Global NIP Update Webinar –

Activity Options for Action Plans for Stockholm Convention NIPs: Brominated, chlorinated, & other POPs plastic additives (22. Jan. 2026, 14:00 -16:30 CET)

CET	Theme	Speaker
14:00	Moderator: Mr. Hannes Mac Nulty (GGKP)	
	Welcome and Opening Remarks	Dr. Kateřina Šebková (SCRC Czech Republic, RECETOX)
14:05	Some basic Considerations on Action Plan Development and Integrated Approach	Dr. Roland Weber; (POPs Environmental Consulting)
14:30	Action Plan Considerations for Management and Control of POPs Plastic Additives, and Related Plastics in Major Sectors	
15:15	Financing (Sectorial) Circularity: Basic Principles of Extended Producer Responsibility	Mr. Alexander Batteiger (GIZ, PREVENT Waste Alliance)
15:45	Action Plan Considerations for Management and Phase-Out of Medium- and Short-Chain Chlorinated Paraffins (MCCP/SCCPs)	Dr. Roland Weber
16:15	Q&A session	All
16:30	Closing remarks	

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Global NIP Update Webinar “Activity Options for Action Plans for Stockholm Convention NIPs: Brominated, chlorinated, and other POPs plastic additives”, 22. January 2026, 14:00 -16:30 CET

Some Basic Considerations on Action Plan Development and Integrated Approach

Dr. Roland Weber
POPs Environmental Consulting,
73527 Schwäbisch Gmünd, Germany
https://www.researchgate.net/profile/Roland-Weber-2

37 POPs listed in the Stockholm Convention (2025)

Chemical	Pesticides	Industrial chemicals	Unintentional production	Annex
DDT	+			B
Aldrin, Dieldrin, Endrin, Chlordane,	+			A
Chlordecone, Toxaphene	+			A
Alpha-, Beta-, Gamma-HCH,	+		By-product of lindane	A
Endosulfan, Heptachlor, Mirex, PCP,	+			A
Dicofol, Methoxychlor, Chlorpyrifos	+	+		A
Commercial PentaBDE		+		A
Commercial OctaBDE (Hexa/HeptaBDE)		+		A
Commercial DecaBDE		+		A
Hexabromobiphenyl (HBB)		+		A
Hexabromocyclododecane (HBCD)		+		A
PFOS, its salts and PFOSF	**+**	+		B
PFOA and related compounds		+		A
PFHxS and related compounds		+		A
Long-chain PFCAs (C9-C21)		+		A
SCCPs, MCCP, Dechlorane Plus		+		A
UV-328		+		A
PCB, PeCBz, HCB, PCN, HCBD	**+**	**+**	+	A/C
PCDD, PCDF			+	C

Many of the new listed POPs are plastic additives or are otherwise related to polymers.

5 are **brominated** flame retardants.

3 are chlorinated flame retardants (DP & MCCP/SCCPs)

4 PFAS groups were/are used in wide range of uses with a major use in side-chain fluoropolymers.

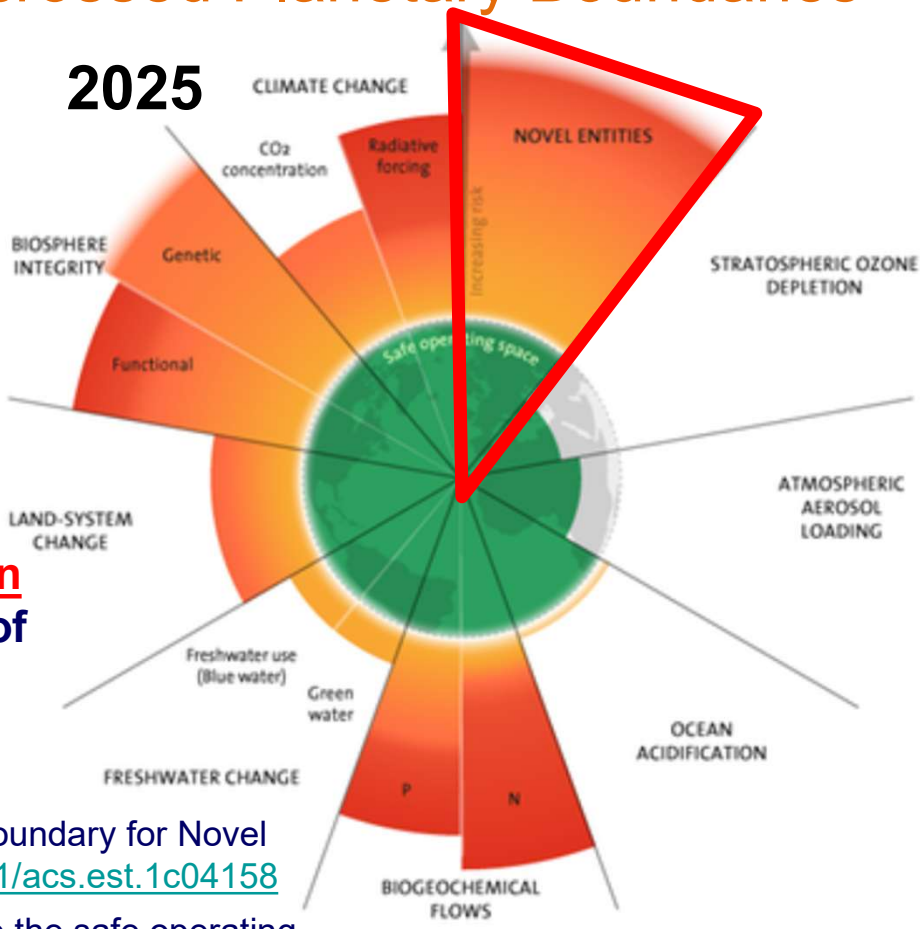
The first **non-halogenated** plastic UV stabilizer (**UV-328**) was listed as POP in 2023.

