



## **Marine litter and microplastics**

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**Global Programme of Action for the Protection of the  
Marine Environment from Land-based Activities**

*Marine litter* is any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment

Land-based and sea-based sources

# Microplastics

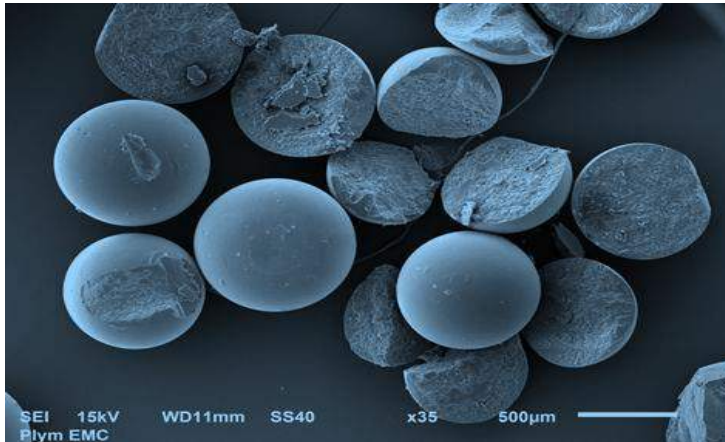
Operational definition – particles < 5mm



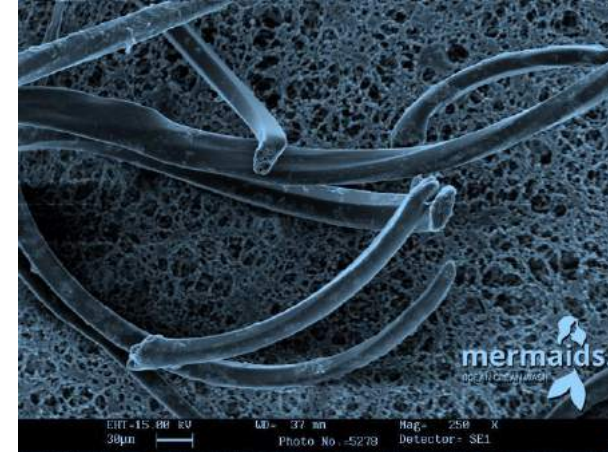
Plastic resin beads,  
used in plastics  
manufacture  
(Ogata)



Beach sample  
of microplastics,  
Hawaii  
(NOAA Marine  
Debris Program)



Polyethylene  
microplastics  
extracted from  
shower gel  
(A. Bakir and  
RC Thompson)



Microfiber from  
synthetic garment  
(Mermaids Project)

1900 fibers/item

35.6 billion laundry  
loads in Europe alone

**Tyre dust ? Atmospheric transportation?**

# MICROPLASTICS

Where do we find it?

**259 bottles of water**

from 11 brands across  
9 countries (China, Brazil, India,  
Indonesia, Mexico, Lebanon,  
Kenya, Thailand and the US)

Of all the bottles tested,  
**only 17 were found  
to be free of plastic.**

On average, **each liter sold  
contained 325 pieces of  
microplastic**, including  
polypropylene, nylon, and  
polyethylene terephthalate.

The ice samples from five regions  
throughout the Arctic Ocean  
contained up to **12,000  
microplastic particles per litre  
of sea ice.**

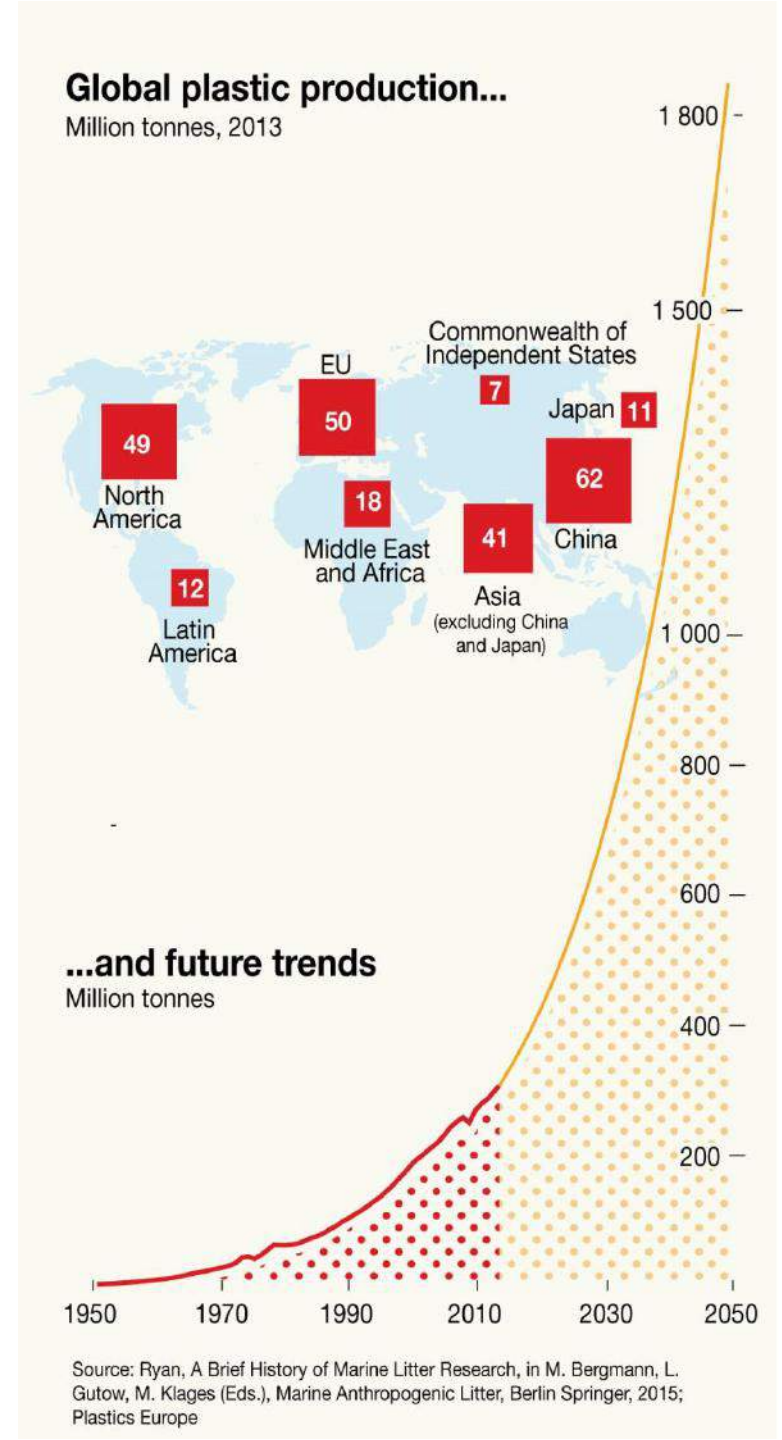
Found in tap water, sea salt,  
beer (e.g. Germany and US),  
honey, fish and bivalves

