

Workshop “From science to action, for the implementation of the BRS conventions and guidance on the environmentally sound management of industrial chemicals

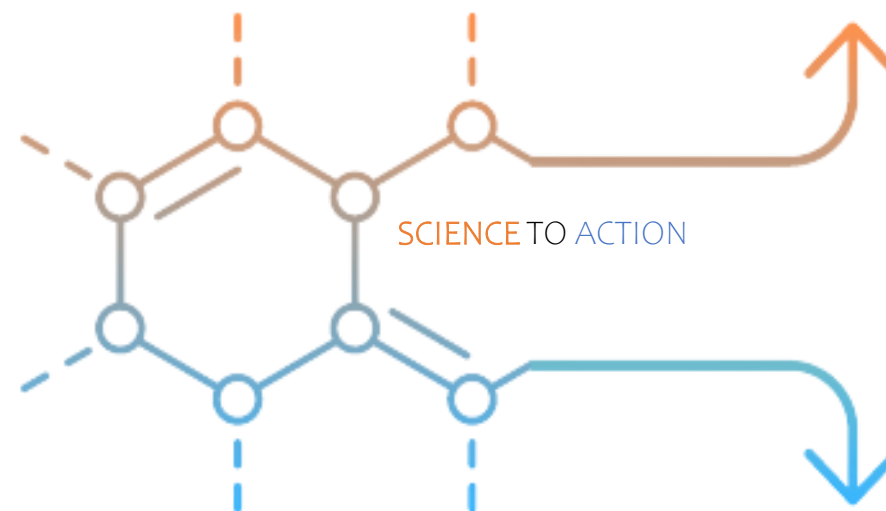


Understanding and improving the science-policy interface and “From Science to Action” under the BRS conventions

12 April 2023

Kei Ohno

Secretariat of the Basel, Rotterdam and Stockholm Conventions





Road map for “From Science to Action”

BRS COPs:

- **Recognized the importance of the science-policy interface** for the effectiveness of the conventions and the **need for greater access** to scientific understanding in developing countries to enhance informed decision-making on the implementation of the conventions.
- **Stressed the need for scientific underpinning** for decision-making and policymaking in the sound management of chemicals and wastes at the national and regional levels
- **Emphasized** that, through its subsidiary bodies, expert groups and other related mechanisms, including with other partners, **the necessary processes are in place** to ensure science-based work and decision-making under the Basel, Rotterdam and Stockholm conventions
- **Emphasized the importance of and the need to enhance the interaction** among scientists, policymakers and other actors in the policy process to promote the exchange, development and joint construction of knowledge with the aim of achieving more informed decision-making for reaching the objectives of the conventions

3 Pillars of the Road map for “From Science to Action”

- 1. Improving the access** to scientific and technical information relevant to the BRS conventions in particular in developing countries and countries with economies in transition
- 2. Increasing the availability** of scientific and technical information relevant to the BRS conventions in particular in developing countries and countries with economies in transition
- 3. Strengthening the national capacity** to use the scientific and technical information for the implementation of the BRS conventions

Do you agree with those three pillars of the road map?

FROM SCIENCE TO ACTION UNDER THE BASEL, ROTTERDAM AND STOCKHOLM CONVENTIONS

2022

SECRETARIAT OF THE BASEL, ROTTERDAM
AND STOCKHOLM CONVENTIONS



Food and Agriculture
Organization of the
United Nations

UN
environment
programme

ENVIRONMENTAL AND HEALTH EMERGENCIES

the role of the Basel, Rotterdam and
Stockholm conventions in supporting
Parties in prevention, preparedness,
response and recovery

2022

SECRETARIAT OF THE BASEL, ROTTERDAM
AND STOCKHOLM CONVENTIONS



Food and Agriculture
Organization of the
United Nations

UN
environment
programme

Global agreements for sound management of chemicals and waste

Strategic Approach to International Chemicals Management (SAICM)

Montreal Protocol
(Ozone Depleting Substances)

Minamata Convention on Mercury

 **Basel Convention**

- 189 Parties
- Hazardous wastes/other wastes
- Environmentally sound management (ESM)
- Prevention and minimization
- PIC procedure (control transboundary movements)



Stockholm Convention

- 186 Parties
- 30 Persistent Organic Pollutants (POPs) +review process
- Control production, use, import/export, unintentional releases, waste management



Rotterdam Convention

- 165 Parties
- 52 chemicals +review process
- PIC procedure for Annex III chemicals, information exchange



**INTERLINKAGES BETWEEN
THE CHEMICALS AND WASTE
MULTILATERAL ENVIRONMENTAL
AGREEMENTS AND BIODIVERSITY:
KEY INSIGHTS**



**CHEMICALS, WASTES
AND CLIMATE CHANGE
INTERLINKAGES AND POTENTIAL
FOR COORDINATED ACTION**



Proximity and self-sufficiency principle



- Wastes must be disposed of as closely as possible to their place of generation
- Minimize transboundary movements of hazardous wastes and other wastes



Primary waste stream

BASEL CONVENTION

- Lead-acid batteries
- Mercury waste
- Waste vehicles / Pneumatic tyres
- E-waste
- **Plastic waste...**
- **Medical waste...**

Mobile Phone Partnership (MPPI)

2002-2008



Partnership for Action on Computing Equipment (PACE)

2008-2017





**Over 35 Basel Convention Technical Guidelines
on the management of specific waste streams.**



BASEL CONVENTION

Basel Convention Plastic Waste Amendments

Annex II

Plastic waste,
including mixtures

Y48



Annex VIII

Hazardous plastic waste

A3210



Annex IX

Clean plastic waste for
recycling

B3011



Prior
Informed
Consent
(PIC)