Some POPs had high production volumes: **DecaBDE, HBCD and SCCP/MCCP which all received exemptions** for production & use until recently or still continue.

POPs Review Committee: PBDD/PBDF & PXDD/PXDF

"Novel Entities" **chemicals** & **plastics** crossed Planetary Boundaries

- The planetary boundaries **– which define the environmental limits within which humanity can safely operate –** have been evaluated for 9 critical anthropogenic pressures on the Earth System and 7 have crossed by 2025 (e.g. biodiversity and climate change,; Rockström et al. 2009).
  http://www.ecologyandsociety.org/vol14/iss2/art32/
  https://www.stockholmresilience.org/research/planetary-boundaries.html
- **Studies concluded that "Novel Entities" including chemicals of concern (e.g. PFAS) and plastics pollution have crossed planetary boundaries and are therefore of high concern for humanity and a risk for several ecosystem services** (Persson et al. 2022; Cousins et al. 2022).



Persson et al. (2022) Outside the Safe Operating Space of the Planetary Boundary for Novel Entities. Environ. Sci. Technol. 2022, 56, 1510–1521. https://doi.org/10.1021/acs.est.1c04158

Cousins IT, Johansson JH, Salter ME, Sha B, Scheringer M. (2022) Outside the safe operating space of a new planetary boundary for PFAS. ES&T. 56(16), 11172-11179. https://doi.org/10.1021/acs.est.2c02765

Rockström et al. (2009) Ecology & Society 14(2):32; Update: Richardson et al. (2023): https://www.science.org/doi/10.1126/sciadv.adh2458

United Nations: The World faces a Triple Planetary Crisis

- The United Nations highlight, that humanity faces a Triple Planetary Crisis of climate change, nature & biodiversity loss, and chemical pollution & waste (Antonio Guterres).
- There are interlinkages of chemicals/waste and other drivers of the Triple Planetary Crisis:
- **Strong links between chemicals & waste and climate change** (e.g. open burning of waste/plastics, management of plastic foams containing POPs & F-gases; **plastic recycling**).
- **Chemicals and plastic are also a cause for biodiversity loss,** e.g., reduced reproduction of predators at the top of the food chain (killer whale population collapse; eagle eggshell thinning). Groh et al (2022) ES&T. 56(2):707-710. **Death** by **plastic pollution** (Tekman et al 2020; Anunobi et al. 2022
- "*The "toxic trail" of economic growth – pollution and waste - results every year in the premature deaths of millions of people across the world*." Inger Andersen director of UNEP

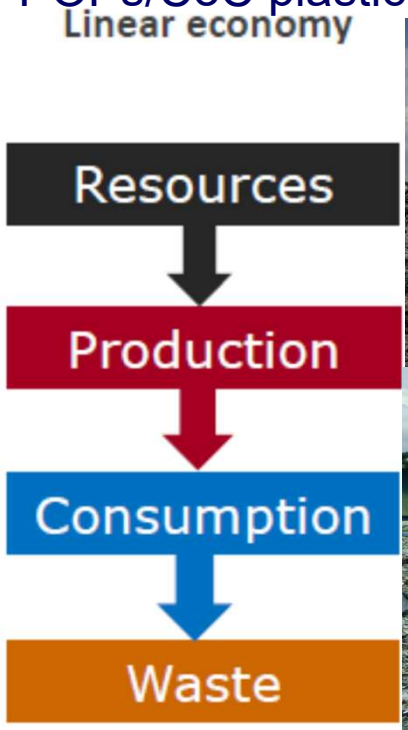
https://unfccc.int/news/what-is-the-triple-planetary-crisis
https://www.unep.org/news-and-stories/story/campaign-against-plastic-pollution-world-making-tentative-progress

The linear material economy is resulting in a global plastic nightmare

- Municipal/plastic waste generation & management is an overall key problem for environmental **pollution and resource losses in particularly in low- and middle income countries.**
- **Large cost factor for municipal budgets.**
- Plastics Waste/ is expected to increase with increasing population and GDP.
- POPs/CoC plastic additives increase the pollution and also the cost of management!

