the period 2002-2005. Additionally archive data of scientific expeditions of State Oceanographic Institute of Roshydromet during period 2002-2004 were used. The expedition data covered both water and bottom sediment.

CEIC (2019): Caspian Environmental Information Center, Russian Federation

https://ceic-portal.net/en/caspian/countries/russia

(Last accessed 13 June 2019)

Russian Federation. **The Russian Federation covers the Northeastern coastline of the Caspian Sea. The territory of the country holds the river basin of the Volga River, which accounts for 80% of the inflow to the Caspian Sea and therefore also the major part of pollutants such as oil and nitrogen.** Environment – Current Issues: National concerns related to the Caspian Sea involve pollution and changes in fish stocks. Changes in fish stocks of the Caspian Sea but especially to the stocks of sturgeon have had adverse consequences for employment and the economy of the fishing industry. The oil and gas reserves also play an important role in the Russian economy, and are increasingly being developed, which brings further risks of pollution. Environment – International Agreements: Party to: Air Pollution (UNECE-CLRTAP), Biodiversity (CBD), Climate Change (UNFCCC), Climate Change-Kyoto Protocol (KP), Desertification (CCD), Endangered Species(CITES), Environmental Modification (ENMOD) , Hazardous Wastes (Basel), Law of the Sea, Marine Dumping (MARPOL), Ozone Layer Protection (Montreal), Ship Pollution, Wetlands (Ramsar). Source: Caspian Sea State of Environment, 2011, GRID-Arendal, CEP

TURKMENISTAN

UN (2008): UNECE, Environmental Performance Review Turkmenistan, Second Review, 217 pp.

http://www.greengrowthknowledge.org/sites/default/files/downloads/resource/UNECE%20Environmental%20Performance%20Reviews_Kazakhstan%202008%20%282nd%20cycle%29.pdf

(Last accessed 13 June 2019)

Studies are carried out by international teams of experts from the region working closely with national experts from the reviewed country. The teams also benefit from close cooperation with other organizations in the United Nations system, including the United Nations Development Programme, and with the Organisation for Economic Co-operation and Development. This is the second EPR of Kazakhstan published by UNECE. The report takes stock of the progress made by Kazakhstan in the management of its environment since the country was first reviewed in 2000. It assesses the implementation of the recommendations in the first review. It also covers nine issues of importance to Kazakhstan concerning: 1. Policymaking framework for environment protection and sustainable development; 2. Compliance and enforcement; 3. Information, public participation and education; 4. Implementation of international agreements and commitments; 5. Economic instruments for environmental protection; 6. Expenditures for environmental protection; 7. Energy and the environment; 8. Management of mineral resources and the environment; and 9. Sustainable management of water resources. The report places particular emphasis on the promotion of sustainable development, as the country gives a high priority to this issue.

Executive Board of the United Nations Development Programme, the United Nations Population Fund and the United Nations Office for Project Services (2015): Country programme document for Turkmenistan (2016-2020), DP/DCP/TKM/2, 12 pp.

https://open.undp.org/download/CPD/Turkmenistan_2016_2020.pdf

(Last accessed 13 June 2019)

This Country programme document states that for Turkmenistan three key development challenges are: (i) Balancing economic development with managing natural resources; (ii) Strengthening the State's capacity to implement participatory governance; and (iii) The availability of verifiable data for government decision-making and public consumption. UNDP conducted extensive consultations with government, unions, universities and non-governmental organizations (NGOs) during the design of this country programme document and shared drafts for comments. UNDP undertook an in-depth analysis to identify the key development issues and theories of change. Based on past UNDP cooperation and its current positioning, partnerships and capacity, four key priorities were selected. Priority 1 contributes to the United Nations Partnership Framework for Development (PFD) outcome, “The national policy, legislative and institutional frameworks are aligned to reduce greenhouse gas emissions through promoting sustainable practices on energy efficiency, the use of renewables, urban development and waste management" and is aligned with Strategic Plan outcome 1.

UNECE (2012): Environmental Performance Review Turkmenistan, First Review Synopsis, 35 pp.

https://wedocs.unep.org/bitstream/handle/20.500.11822/9627/-Turkmenistan_Environmental_Performance_Reviews-2012Turkmenistan_EPR_2012.pdf.pdf?sequence=3&isAllowed=y

(Last accessed 13 June 2019)

The report covers major issues for Turkmenistan, divided into three sections, including the framework for environmental policy and management, management of natural resources and pollution, and economic and sectoral integration. Among the issues receiving special attention during the reviews

were the policy, legal and institutional framework; public participation in decision-making and access to information; air pollution; water resources management and Caspian Sea issues; land management; forestry; biodiversity; management of waste; climate change and environmental concerns in the energy sector. The Environmental Performance Review (EPR) of Turkmenistan analyses the progress made in Turkmenistan from 2000 on environmental protection, and proposes recommendations on how the country can improve its environmental management and address upcoming environmental challenges. Conclusions and recommendations are main section of this document and it contains 13 Chapters and 67 recommendations.

CEIC (2019): Caspian Environmental Information Center, Turkmenistan

https://ceic-portal.net/en/caspian/countries/turkmenistan

(Last accessed 13 June 2019)

Turkmenistan: **Turkmenistan spans across the Southeastern coast of the Caspian Sea. The Turkmen territory of the sea offers many hydrocarbon reserves as well as recreational areas. The oil and gas reserves have been estimated to a total of 18.2 billion tons, which pose as an important export for the country.** Environment – Current Issues: National concerns regarding the Caspian Sea involve different impacts related to the rising sea level. Flooding can exacerbate the current level of environmental pollution from oil products, pesticides and other toxics. The chancing sea level can as well impact plankton and benthic invertebrates and thereby also the rest of the food chain. The majority of Western Turkmenistan, including the coastal zone, is covered by deserts and as a result not much development of settlements and infrastructure has taken place here, which makes the impacts of a rising sea level minimal compared to the other Caspian countries. Environment – International Agreements: Party to: Biodiversity (CBD), Climate Change (UNFCCC), Climate Change-Kyoto Protocol (KP), Desertification (CCD), Hazardous Wastes (Basel), Ozone Layer Protection (Montreal). Source: *Second National Communication of Turkmenistan under the United Nations Framework Convention on Climate Change,* 2010, Ministry of Nature Protection of Turkmenistan, UNEP, GEF.

Ministry of Natural Resources Use and the Environment Protection of Turkmenistan and UNDP (1998): Caspian Ecological Programme National Report, 34 pp.

This document has significant amount of useful information. Document contains following chapters: 1. Integrated management of the littoral zone; 2. Environment pollution; 3. Health care and rest; 4. Fishery and aquacultures; 5. Characteristics of emergency situation; 6. Legal norms and instructions; 7. Information, date banks and communication; 8. The network of institutes; 9. Basic transborder effects; and 10. Priority actions. In Chapter 2. Environmental pollution are contained following sections: (i) List of the surface resources of pollution, including river, industrial and sewage wastes; (ii) Ships and littoral resources; (iii) Pollution of the air; (iv) The rate of water and precipitation pollution; (v) Review of ongoing national programmes and monitoring networks; and (vi) List of national laboratories for monitoring of levels, pollution effects and laboratories needs in the modern equipment. In the section (i) is written: The quality of the Caspian Sea water has been altering, owing to the wide spectrum of pollutants, directly or indirectly flowing into the sea. On the Turkmen seashore the prospecting and operation of sea and littoral oil and gas fields, enterprises of oil and oil processing industry, municipal sewerages of cities, located along the seashore, as well as wastes of the sea transport are the major resources of the Caspian sea pollution. In the section (iii) is written: The littoral Caspian beaches zone from Turkmenbashi city to Bekdash settlement stretches for 140

km and practically suitable for the rest. Reasons are as follows: the natural conditions of the seashore are on the high level, favourable bottom relief and the quality of the coastal sand, asphalt roads, pure water along the whole littoral spit. As a whole it creates favourable conditions for development of the tourist industry infrastructure in this zone.