In Europe, avid mussel  
eaters might **eat up to  
11,000 microplastics  
a year.**

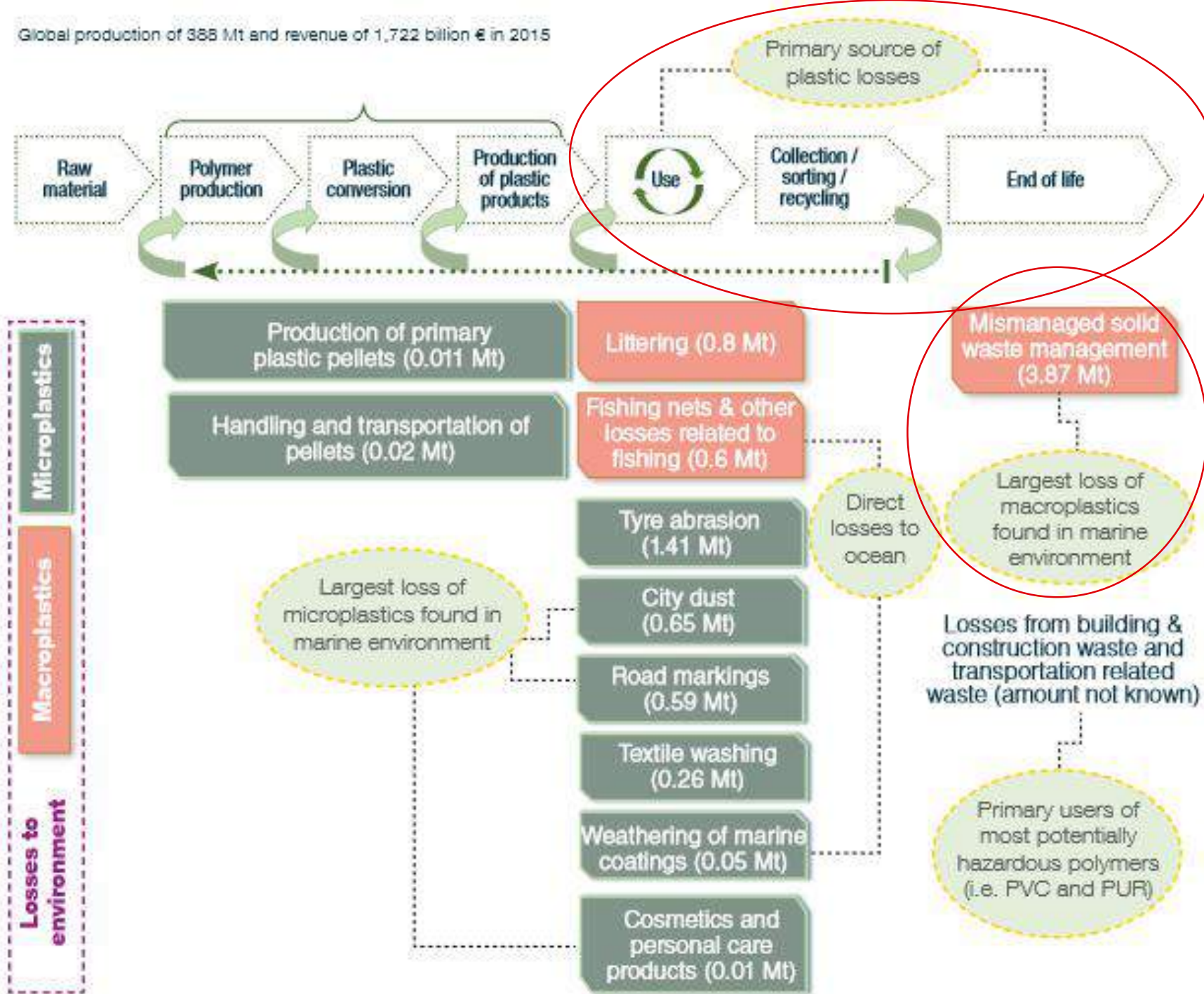


# Plastics

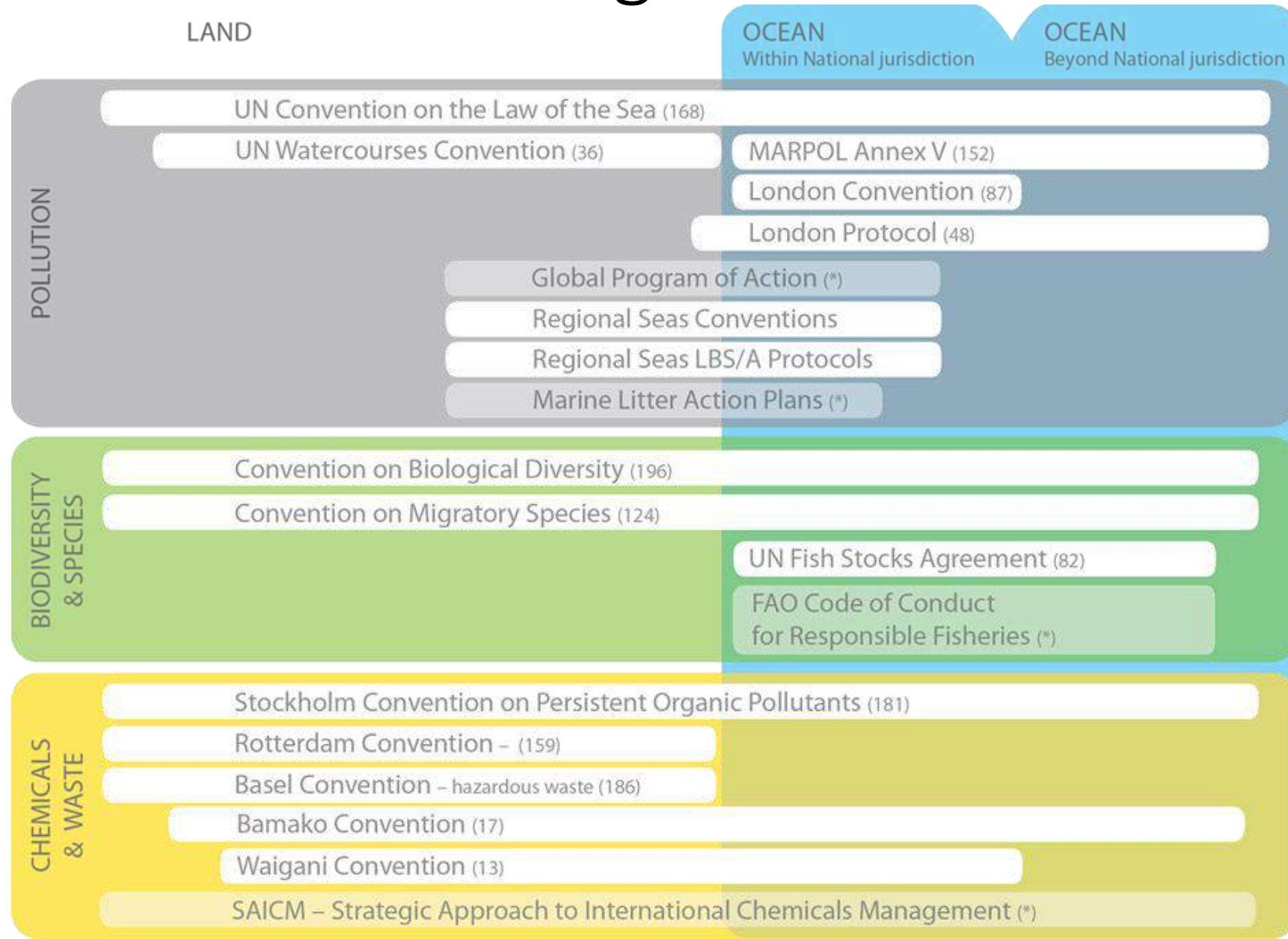
- Since their widespread introduction in the mid-1950s, the production and development of plastics has expanded dramatically
- **8,300 million metric tons (Mt)** of virgin plastics have been produced to date
- Plastic production: more than 322 Mt in 2015 (an increase of > 50% from 204 in 2002) – 2016 – **335 Mt**
- 6,300 Mt of plastic waste has been generated as of 2015
- Of this waste, **9%** has been recycled, **12%** incinerated, and **79%** has accumulated in landfills or the natural environment.
- 12,000 Mt of plastic waste will be in landfills or in the natural environment by 2050 under current production and waste management trends
- Projections of 40% increase in production over next 10 years



Global production of 388 Mt and revenue of 1,722 billion € in 2015