STOCKHOLM CONVENTION

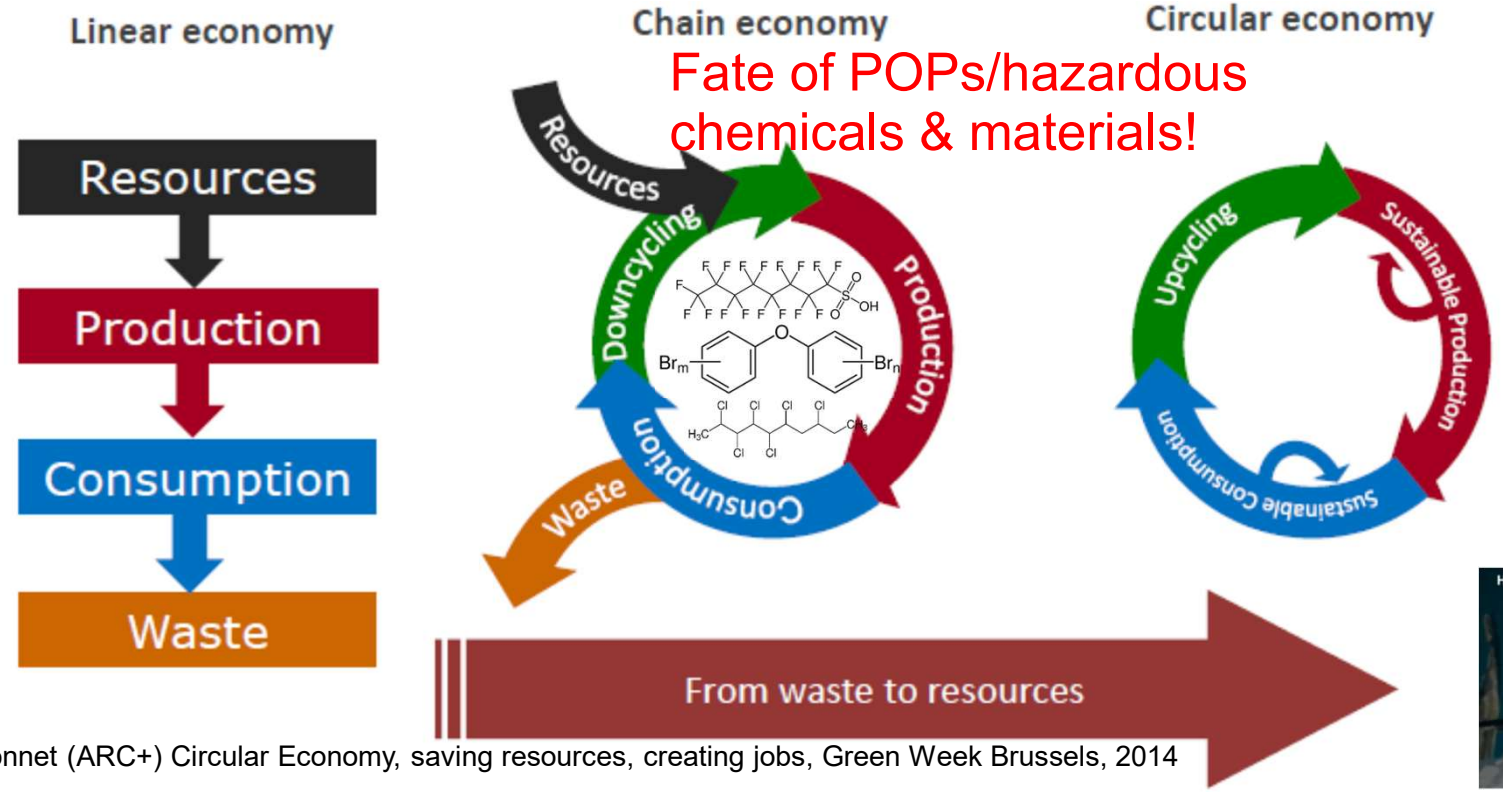
BASEL CONVENTION



Need of elimination of hazardous chemicals for a Circular Economy

Considering this **waste & plastic crises and the limits of resources**, humanity needs to move to (a more) circular economy (stressed by UN Organisations, GEF, the EU and Plastic Treaty)

https://www.unep.org/news-and-stories/story/plastic-treaty-progress-puts-spotlight-circular-economy



Bonnet (ARC+) Circular Economy, saving resources, creating jobs, Green Week Brussels, 2014

United Nations Framework Convention on Climate Change

Convention on Biological Diversity

UN environment programme Global Framework on Chemicals

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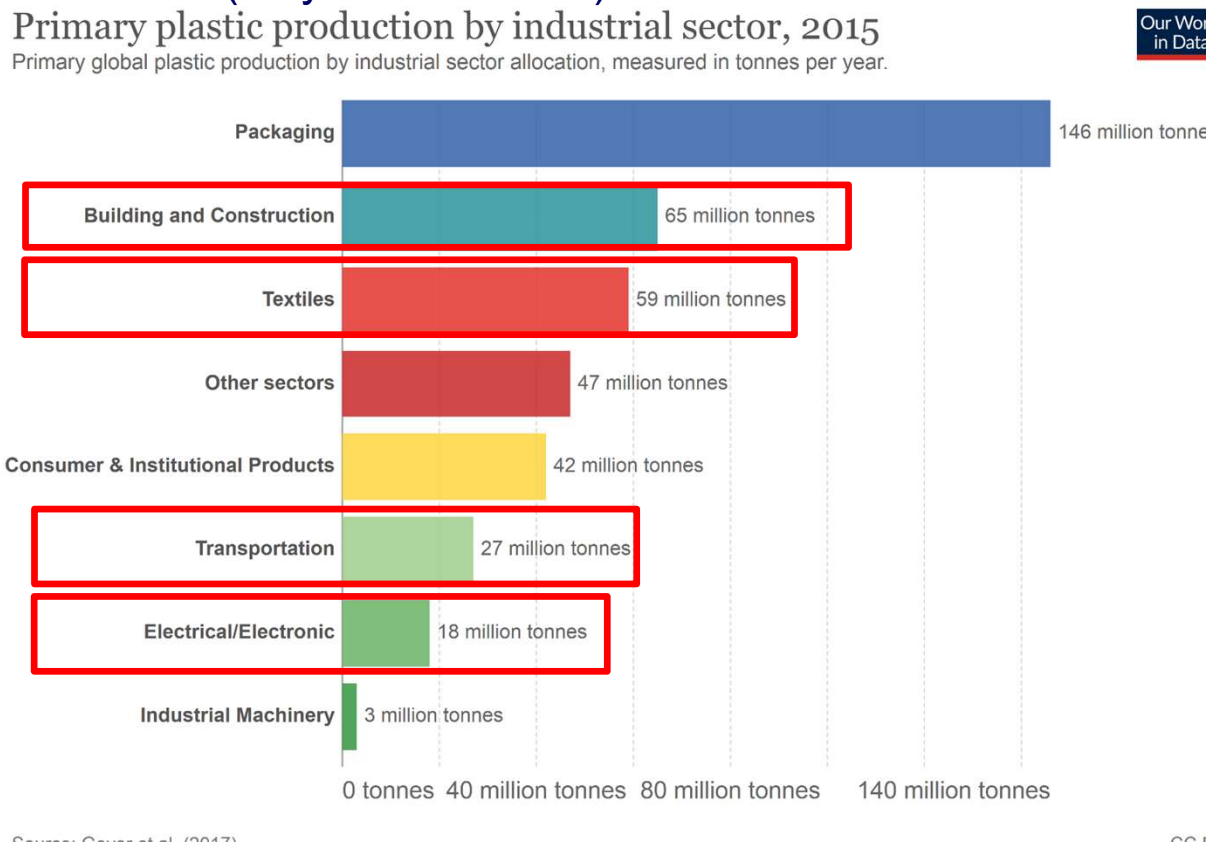
When moving to a (more) Circular Economy, then POPs and other chemicals of concern need to be controlled and phased out. Best within a **global approach** (BRS & Plastic Treaty).