Ministry of Nature Protection of Turkmenistan (2002): Biodiversity Strategy and Action Plan for Turkmenistan, 105 pp.

http://extwprlegs1.fao.org/docs/pdf/tuk163422.pdf

(Last accessed 13 June 2019)

The overall aim of this Biodiversity Strategy and Action Plan is “To conserve, restore and sustainably use the biological diversity of Turkmenistan for present and future generations”. Though desert ecosystems occupy the majority of the country, Turkmenistan possesses a rich and unique biological diversity. More than 20,000 species have been identified, of which 7,064 are higher and lower plants and about 13,000 are vertebrates and invertebrates. The biological diversity of Turkmenistan plays an important role in the country’s economy, its culture and traditions. Reduction of biodiversity can negatively influence the well being and living standards of the human population. The most general reasons for biodiversity reduction are habitat loss and excessive exploitation. Convention on Biological Diversity (CBD) was ratified in 1996. Preparation of a “Country Study on the status of Biological Diversity in Turkmenistan” and a “Biodiversity Strategy and Action Plan (BSAP)” is one of a signatory’s responsibilities under the Convention on Biological Diversity. The document has been prepared as an integrated Action Plan in which a timescale of implementation, sources of financing and targets are defined. The Action Plan is a system of definite measures and actions aimed at biodiversity conservation. Management, implementation, monitoring, financing and approximate costs are also covered in the Action Plan. The Action Plan provides a mechanism to solve the problems of biodiversity conservation in Turkmenistan. The Action Plan inspires confidence that biological resources will be restored and will be a foundation of the well being of the human population of Turkmenistan.

Turkmenistan Environmental Challenges and Opportunities (2013), Harry Liiv, 35 pp.

https://www.unece.org/fileadmin/DAM/SPECA/documents/kdb/2013/Seminar_Turkmenistan/Liiv.1.pdf

(Last accessed 13 June 2019)

This presentation covers State of environment, challenges in different sectors of economy: Energy; Water management; Agriculture and Land; Waste management; Forestry and biodiversity; Tourism; Industry; and Transport. In this summary will be presented only Waste management sector. Waste management State: The oil and gas sector is the main generator of industrial waste, generating about 90 percent of all registered industrial wastes; Municipal solid waste management in Turkmenistan - solid waste generation on the territory of Turkmenistan of 470,500 tons/year (ca.1,300 tons/day) – year 2000? Today- Should be 3x more?; Municipal solid waste is treated also by a mechanical biological factor. Waste management. Challenges: Industrial toxic waste, there is need to develop relevant waste incineration facilities together with suitable industry; For municipal waste the waste sorting and disposal systems, appropriate information should be developed further; Important is to organize awareness rising activities among the Turkmen population, introduction of municipal and

industrial waste utilization/recycling technologies; Waste composting may be important as well, especially for planting activities.

Law of Turkmenistan: About Waste (2015)

http://cis-legislation.com/document.fwx?rgn=77191

(Last accessed 13 June 2019)

This Law governs the relations in the sphere of the address with waste, is directed to reducing formation of waste and ensuring their rational use in economic and other activity for the purpose of prevention of their negative impact on health of the population and the environment. Chapter I. General provisions. Article 1. In this Law the following basic concepts are used: 1. Waste; 2. The address with waste; 3. Production wastes; 4. Type of waste; 5. Household waste; 6. Dangerous wastes; 7. Producer of waste; 8. Collection of waste;

9. Transportation of waste; 10. Cross-border transportation of waste; 11. Placement of waste;

12. Storage of waste; 13. Waste disposal; 14. Subject to placement of waste; 15. Conversion of waste; 16: Use of waste; 17. Waste recycling; 18. Neutralization of waste; 19. Limit of placement of waste; and 20. The standard rate of formation of waste.

Sustainable Development in the Cities of Turkmenistan (2017)

http://www.tm.undp.org/content/turkmenistan/en/home/presscenter/pressreleases/2017/11/03/sustainable-development-in-the-cities-of-turkmenistan.html

(Last accessed 13 June 2019)

The United Nations Development Program (UNDP), the State Committee for Environmental Protection and Land Resources of Turkmenistan and relevant national stakeholders has launched a joint project to develop sustainable cities in Turkmenistan. The project, titled “Sustainable Development of the Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Avaza”, is a six year strategy with the aim to develop cities that would meet environmental, social and economic requirements without causing damage or the misuse of valuable resources. The new project promotes efficient use of energy resources through the upgrading of street lighting, developing green and sustainable public transportation system, improving urban development planning, reducing and recycling waste, and introducing new standards for resource conservation. National stakeholders noted the relevance of this project regarding international obligations of Turkmenistan under the Paris Agreement on Climate Change and within the framework of the implementation of the Sustainable Development Goals.

Annex VI

# Caspian Regional Marine Litter Action Plan

## Draft

## 22 May 2020

# PART I

# GENERAL PROVISIONS

**The Caspian Regional Marine Litter Action Plan (CRMLAP)** consists of three Parts, 9 Topics, 24 Sections, 86 Actions and an Annex in tabular form.

Part I - Introduction contains: General provisions; Rationale for the CRMLAP; Area of application; Definition of terms; Principles; Goals and objectives of the CRMLAP.

Part II - Description of Topics and Actions of the CRMLAP.

Part III – Description of Activities supporting the implementation of the CRMLAP.

ANNEX - Actions table of the CRMLAP including implementation timelines; lead authorities and verification indicators of implementation for each of the 86 Actions of the CRMLAP.

## SECTION 1

## RATIONALE FOR THE CASPIAN REGIONAL MARINE LITTER ACTION PLAN

Marine litter is the result of land-based and sea-based actions. Land-based sources include landfills, rivers and floods, industrial waste, rain drainage discharge, sewers and beach pollution. Sea-based activities are of the fishing industry, shipping, illegal dumping into the sea, discarded fishing gear, etc. It is estimated that approximately 80% of marine litter is caused by land-based activity, whilst sea-based activity accounts for only 20% (Marine Litter, Time to Clean up our Act, European Union, 2010). A separate major issue related to the marine litter problem is plastic, primarily microplastics, pollution.

The marine litter problem is relevant for the Caspian Sea region as well, but there are specifics associated with the peculiarities of the Caspian Sea.

The Caspian Sea is the largest body of water in the world that is not connected to a World Ocean. Due to its size, the uniqueness of its natural conditions and the complexity of its hydrological processes, the Caspian Sea belongs to the class of closed inland seas. At present the Caspian Sea level is 27 meters below the World Ocean level, the Caspian Sea has a surface area of more than 390 000 $km^2$, its volume is about 78 000 $km^3$, the average depth is 208 m and its maximum depth is 1025 m. The Caspian Sea spreads out over 1030 km from north to south, with a width ranging from 200 to 400 km.

Due to the closed nature of the reservoir, the common circulation system of the Caspian Sea waters, the seismicity of the region, the current economic practices in the Caspian Sea coastal territories pose a significant risk to the unified ecosystem of the Caspian Sea.

The cumulative effect of shipping, natural resources extraction, the development of tourist and recreational infrastructure, the excessive exploitation of biological resources and other aspects of economic activity affect the coastal marine areas of the Caspian Sea. These factors lead to the destruction of habitats, feeding areas, corridors for migratory fish species and the disruption of biogeochemical cycles.

Addressing the problem of assessing the marine litter impact on the Caspian ecosystem's current status is a rather complicated scientific task because of the multifactor nature of this challenge, especially given the uncertainty regarding the survivability threshold of the Caspian biocenosis and the reduced ability of the Caspian Sea ecosystem to recover.

The Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention) notes the deterioration of the marine environment of the Caspian Sea due to its pollution arising from various sources as a result of human activities, including the discharge, emission and disposal of harmful and hazardous substances, wastes and other pollutants, both in the sea and from land-based sources.

The Tehran Convention reaffirms the importance of the protection of the marine environment of the Caspian Sea.

The Tehran Convention states that the Contracting Parties shall individually or jointly take all appropriate measures to prevent, reduce and control pollution of the Caspian Sea and individually or jointly take all appropriate measures to protect, preserve and restore the environment of the Caspian Sea (Article 4).

The Tehran Convention also states that the Contracting Parties shall take all appropriate measures to prevent, reduce and control pollution of the Caspian Sea from land-based sources; states that the Contracting Parties shall take all appropriate measures to prevent, control and reduce pollution of the Caspian Sea resulting from seabed activities; states that the Contracting Parties shall take all appropriate measures to prevent, reduce and control pollution of the Caspian Sea from vessels (Articles 7, 8, 9).

The Tehran Convention stipulates to establish and implement individual and/or joint programmes for monitoring the environmental conditions of the Caspian Sea (Article 19).