# International Legal Framework - Overview



An Assessment of the effectiveness of relevant international, regional and sub-regional instruments and frameworks was submitted to UNEA-3 as an information document



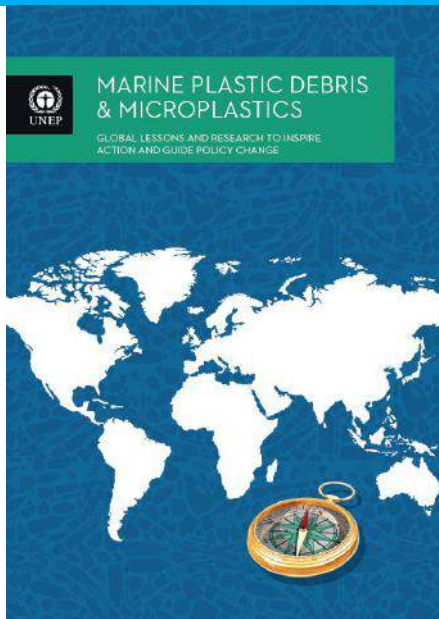
# UNEA RESOLUTIONS

## Marine Litter and Microplastics

### 1/6: State of knowledge: Marine plastic debris and microplastics

- ☐ Priority areas for action
- ☐ Research gaps
- ☐ Policy relevant recommendations

(→ UNEA-2)



2/11: Requested assessment of the effectiveness of relevant international, regional and sub-regional governance strategies and approaches to combat marine plastic litter and microplastics and identify gaps and options for addressing them.

(→ UNEA-3)

### 3/7 Strengthen the capacity and activity of UNEP on marine litter

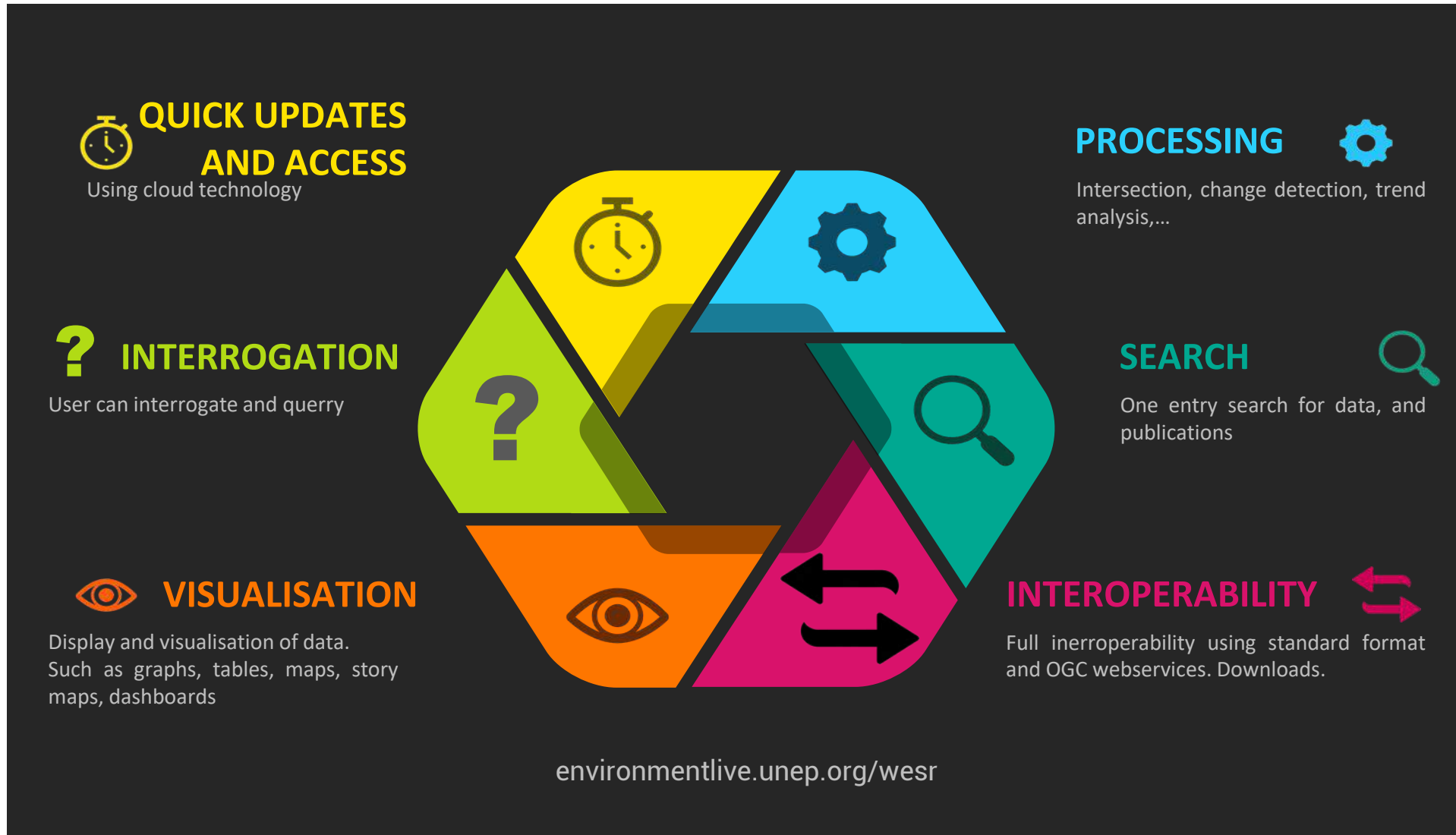
- ☐ Expansion of the Global Partnership on Marine Litter
- ☐ Development of six new Regional Action Plans
- ☐ Harmonization of monitoring methodologies for marine litter (GESAMP)
- ☐ Analysis of voluntary commitments
- ☐ Ad Hoc Open-ended Experts Group