Electronics, transport & buildings - major reservoirs of POPs in plastic

- A **major share of industrial POPs** are **included in the electronics, transport and buildings & construction sectors** and **most of the POPs are contained there in plastics & other polymers**.
- **These make a relevant share of the overall use/stock of plastic worldwide**: **approx. 30% of plastic production is used in these three sectors** (Geyer et al. 2017).
- Considering the **long service life in the three sectors, likely more than 50% of all plastic stocks** are contained in these 3 **sectors today** and are **highly relevant** for **plastic** management and **recycling**.
- Also the **textile sector** is a large plastic-use sector and some of the textiles are treated with POPs and partly contained in the transport sector (seats, covers) and in buildings (e.g. carpets, furniture, curtains).

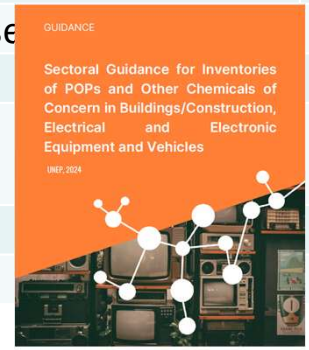


Geyer et al. (2017) 10.1126/sciadv.1700782 Reproduced by National Graphics (Issue June 2018)

POPs present in the three sectors and main use period

A wide range POPs are present in the three sectors and for several POPs it is/was the major use.

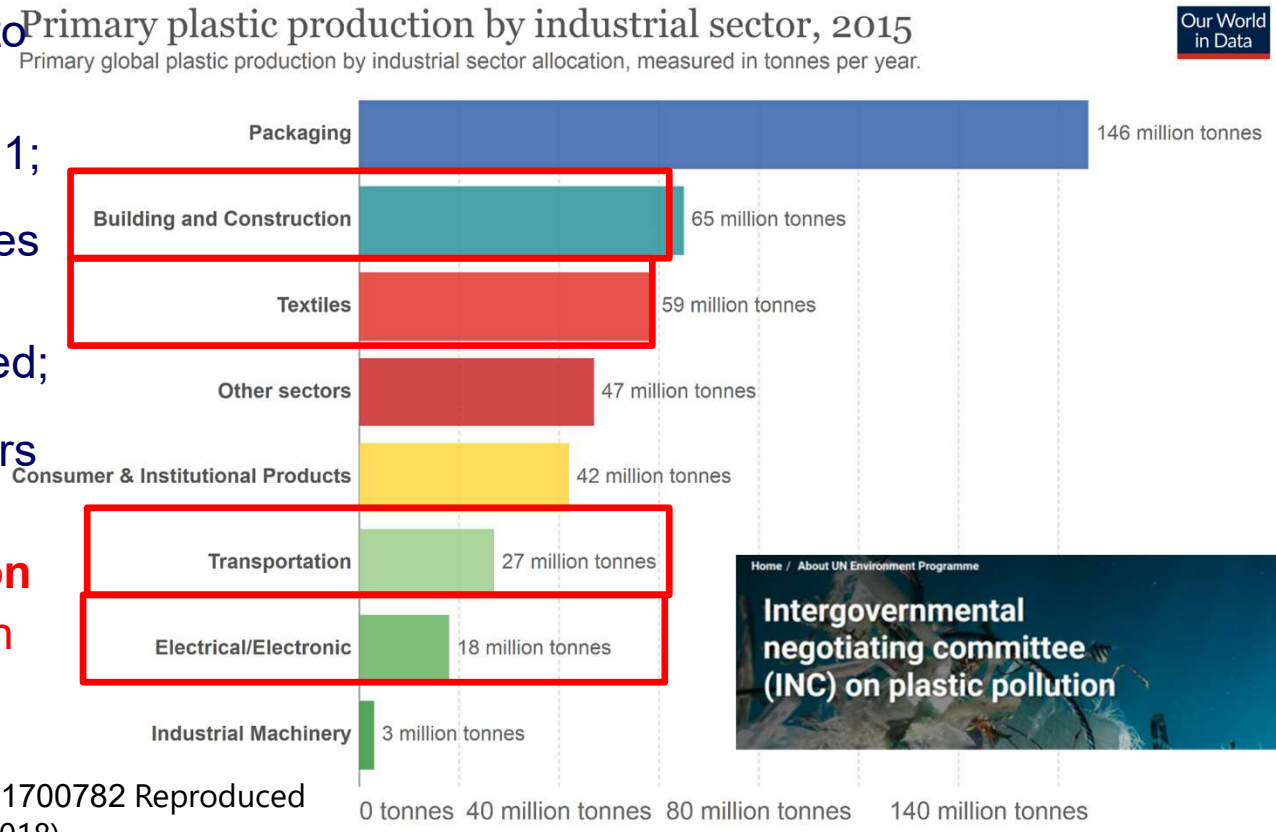
POP (main production & use period)*	Building & Construction Sector	Electrical & electronic equipment	Transport Sector
c-PentaBDE (1970-2004)	Former use	Minor former use	Major former use
c-OctaBDE (1970-2004)	Minor former use	**Major use**	Minor former use
decaBDE (since 1970s)	**Major use**	**Major use**	**Major use**
HBCD (1980 to 2021)	**Major former use**	Minor former use	Minor former use
HBB (1970 to 1976)	Not relevant	Minor former use	Minor former use
SCCP (Since 1930s)	**Major use**	Minor use	Minor use
MCCP (Since 1930s)	**Major use**	Use	Use
PFOS (1960 to 2012)**	Former use	Former use	Former use
PFOA (since 1960s)	Former use	Minor use in product	Use
PFHxS (1960 to 2021)	Former use	Former use	Former use
PCB (1940 to 1980)	**Major former use**	Former use	Minor former use
PCN (1930 to 1970s)	Minor former use	Minor former use	Minor former use
PCP (1930 to 2015)	Major former use	Not relevant	Minor former use
DDT, aldrin, dieldrin, lindane, endosulfan, mirex (1940 to 2000)	Former use	Not relevant	Not relevant
Dechlorane Plus (DP)	Use	Use	Use
UV-328	Major use	Major use	Major use