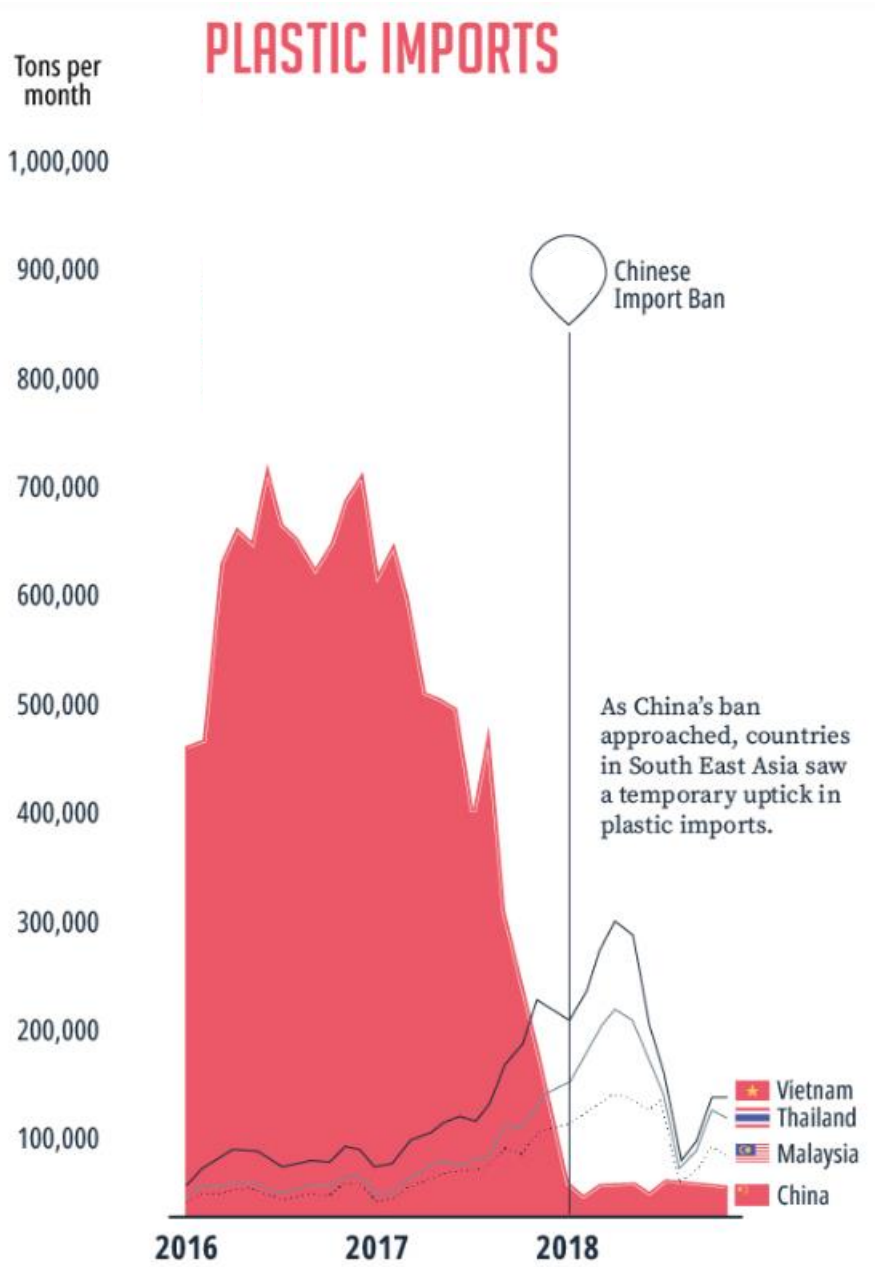
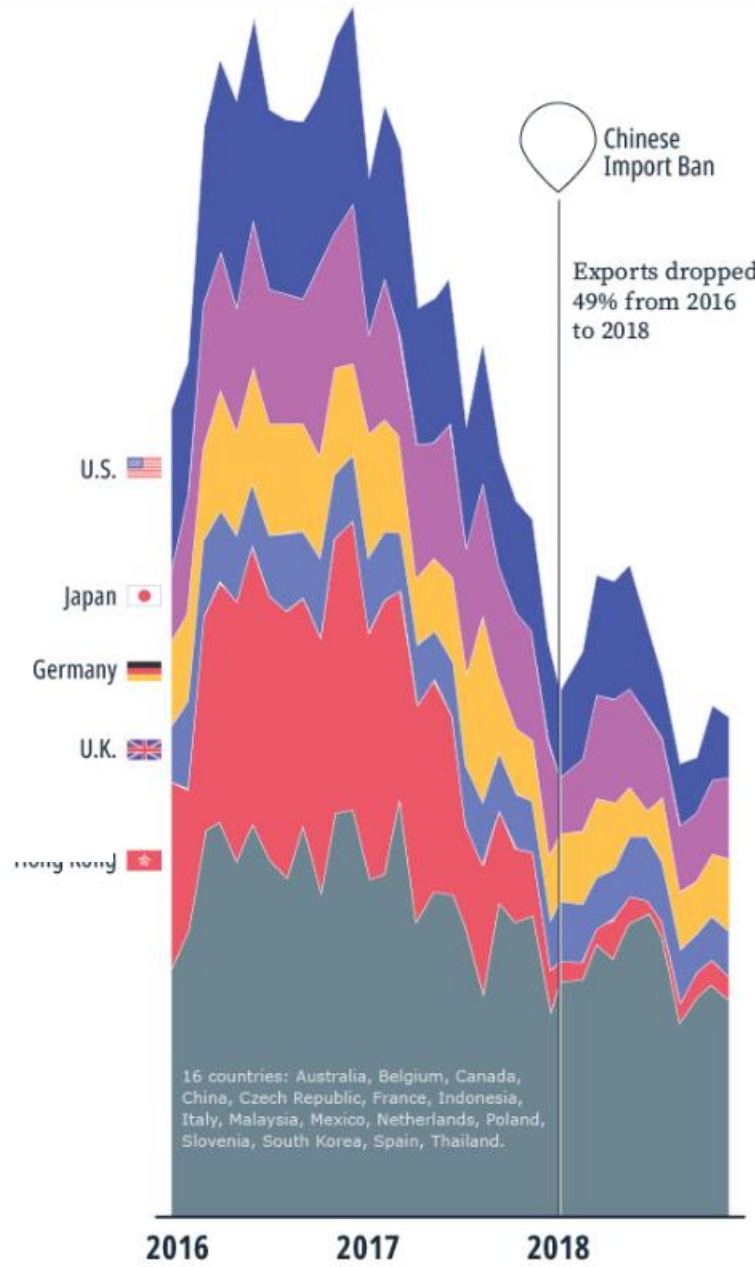
BC-14/12:
Plastic Waste
Amendments

Effective 1 Jan 2021

- + Plastic Waste Partnership
- + Technical Guidelines
- + Further action...

Impacts of Policies on Trade in Plastics

<https://www.visualcapitalist.com/mapping-the-flow-of-the-worlds-plastic-waste/>



Malaysia sends back over 300 containers of illicit plastic waste

By Reuters Staff

2 MIN READ



'Not a dustbin': Cambodia to send plastic waste back to the US and Canada

Country vows to return 1,600 tonnes of waste as south-east Asian countries revolt against an onslaught of rubbish shipments



Indonesia sending back 547 containers of waste from West

By ACHMAD IBRAHIM and NINIEK KARMINI September 18, 2019



Philippines sends tonnes of rubbish back to Canada

© 31 May 2019



Vital Graphics Publication jointly with UNEP and Grid-Arendal



DROWNING IN PLASTICS



MARINE LITTER AND PLASTIC WASTE VITAL GRAPHICS

CHAPTER 1

Global plastics production and consumption

During World War II plastics production boomed. The war drove technological advances in the petrochemical industry, resulting in new cheap and flexible plastics used in a multitude of products including aircraft parts (Freinkel 2011). The post-war years were a period of worldwide economic expansion and the starting point for mass production of plastics for consumer products. Many plastic manufacturing factories that once supported the production of items with military applications were retooled as plastics became an everyday material. Because of their strength and light weight, among other characteristics, plastics are used in a wide range of products (Parker 2020).