The Protocol for the Protection of the Caspian Sea against Pollution from Land-based Sources and Activities to the Tehran Convention (Moscow Protocol) points to the serious danger posed to the marine environment and coastal areas, living resources and human health by pollution from land-based sources and activities.

The purpose of the Moscow Protocol is to prevent, control, reduce and to the maximum extent possible eliminate pollution of the marine environment from land-based sources and activities in order to achieve and maintain an environmentally sound marine environment of the Caspian Sea.

The Moscow Protocol provides that the Contracting Parties shall adopt and implement national action plans with timetables for achieving substantial reductions of inputs of pollutants from point sources on the basis of the list of hot-spots (Point 2, Article 7).

Annex I of the Moscow Protocol lists activities and categories of substances of concern which shall be taken into account by the Contracting Parties in the preparation of action plans, programmes and measures for the prevention, control, reduction and to the maximum extent possible elimination of pollution from land-based sources and activities, including marine litter as "Any persistent, manufactured or processed, solid material which is discarded, disposed of, or abandoned " (Section B, Point 6 of the Moscow Protocol).

The rationale for the preparation of the CRMLAP should note the need to protect, prevent, reduce, and to the extent possible eliminate pollution of the marine environment of the Caspian Sea in order to maintain an ecologically healthy marine environment, preserve its ecosystem and the integrity of biological diversity in accordance with the provisions of the Tehran Convention and its Protocols **(**Art. 2 of the Tehran Convention, Art. 1 of the Moscow Protocol, Art. 2 of the Ashgabat Protocol).

Marine litter has become a global and regional issue affecting marine and coastal environment quality. There are knowledge gaps on marine litter sources and its impacts on the marine and coastal environment.

In preparing action plans, programmes and measures, the Contracting Parties may take into account the provisions of relevant international instruments.

The implementation of the CRMLAP will assist the Contracting Parties in achieving Sustainable Development Goal 14, especially Target 14.1.

The United Nations General Assembly resolutions A/RES/72/73 (2017), A/RES/70/303 (2015), and A/RES/69/245 (2014) on Oceans and the Law of the Sea are covering the issue of marine litter.

The UN Environment Assembly took decisions and recommendations or measures to reduce marine plastic litter and microplastics in the resolutions UNEP/EA.1/Res.6 (2014); UNEP/EA.2/Res.11 (2016); and UNEP/EA.3/Res.7 (2017).

The UNEP Global Marine Litter Initiative took an active lead in assisting twelve Regional Seas Programmes in organizing and implementing regional activities on marine litter.

The objective of the CRMLAP is to significantly reduce further introduction of marine litter from land-based and sea-based sources into the Caspian Sea and to reduce marine litter already present in the marine environment and hence its potential impact on marine biota, habitats, public health and safety as well as its socioeconomic costs.

The private sector and civil society, including non-governmental organizations and the general public, can contribute significantly to prevent and reduce marine litter through a number of various actions.

All of the Caspian countries have signed and ratified the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and its Annexes and the Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention).

The commitments endorsed by the Fifth International Marine Debris Conference and the Honolulu Strategy (2011), a global framework strategy to prevent, reduce, and manage marine litter, the UNEP/GPA Programme of Work on marine litter adopted in January 2012, relevant provisions of global and regional international environmental agreements (above mentioned International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and its Annexes and the Basel Convention) are of importance.

Regional action plans for marine litter, such as NOWPAP Action Plan (2008); Mediterranean Action Plan (2013); North-East Atlantic (OSPAR) Action Plan (2014); and Baltic (HELCOM) Action Plan (2015), contribute to solving the problem of marine litter.

A regional approach to marine litter management is very important because of the transboundary nature of the problem. Through a regional approach each of the participating countries can contribute to and benefit from the collective effort resulting in synergistic effects. Exchanging views, approaches and results should help the development and implementation of a coordinated and harmonized regional programme. Surveying, monitoring and reporting all require regionally coherent methods and indicators to be effective.

The CRMLAP is a framework document which is aimed at undertaking appropriate measures to address the marine litter problem by the Caspian Sea littoral countries.

## SECTION 2

## AREA OF APPLICATION

This CRMLAP applies to the marine and coastal environment of the Caspian Sea, taking into account the fluctuations of its sea level and pollution affecting the marine environment and/or coastal areas of the Caspian Sea[1], including the pollution which damages landscapes or habitats (Art. 3 of the Tehran Convention, item C of Art. 3 of the Moscow Protocol).

## SECTION 3

## DEFINITION OF TERMS

For the purposes of the CRMLAP, the following terms mean:

*Abandoned, lost or otherwise discarded fishing gear or parts thereof (ALDFG)* or *Derelict fishing gear (DFG)* are the collective terms for commercial and recreational fishing gear that has been abandoned, lost or otherwise discarded into the marine environment and causes negative biological impacts through, e.g. unintentional catches of fish (a process which is often referred to as *ghost fishing*), coverage of sensitive habitats and/or fragmentation into micro-particles that could enter the food chain;

*Coastal area* means terrestrial area bordering the coastline and affected by the proximity to the sea and by the sea level fluctuations (Moscow Protocol);

*Conference of the Parties* means the body referred to in Article 22 of the Tehran Convention;

*Contracting Parties* means the Caspian Littoral States: Republic of Azerbaijan, Islamic Republic of Iran, Republic of Kazakhstan, Russian Federation, and Turkmenistan;

*CRMLAP* means Caspian Regional Marine Litter Action Plan;

*Diffuse sources* means land-based sources of pollution, other than point sources, from which substances enter the environment as a result of land run-off, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification or destruction of habitats;

*Dumping* means deliberate disposal into the marine environment of wastes or other matter from vessels, aircraft, platforms, or other man-made structures in the Caspian Sea or deliberate disposal of vessels, aircraft, platforms, or other man-made structures in the Caspian Sea (Tehran Convention);

*Emission* means any kind of discharges, effluents or releases of polluting substances into the water, air or soil;

*Environmental Monitoring Programme* means the framework for enabling the measurement of and reporting on the quality and its trends in the marine environment of the Caspian Sea for the purpose of national and regional policy and decision making related to the implementation of the Tehran Convention and its Protocols;

*Extended Producer Responsibility* means a strategy to add all of the environmental costs associated with a product throughout the product life cycle to the market price of that product;

[1] A strip of coastal territories of up to 100 km wide.

*Fishing for litter* means the collection of marine litter and its subsequent landing in ports and proper disposal by fishermen, whether passive (litter is collected during their regular fishing activities) or active (litter is collected by fishermen on duty for that specific purpose);

*Fishing gear* includes all items/elements onboard fishing vessels that are used for fishing purposes, including fish aggregating devices (FADs);

*Hot-spot* means a limited and definable land area, stretch of surface water or specific aquifer that is subject to excessive pollution and necessitates priority attention in order to prevent or reduce the actual or potential adverse impacts on human health, ecosystems or natural resources and amenities of economic importance;

*IUU fishing gear* means any fishing gear, marked or not marked, used for the purpose of illegal, unreported and unregulated fishing;

*Marine Environment* means the complex of elements, comprising marine waters, influx of fresh waters, bottom sediments and air adjacent to the sea surface and land affected by proximity to the Sea, as well as biological organisms resources inhabiting them (draft of the Protocol on Monitoring, Assessment and Information Exchange to the Framework);

*Marine litter* is any persistent, manufactured or processed, solid material which is discarded, disposed of, or abandoned in the marine and coastal environment (Moscow Protocol);

*Marine litter monitoring* means surveys of beaches, surface waters, water columns, sea beds and biota to determine litter types and quantities in a representative manner;

*Microlitter* means the fraction of marine litter of less than 5 mm in size with a further division into *Large Micro Particles* (1-5 mm) and *Small Micro Particles* (<1 mm);

*Moscow Protocol* means Protocol for the Protection of the Caspian Sea Against Pollution from Land-based Sources and Activities to the Tehran Convention;

*Point sources* means land-based sources of pollution where emissions are introduced into the environment from any discernible, confined and discrete conveyance, including but not limited to pipes, outfalls, channels, ditches, tunnels, conduits or wells from which pollutants are or may be discharged;

*Pollution* means the introduction by man, directly or indirectly, of substances or energy into the environment resulting, or likely to result, in such deleterious effects as harm to living resources and marine life, hazards to human health and hindrance to legitimate uses of the Caspian Sea;