## Strengthen scientific and technological knowledge

- |  |   |   |
|--|---|---|
| <b>A</b> Convene science advisory initiatives  | ➔ | Listing ongoing for consultation  |
| <b>B</b> Prepare an <b>assessment on sources, pathways, and hazards of ML &amp;MP</b> and its presence in the rivers and oceans, scientific knowledge about adverse effects on ecosystems, potential adverse effects on human health and environmentally sound technology innovations; | ➔ | Establishment of Scientific Advisory Committee  |
| <b>C</b> <b>Recommending indicators</b> to harmonize monitoring, report and assess methodologies   | ➔ | Approach being prepared   |
| <b>D</b> <b>Gathering information to</b> form policies and action on environmentally sound technological innovations, options and measures for <b>reducing risks of discharge</b>  | ➔ | Initiated: Technology and Innovation primer (linked to 7b) for discussion at AHEG 3               |
|  |   | Risk assessment work with GESAMP for hazards and risk management (policy brief under preparation) |

## OP 3. Information management and coordination



**Under development:**

World Environment Situation Room's drawing on various UNEP initiatives.

Legislative toolkit

**Key:**  
Link data to action

# Ad hoc open ended experts group – extended by 4/6 OP7

- **Take stock of existing activities and actions** towards long-term elimination of discharges into the oceans;
- **Identify technical and financial resources or mechanisms** for supporting countries in addressing marine plastic litter and microplastics;
- **Encourage partnerships as well as increased cooperation** in relations to the prevention of marine litter including plastic litter and microplastics that undertake activities, such as **development of source inventories, improvement of waste management, awareness raising, and promotion of innovation;**
- **Analyse the effectiveness of existing and potential response options and activities** on marine litter and microplastics at all levels to determine the contribution in solving the global problem;





# Regional Action Plans on Marine Litter (map is only indicative)

18 Regional Seas:

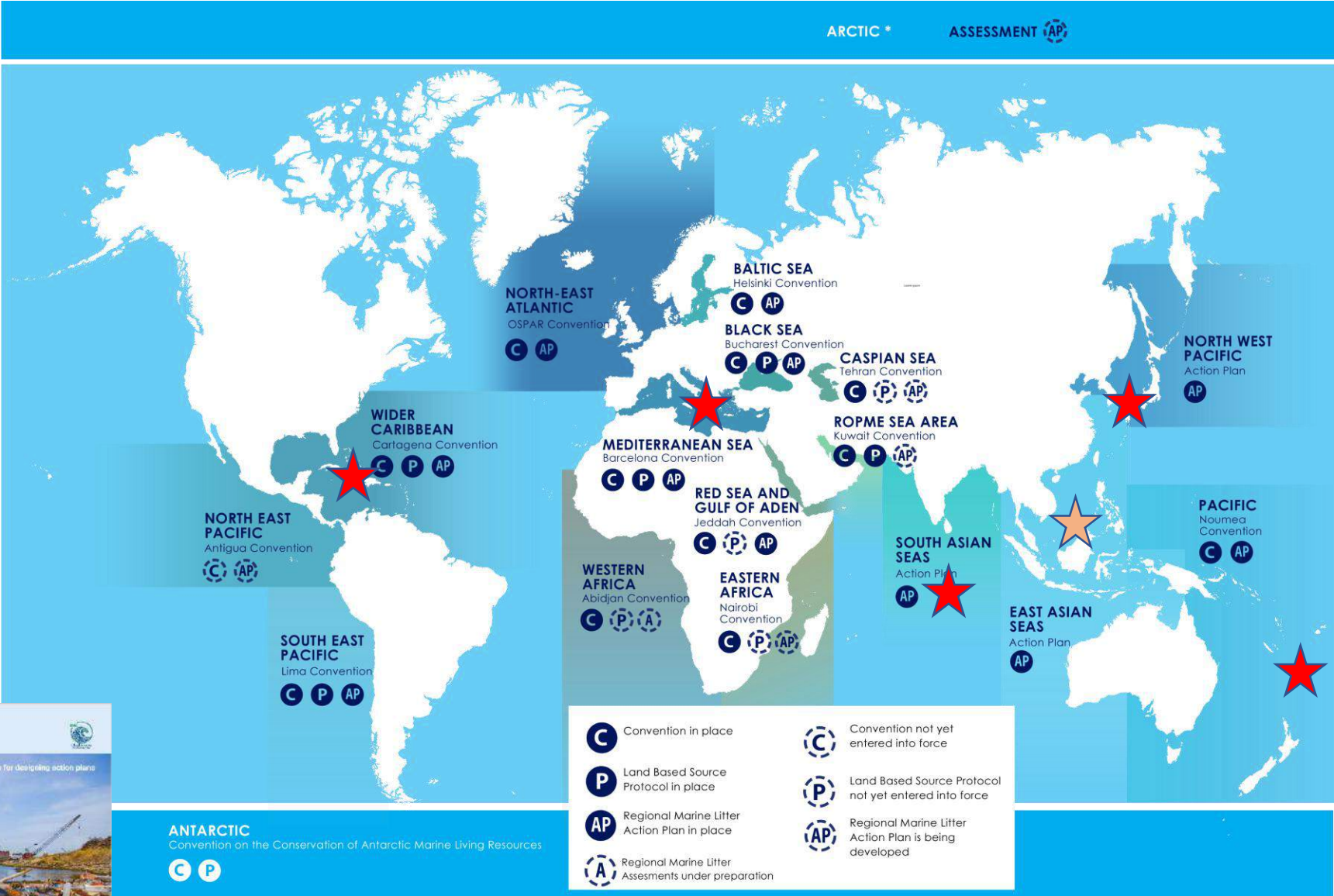
11 Regional Action Plans on Marine Litter