From the mid-1950s rapid growth occurred in the use of plastics for packaging, in building and construction, and in other sectors. Reliance on plastics has continued to grow. Annual global production of primary fossil fuel-based (or "fossil-based") plastics increased from 2 million tonnes in the 1950s to more than 438 million tonnes in 2017 (Geyer 2020). Almost 50% of all plastics have been produced since 2005. The COVID-19 pandemic has temporarily slowed plastic resin production (with an expected 8-9% fall in 2020) and consumer demand for some products (ISRI 2020; Recycling Products News 2020). At the same time, there has been a massive increase in the production of items such as single-use plastic personal protective equipment and certain types of packaging (e.g. for food takeaways) (see Chapter 11). If global trends on plastic demand continue, it is estimated that by 2050 annual global plastic production will reach over 1,100 million tonnes (PlasticsEurope 2019).

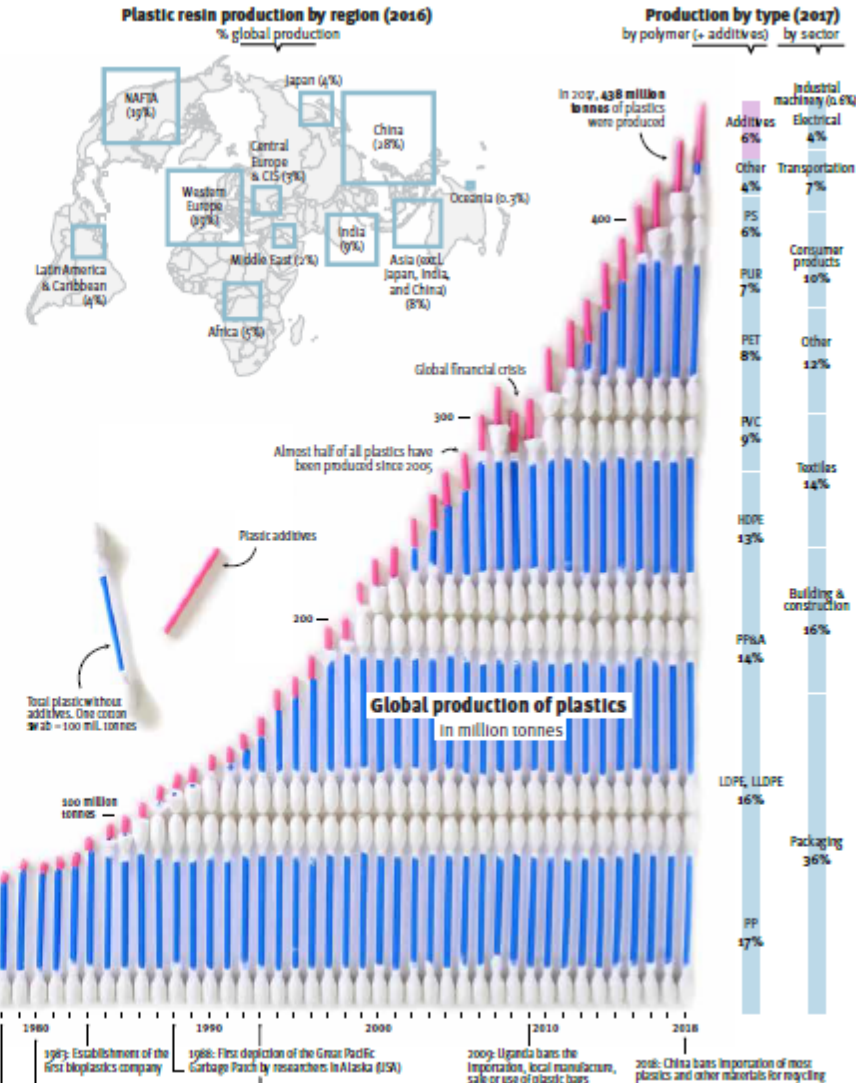
Up to 99% of plastics are made from polymers from non-renewable hydrocarbons, mostly oil and natural gas. A small percentage are made from a range of polymers such as starch, cellulose, sugars and vegetable oil (British Plastics Federation 2019). Through the addition of additives such as plasticizers, flame retardants and dyes (see Chapter 3) plastics can take on various characteristics and colours,

which has facilitated the introduction of thousands of plastic products into the market (American Chemistry Council 2020).

Historically, Europe and North America have dominated global plastics production. However, in the last decade Asia has emerged as a significant producer, with China accounting for 28% of total plastic resin production and 64% of synthetic fibre production in 2016 (UNEP 2018; Geyer 2020). Regional differences in the volume of plastics production are driven by user demand, the price of fossil fuel feedstocks, and investments made in the petrochemical industry. For example, since 2010 since 2010 over US\$ 200 billion has been invested in the United States in new plastic and chemical plants, stimulated by the low cost of raw materials (American Chemistry Council 2019). In the European Union (EU), too, heavy investments have been made in the plastics industry, which employs over 1.6 million people with a turnover of more than 350 billion euros per year (PlasticsEurope 2019). In China in 2016 there were over 15,000 plastic manufacturing companies, generating more than US\$ 366 billion in revenue (Barrowclough and Blirbeck 2020).