*Pollution from land-based sources* means pollution of the sea from all kinds of point and diffuse sources based on land reaching the marine environment, whether water-borne, air-borne or directly from the coast (Moscow Protocol)**;**

*Pollution from sea-based sources* means pollution from merchant shipping, ferries and cruise liners; fishing vessels; military fleets and research vessels; pleasure craft; offshore oil and gas platforms; aquaculture installations; and waterway recreational activities (such as diving and marinas);

*Primary microplastics* means plastics produced in microscopic size either for the direct use in products (such as microbeads used, e.g. in cosmetic peeling products or for cleaning purposes of ship hulks) or indirect use (such as pre-productions pellets or nurdles);

*Secondary microplastics* means the fraction of microplastics in the marine environment which results from the breakdown of larger items into numerous tiny fragments due to mechanical forces and/or photochemical processes, as well as from other degradation sources such as fibres in wastewater from washing clothes and particles of rubber lost from tyres due to normal wear;

*Secretariat* means the body referred to in Article 23 of the Tehran Convention;

*Tehran Convention* means the Framework Convention for the Protection of the Marine Environment of the Caspian Sea;

*Wastes* are substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law (Basel Convention); and

*Vessel or Ship* means a vessel of any kind that operates in the marine environment, including hovercraft, hydrofoil boats, submarines, towed and self-driving boats, as well as platforms and other manmade offshore structures (Tehran Convention).

## SECTION 4

## PRINCIPLES

In implementing the CRMLAP the participating countries shall be guided by:

*The precautionary principle*, by virtue of which where there are threats of serious or irreversible damage to the marine environment or to public health, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent such damage (Tehran Convention);

*The polluter pays principle*, by virtue of which, the polluter bears the costs of prevention, control and reduction of the Caspian Sea marine environment pollution (Tehran Convention);

*The prevention principle*, by virtue of which, any marine litter management measure should aim at addressing the prevention of marine litter generation at the source;

*The integration principle*, by virtue of which, the marine litter management should be an integral part of the integrated management of the coastal areas, including solid waste management, to reduce the negative impact on the marine and coastal environment of the Caspian Sea (Moscow Protocol);

*The sustainable development of the coastal areas principle* through the integrated approach to development of coastal areas (Moscow Protocol);

*The stakeholders*, including the public, participation principle according to which the Contracting Parties, in compliance with their national legislation, facilitate the participation of local authorities and the public in activities necessary to protect the marine environment and coastal areas of the Caspian Sea from pollution;

*The accessibility to information on the pollution of the Caspian Sea marine environment principle*, by virtue of which, the Contracting Parties exchange on regular basis information on the state of the Caspian Sea marine environment, measures taken or planned to prevent, reduce and control pollution in accordance with their legislation;

*The ecosystem approach*, by virtue of which the combined impact of marine litter with other pollutants and substances present in the marine environment on the marine and coastal ecosystems, habitats and species should be fully taken into account; and

*The intergenerational equity principle*, by virtue of which the marine environment of the Caspian Sea will be preserved for the benefit of the present and future generations.

## SECTION 5

# OBJECTIVE AND GOALS

**The objective of the CRMLAP is**:

To prevent, control, reduce and to the maximum extent possible eliminate pollution of the marine environment from marine litter in order to achieve and maintain an environmentally sound marine environment of the Caspian Sea.

**The goals of the CRMLAP are:**

- Assessment of the state of the marine litter problem in the Caspian Sea region;
- Monitoring of the amount and distribution of marine litter in the Caspian Sea region;
- Enhancing knowledge and awareness about marine litter and its impacts amongst all stakeholders in the Caspian Sea region;
- Strengthening national institutional arrangements to prevent and reduce the amount of marine litter effectively;
- Dissemination of experience in the management of marine litter in other regions and its use in the Caspian Sea region, taking into account the physical and geographical features of the region;
- Prevention and reduction of marine litter pollution to a minimum in the marine and coastal environment of the Caspian Sea region and its impact on ecosystem services, habitats and species (in particular the endangered species), economic development, public health and safety and reduction of the socioeconomic costs it causes;
- Removing to the extent possible already existent marine litter by using environmentally acceptable methods; and
- Assisting in the establishment of cross-sectoral cooperation among relevant national and local authorities which are involved in the marine litter issues.

# PART II

# SECTION 6

# TOPICS OF THE CASPIAN REGIONAL MARINE LITTER ACTION PLAN

The Topics of the CRMLAP are:

1. Legal and economic instruments;
2. Integrated waste management, including marine litter;
3. Preventing and reducing marine litter from land-based sources;
4. Preventing and reducing marine litter from sea-based sources;
5. Monitoring and assessment of marine litter;
6. Scientific researches for minimizing pollution by marine litter, including microplastics;
7. Facilitation of sustainable development of coastal areas;
8. Removal of existing litter and its disposal; and
9. Activities supporting the implementation of the CRMLAP.

# SECTION 7

# TOPIC 1: LEGAL AND ECONOMIC INSTRUMENTS

## Preventing and reducing marine litter from land-based and sea-based sources

## Actions

1.1. Assist countries in developing national legal and economic instruments to regulate and prevent marine pollution from land-based and sea-based sources, including the minimization of pollution from sewage, and from production and consumption waste;

1.2. Assist the Caspian littoral states in improving legislation in the field of marine litter including the regulation of microplastics;

1.3. Promote the incorporation of legal provisions for marine litter into various sectors of national legislation, such as legislation on fisheries, protected areas, production and consumption waste and solid waste management;

1.4. Development of possible prevention measures related to Extended Producer Responsibility by making the producers, manufacturers and first importer responsible for the entire life cycle of the product;

1.5. Elaborate recommendations to develop the circular economy on the basis of improving the economic mechanisms and sectoral legislation in the field of waste management;

1.6. Develop recommendations on the stimulation for structural economic changes to ensure a reduction in the production and consumption of plastics, to intensify the production of more environmentally friendly materials and also to ensure the extension of recycling and reusing;

1.7. Develop measures to reduce plastic bag consumption through the use of fiscal and economic instruments;

1.8. Cooperate with national stakeholders on the establishment and/or further development of the Extended Producer Responsibility approach, including deposit refund systems for bottles, containers and cans (e.g. glass, plastic and aluminium);

1.9. Develop cooperation under the Tehran Convention in the field of addressing the marine litter problem with international conventions and agreements dealing with marine litter issues, as appropriate, such as the MARPOL Convention and its Annex V, the London Convention and its Protocol, the Basel Convention, the Global Programme of Action (GPA) for the protection of the Marine Environment from Land-based Activities and the FAO (Food and Agriculture Organization of the United Nations) Code of Conduct for Responsible Fisheries;

1.10. Prepare recommendation for applying cost effective measures to prevent any marine littering from dredging activities, in particular maintenance dredging in port areas; and

1.11. Evaluate the direct costs and loss of income to tourism and fisheries due to marine litter pollution.

## SECTION 8

## TOPIC 2: INTEGRATED WASTE MANAGEMENT, INCLUDING MARINE LITTER

### Actions

2.1. Compile information on best waste management practices and disseminate it among industry and business representatives in the Caspian littoral states;

2.2. Seek cooperation with river and river basin authorities in order to assess the impacts of litter from riverine inputs on the marine environment;

2.3. Promote elaboration and implementation of adequate waste reduction, reuse and recycling measures in order to reduce the amount of litter, particularly the fraction of plastic waste that goes to landfill or incineration without energy recovery;

2.4. Elaborate, in accordance with national legislation, proposals for decision-makers to address illegal dumping, including sewage disposal, in coastal zones and rivers, as well as littering beaches;

2.5. Promote the development of waste collection, separation and safe disposal systems;

2.6. Prepare proposals for the implementation of effective methods for assessing and accounting marine litter including primary and secondary microplastics in national policies for solid waste management; and

2.7. Propose the introduction of appropriate measures to minimize the use of microplastics that may affect the marine environment. Examine the possibility of developing and adopting a voluntary agreement on phasing out the use of microplastic and discuss it with relevant sectors.

