

# **Position paper on Marine Litter and Micro Plastics**

**1. Name of your organization : EMPOWER,INDIA submitted by its Executive Director Mr.Arumugam Sankar.**

**2. Your views on major barriers to combatting marine litter and micro plastics:**

According to United Nations Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), 60 to 80%, of the global litter found in the coastal and marine ecosystems has originated from land and only the rest from sea based activities. The slow degradable nature of marine litter and the potential to pollute all spheres of oceans irrespective of point source has raised the alarm bells.

Three main industries which are affected by marinedebris are fisheries, shipping and tourism and theestimated damage to these sectors in Asia-PacificEconomic Co-operation (APEC) region is US\$1.265million annually. The UNEP guidelines for assessing litter, listseven types of materials such as plastics, foamedplastics, cloth, glass and ceramics, metal, rubber,wood and others (electronic items, paraffin wax, etc) with a total of 77 individual codes for itemscoming under these categories (*UNEP Regional SeasReports and Studies, No. 186; IOC Technical SeriesNo. 83*.)In India, occurrence of marinedebris along the Indian coast has been studied bythe ICAR-Central Marine Fisheries Research Institute since 2007 (Kirpa et al., 2016). The study indicates that marine debrishas affected the ecosystem and livelihood of fishers.

In view of major barriers to combatting marine litter and micro plastics are:

## **Lack of knowledge on the impacts of micro plastics among scientists and policy makers concerned :**

a) To carryout micro plastics research projects:

- To investigate how environmental factors (eg. temperature) affect chemical adherence to and leaching from micro plastic debris.
- Research should be carried out on the toxic effects of micro plastic debris to marine organisms and if toxic impacts can transfer up the food chain.
- Research on ability of zooplankton to ingest micro plastic particles.
- To conduct experiment on gut contents of juvenile fish and filter feeders that are actively consuming micro plastic debris.
- Plankton sample and Beach sediments can be analysed.

- To develop a standardized procedure (step by step instructions) for measuring micro plastics.
  - To conduct national and International level workshops on micro plastics.
- b) Lack of knowledge on the impact of marine litter among the public and various Stakeholders concerned.
- To create awareness among public on the impact of marine litter to the marine organisms by conducting awareness program.

**3. Your views on potential national, regional and international response options and associated environmental, social and economic costs:**

There are two basic types of instruments at the international level, in terms of their connection with regional or national instruments. The first comprises those, which are explicitly transposed into regional or national ones, usually in the form of regional agreements or national legislations. Similar texts can also be found in the instruments at the regional or national level UNEP/IOC Guidelines on Surveying and Monitoring of Marine Litter, United Nations Convention on the Law of the Sea (UNCLOS).

The UNEP developed, in cooperation with the intergovernmental Oceanographic Commission (IOC), guidelines on surveying and monitoring of marine litter in order to provide a long-term platform for scientific monitoring.

**International Instruments :**

1. UNCLOS
2. Annex V of MARPOL 73/78
3. London Protocol
4. IMO's Action Plan on tackling the inadequacy of PRFs
5. UNEP Regional Sea Programme
6. UNEP/IOC Guidelines on surveying and monitoring of marine litter
7. UNEP Guidelines on the use of market-based and economic instruments
8. UNEP/FAO Abandoned, lost or otherwise discarded fishing gear
9. Honolulu Strategy
10. UNEP Global Partnership of Marine Litter

**Management schemes addressing marine litter**

Types	Examples of measures
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Preventive	Source reduction (e.g. eco design), waste reuse and recycling, waste converted to energy, port reception facilities, gear marking, debris contained at points of entry into receiving waters, various land-based waste management initiatives.
Mitigating	Various debris disposal and dumping regulations, i.e. waste discharged outside certain distances from land, wastes not containing harmful substances to the marine environment allowed for discharge, prohibition of waste discharge into ecologically sensitive areas, prohibition of the disposal of certain types of garbage into seas.
Removing	Beach and seafloor cleanup activities, derelict fishing gear retrieval programs, marine debris monitoring.
Behavior-changing	Educational campaigns, economic/incentive tools.