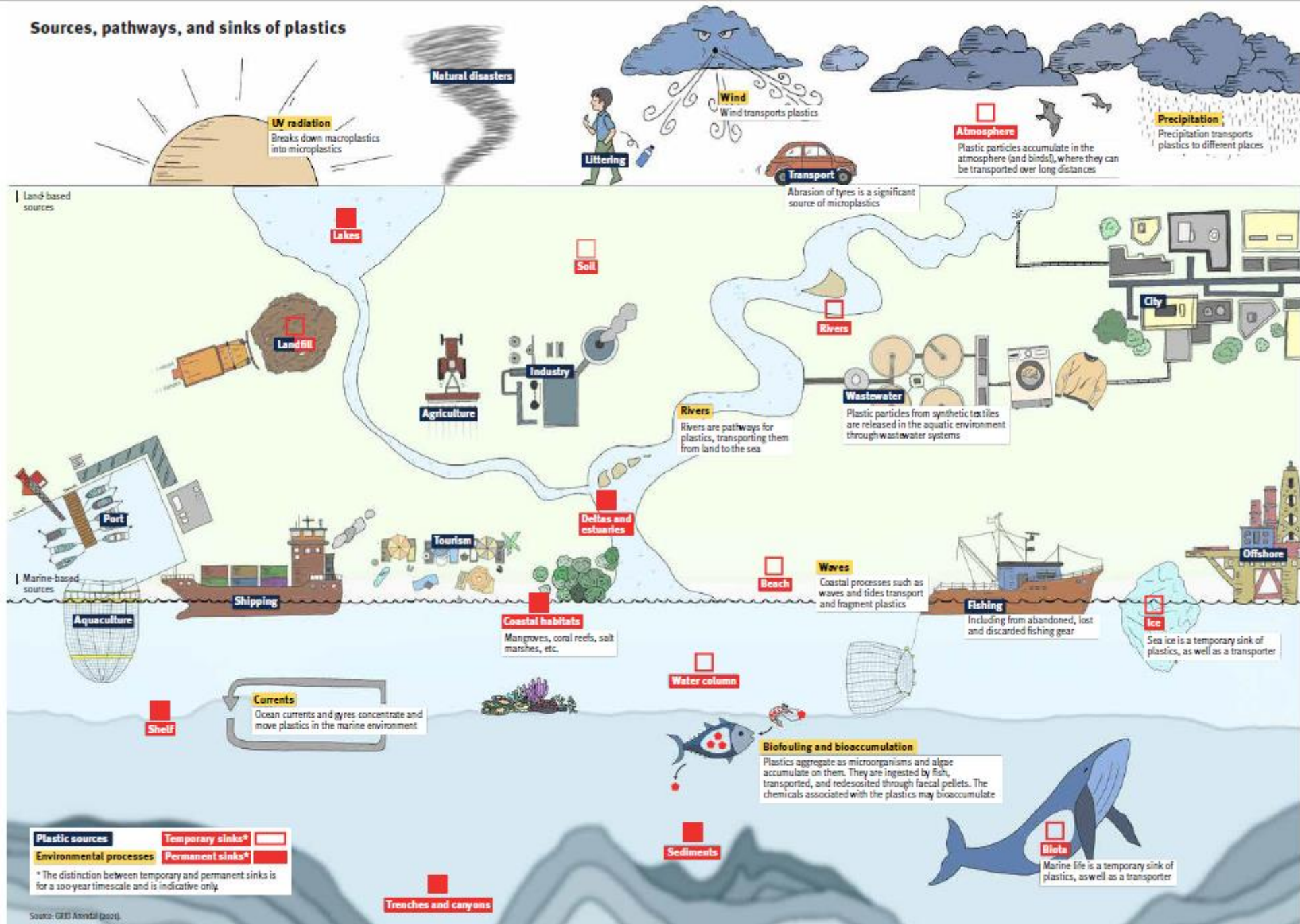
In 2017 the global plastics market was dominated by thermoplastics – polymers that can be melted and recast. Thermoplastics include polyethylene (PE), polyethylene terephthalate (PET), polypropylene (PP), polyvinyl chloride (PVC), polystyrene (PS) and polyphthalamide (PPA), which together represent 86% of all plastics. Polyethylene, which includes low-density polyethylene (LDPE), linear low-density polyethylene (LLDPE) and high-density polyethylene (HDPE), is the most popular thermoplastic: 31% of all plastics are polyethylene (Geyer 2020).

The most commonly produced plastic consumer products include packaging made from LDPE (e.g. bags, containers, food packaging film), containers made from HDPE (e.g. milk bottles, shampoo bottles, ice cream tubs), and PET (e.g. bottles for water and other drinks). Together these products account for



Sources: Geyer et al. (2017), Nyberg et al. (2019). Illustration by Tom Westendorp / GRID Arendal (2020). Research by Maria Tuohimäki.

Sources, pathways, and sinks of plastics



Source: GRID Arendal (2021).