4 Draft Regional Action Plans (various stages)

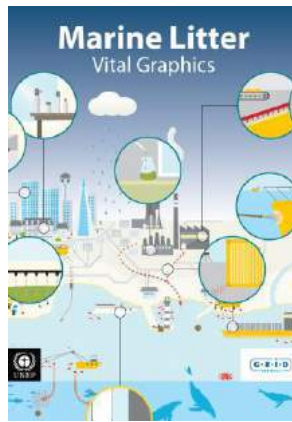
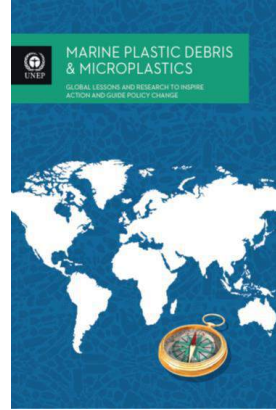
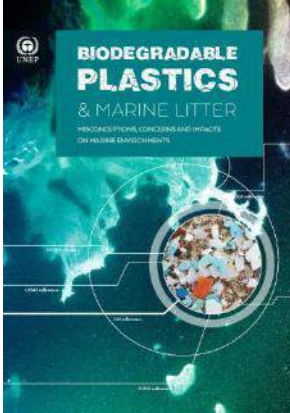
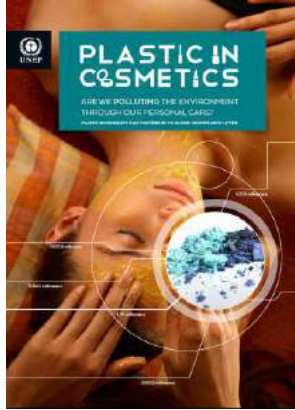
1 Assessment underway → Action Plan in 2020 (Abidjan C.)

5-6 Regional nodes – Global Partnership on Marine Litter ★

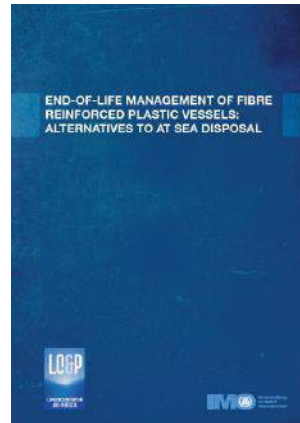
Ongoing: National source inventories pilots to guide action plan development in Kenya & Seychelles



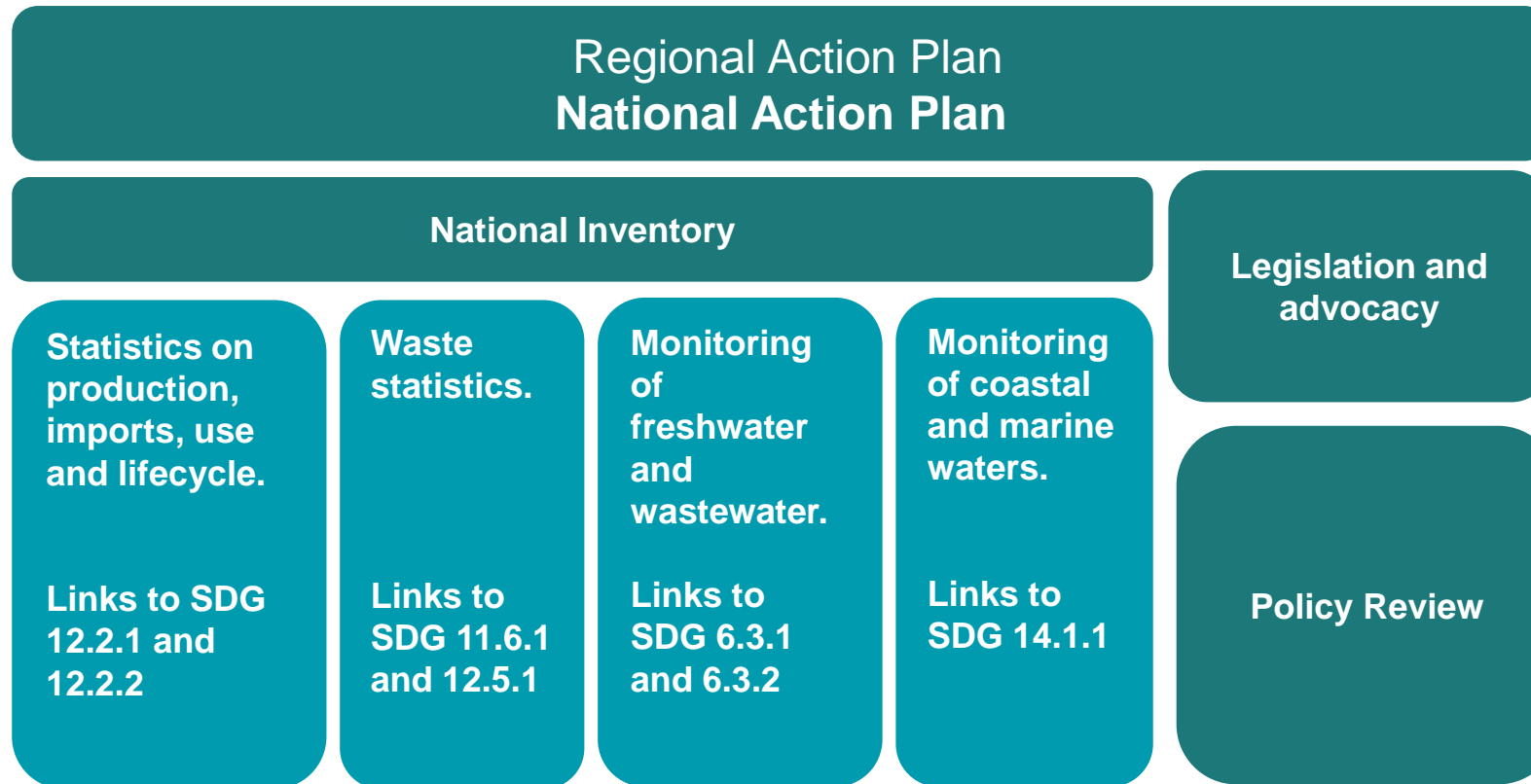
# Knowledge



- IMO: MARPOL Annex V training course, fibre glass / hull scrapings
- FAO: ALDFG; microplastics – fisheries and aquaculture
- GESAMP / IOC-UNESCO: microplastics, risk assessment, guidelines
- UN Habitat: Waste flow analysis, inventories and hotspots
- Emerging issues

