



## Fact Sheet

## #2

For more information consult “Drowning in Plastics - Marine Litter and Plastic Waste Vital Graphics” publication by UNEP, the BRS Secretariat and GRID-Arendal. Available from link <https://bit.ly/3GOrz8E>

# Environmentally sound management of plastic waste

While it is preferable to prevent the generation of plastic waste, once it is generated, it needs to be managed in an environmentally sound manner in order to protect human health and the environment. Article 2 of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal defines environmentally sound management (ESM) as: ‘taking all practicable steps to ensure that hazardous waste or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes’. ESM includes the entire waste management hierarchy, including waste prevention, minimisation, reuse, recycling, recovery and final disposal.

## Plastic waste collection and separation

Waste collection is an essential first step in the ESM of plastic waste. However, many countries still face challenges

in establishing systems for environmentally sound waste management, including for the collection and separation of plastic waste. It is estimated that about 2 billion people worldwide don’t have access to waste collection systems (UNEP and ISWA 2015). In addition, many geographies still rely on rudimentary waste management operations limiting themselves to waste disposal via some form of landfills. It is estimated globally that only 37% of waste is disposed in some form of a landfill and the majority of it, much of which is plastic waste is disposed in unsanitary landfills. Open dumping accounts for 33% of waste management (Kaza et al 2018). The remaining waste is recycled or recovered.

Proper collection services can lead to increased plastic waste collection from residential areas and less dumping and open burning of plastic waste. Plastic waste for recycling can be separated by householders at source or sorted at a facility. This waste can be collected in a number of ways,

e.g. door-to-door or at specialised drop-off points. In many countries informal waste workers play a crucial role in increasing the collection of plastics, especially in countries that lack robust waste management services. However, informal waste collectors are less likely to collect low-value or high-bulk plastic waste, such as low-density polyethylene films. The informal waste collection sector concentrates on high-value plastic waste such as polyethylene terephthalate (PET) and high-density polyethylene (HDPE), which limits collection to only 20% of the municipal plastic waste stream (Ocean Conservancy 2015). To improve services and conditions, municipalities need to integrate informal waste workers into formal waste management programmes. By assigning rights over recyclables, they could guarantee both livelihoods and services.

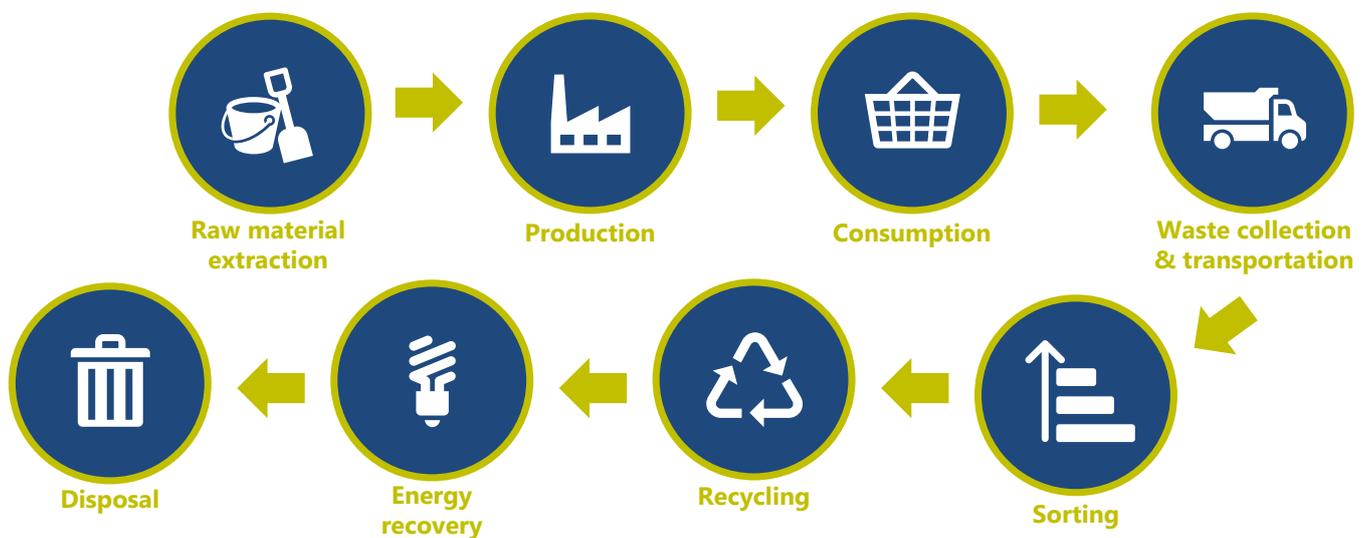
## Plastic recycling

Recycling enhances the recovery of resources and is seen as part of the solution to reduce marine litter. However, only around 10% of the plastic waste generated to date has been recycled; in 2017, around 21% of global non-fibre plastics were recycled (Geyer 2020). Cost-effective and efficient