BRS Technical Assistance & Partnership on Plastic Waste



Norad



Norwegian Retailers' Environment Fund



PLASTIC WASTE PARTNERSHIP
A PARTNERSHIP OF THE BASEL CONVENTION

01

TBM

Effective control of TBM of plastic waste



02

ESM

Improve ESM of plastic waste



03

Minimize

Prevent and minimize the generation of plastic waste



04

Additives

Reduce the risk from hazardous constituents, e.g. POPs in plastic waste



SDGs

Contribute to SDG targets, in particular 14.1 and 12.4



Beneficiary countries of projects related to plastic waste

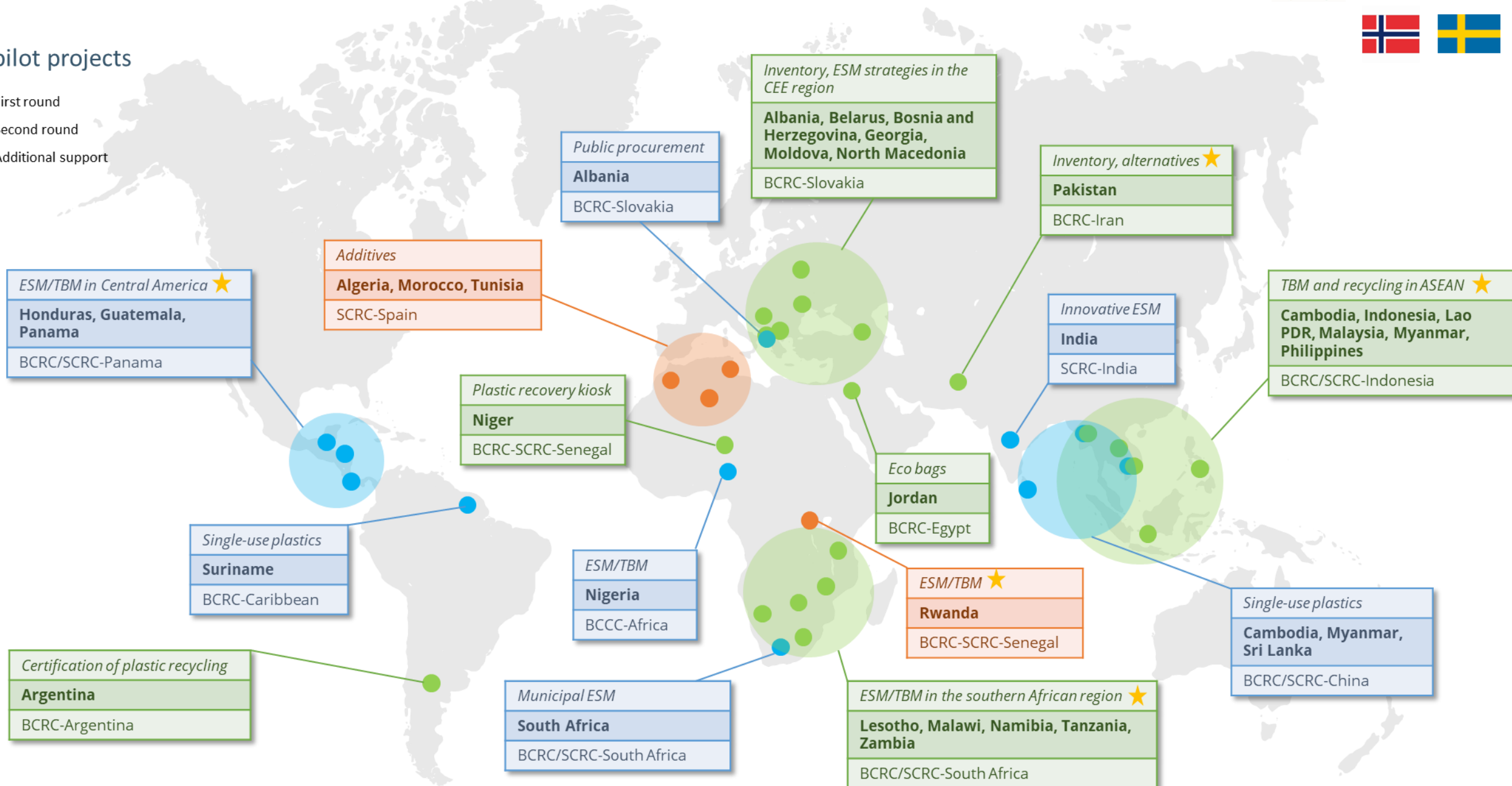


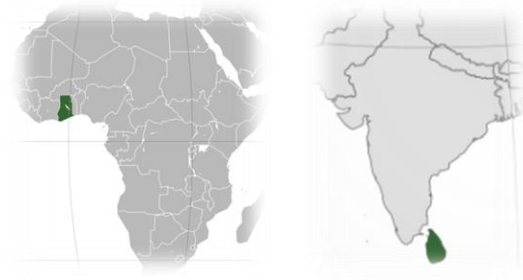
Details on the projects available at:

<http://www.basel.int/Implementation/Plasticwaste/Technicalassistance/Projects/ProjectsMap/tabid/8772/Default.aspx>

16 pilot projects

- First round
- Second round
- Additional support





BRS-Norad-1 Project

Jan 2019 to Jun 2023

USD 1.7 million +



Norad



Pilot Testing for Innovation and Improvement

1. Plastic waste inventory [data]

Need to know the **extent of plastic waste** at the national level that needs to be managed, including import/export. Essential for **evaluating** the impact of measures taken, achievements of projects.

2. ESM strategy

Plan and strategize the environmentally sound management of plastic waste at the national level, from prevention and minimization to final disposal; involving all stakeholders - **private sector, informal sector, general public.**

3. Legal and institutional framework

Ensure that the legal and institutional framework is adequate and in line with the Basel Convention requirements.

4. Awareness and enforcement

Training, education, communication etc. to raise awareness of the specialists and general public.





Norwegian Retailers' Environment Fund

Pilot projects in Malawi and Zimbabwe

Packaging



Source: Notpla

Edible & compostable packaging



Source: Swajal

Water ATMs



Source: Plastic-Clever School

Plastic-free schools

Fisheries



Source: Net-Works

Recycling of ghost gear



Source: Plastic Punch

Outreach through beach clean-up



Source: Trash Hero

Citizen-science on beach litter

Microplastics



Source: OCS



OPERATION CLEAN SWEEP
OBJECTIVE: ZERO PELLET LOSS

Training & outreach on Operation



Source: Oéko

OCS audit & corrective actions in informal recycling

Plastics in the mountains and remote areas projects



Schweizer Alpen-Club SAC
 Club Alpin Suisse
 Club Alpino Svizzero
 Club Alpin Svizzer



Deutscher
 Skilehrerverband



A Centre collaborating with UNEP



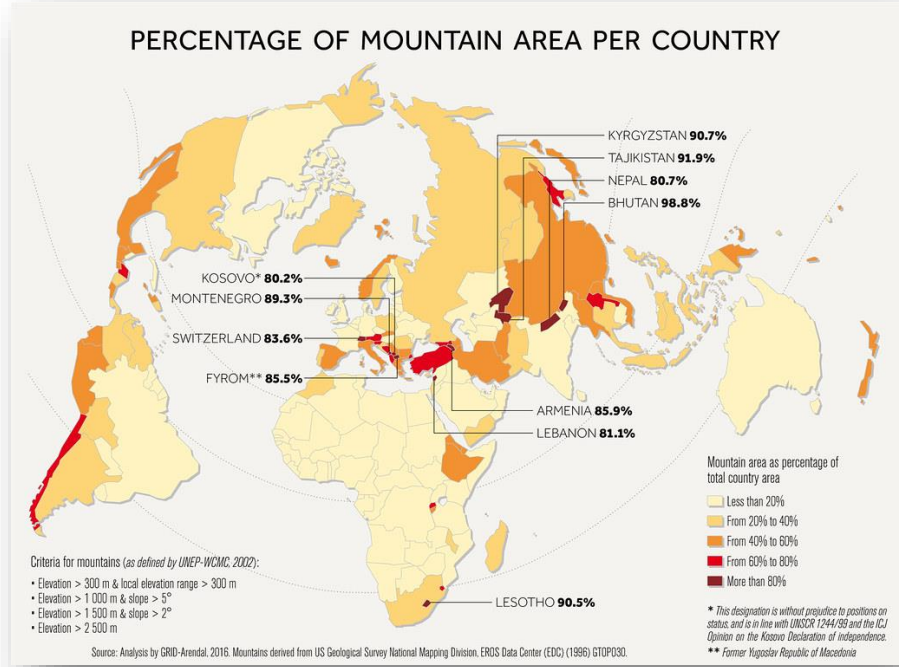
UIAA



- Strengthen capacity and awareness in remote and mountainous areas to reduce the amounts of plastic waste and to ensure its environmentally sound management



<https://survey.zohopublic.eu/zs/hkhvmh>







Fact Sheet #5

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/3G0rZ8E>

Plastic additives

Every plastic item contains additives that determine the properties of the material and influence the cost of production (Stenmarck et al. 2017). Typical additives include stabilisers, fillers, plasticisers, colourants, as well as functional additives such as flame retardants and curing agents (Figure 1). Some plastic additives are hazardous to human health and the environment (Stenmarck et al. 2017).

Leakage and degradation

Plastics are composed of chains of polymer be weakly bound to the polymers or react matrix. The weakly bound additives can leach from plastics during normal use, when in landfill or improper disposal in the environment.

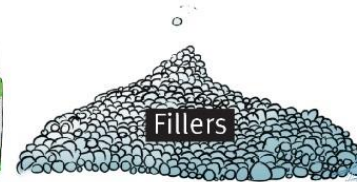
Five types of plastic additives



Functional additives include for example stabilizers, antistatic agents, flame retardants, plasticizers, lubricants, slip agents, curing agents, foaming agents, biocides, etc.



Colorant are substances such as dyes or pigments added to give color to plastic. Some of them are added to give a bright transparent color.



Fillers are added to change and improve physical properties of plastics. They can be minerals, metals, ceramics, bio-based, gases, liquids, or even other polymers.



Reinforcement are used to reinforce or improve tensile strength, flexural strength and stiffness of the material. E.g. glass fibres, carbon fibres, etc.