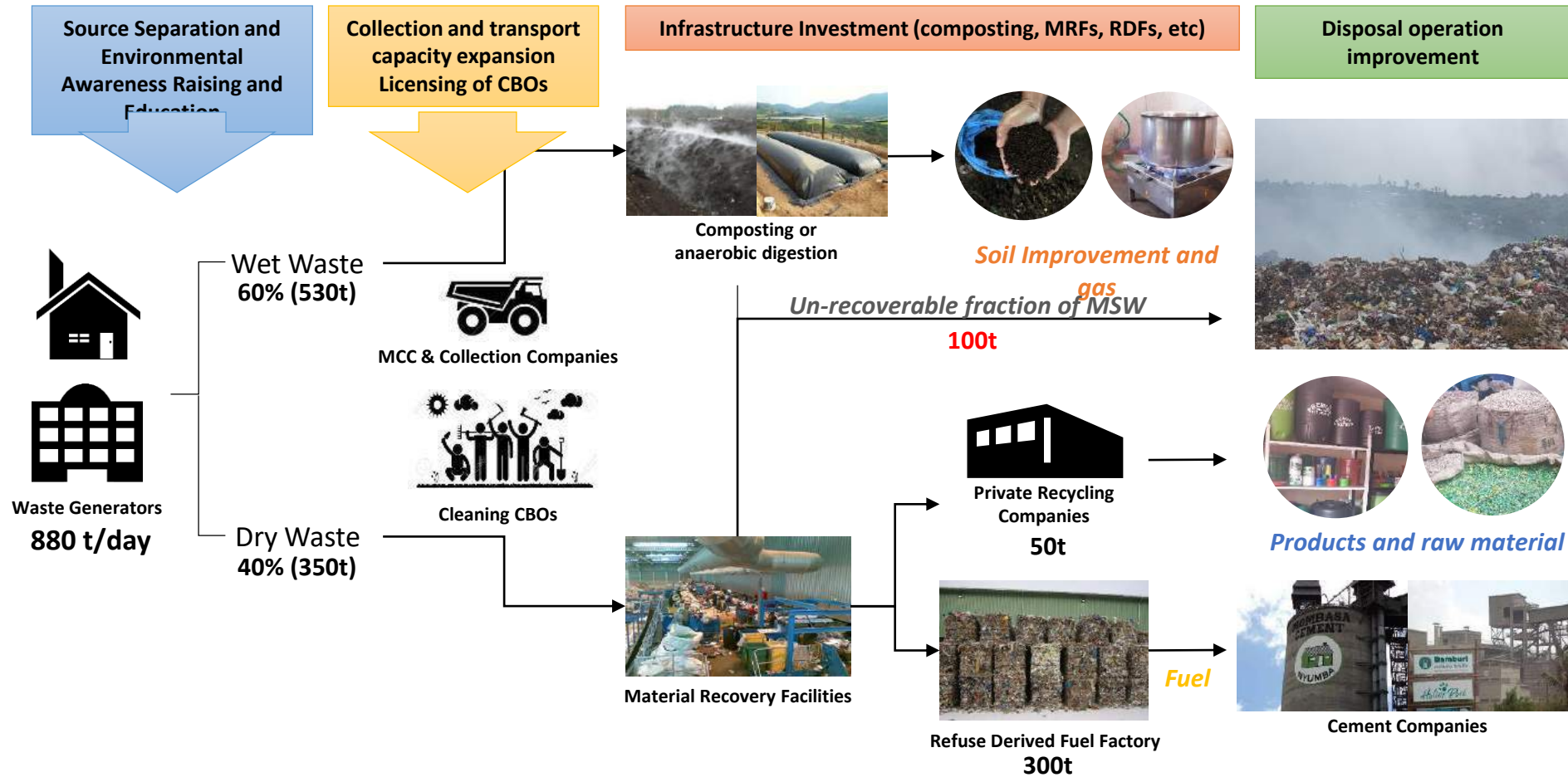


# National Source Inventory Approach



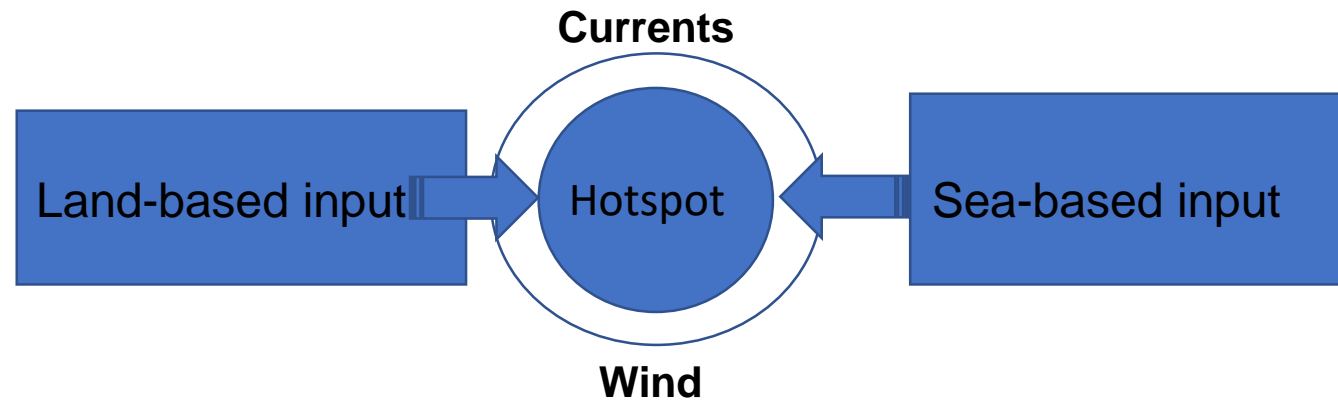


## Future Waste Flow in Mombasa



# Guidance priority interventions

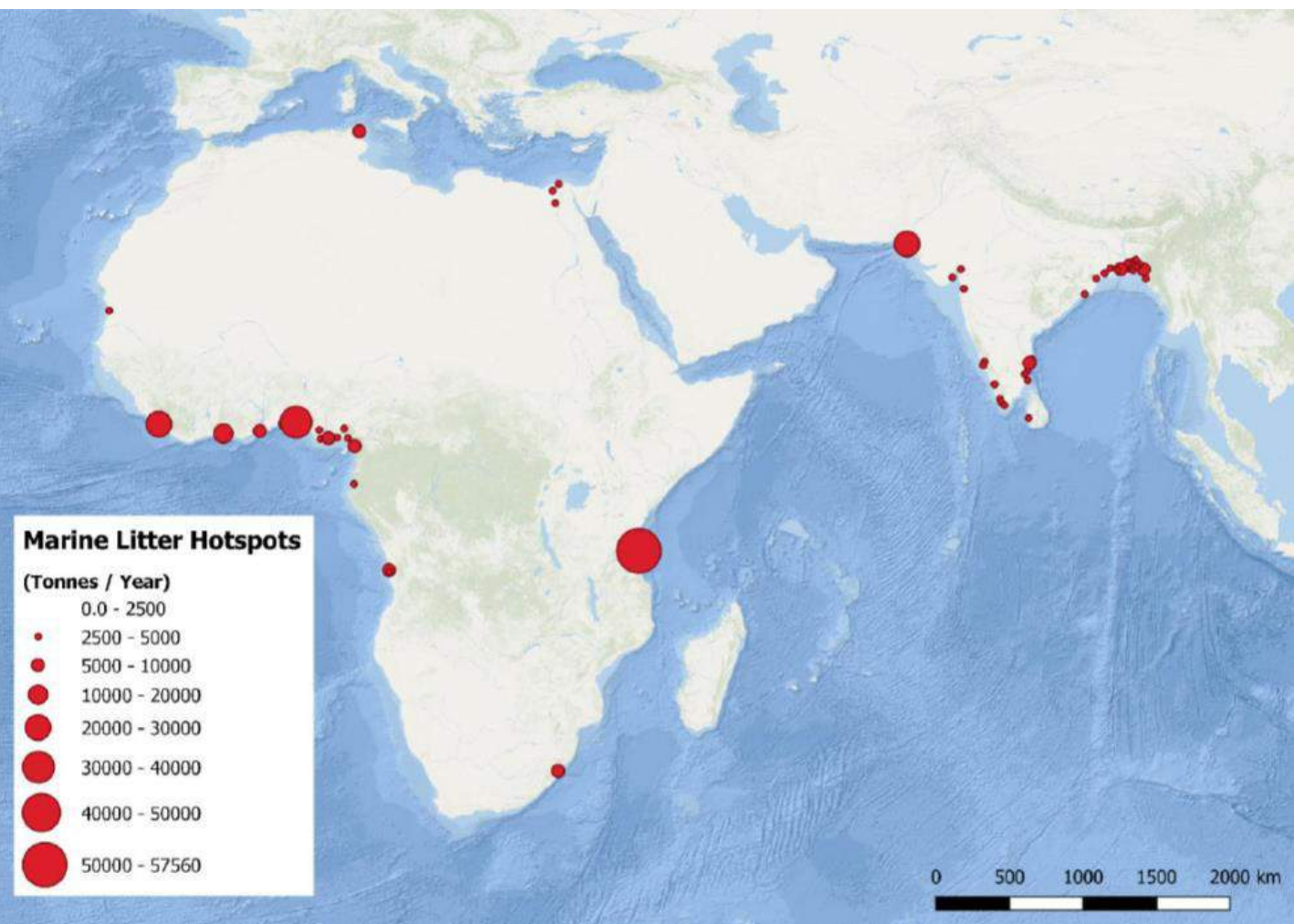
- Providing advice on the prioritizing of activities upon request based on **best available scientific knowledge**, and the most **environmentally sound, risk-based** and **cost-effective measures** to prevent and reduce marine litter and microplastics



## Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP):

- **Working Group 40** on Sources, fate and effects of plastics and microplastics in the marine environment; **Risk Assessment (upcoming report 103)**