### 3.1. Limits of existing instruments in addressing plastic marine litter:

A number of limitations in existing international instruments in addressing marine litter, including their insufficient scope with respect to the main sources of plastic pollution, exemptions and **lack of enforcement standards**. For instance, UNCLOS acknowledges the existence of land-based sources but simply requests that countries address the problem through domestic means. MARPOL Annex V exempts accidental loss of disposal of plastic resulting from damage to the ship or its equipment, as well as ships < 400 GT, a category to which most of the fishing vessels belong, from recording garbage discharge operations in Garbage Record Books (GRBs). **The lack of enforcement standards can be found in the terms used in the legal instruments. UNCLOS, for instance, requires only that nations "shall endeavor" to use the "best practical means" to reduce marine pollution "in accordance" with their capabilities.**

### 3.2. Deficiencies in the legislation and a lack of implementation and enforcement of regulations and management measures:

The implementation and enforcement of regulations and management measures at national levels is a key component to combat marine litter. However, a number of cases below show that international initiatives have not yet been transposed into national management schemes; or where they have, there is **a lack of enforcement, insufficient implementation, insufficient penalties to deter violators, or a lack of clarity in**

**legislation leaving room for interpretation.**All these represent major obstacles to the effective control of marine litter.

### **3.3. Poor cooperation and insufficient participation of states in international/regional initiatives:**

Despite the fact that numerous international and regional initiatives already exist and provide a platform for cooperation and coordination of marine debris issues, a few cases indicate that cooperative action on marine litter has lagged behind, or the participation of states in these initiatives was insufficient. This would leave a loophole in the global/regional efforts, given the fact that marine debris is a trans boundary issue.

### **3.4. Insufficient data on marine litter:**

Despite the existing schemes against marine litter, our current knowledge of the quantities and the degradation of litter in the marine environment and its potential physical and chemical impacts on marine life are scarce. **Our knowledge gaps in terms of the biological consequences of micro plastics exposure, economic and social impacts** of marine debris have been reported. These gaps hinder the ability to prioritize mitigation efforts and to assess the effectiveness of implementation measures.

#### **Recommendations:**

- a) Development of a new international instrument to tackle the marine litter:

**It is the need of hour to urge the global community to develop a new multilateral agreement similar to the Montreal Protocol on Substances that Deplete the Ozone Layer.** A set of elements were proposed to be included in such an agreement, including regulation of **disposal of plastic litter from both ocean- and land-based sources, incorporating tracking, monitoring, reporting and enforcement standards and mechanisms, banning the most common or deleterious types of plastic litter, calling for a phase-out of all plastics that are not recycled at a rate of 75 % or higher by a certain date.**

- b) Enhancing participation and cooperation of states in international/regional initiatives:

The trans boundary nature of marine litter underlines that the problem is global in scale and international in impact. In this regard, national measures alone are insufficient to control marine debris, and international/regional cooperation is required. An empirical long-term litter monitoring study in the Southern Ocean showed that ocean-based litter monitoring needs to be integrated at an international or regional level. A wide range of international/regional initiatives on marine litter (such as UNEP RSP, GPA and GPML and various regional sea instruments)

have established a platform for concerned states to engage in cooperation; participation and cooperation should be enhanced and strengthened both in terms of the number of participating states and the substantiality of cooperation.

This would promote a dialogue among states on good practices in marine litter management and allow for substantial coordination and cooperation in research and developing and implementing more effective and practical management measures, such as the standardization of litter monitoring methods, the technologies for solid waste management, the waste notification system and the fee system for ship-generated waste.

Moreover, this would help less wealthy countries to advance solid waste and sewage management through technical and financial assistance and training provided by more experienced countries and international organizations

c) Strengthening management measures on fishing vessels:

Although many studies suggest that fisheries are an important source of marine litter, most fishing vessels are exempt from the discharge regulations of Annex V of MARPOL 73/78 because of their low tonnage. In addition to the previous recommendations to amend Annex V to narrow exceptions, I propose two approaches based on the area where fishing vessels operate. For vessels, which work solely in national waters, management measures at national levels should be specifically devised and strengthened.

#### **4. Your views on the feasibility and effectiveness of different response options :**

##### **Application of market instruments:**

There are several measures on the use of market based instruments to address the problem of marine litters. These include:

1. **Applying the *polluter pays principle (PPP)***

In terms of fines for littering, dumping waste and illegal disposal.