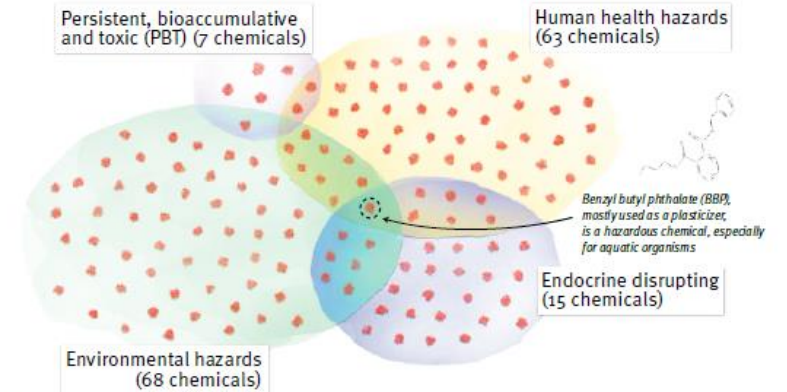


NIAS are chemicals that arrive in products from processes such as reaction by-products or break down products

Sources: Hansen et al. (2013). Illustration by GRID-Arendal (2020).

Hazardous chemicals in plastics

A 2018 study found that 3,377 chemicals are potentially associated and 906 chemicals are likely associated with plastic packaging. Out of these, 148 have been identified as most hazardous (Groh et al. 2018).



Source: Groh et al. (2018). Illustration by GRID-Arendal (2020).



POPs listed under the Stockholm Convention

Elimination

14 Pesticides:

Aldrin, Chlordane, Chlordecone, Dicofol, Dieldrin, Endosulfan, Endrin, Heptachlor, Alpha/beta/gamma HCH, PCP, Toxaphene, **Mirex***

**Also used as industrial chemicals*

13 Industrial POPs:

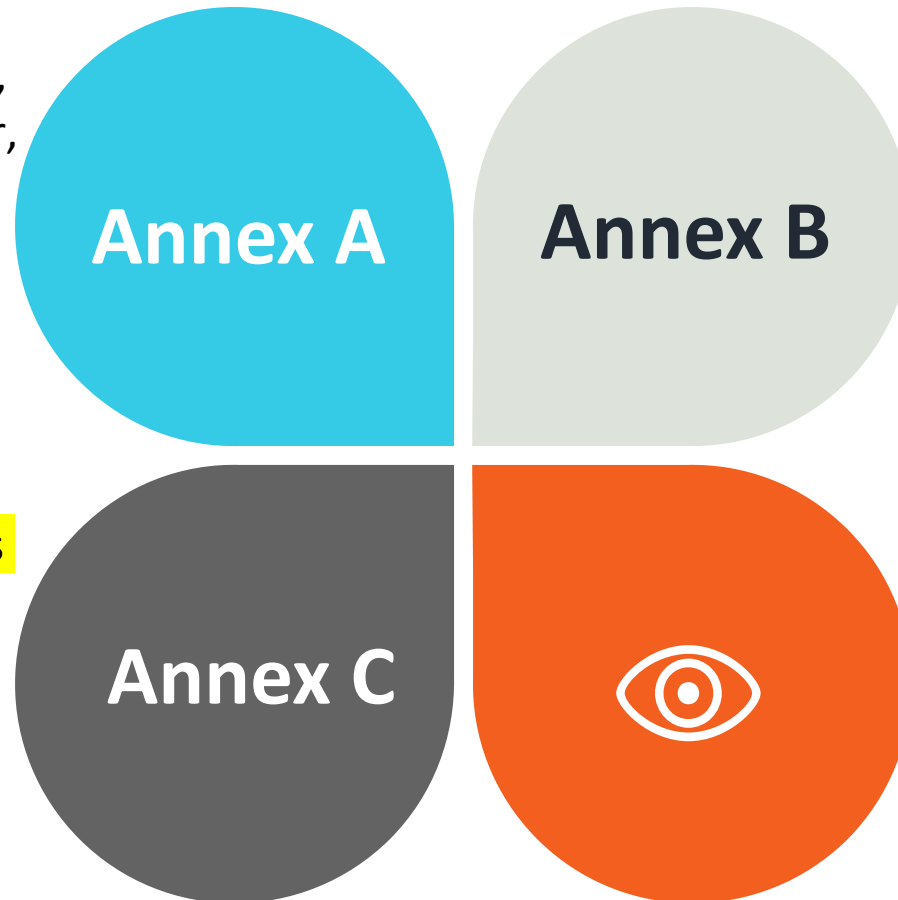
C-DecaBDE, C-OctaBDE, C-PentaBDE, HBB, HBCDD, HCB, PCB, PCN, PFOA, its salts and PFOA-related compounds, PFHxS, its salts and PFHxS-related compounds, SCCPs, PeCB*, HCB*

**Also used as pesticides*

Unintentional releases

7 U-POPs:

HCB, HCB, PeCB, PCB, **PCDD/PCDF**, PCN



Restriction

1 Pesticide: DDT

1 Industrial POP: **PFOS, its salts and PFOF**

**Annex B chemicals have "Acceptable purposes" for which Parties can continue production/use if registered.*

Under review

Article 8, Annex D, E, F, POPs Review Committee (POPRC)

Year 1: Proposal / Annex D screening



Year 2: Annex E risk profile



Year 3: Annex F risk management evaluation / recommendation



Year 4: COP decision

POPs Review Committee (POPRC)

- POPRC is a subsidiary body of the Stockholm Convention set up to:
 - Review chemicals proposed for listing in Annex A, B, and/or C
 - Process in Article 8; information requirements/criteria in Annex D, E, F
 - Make recommendations to the COP
 - Undertake other technical work as assigned to it by the COP
- 31 government-designated experts from 5 UN regions
 - POPRC meetings are open to observers (Parties and observers to the Stockholm Convention)



Annex D screening criteria

Persistence

- Half-life of the chemical in water is >2 months, in soil is >6 months, in sediment is >6 months
- Chemical is otherwise sufficiently persistent to justify its consideration within the scope of the Convention

Bioaccumulation

- BCF or BAF in aquatic species for the chemical is >5,000, or logKow is >5
- A chemical presents other reasons for concern, such as high bio-accumulation in other species, high toxicity or ecotoxicity
- Monitoring data in biota indicating that the bio-accumulation potential of the chemical is sufficient to justify its consideration within the scope of the Convention



Potential for long-range environmental transport

- **Measured** levels of the chemical in locations distant from the sources of its release that are potential concern
- Monitoring data showing that LRTP of the chemical, with the **potential for transfer to a receiving environment**, may have occurred via air, water or migratory species
- Environmental fate properties and/or **model results** that demonstrate that the chemical has a LRTP through air, water or migratory species, with the **potential for transfer to a receiving environment** in locations distant from the sources of its release. For a chemical that migrates significantly through the air, its half-life in air should be >2 days.