*Main period for production & use in these sectors; **Major production/use stopped 2002

Managing POPs in plastics can trigger better plastic management

- **Assessing and managing POPs in the major affected plastic use sectors can improve** the **management of plastics in these sectors** and **result in depollution of these sectors**. **Good experience** with **global phase-out of HBCD** and it is **likely that all DecaBDE production stopped**.
- Stockholm Convention Parties started to inventory and manage POPs in these sectors together with plastics since 2011;
- With further listing of the plastic additives Dechlorane Plus, UV-328, SCCPs, and MCCPs (in 2025) this is further extended;
- The **POPs** management in these sectors **requires the management of plastic**. **POP action plans and implementation** can become an **excellent synergy** with the **upcoming Plastic Treaty**!

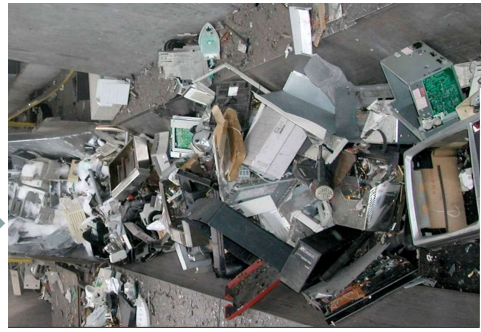


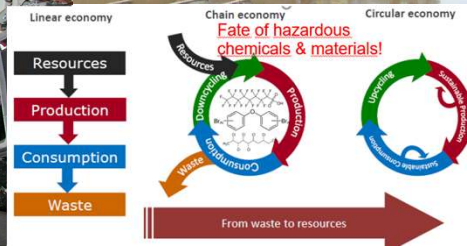
Geyer et al. (2017) 10.1126/sciadv.1700782 Reproduced by National Graphics (Issue June 2018)

POPs plastic additives are present in large product and waste sectors

⟶Need for environmentally sound management of POPs in plastic recycling

- Plastics in construction (increasing with the increasing climate change incentives for insulation of houses)
  Recycling/treatment of insulation & other plastics
- Electronics plastic (computer, TV, cables, etc.) ending up in E-waste
  Recycling/treatment of WEEE plastic
- Transport sector (plastic, textile and upholstery in cars, busses, trains, air plane etc.)
  Recycling/treatment of polymers/shredder residue
- Textiles, curtains, carpets, mattresses.
  Recycling/treatment of PUR; textiles





PBDE/BFR contamination of recycled plastics

- Poorly sorted plastic from e-waste or ELVs result in the contamination of recyclates with POPs and other hazardous substances which results in POP contamination of new products, such as children's toys and kitchen utensils.

PBDE in carpet padding (DiGangi et al, OHC , 2011)

PBDE in toys in China (Chen et al, ES&T 43, 4200, 2009) and in Japan & internationally (Kajiwara et al, 2020)