## SECTION 9

## TOPIC 3: PREVENTING AND REDUCING MARINE LITTER FROM LAND-BASED SOURCES

### Actions

3.1. Promote the development of regional sectoral guidelines to prevent and reduce pollution of the marine environment from land-based sources in the context of supporting relevant national measures;

3.2. Identify and systematize the major land-based sources of pollution of the marine and coastal environment of the Caspian Sea; and

3.3. Implement relevant Actions of all other Sections.

## SECTION 10

## TOPIC 4: PREVENTING AND REDUCING MARINE LITTER FROM SEA-BASED SOURCES

### Actions

4.1. In the context of the Tehran Convention provide assistance and collaborate on the implementation of the requirements of Annex V to the MARPOL Convention related to provide and improve the availability of reception facilities for all types of ship-generated waste in their ports, harbours, terminals and marinas;

4.2. Collaborate with stakeholders – with the administrations of the Caspian Sea seaports - to prepare a review of the state of port reception facilities in the Caspian Sea region and to develop appropriate recommendations for improving the efficiency of their use, including economic mechanisms;

4.3. Prepare a review on the status of marine litter associated with oil and gas production/platforms and carry out an assessment of production and disposal of marine litter;

4.4. Under the Tehran Convention, collaborate with relevant international and regional organizations, including the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources to explore and implement to the extent possible the “gear marking to indicate ownership” concept aiming to contribute to reduce fisheries-related marine litter;

4.5. To contribute to events under the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources related to the development and application of operational fishing methods that minimize the loss of fishing gear and ghost fishing effects from lost or abandoned fishing gear in accordance with the FAO technical guidelines for the implementation of the Code of Conduct for Responsible Fisheries;

4.6. In collaboration with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, develop recommendations on risk assessment for the conservation of bioresources and their habitat, on the loss of fish stocks resulting from abandoned/lost fishing gear on ghost fishing effects;

4.7. In collaboration with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, define the main components of fisheries and aquaculture waste that may contribute to the generation of marine litter;

4.8. In collaboration with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, develop proposals to minimize the amount of marine litter associated with fishing; and

4.9. Collaborate with representatives of the shipping, fishing, and tourism sectors in developing sectoral guidelines for the prevention and reduction of marine pollution from sea-based sources, especially for the shipping and fishing sectors.

## SECTION 11

## TOPIC 5: MONITORING AND ASSESSMENT OF MARINE LITTER

### Actions

5.1. Carry out monitoring of marine litter at selected pilot sites in the Caspian marine zone on the basis of visual observations to estimate the amount of marine litter and to determine the morphological composition of marine litter, including plastic waste;

5.2. Prepare guidelines for the monitoring and assessment of marine litter for the Caspian Sea region;

5.3. Determine technologies for monitoring marine litter and microlitter in the Caspian Sea biota and on the seabed based on available technologies in other marine regions;

5.4. Promote the development of national and regional marine litter assessment and monitoring programmes as well as the introduction of such programmes into existing national programmes;

5.5. Designate national and regional reference laboratories for the analysis of microplastics in the marine environment; and

5.6. Establish a Caspian regional data and information base on marine litter in the Caspian Sea region for the storage, management, analysis and interpretation of the results of the regional and national marine litter assessment and monitoring programmes.

## SECTION 12

## TOPIC 6: SCIENTIFIC RESEARCH FOR MINIMIZING POLLUTION BY MARINE LITTER, INCLUDING MICROPLASTICS

### Actions

6.1. Promote the study of marine litter, including microplastics, as one of the pollutants of the Caspian Sea marine and coastal environment;

6.2. Promote scientific research in the field of the rate of degradation or fragmentation of marine litter in various natural environments;

6.3. Promote scientific research of marine litter as a vector for invasive alien species movement;

6.4. Promote scientific research on the removal of microplastics from the aquatic environment;

6.5. Facilitate scientific research on the basis of the Convention on Biological Diversity practical guidance on preventing and mitigating the impacts of marine litter on marine and coastal biodiversity and habitats;

6.6. Promote scientific research to determine the degree of adverse impact of microplastics on marine biota;

6.7. Promote the organization of scientific research to study the penetration of microplastics through benthic and pelagic food chains of marine biota;

6.8. Promote scientific research on the development of environmentally sound production technologies to minimize marine litter;

6.9. Promote the application of scientific research results regarding plastic use (e.g. for road construction);

6.10. Promote the development of technologies to prevent marine litter from land-based sources;

6.11. Support scientific research in the field of technologies to reduce the environmental impact of plastics on the marine environment;

6.12. Promote scientific research on the distribution and amount of marine litter in the Caspian Sea which contributes to marine pollution; and

6.13. Identify the main sources of litter including microlitter, assess the diverse impact of microplastics on the marine and coastal environment, and develop measures to reduce its impact.

## SECTION 13

## TOPIC 7: FACILITATION OF SUSTAINABLE DEVELOPMENT OF COASTAL AREAS

### Actions

7.1. Develop regional guidelines for the integrated management of marine and coastal areas, including an assessment of coastal vulnerability, and *inter alia* marine pollution in the context of the sea level fluctuations;

7.2. Summarize the marine litter related experience of the Caspian littoral countries in the sustainable development of coastal territories, including in the area of sustainable production and consumption, in order to minimize pollution;

7.3. Develop recommendations for an integrated approach to the production and use of plastic waste to ensure the transition to resource-efficient regulation of plastics on the basis of a closed cycle system;

7.4. Facilitate the development and implementation of measures to reduce, reuse and recycle waste in order to minimize the amount of waste;

7.5. Develop proposals to take necessary measures at the national level to combat illegal landfills, littering beaches and illegal dumping of solid waste or sewage in coastal zones;

7.6. Elaborate proposals for national socio-economic development programmes to reduce the discharge of untreated or insufficiently treated wastewater into the Caspian Sea and into water

bodies associated with it; to minimize industrial wastes, including from the oil and gas industry, and other wastes, including marine litter, taking into account the environmental, recreational and fishery related the specifics of the region; and

7.7. Develop and implement, in collaboration with relevant stakeholders, regional and national programmes to locate, remove and dispose of accumulations/hot spots of sea-based marine litter related to marine transport, fisheries, mariculture, aquaculture, tourism and oil/gas production.

## SECTION 14

## TOPIC 8: REMOVAL OF EXISTING LITTER AND ITS DISPOSAL

### Actions

8.1. Enhance cooperation with stakeholders, such as regional authorities, business, industry sectors, public and other civil society groups interested in minimizing the pollution of the marine and coastal environment of the Caspian Sea related to marine litter;

8.2. Develop and promote, together with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, the fishing industry and other relevant stakeholders, best practices in relation to Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG);

8.3. Collaborate with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources and promote the implementation of a “fishing for litter” environmentally sound practice, in consultation with competent international and regional organizations and in partnership with fishermen. Facilitate the cleanup of floating litter and the seabed from marine litter caught incidentally as well as generated by fishing vessels in their regular activities, including derelict fishing gear;

8.4. Consider and address potential marine litter arising from ship maintenance and ship dismantling; and

8.5. Establish cooperation with the waste industry in order to ensure the proper operations of solid waste management facilities on shore (waste reception and disposal from all sources, including shipping, fisheries, platforms, marinas, dredging and harbour wastes).

# PART III

# SECTION 15

# TOPIC 9: ACTIVITIES SUPPORTING THE IMPLEMENTATION OF THE CRMLAP

Implementation of the CRMLAP should be carried out within the framework of the topic areas of the articles of the Tehran Convention and its Protocols related to minimizing pollution of the Caspian Sea marine and coastal environment, and through:

- **Organizational mechanisms for the implementation of the CRMLAP**, such as the Regional Coordinating Group of Representatives of the Caspian littoral Countries on the CRMLAP (as proposed in the CRMLAP);

- **National Caspian Action Plans under the Tehran Convention (NCAPs),** based on national plans and programmes, in which it is possible to envisage appropriate measures to minimize marine litter in the sea and coastal areas in the context of addressing the problem of the Caspian Sea marine and coastal environment pollution; and

- **National reports on the implementation of the Tehran Convention,** which are submitted by countries in accordance with the corresponding decisions of the Conference of the Parties to the Convention and with the Unified Reporting Format. In those reports information on national activities to minimize marine litter can be introduced in the section "Prevention, reduction and control of pollution".

At the national level, responsibility for the implementation of the CRMLAP under the Tehran Convention rests with the national coordinators. At the regional level, coordination of activities of the Regional Coordinating Group on the CRMLAP and of the corresponding work at the national level is attributed to the Secretariat of the Tehran Convention.

Funding mechanisms for the implementation of the CRMLAP can be implemented through international projects to be carried out in cooperation with international organizations, international conventions, private sector and programmes for marine litter.