recycling of the mixed plastic waste stream, along with high contamination levels, are perhaps the biggest challenges facing the (mechanical) recycling industry (Vilaplana et al. 2007). Only thermoplastic polymers such as polyethylene (PE), polypropylene (PP) and polyethylene terephthalate (PET) are mechanically recycled (Ragaert 2016, Garcia and Robertson 2017). In addition, the recycling industry is most interested in higher-value plastics such as PET bottles and high-density polyethylene (HDPE) containers (Garcia and Robertson 2017).

Meanwhile, mechanical recycling is being made increasingly effective by technological advances, such as systems for the collection, sorting and reprocessing of recyclable plastics. Innovations include increasingly reliable technology to detect different types of plastics and sophisticated decision-and-recognition software that improves automated sorting, differentiating between plastic types and colours. The effectiveness of mechanical recycling of plastics could be dramatically increased through the redesign of plastic products. An alternative to mechanical recycling is chemical recycling; while it is rapidly developing, it is not yet very widespread.

**Figure 1: Production life-cycle**



Source: Secretariat of the Basel Convention, forthcoming.

## Enabling elements for the ESM of plastic waste

As plastic waste management is a multi-faceted issue, the enabling elements for ESM could be grouped in the following way:

- Element 1: Policies, legislations, regulations, institutions and standards, etc.
- Element 2: Sustainable financing
- Element 3: Technical capacity
- Element 4: Stakeholder interaction, awareness and communication

## Policies, legislations, regulations, institutions and standards

These are necessary to provide the legal framework and associated enforcement regime for defining, promoting and implementing ESM across the value chain, to prevent disposal through dumping or burning, and to create environments for sustainable financing of ESM.

## Sustainable financing

A system of adequate and sustainable financing is essential in driving materials up the waste hierarchy and providing sufficient incentive for individual actors to invest in and operate the necessary collection and recycling infrastructure. Options for sustainable financing models across the value chain include shares, taxes, producer responsibility systems and fees.

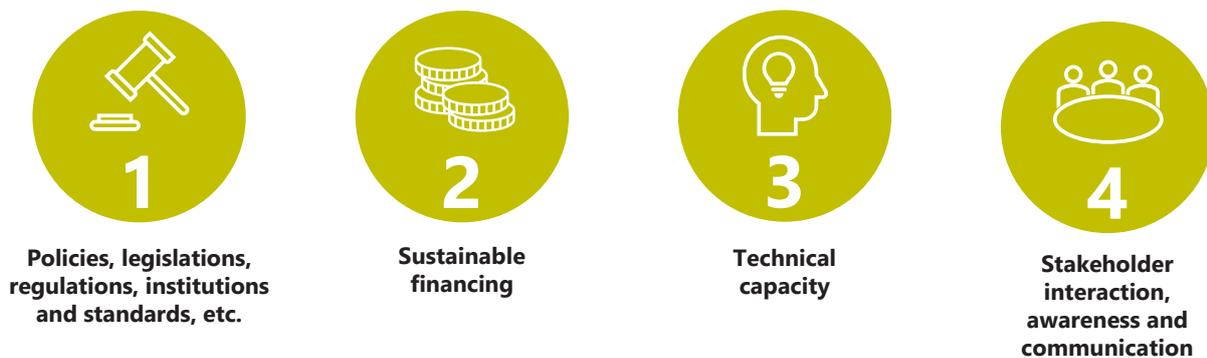
## Technical capacity

Technical capacity – both in the form of technology and infrastructure meeting local needs as well as skilled people – is required not only to manage plastic wastes in an operational capacity, but also to successfully implement the appropriate policies, legislations, regulations, institutions and standards, etc. associated with this sector.

## Stakeholder interaction, awareness and communication

The complexity and abundance of plastic waste types requires engaging stakeholders and raising awareness across the value chain, including businesses designing plastics, households separating plastic waste, and waste operators.

**Figure 2: Four key elements for ESM for plastics**



Source: Secretariat of the Basel Convention, forthcoming.

## Tools and guidance for ESM

The following existing tools and guidance facilitated by the Basel Secretariat can further elaborate on details relevant to plastic waste management.

- Environmentally sound management (ESM) toolkit (Basel Convention 2013).

- Draft practical manuals on extended producer responsibility and financing systems for environmentally sound management (Basel Convention 2017).
- Technical guidelines for the identification and environmentally sound management (ESM) of plastic wastes and for their disposal (Basel Convention 2002).

For more information, please visit: <http://www.basel.int/>



## References

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