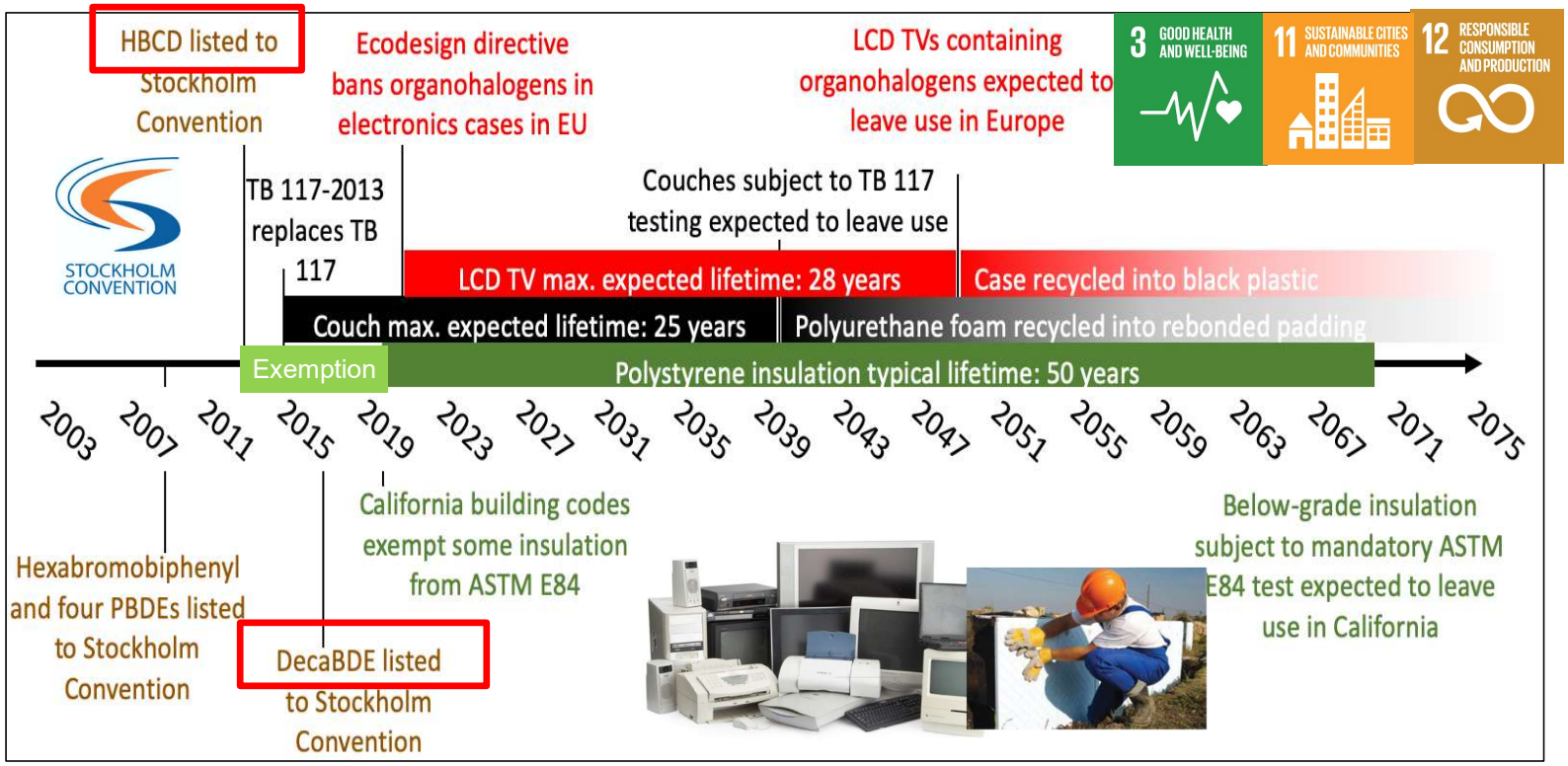
PBDE in thermo-cup (Samsonek & Puype Food Add. & Contam. 2013)

⇒ The recycling flow of PBDE/POPs-containing plastic seems largely uncontrolled. We need a better life cycle management and better control! **The SC action plan can play a key role.**

⇒ The **recycling sector needs considerable improvement** and **BAT/BEP** for **separation** of problematic materials. **Not into sensitive uses**! Global SC approach came to the right time.

POPs plastic additives and related waste & recycling

- Note for the NIP: Product sectors containing POPs plastic additives can have **long service lives**.
- Therefore they can impact recycling cycles for decades and in the construction sector even a century.
- If these POPs in plastics are recycled, they even will have a longer impact.



Charbonnet, Weber, Blum (2020) Emerg. Contam. 6, 432-441 https://www.sciencedirect.com/science/article/pii/S2405665020300160

Moving towards more circular WEEE plastic management with separation

Procurement	Processing	Selling
		
• Growing supply • Land-filled/Incinerated	• Mechanical 'mining' process	• "Green" products • Virgin-like quality possible
↓	↓	↓
• Self-replenishing • Sustainable and growing supply	• < 10% of energy • <10% of water consumption • Save about 1-3 tons CO2/ton	• More sustainable business • PCR plastics

Chris Slijkhuis (2018) MBA Polymers THE PLASTICS RECYCLING PROFESSIONALS **Now Müller-Guttenbrunn**

- Only a share of plastics in these sectors is impacted by POPs.
- In BAT recycling ~40 to 70% of plastic can be recycled. **A high share can go back to EEE.**
- ~30-60% of plastic cannot be recycled (PBDEs/BFR; plastic mixture) and are **thermally destroyed/ recovered** or might go to solvent-based recycling or chemical recycling.
- **The action plan for POPs and related plastics in these sectors can contribute to the environmentally sound management and a safer circular economy for plastic** which is an aim for the plastic treaty under development.

POPs present in large plastic waste categories – **Chance to globally promote** sound plastic waste management in these sectorss

E-waste/WEEE (62 Mt/year in 2022) and related plastic:

- Plastic makes up about 25% of total WEEE. **Globally 15.5 million t/year.**
- Heterogeneous plastic fraction that pose recycling challenges (down-cycle).
- High halogen content with associated challenges in thermal treatment (The bromine and chlorine content of WEEE plastic shredder fractions are normally in percent range; Schlummer et al. 2007).
- Appropriate management and treatment needed. **The Stockholm Convention BAT/BEP guidance for PBDEs and Dechlorane Plus compiled techniques for separation and recycling**.