## Activity directions

**9.1 Regional and international cooperation and reporting on the CRMLAP;**

**9.2 Involvement of stakeholders, NGOs and civil society;**

**9.3 Information, education, outreach and public awareness;**

**9.4 Training and capacity-building; and**

**9.5 Evaluation of the effectiveness of the implementation of the CRMLAP at the regional level.**

## Actions

## 9.1. Regional and international cooperation and reporting on the CRMLAP

9.1.1. Establish a Regional Coordinating Group on the CRMLAP;

9.1.2. Establish, within the framework of the Regional Coordinating Group on the CRMLAP, a subgroup of experts for the assessment and monitoring of marine litter. This subgroup shall become a part of the Tehran Convention Environmental Monitoring Program;

9.1.3. Establish partnerships with cities to provide effective transfer of knowledge and innovation, and promote collaboration among cities/between countries;

9.1.4. Adapt international developments on marine litter to the Caspian Sea region;

9.1.5. Enhance interaction under the Tehran Convention and the Moscow Protocol and use the existing cooperation platforms and mechanisms in the field of addressing the marine litter problem (such as the Global Programme of Action for the Protection of the Marine Environment from Pollution from Land-based Activities, the Global Partnership on Marine Litter and Regional Seas Action Plans);

9.1.6. Encourage stakeholder engagement in relevant international initiatives, such as the International Coastal Cleanup (ICC) campaigns, Clean Up The World (CUW) campaigns, Green Fins and similar campaigns or programmes, as well as in national or sub-national efforts to educate the public, including school children, on marine litter issues as well as to encourage positive behaviour changes that will help to reduce the generation of litter;

9.1.7. Convene regional conferences and stakeholder meetings;

9.1.8. Prepare national biennial reports on the implementation of the CRMLAP. Such reports should have a section on national assessment and monitoring programmes which could also be used for reporting to the Tehran Convention; and

9.1.9. Prepare a regional biennial report on the implementation of the CRMLAP. Such reports should have a section on national assessment and monitoring programmes.

## Actions

## 9.2. Involvement of stakeholders, NGOs and civil society

9.2.1. Support the involvement of various stakeholders including regional, national, and local authorities, NGOs, and the private sector as well as relevant stakeholders to implement the actions of the CRMLAP;

9.2.2. Support the implementation of the National Marine Litter Cleanup Campaigns (beaches, riverbanks, storm water drainage) on a regular basis;

9.2.3. Collect and organize information, and coordinate the voluntary cleaning of beaches as a tool in educating and involving local communities, stakeholders and media to increase knowledge and awareness of the marine litter problem;

9.2.4. Enhance public participation in addressing marine litter through clean-ups, exploring and implementing the Adopt-a-Beach concept, or similar practices;

9.2.5. Encourage and assist entities with a particular interest in or responsibility for certain coastal areas, such as tourist resorts and port authorities, to undertake regular clean-ups of their areas;

9.2.6. Promote and enhance national stakeholder alliances focusing on marine litter;

9.2.7. Communicate with existing regional, national and local networks of stakeholders on marine litter; and

9.2.8. Convene regional and national stakeholder meetings.

## Actions

## 9.3. Information, education, outreach and public awareness

9.3.1. Develop a booklet on the CRMLAP and translate it into the Caspian states' national languages; and

9.3.2. Formulate and implement awareness-raising campaigns and activities, including the development of materials (e.g., booklets, leaflets, flyers, etc.) and the organization of workshops and forums, for the stakeholders involvement, general public participation, various sectors, municipal authorities, local communities, school children and youth and other groups, in the sphere of sustainable production and consumption as well as the reduction of waste generation and the application of environmentally sound disposal and reuse in order to reduce the amount of marine litter.

## Actions

## 9.4. Training and capacity-building

9.4.1. Develop and implement education and training programmes for different target groups in order to enhance the understanding of the marine litter problem;

9.4.2. Facilitate the application of technical sectoral guidelines for different target groups through regional workshops and training programmes; and

9.4.3. Provide technical training and capacity-building to staff from national and municipal governments, port authorities and the shipping industry on the prevention and reduction of marine litter from land-based and sea-based sources through regional workshops and training courses.

## Actions

## 9.5 Evaluation of the effectiveness of the implementation of the CRMLAP at the regional level

9.5.1. Development of a methodology for the evaluation of the effectiveness of the implementation of the CRMLAP at the national and regional levels;

9.5.2. Evaluation of the effectiveness of the implementation of the CRMLAP at the national level; and

9.5.3. Evaluation of the effectiveness of the implementation of the CRMLAP at the regional level.

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# ANNEX

## Caspian Regional Marine Litter Action Plan

## SECTION 16

| TOPIC 1: LEGAL AND ECONOMIC INSTRUMENTS | | | | | |
|---|---|---|---|---|---|
| | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |
| | 1.1. Assist countries in developing national legal and economic instruments to regulate and prevent marine pollution from land-based and sea-based sources, including the minimization of pollution from sewage, and from production and consumption waste. | 2024 | Secretariat | Developed | Secretariat |
| | 1.2. Assist the Caspian littoral states in improving legislation in the field of marine litter including the regulation of microplastics. | 2022 | Countries | Improved | Countries |
| | 1.3. Promote the incorporation of legal provisions for marine litter into various sectors of national legislation, such as legislation on fisheries, | 2022 | Countries | Promoted | Countries |

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| | protected areas, production and consumption waste and solid waste management. | | | | |
| | 1.4. Develop possible prevention measures related to Extended Producer Responsibility by making the producers, manufacturers and first importer responsible for the entire life cycle of the product. | 2023 | Countries | Developed | Countries |
| | 1.5. Elaborate recommendations to develop a circular economy approach on the basis of improving the economic mechanisms and sectoral legislation in the field of waste management. | 2024 | Secretariat and Countries | Developed | Secretariat and Countries |
| | 1.6. Develop recommendations on the stimulation for structural economic changes to ensure a reduction in the production and consumption of plastics, to intensify the production of more environmentally friendly materials and also to ensure the extension of recycling and reusing. | | | | |
| | 1.7. Develop measures to reduce plastic bag consumption through the use of fiscal and economic instruments. | 2021 | Countries | Developed | Countries |
| | 1.8. Cooperate with national stakeholders on the establishment and/or further development of the Extended Producer Responsibility approach, including deposit refund systems for bottles, containers and cans (e.g. glass, plastic and aluminium). | 2022 | Countries | Cooperated | Countries |
| | 1.9. Develop cooperation under the Tehran Convention in the field of addressing the marine litter problem with international conventions and agreements dealing with marine litter issues, as appropriate, such as the MARPOL Convention and its Annex V, the London Convention and its Protocol, the Basel Convention, the Global Programme of Action (GPA) for the protection of the Marine Environment from Land-based Activities and the FAO Code of Conduct for Responsible Fisheries. | 2022 | Countries | Developed | Countries |
| | 1.10. Prepare recommendations for applying cost effective measures to prevent any marine littering from dredging activities, in particular maintenance dredging in port areas. | 2022 | Secretariat and Countries | Prepared | Secretariat and Countries |

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| | 1.11. Evaluate the direct costs and loss of income to tourism and fisheries due to marine litter pollution. | 2023 | Secretariat and Countries | Evaluated | Secretariat and Countries |

## SECTION 17

| TOPIC 2: INTEGRATED WASTE MANAGEMENT, INCLUDING MARINE LITTER | | | | | |
|---|---|---|---|---|---|
| | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |
| | 2.1. Compile information on best waste management practices and disseminate it among industry and business representatives in the Caspian littoral states. | 2022 | Secretariat and Countries | Disseminated | Secretariat and Countries |
| | 2.2. Seek cooperation with river and river basin authorities in order to assess the impacts of litter from riverine input on the marine environment. | 2021 | Secretariat and Countries | Cooperation achieved | Secretariat and Countries |
| | 2.3. Promote elaboration and implementation of adequate waste reduction, reuse and recycling measures in order to reduce the amount of litter, particularly the fraction of plastic waste that goes to landfill or incineration without energy recovery. | 2022 | Secretariat and Countries | Implemented | Secretariat and Countries |
| | 2.4. Elaborate, in accordance with national legislation, proposals for decision-makers to address illegal dumping, including sewage disposal, in coastal zones and rivers as well as littering beaches. | 2022 | Secretariat and Countries | Proposals made | Secretariat and Countries |
| | 2.5. Promote the development of waste collection, separation and safe disposal systems. | 2023 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 2.6. Prepare proposals for the implementation of effective methods for assessing and accounting marine litter, including primary and secondary microplastics, in national policies for solid waste management. | 2023 | Countries | Proposals prepared | Countries |