- **Working Group 43** on Sea-based sources of marine litter including fishing gear and other shipping related litter;

# Marine Litter Hotspots (early results still under review pending finalization)



Top Marine Litter Hotspots in Africa

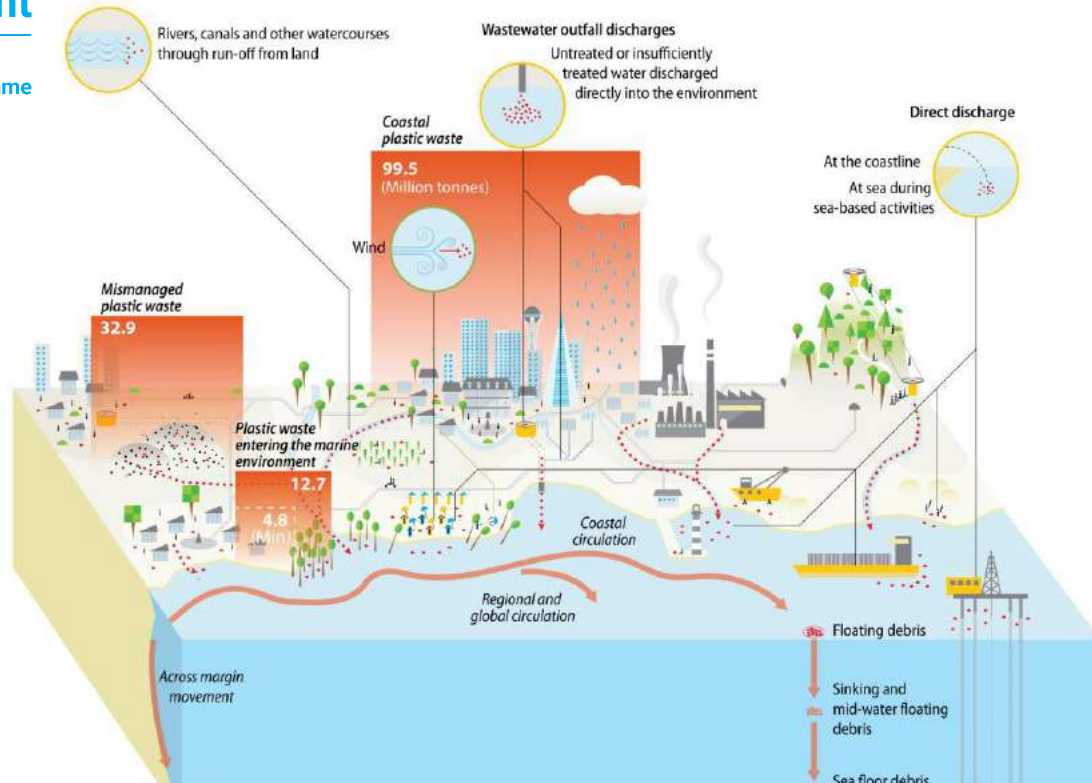
Rank	Country	Municipality
1	Tanzania	Dar es Salaam
2	Nigeria	Lagos
3	Liberia	Montserrado
4	Cote d'Ivoire	Abidjan
5	Ghana	Greater Accra
6	Nigeria	River State
7	Cameroon	Littoral
8	South Africa	Ethekewini
9	Benin	Littoral
10	Tunisia	Tunis
11	Angola	Luanda
12	Mauritania	Nouakchott
13	Gabon	Estuaire
14	Nigeria	Akwa Ibom
15	Nigeria	Delta
16	Egypt	Kafr ash Shaykh
17	Egypt	Al Buhayrah
18	Egypt	Al Fayyum
19	Nigeria	Cross River
20	Nigeria	Bayelsa
21	Cameroon	Ndian
22	The Gambia	Banjul