2. **Applying the *user pays principle*.**

In terms of tourist taxes, car park fees, port reception and shipberthing fees.

These can then contribute to beach cleaning and improving waste and infrastructure.

3. **Applying the "pay as you throw" scheme:**

Instead of paying a fixed amount for the waste collection services independently of the waste generated, the user fees are charged on a per bag/bin basis or by weight.

4. **Landfill taxes:**

Taxes have been put on disposal at landfill sites to increase the cost to users, to better reflect the true life-cycle cost of disposal, and to drive waste materials into recycling systems. Such disposal surcharges have been often used to generate revenues which can then be used to support a variety of waste management programs. It could happen that landfill taxes can lead to an increase in illegal dumping so they should be set at an affordable level.

5. ***Incentives for fisherman on and removing debris:*** for example the "Fishing for Plastic" project in "Save our North Sea" programme, which pay fishermen to remove plastic.
6. ***Award based incentives for coastal villages with integrated Waste Management systems,*** which incorporate all the policies, programmes and technologies that are necessary to manage the entire waste stream.

#### **5. Any other inputs:**

##### **To create awareness on micro.plastics:**

In general the scientific community agrees that, that the public and private sector awareness of the potential negative ecological, social and economic impacts of micro plastics is much less developed than for macro-litter (UNEP yearbook 2014). Effective engagement and education at all levels of society (public, government and private sector) is an essential tool to raise awareness and promote positive behavior change.

1. In order to reduce the entry of plastics and micro plastics into the marine environment, **the main sources and categories of plastics and micro plastics entering the ocean have to be identified, locally and globally. There is a clear need to improve the modelling of distribution patterns, to establish social and economic indicators and observations.**
2. In future we have to overcome social, technical and economic barriers, major paths could be the utilization of end-of-life plastic as a valuable resource as an important part of an overall waste reduction strategy, the promotion of reduced plastics use, as well as the re-use and recycling and implementing of closed circles of use in industries.
3. The scientific community has to promote greater awareness of the impacts of plastics and micro plastics in the marine environment and has to include the expertise from the social sciences. But, not only have the legislations to become improved, but also several knowledge gaps exist, which have to be filled.

4. Current knowledge assessing the risk from nano.plastics is insufficient. To obtain the information on whole plastics threaten the ocean, the effects on nano-size range particles have to be considered as one major risk to marine life. The role of plastics and micro plastics to act as a vector for the transfer of organisms is another possibility to be evaluated. In addition, the scientific community is asked to advance in quantifying the chemical exposure risk from ingested micro plastics and to evaluate the potential pathways and rates of chemical transfer and eco-toxicological risk, which causes a higher invest in local expertise on field and laboratory, to conduct more studies on animal behavior, physiology and the gut environment for target species.

**Measures targeting the production stage: product and packaging design:**

1. Support and enforce eco-design of PPPs (plastic packaging products).
2. Establish or improve Extended Producer Responsibility (EPR) systems for PPPs .
3. Make mandatory Prevention Plans to minimize material and make products more environmental friendly to PPPs producers.
4. Establish annual Environmental Award Scheme for the PPP industry.

**A. Measures targeting awareness raising:**

**Regular campaigns about cigarette's waste awareness on the beach and portable beach ashtrays campaigns.**

1. Introduce system of environmental awards for municipalities which are front runners in usereduction and proper separate collection of plastic bags/bottle.
2. Promote a commitment for the touristic sector to reduce use of plastic bottles and bags
3. Organize environmental awards for hotels and similar facilities.
4. Provide guidelines, manuals on separate collection to different target groups according to their needs.
5. A mixture of public awareness campaigns to persuade the public to change to the solid waste route for the disposal of their domestic sanitary waste.
6. Develop, promote and support community-based clean-up campaigns (awareness combined with effective clean-up actions).
7. Sensitization of marine sectors (fishermen/ shipping industry) (sectoral level) to promote sustainable use and anti-littering.
8. Provide clearly visible information in fishing ports of correct use and disposal of EPS boxes; provide information to the fishermen and other actors involved in fish trade and

transport (leaflets, meetings) on importance of correct disposal of EPS boxes; inform fishermen on measures to prevent EPS boxes.

9. Conduct education and outreach campaigns to promote the use of technologies that minimize loss of fishing gear and ghost fishing (incl. technical standards).