Adverse effects

- Evidence of adverse effects to human health or to the environment that justifies consideration of the chemical within the scope of this Convention.
- Toxicity or ecotoxicity data that indicate the potential for damage to human health or to the environment

Annex E risk profile



- a. Sources (Production, use, releases)
- b. Hazard assessment for the endpoint
- c. Environmental fate (**including properties linked to environmental transport**)
- d. Monitoring data
- e. **Exposure in local areas, in particular as a result of long-range environmental transport, including information regarding bio-availability**
- f. National and international risk evaluations, assessments or profiles and labelling information and hazard classifications
- g. Status of the chemical under international conventions



Chemical Review Committee (CRC)





- CRC is a subsidiary body under the Convention set up to:
 - Review notifications of final regulatory action (FRA) taken by Parties on a chemical against Annex II criteria
 - Review proposals for listing severely hazardous pesticide formulations (SHPF) against Annex IV criteria
 - Recommend to the COP the listing of chemicals that meet the Convention criteria in Annex III to the Convention
 - Develop draft decision guidance documents for those chemicals recommended for listing under the Convention
- 31 government-designated experts from 5 UN regions
 - CRC meetings are open to observers (Parties and observers to the Rotterdam Convention)





Decision Guidance Documents developed by the Chemical Review Committee

- Risk evaluation
- Alternatives
- Social and economic effects
- Hazard Classification
- Exposure limits
- Packaging and labelling
- First aid
- Waste management
- Physico-chemical properties
- Toxicological properties
- Human exposure/risk evaluation
- Environmental exposure/risk evaluation

UNITED NATIONS				Food and Agriculture Organization of the United Nations	RC
					UNEP/FAO/RC/COP.10/12/Add.1
	Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade				Distr.: General 21 December 2020 Original: English
Conference of the Parties to the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade Tenth meeting Geneva (online), 26–30 July 2021* Item 5 (b) of the provisional agenda** Matters related to the implementation of the Convention: listing of chemicals in Annex III to the Convention					
Inclusion of perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds in Annex III to the Rotterdam Convention					
Addendum					
Draft decision guidance document					

Decision Guidance Documents (DGDs)

Iprodione:

- Fungicide, e.g. on vines, fruit trees and vegetables
- Listing in Annex III was recommended by CRC-17 based on notifications of final regulatory action from Mozambique and the EU
- Draft DGD was developed in intersessional period, to be finalized by CRC-18
- Recommendation and draft DGD to be considered by COP-11 in 2023

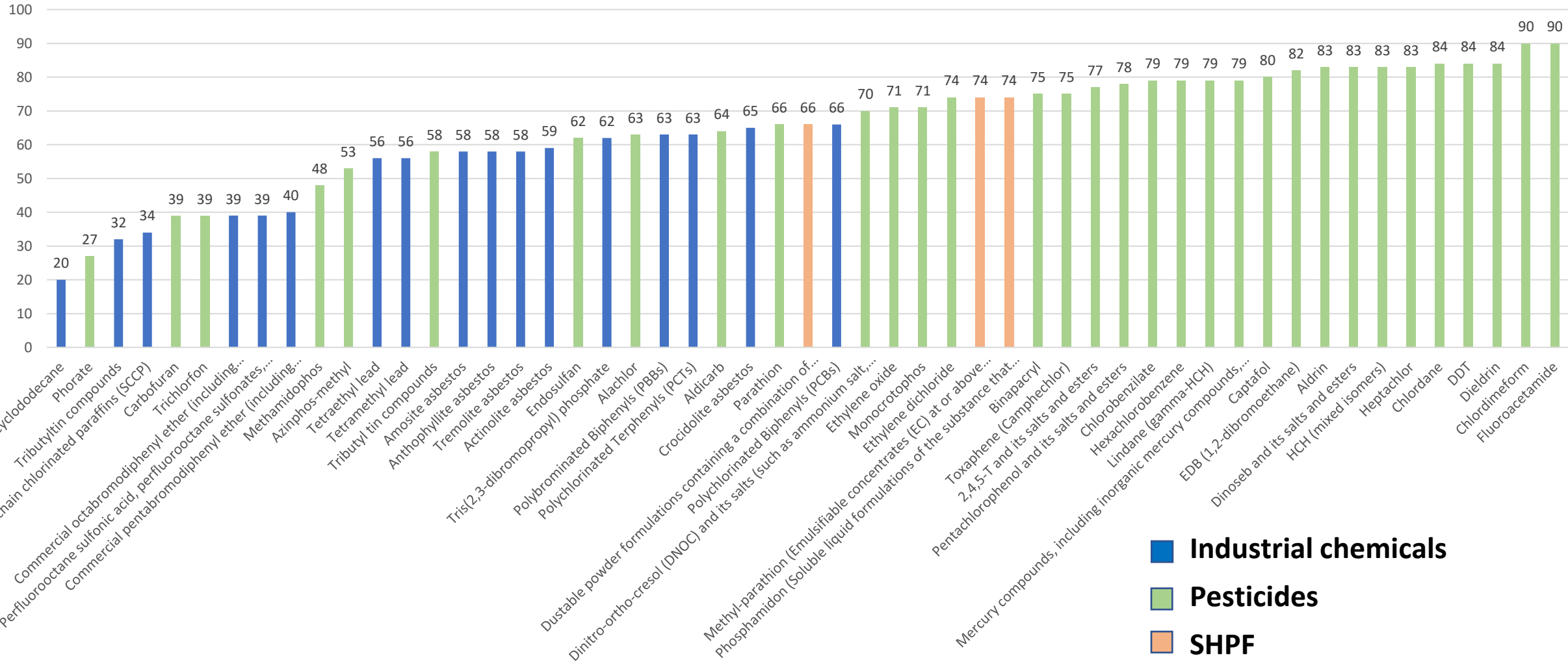


Terbufos:

- Insecticide, e.g. on maize, sorghum, potato, beans and sugar beets
- Listing in Annex III was recommended by CRC-17 based on notifications of final regulatory action from Mozambique and Canada
- Draft DGD was developed in intersessional period, to be finalized by CRC-18
- Recommendation and draft DGD to be considered by COP-11 in 2023



Rotterdam Convention PIC procedure: Import responses submitted by Parties





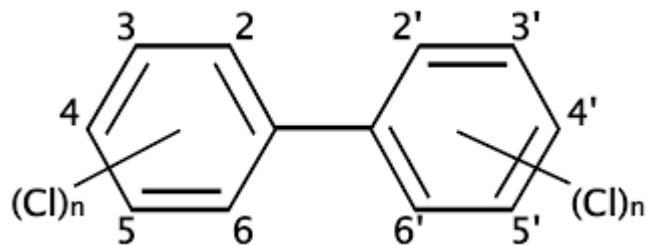


Stockholm Convention Annex A

Elimination

Part I

Chemical	Activity	Specific exemption ²
Polychlorinated Biphenyls (PCB)*	Production	None
	Use	Articles in use in accordance with the provisions of Part II of this Annex





Stockholm Convention Annex A

Elimination

Part II

- Eliminate the use of PCB in equipment (transformers, capacitors or other receptacles containing liquid stocks) by 2025. Identify, label and remove from use equipment containing ≥ 50 ppm PCB and volumes ≥ 0.05 L;
- Only allow export or import of PCB for the purpose of environmentally sound waste management;
- Except for maintenance and servicing operations, not allow recovery for the purpose of reuse in other equipment of liquids with PCB content ≥ 50 ppm;
- Manage PCB waste (≥ 50 ppm PCB) in an environmentally sound manner in accordance with para 1 of Article 6 by 2028;
- Identify other articles containing ≥ 50 ppm PCB, such as cable-sheaths, cured caulk, painted objects and manage them in accordance with para 1 of Article 6;
- Provide report on progress in eliminating PCB in Article 15 national reporting for review by the COP every four years.