Top Marine Litter Hotspots in South Asia

Rank	Country	Municipality
1	Pakistan	Karachi
2	Bangladesh	Chittagong
3	Bangladesh	Khulna
4	India	Kancheepuram
5	Bangladesh	Barisal
6	Sri Lanka	Colombo
7	Bangladesh	Cox's Bazar
8	India	Purba Medinipur
9	India	Chennai
10	India	Kanniyakumari
11	India	Cuddalore
12	India	Dakshina Kannada
13	India	Thrissur
14	India	Anand
15	Bangladesh	Satkhira
16	India	Kollam
17	Bangladesh	Chandpur
18	India	Puducherry
19	India	Puri
20	India	Bhavnagar
21	India	Balasore
22	Bangladesh	Bhola
23	India	Valsad
24	India	Nagappattinam
25	Bangladesh	Pirojpur
26	India	Thiruvananthapuram
27	India	Kasaragod
28	India	Kolkata



## Pathways and fluxes of plastics into the oceans



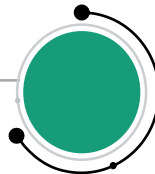
- Guidelines for Harmonization of Monitoring Methodologies of Macroplastics and Microplastics in Rivers and Lakes
- Hotspot assessment methodology
- Interactive marine litter flow model for Africa and Asia
- National Guidance for Plastic Hotspotting and Actions
- counterMEASURES - Launched in May 2019, funded by Japan MOFA
  - Aims to identify a model for assessment of plastic leakage and pollution reduction focusing on land-based plastic leakage entering from rivers

Ongoing work on pathways, accumulation zones and flows

# CAPACITY BUILDING: ONLINE COURSES



2-week in all UN languages & Portuguese, Bahasa

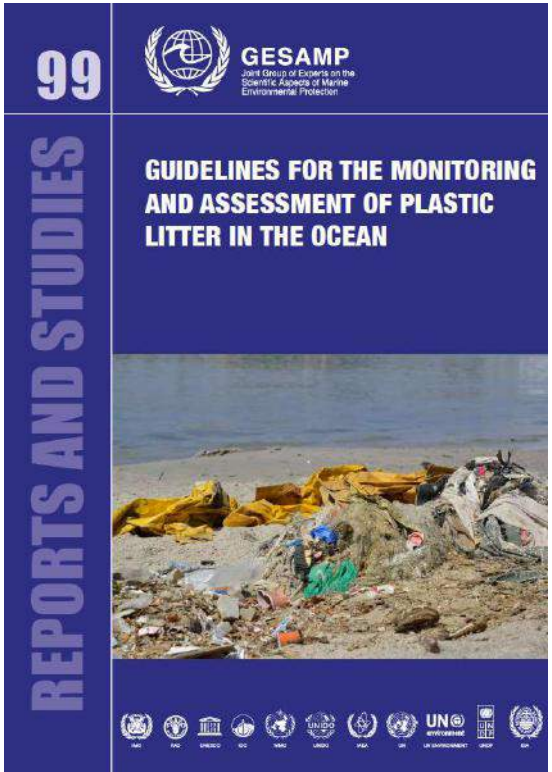


**LEADERSHIP TRACK:**  
5 hours of learning consist of 2 blocks

**EXPERT TRACK (English & Spanish):**  
32 additional hours consisting of 6 blocks some optional;

22,000 registered participants

# TRAINING OF TRAINERS



Needs assessment

5-day course

Next: online

Webinars

More regions



# UN Environment White Paper

## A Global Data and Information Platform for Monitoring Marine Litter and Informing Action

## Opportunities for Contributions

Contact: [Emily.Smail@noaa.gov](mailto:Emily.Smail@noaa.gov)

- Submissions on marine litter databases and data



Inventory of Existing Marine Litter Databases and  
Datasets for SDG Indicator 14.1.1

[https://form.jotform.com/  
91395440653157](https://form.jotform.com/91395440653157)

- Contributions to white paper as an author or reviewer

\*Particular need for experts on data integration,  
access and analysis





# Implementation: Demo Waste minimization, Samoa





Mapping of UN agency ML work ( ~20 through EMG)

Inventory on plastics and chemicals

Guidelines for single-use plastics policies -> online toolkit

Cost of action / non action

Environmental Justice and Marine Litter

Insurance companies' role in marine litter reduction



**Improve plastics management (reduce, redesign, reuse, recycle)**

**Global phase out of non-recoverable plastics**  
(e.g. microplastics in cosmetics)

**Reduce single-use plastics drastically**  
Global ban on certain types of single-use plastic bags

**COUNTRIES: 60 and counting**

**UPCOMING AREAS OF FOCUS:**

**What's in your bathroom?**

**Tourism and Sports**

Drive change within the tourism industry as well as major events

**Artists and Athletes**

Engage key influencers in collaboration with e.g. the International Olympic Committee

**Disposable plastics**

Raise awareness about impact of plastics used more than once but with limited life-span

**Tide Turners Badge**

Engage youth in promoting change

# Third Meeting of the Ad hoc open-ended experts group on marine litter and microplastics, 18-22 November 2019, Bangkok, Thailand

**Thank you** for your attention



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[Cleanseas.org](http://Cleanseas.org)    [www.gpmarinelitter.org](http://www.gpmarinelitter.org)

# The impact of plastic pollution on oceans is at least \$8 bn per year

Natural capital cost of marine plastic pollution by consumer product sector