**B. Measures targeting waste management stage:**

**Improve collection, treatment and disposal of domestic solid waste**

1. Ensure that Waste Management Plan in the coastal areas (and in the river catchment areas) contain chapter on marine (river) litter reduction and prevention.
2. Improved waste collection and cleaning of the streets.
3. Storm drains: Increase capacity of rainwater tanks of the sewer system to hold up heavy rainstorms to avoid the direct discharge of litter and waste water to rivers, beaches and sea.
4. Regular dredging maintenance of the tanks.
5. Separate sewers for rain and domestic waste water (in case of renovation/new urbanizations).
6. Increased capacity of municipal waste services during top season including daily cleaning of touristic public beaches within bathing season.
7. Provide enough waste (and recycling) receptacles in beach areas and ensure that the bin design/container design on beaches prevents plastic packaging escape through strong winds.
8. Support and promote commitment of retailers to introduce targets on reduction and optimization of use of plastic packaging materials.
9. Supervise compliance and quality of service provided by waste management companies through inspections and control activities.
10. Develop and promote joint action to reduce the input & impact of sanitary waste (e.g. cotton budsticks, tampons (applicators), disposable nappies) into the marine environment.
11. Maintenance of river beds, rieras (in dry periods).
12. Optimize logistics of merchant premises in fishing ports to avoid escape of EPS boxes during the trade, transport of fish; provide for intermediate storage facilities for waste collected in fishing ports which allow for waste separation and adequate storage, in particular of EPS boxes to foster recycling.

13. Establish recycling management schemes for EPS fish boxes in ports and local markets close to the coast.
14. Incentives to deliver ship-generated waste at the port reception facilities and to discourage dumping at sea; can be a penalty or reward system.
15. Improvement and extension of Fishing for litter campaigns.
16. Identify and close non-compliant landfills and illegal dumpsites close to the coast (controls ,penalties, closure).
17. Enforcement of the technical requirements of the Landfill regulations close to the coast and intensify inspections/implement fines.
18. Long-term and well designed research and monitoring programmes and studies in order to detectand determine statistically significant trends in the composition, quantities and effects of ML.

**C. Measures targeting legislative action and municipal and ports ordinances:**

Strengthen and support intra-governmental institutional arrangements consolidating regionalactivities on marine litter; support enforcement of the measures and actions of the RegionalStrategic Action Plans via national policies.

1. Enforce and improve Extended Producer Responsibility (EPR) scheme for Plastic Packaging Waste(PPW).
2. Enact appropriate penalties to beach littering, especially cigarette butts.
3. Introduction of plans for reduction of single use plastic bags.
4. Introduce requirements for local management companies to control appropriate source separationof plastic packaging waste PPW by inhabitants.
5. Provide for provisions in contracts issued in public procurement to achieve an increase of thenumber of bins/special bags for collection of municipal waste.
6. Include requirements on density and proximity of collection points in the national legislation.
7. Tougher municipal regulations for smoking on the beaches.
8. Instruct the local police to sanction littering on the beach.
9. Enforcement of existing international waste regulations, like the revised MARPOL
10. Establish waste management plans in Ports.
11. Include requirements on density and proximity of collection points (bins and container collection)in the settlements (near the shore greater density) in the national legislation.

12. Identify and close non-compliant landfills and illegal dumpsites close to the coast (controls, penalties, closure).
13. Enforcement of the technical requirements of the Landfill Directive close to the coast) and intensify inspections/implement fines.
14. Provide adequate waste (and recycling) receptacles in beach areas. Including ensuring that the bin design/container design prevents plastic packaging escape (e.g. blown away, bottles taken away; bins with holes, or covered, sufficient container volume).

**D. Measures targeting economic instruments:**

Allocation of certain percent of touristic tax (s) to the environmental funds for the prevention of littering on the beaches and for preventive and mitigating actions; Inform tourists that a certain share of tourist tax is allocated to the maintaining the beaches clean. Enact deposit refund system for single-use plastic beverage bottles. Promote mandatory or voluntary measures with supermarkets and retailers like charging the use of bags to minimize carrier bags consumption. Promote small scale deposit refund systems. Introduce a deposit-refund system for EPS fish boxes (Expanded Polystyrene).

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