Review of PCB elimination

Every 4 years (2007, 2011, 2015, 2019, 2023...)

All Parties shall manage
PCB waste in ESM

2028

All Parties shall stop
using PCB in equipment

2025

2027

6th PCB evaluation

- Report of PCB SIWG
- 6th national reports due 2026

5th National reports

- PCB inventory guidance
- Preliminary analysis for the effectiveness evaluation committee

2023

5th PCB evaluation

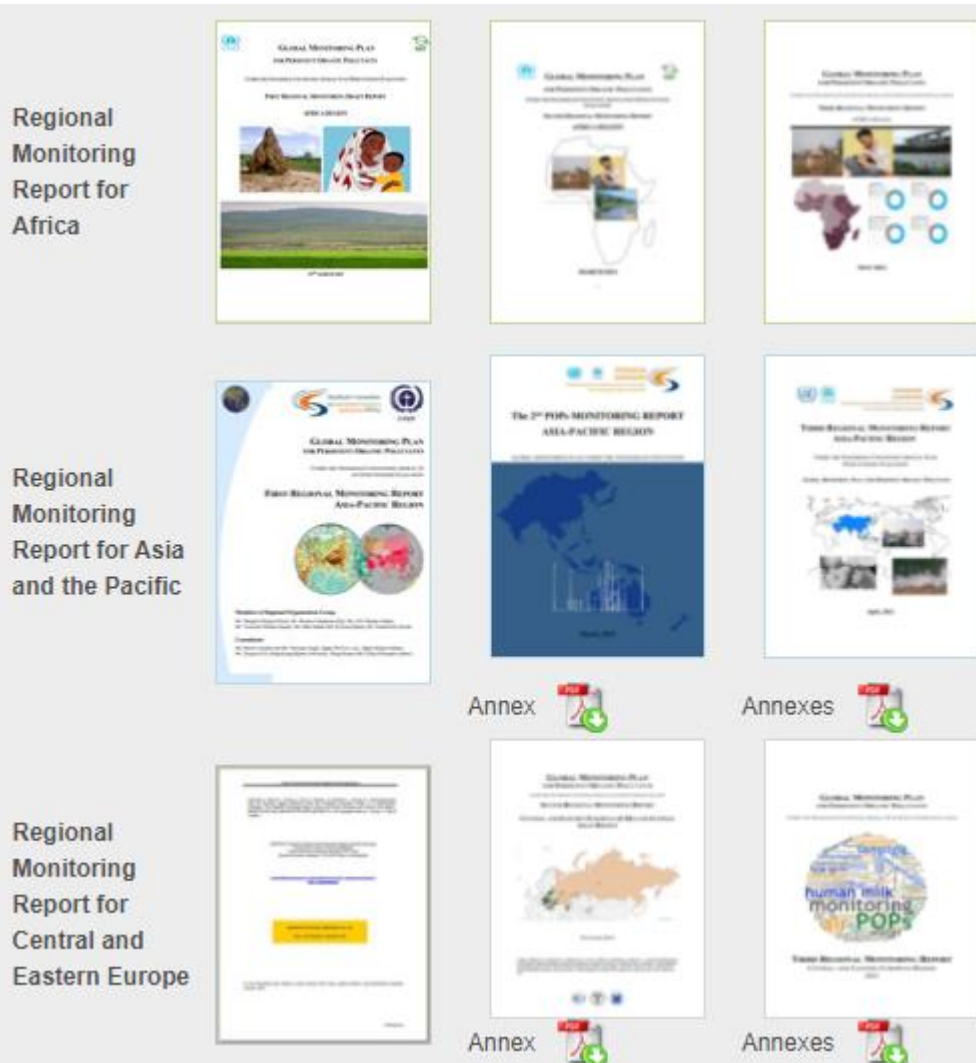
- Report of PCB SIWG
- 2nd Effectiveness evaluation

2022

Estimate in 2019

- Production: 1–1.5 million tonnes
- Amount eliminate: ~ 3 million tonnes
- Amount to be eliminated: ~14 million tonnes

Third round of regional monitoring reports



UNEP/POPS/COP.10/INF/41
<http://chm.pops.int/tabid/525>

GMP DataWarehouse

<https://www.pops-gmp.org/>

The screenshot shows the GMP Data Warehouse website. The header includes the Stockholm Convention on persistent organic pollutants (POPs) logo and the text "POPs GMP data visualization and analysis". The navigation menu includes Home, Background, GMP DWH, GMP 3, and Contact. The main content area features a section titled "GMP 3 in 2020 - information on data collection and input" with an "Introduction" sub-section. The introduction text states: "GMP DWH compiles, archives and shows aggregated global data on POPs listed in the Stockholm Convention including supplementary data from core matrices - ambient air, human tissues (breast milk and blood), and water. The aim is to identify changes in POP levels over time and trends, where available. At present, it contains information related to the second phase of the Global monitoring Plan with data up to 2014. These data are presented also in the GMP regional monitoring reports." A "Data Management Console" button is visible in the bottom right corner.

POPs GMP data visualization and analysis

Stockholm Convention on persistent organic pollutants (POPs)

Home Background GMP DWH GMP 3 Contact

GMP 3 in 2020 - information on data collection and input

Introduction

GMP DWH compiles, archives and shows aggregated global data on POPs listed in the Stockholm Convention including supplementary data from core matrices - ambient air, human tissues (breast milk and blood), and water. The aim is to identify changes in POP levels over time and trends, where available. At present, it contains information related to the second phase of the Global monitoring Plan with data up to 2014. These data are presented also in the GMP regional monitoring reports.

Data Management Console

Note: public release of GMP DWH with updated dataset covering also third monitoring reports is planned for COP10 (side event). Currently, the visualization platform reflect GMP2 phase, dataset until 2013/2014.



GMP and EE timeline

Every 6 years

Final GMP-4 report
Submit to COP-14; 3rd Effectiveness evaluation

2029

Draft Global monitoring report GMP-4

Submit to EE committee in Jan 2028

2028

Finalize 4th regional monitoring reports

Submit to COP-13

2027

Begin preparation of 4th Global monitoring report (GMP-4)

2025

Draft GMP-3 report

Submitted to EE committee in Jan 2022

4th regional monitoring reports in preparation

2022

2023

Finalized 3rd regional monitoring reports

Submitted to COP-10

2021

Final GMP-3 report

Submit to COP-11; 2nd full Effectiveness evaluation

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Thank you

Kei Ohno

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