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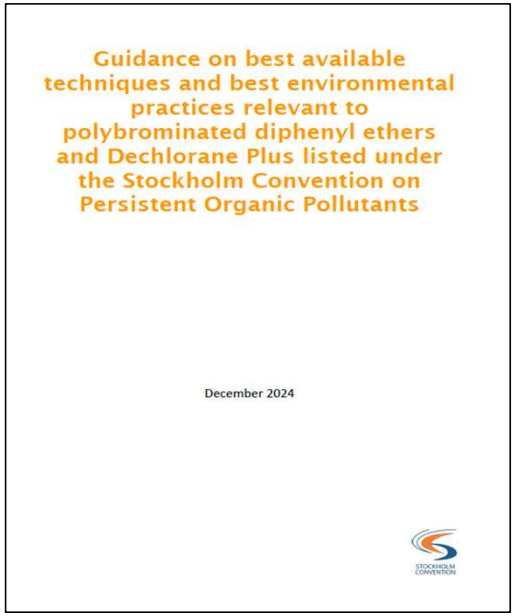
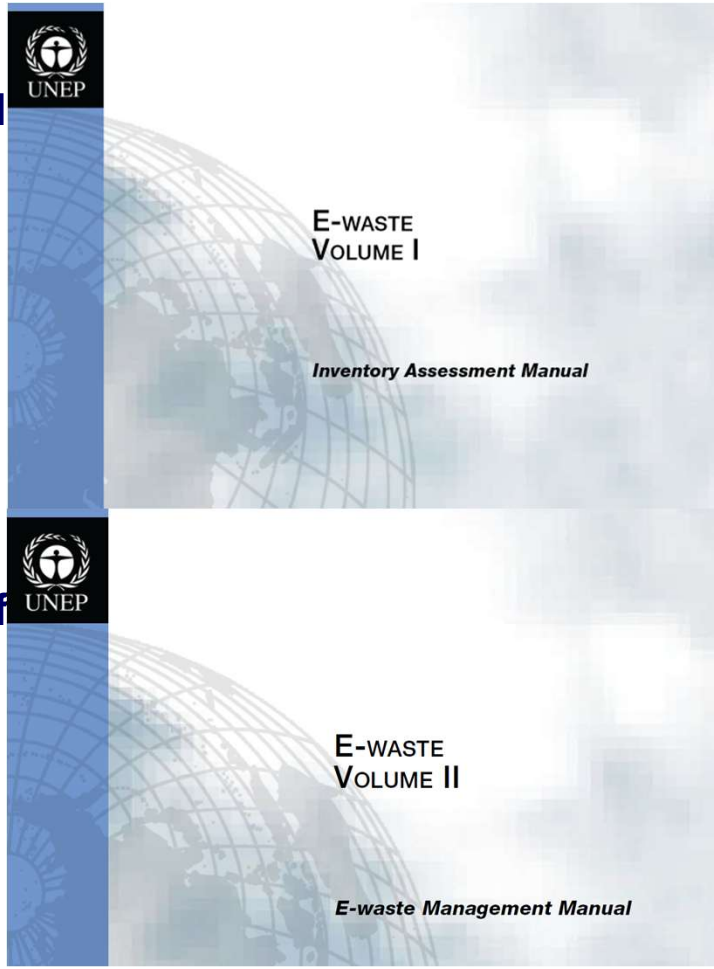


Metals as major driver for the management of WEEE

- **The presence of toxic metals such as lead, mercury, arsenic, cadmium, antimony, and POP plastic additives beyond threshold quantities in WEEE classifies WEEE as hazardous waste. In an integrated approach also these metals need to be addressed.**

Metals are a driver for management & opportunity for financing:

- WEEE contains ~50% iron and steel and ~ 13% non-ferrous metals (e.g., Al, Cu, Co, Ni) and precious metals (e.g., Ag, Au, Pd, Pt) which have value and are the drivers for management and recycling.
- **The value of metals can partly finance WEEE management and if Extended Producer Responsibility frames are appropriately set and implemented, ESM of e-waste could be financed**.