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| | 2.7. Propose the introduction of appropriate measures to minimize the use of microplastics that may affect the marine environment. Examine the possibility of developing and adopting a voluntary agreement on phasing out of the use of microplastic and discuss it with relevant sectors. | 2024 | Countries | Proposed and examined | Countries |

## SECTION 18

| TOPIC 3: PREVENTING AND REDUCING MARINE LITTER FROM LAND-BASED SOURCES | | | | | |
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| | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |
| | 3.1. Promote the development of regional sectoral guidelines to prevent and reduce pollution of the marine environment from land-based sources in the context of supporting relevant national measures. | 2024 | Secretariat | Promoted | Secretariat |
| | 3.2. Identify and systematize major land-based sources of pollution of the marine and coastal environment of the Caspian Sea. | 2024 | Secretariat | Identified and systematize | Secretariat and countries |
| | 3.3. Implement relevant Actions of all other Sections. | As presented | Secretariat and countries | Implemented | |

## SECTION 19

| TOPIC 4: PREVENTING AND REDUCING MARINE LITTER FROM SEA-BASED SOURCES | | | | | |
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| | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |

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| | 4.1. In the context of the Tehran Convention provide assistance and collaborate on the implementation of the requirements of Annex V to the MARPOL Convention related to provide and improve the availability of reception facilities for all types of ship-generated waste in their ports, harbours, terminals and marinas. | 2021 | Secretariat and Countries | Collaborated | Secretariat and Countries |
| | 4.2. Collaborate with stakeholders - with the administrations of the Caspian Sea seaports - to prepare a review of the state of port reception facilities in the Caspian Sea region and to develop appropriate recommendations for improving the efficiency of their use, including economic mechanisms. | | | | |
| | 4.3. Prepare a review on the status of marine litter associated with oil and gas production/platforms and carry out an assessment of production and disposal of marine litter. | | | | |
| | 4.4. Under the Tehran Convention, collaborate with relevant international and regional organizations, including the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, to explore and implement to the extent possible the “gear marking to indicate ownership” concept aiming to contribute to reduce fisheries-related marine litter. | | | | |
| | 4.5. To contribute to events under the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources related to the development and application of operational fishing methods that minimize the loss of fishing gear and ghost fishing effects from lost or abandoned fishing gear in accordance with the FAO (Food and Agriculture Organization of the United Nations) technical guidelines for the implementation of the Code of Conduct for Responsible Fisheries. | 2022 | Countries | Contributed | Countries |
| | 4.6. In collaboration with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, develop recommendations on risk assessment for the conservation of | 2022 | Secretariat and Countries | Developed | Secretariat and Countries |

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| | bioresources and their habitat, on the loss of fish stocks resulting from abandoned/lost fishing gear and on ghost fishing effects. | | | | |
| | 4.7. In collaboration with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, define the main components of fisheries and aquaculture waste that may contribute to the generation of marine litter. | 2023 | Secretariat and Countries | Defined | Secretariat and Countries |
| | 4.8. In collaboration with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, develop proposals to minimize the amount of marine litter associated with fishing. | 2021 | Countries | Developed | Countries |
| | 4.9. Collaborate with representatives of the shipping, fishing, and tourism sectors in developing sectoral guidelines for the prevention and reduction of marine pollution from sea-based sources, especially for the shipping and fishing sectors. | 2022 | Countries | Collaborated | Countries |

## SECTION 20

| TOPIC 5: MONITORING AND ASSESSMENT OF MARINE LITTER | | | | | |
|---|---|---|---|---|---|
| | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |
| | 5.1. Carry out monitoring of marine litter at selected pilot sites in the Caspian marine zone on the basis of visual observations to estimate the amount of marine litter and to determine the morphological composition of marine litter, including plastic waste. | 2022 | Secretariat | Carried out | Secretariat |
| | 5.2. Prepare guidelines for the monitoring and assessment of marine litter for the Caspian Sea region. | 2021 | | Prepared and determined | |

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| | 5.3. Determine technologies for monitoring marine litter and microlitter in the Caspian Sea biota and on the seabed based on available technologies in other marine regions. | | Secretariat and Countries | | Secretariat and Countries |
| | 5.4. Promote the development of national and regional marine litter assessment and monitoring programmes as well as the introduction of such programmes into existing national programmes. | 2022 | Secretariat and Countries | Developed | Secretariat and Countries |
| | 5.5. Designate national and regional reference laboratories for the analysis of microplastic in the marine environment. | 2022 | Secretariat and Countries | Designated | Secretariat and Countries |
| | 5.6. Establish a Caspian regional data and information base on marine litter in the Caspian Sea region for the storage, management, analysis and interpretation of the results of the regional and national marine litter assessment and monitoring programmes. | 2022 | Secretariat and Countries | Established | Secretariat and Countries |

## SECTION 21

| TOPIC 6: SCIENTIFIC RESEARCH FOR MINIMIZING POLLUTION BY MARINE LITTER, INCLUDING MICROPLASTICS | | | | | |
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| | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |
| | 6.1. Promote the study of marine litter, including microplastics, as one of the pollutants of the Caspian Sea marine and coastal environment. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.2. Promote scientific research in the field of the rate of degradation or fragmentation of marine litter in various natural environments. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |

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| | 6.3. Promote scientific research of marine litter as a vector for invasive alien species movement. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.4. Promote scientific research on the removal of microplastics from the aquatic environment. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.5. Facilitate scientific research on the basis of the Convention on Biological Diversity practical guidance on preventing and mitigating the impacts of marine litter on marine and coastal biodiversity and habitats. | 2022 | Secretariat and Countries | Facilitated | Secretariat and Countries |
| | 6.6. Promote scientific research to determine the degree of adverse impact of microplastics on marine biota. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.7. Promote the organization of scientific research to study the penetration of microplastics through benthic and pelagic food chains of marine biota. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.8. Promote scientific research on the development of environmentally sound production technologies to minimize marine litter. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.9. Promote the application of scientific research results regarding plastic use (e.g. for road construction). | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.10. Promote the development technologies to prevent marine litter from land-based sources. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.11. Support scientific research in the field of technologies to reduce the environmental impact of plastics on the marine environment. | 2022 | Secretariat and Countries | Supported | Secretariat and Countries |

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| | 6.12. Promote scientific research on the distribution and amount of marine litter in the Caspian Sea which contributes to marine pollution. | 2022 | Secretariat and Countries | Promoted | Secretariat and Countries |
| | 6.13. Identify the main sources of microlitter, assess the diverse impact of microplastics on the marine and coastal environment, and develop measures to reduce its impact. | 2022 | Secretariat and Countries | Identified and developed | Secretariat and Countries |

## SECTION 22

| TOPIC 7: FACILITATION OF SUSTAINABLE DEVELOPMENT OF COASTAL AREAS | | | | | |
|---|---|---|---|---|---|
| | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |
| | 7.1. Develop regional guidelines for the integrated management of marine and coastal areas, including an assessment of coastal vulnerability, and *inter alia* marine pollution in the context of the sea level fluctuations. | 2022 | Secretariat | Developed | Secretariat |
| | 7.2. Summarize the marine litter related experience of the Caspian littoral countries in the sustainable development of coastal territories, including in the area of sustainable production and consumption, in order to minimize pollution. | 2022 | Secretariat | Summarized | Secretariat |
| | 7.3. Develop recommendations for an integrated approach to the production and use of plastic waste to ensure the transition to the resource-efficient regulation of plastics on the basis of a closed cycle system. | 2022 | Secretariat | Developed | Secretariat |

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| | 7.4. Facilitate the development and implementation of measures to reduce, reuse and recycle waste in order to minimize the amount of waste. | 2022 | Secretariat | Facilitated | Secretariat |
| | 7.5. Develop proposals to take necessary measures at the national level to combat illegal landfills, littering beaches and illegal dumping of solid waste or sewage in coastal zones. | 2022 | Secretariat and Countries | Developed | Secretariat and Countries |
| | 7.6. Elaborate proposals for national socio-economic development programmes to reduce the discharge of untreated or insufficiently treated wastewater into the Caspian Sea and into water bodies associated with it; to minimize industrial wastes, including from the oil and gas industry, and other wastes, including marine litter, taking into account the environmental, recreational and fishery related specifics of the region. | 2022 | Secretariat and Countries | Developed | Secretariat and Countries |
| | 7.7. Develop and implement, in collaboration with relevant stakeholders, regional and national programmes to locate, remove and dispose of accumulations/hot spots of sea-based marine litter related to marine transport, fisheries, mariculture, aquaculture, tourism and oil/gas production. | 2022 | Secretariat and Countries | Developed | Secretariat and Countries |

## SECTION 23

| TOPIC 8: REMOVAL OF EXISTING LITTER AND ITS DISPOSAL | | | | | |
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| | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |
| | 8.1. Enhance cooperation with stakeholders, such as regional authorities, business, industry sectors, public and other civil society groups interested in minimizing the pollution of the marine and coastal environment of the Caspian Sea, related to by marine litter. | 2021 | Secretariat and Countries | Enhanced | Secretariat and Countries |

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| | 8.2. Develop and promote, together with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources, the fishing industry, and other relevant stakeholders, best practices in relation to Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG). | 2022 | Secretariat and Countries | Developed and promoted | Secretariat and Countries |
| | 8.3. Collaborate with the Commission to Preserve, Sustainably Manage Marine Biological Resources and to Manage Joint Resources and promote the implementation of a "fishing for litter" environmentally sound practice, in consultation with competent international and regional organizations and in partnership with fishermen. Facilitate the cleanup of floating litter and the seabed from marine litter caught incidentally as well as generated by fishing vessels in their regular activities, including derelict fishing gear. | 2022 | Secretariat | Promoted | Secretariat |
| | 8.4. Consider and address potential marine litter arising from ship maintenance and ship dismantling. | 2022 | Secretariat and Countries | Addressed | Secretariat and Countries |
| | 8.5. Establish cooperation with the waste industry in order to ensure the proper operations of solid waste management facilities on shore (waste reception and disposal from all sources, including shipping, fisheries, platforms, marinas and harbour wastes). | 2022 | Countries | Developed | Countries |

## SECTION 24

| TOPIC 9: ACTIVITIES SUPPORTING THE IMPLEMENTATION OF THE CRMLAP | | | | | |
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| **Section** | **Action** | **Timetable** | **Lead Authority** | **Verification indicator** | **Financial source** |
| | 9.1.1. Establish a Regional Coordinating Group on the CRMLAP. | 2022 | Secretariat | Established | Secretariat |

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| **Section 9.1: Regional and international cooperation and reporting on the CRMLAP.** | 9.1.2. Establish, within the framework of the Regional Coordinating Group on the CRMLAP, a subgroup of experts for the assessment and monitoring of marine litter. This subgroup shall become a part of the Tehran Convention Environmental Monitoring Program. | 2022 | Secretariat | Established | Secretariat |
| | 9.1.3. Establish partnerships with cities to provide effective transfer of knowledge and innovation, and promote collaboration among cities/between countries. | 2021 | Secretariat and Countries | Established | Secretariat and Countries |
| | 9.1.4. Adapt international developments on marine litter to the Caspian Sea region. | 2021 | Secretariat and Countries | Established | Secretariat and Countries |
| | 9.1.5. Enhance interaction under the Tehran Convention and the Moscow Protocol and use the existing cooperation platforms and mechanisms in the field of addressing the marine litter problem (such as the Global Programme of Action for the Protection of the Marine Environment from Pollution from Land-based Activities, the Global Partnership on Marine Litter, and Regional Seas Action Plans). | 2023 | Secretariat | Enhanced | Secretariat |
| | 9.1.6. Encourage stakeholder engagement in relevant international initiatives, such as the International Coastal Cleanup (ICC) campaigns, Clean Up The World (CUW) campaigns, Green Fins and similar campaigns or programmes, as well as in national or sub-national efforts to educate the public, including school children, on marine litter issues as well as to encourage positive behaviour changes that will help to reduce the generation of litter. | 2023 | Secretariat | Encouraged | Secretariat |
| | 9.1.7. Convene regional conferences and stakeholder meetings. | 2023 | Secretariat | Convened | Secretariat |
| | 9.1.8. Prepare national biennial reports on the implementation of the CRMLAP. Such reports should have a section on national assessment and monitoring programmes which could also be used for reporting to the Tehran Convention. | 2024 | Countries | Prepared | Countries |

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| | 9.1.9. Prepare a regional biennial report on the implementation of the CRMLAP. Such reports should have a section on national assessment and monitoring programmes. | 2024 | Secretariat | Produced | Secretariat |
| **Section 9.2: Involvement of stakeholders, NGOs and civil society.** | 9.2.1. Support the involvement of various stakeholders including regional, national, and local authorities, NGOs, and the private sector as well as relevant stakeholders to implement the actions of the CRMLAP. | 2021 | Secretariat | Assisted | Secretariat |
| | 9.2.2. Support the implementation of the National Marine Litter Cleanup Campaigns (beaches, riverbanks, storm water drainage) on a regular basis. | Regularly | Secretariat and Countries | Supported | Secretariat and Countries |
| | 9.2.3. Collect and organize information, and coordinate the voluntary cleaning of beaches as a tool in educating and involving local communities, stakeholders and media to increase knowledge and awareness of the marine litter problem. | Regularly | Secretariat and Countries | Coordinated | Secretariat and Countries |
| | 9.2.4. Enhance public participation in addressing marine litter through clean-ups, exploring and implementing the Adopt-a-Beach concept, or similar practices. | 2022 | Secretariat and Countries | Enhanced | Secretariat and Countries |
| | 9.2.5. Encourage and assist entities with a particular interest in or responsibility for certain coastal areas, such as tourist resorts and port authorities, to undertake regular clean-ups of their areas. | 2022 | Secretariat and Countries | Encouraged and assisted | Secretariat and Countries |
| | 9.2.6. Promote and enhance national stakeholder alliances focusing on marine litter. | 2021 | Secretariat and Countries | Promoted and enhanced | Secretariat and Countries |
| | 9.2.7. Communicate with existing regional, national and local networks of stakeholders on marine litter. | 2021 | Secretariat and Countries | Communicated | Secretariat and Countries |
| | 9.2.8. Convene regional and national stakeholder meetings. | 2022 | Secretariat and Countries | Convened | Secretariat and Countries |

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| **Section 9.3: Information, education, outreach and public awareness.** | 9.3.1. Develop a booklet on the CRMLAP and translate it into the Caspian states' national language. | 2022 | Secretariat | Developed | Secretariat |
| | 9.3.2. Formulate and implement awareness-raising campaigns and activities, including the development of materials (e.g. booklets, leaflets, flyers, etc.) and the organization of workshops and forums, for the stakeholders involvement, general public participation, various sectors, municipal authorities, local communities, school children and youth and other groups, in the sphere of production and consumption as well as the reduction of waste generation and the application of environmentally sound disposal and reuse in order to reduce the amount of the marine litter. | Regularly | Secretariat | Formulated | Secretariat |
| **Section 9.4: Training and capacity-building.** | 9.4.1. Develop and implement education and training programmes for different target groups in order to enhance the understanding the marine litter problem. | Regularly | Secretariat | Developed | Secretariat |
| | 9.4.2. Facilitate the application of technical sectoral guidelines for different target groups through regional workshops and training programmes. | Regularly | Secretariat | Facilitated | Secretariat |
| | 9.4.3. Provide technical training and capacity-building to staff from national and municipal governments, port authorities and the shipping industry on the prevention and reduction of marine litter from land-based and sea-based sources through regional workshops and training courses. | Regularly | Secretariat | Provided | Secretariat |
| **Section 9.5: Evaluation of effectiveness of the implementation of the CRMLAP at the regional level.** | 9.5.1. Development of a methodology for the evaluation of the effectiveness of the implementation of the CRMLAP at the national and regional levels. | 2022 | Secretariat | Developed | Secretariat |
| | 9.5.2. Evaluation of the effectiveness of the implementation of the CRMLAP at the national level. | 2024 | Countries | Evaluated | Countries |
| | 9.5.3. Evaluation of the effectiveness of the implementation of the CRMLAP at the regional level. | 2024 | Secretariat | Evaluated | Secretariat |