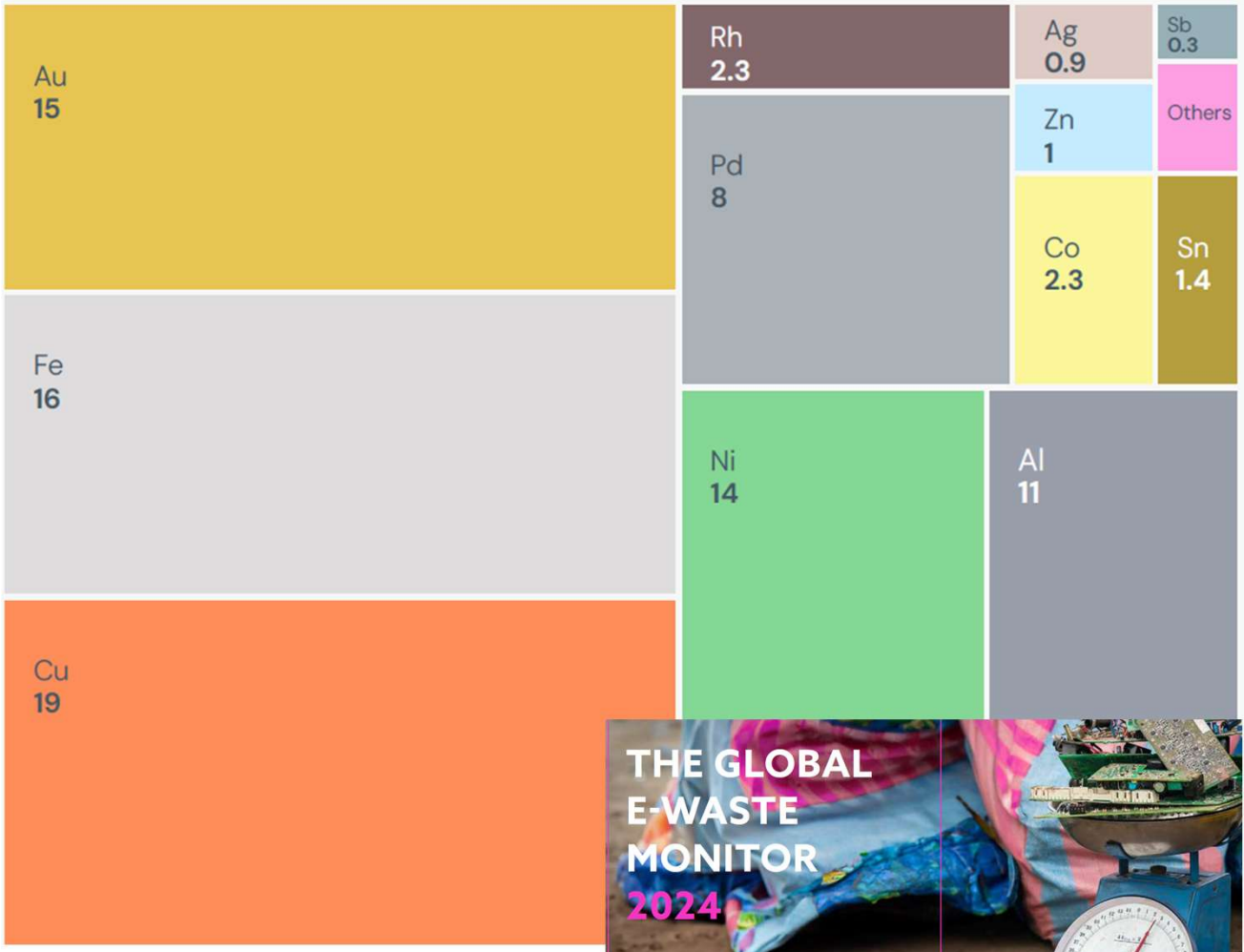


- **POPs management in plastic could be an impulse** for **ESM** of **e-waste plastics** (~6% of global plastics)
- **The action plans for POPs can support the systematic management of pollutants in WEEE.**

Metals as major driver for the management of WEEE

- In 2022, the **overall global value** of **metals contained in e-waste** is estimated at **USD 91 billion**.
- The **low collection & recycling rate** of **current e-waste management practices result** in **only around USD 28 billion worth of metals** being turned into secondary raw materials.

Note: Most of the potential value in e-waste lies in **copper** (USD 19 billion), **gold** (USD 15 billion) and **iron** (USD 16 billion). These metals can be efficiently reclaimed with high recycling rates using available e-waste management technologies and in current financial conditions.



UNITAR, ITU (2024) The Global E-waste Monitor 2024

The global transport sector and the need for POPs & plastic management

- Today ~1.475 billion vehicles are present globally including 1.1 billion passenger cars. https://hedgescompany.com/blog/2021/06/how-many-cars-are-there-in-the-world/
- The **1.1 billion passenger cars contain ~ 220 million t of plastics**. With an average lifetime of approx. 20 years, **every year approx. 11 million tonnes of plastic waste are generated from passenger cars alone which need to be managed.**
- Within the **management of ELVs**, the **plastics, POPs** and **other CoC need to be managed**.
- The valuable metals – ferrous and non-ferrous metals including precious metals are recovered to a large extent by formal & informal recycling also in LMIC - **with an improvement potential**.
- **Plastics and synthetic textiles** in EoL-vehicles (ELVs) are often **not recycled or recovered** but are frequently disposed of in landfills/dump sites or openly burnt in particular in LMICs.
- Considering the **need to move to a (more) circular economy** and to a **better recovery** of **resources** including **plastics, plastic parts** from **ELVs need** to be **better reused** & **recycled! This is required by e.g. the update of the EU ELV Directive proposal requiring 25% recycled plastic content in new cars** (EU 2023).

Now first project to recover ELV plastic in Africa for Europe!

Integration of the NIP into the larger frame of waste management and resource recovery towards a more circular economy

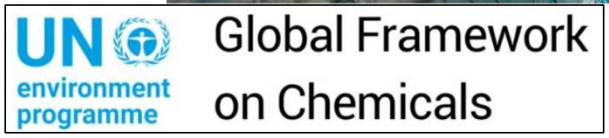
When writing the action plans in the NIP, it can and should be linked to the larger frame of waste and plastic management and resource recovery.

- **Linking with general waste & resource management in the major affected sectors**.
- **Linking with resource recovery towards a (more) circular economy.**
- **Linking to poverty reduction and job creation** and improvement of the working conditions of especially the informal sector in low- and middle income countries with **gender considerations and protection of vulnerable population groups**.
- The **three main sectors for POPs in plastics management**: **transport, electronics and buildings/construction contain at the same time valuable resources (metals !) which should cover part of the cost of waste management (no cherry picking!) - together with Extended Producer Responsibility - and contribute to a decent income of the waste management sector.**

Integrated approach for POPs management: Linking NIP activities and national priority activities on general chemicals and waste management

NIP Update Guidance stresses: "***The development, review, and updating of a NIP should build on existing work and assessments...". Therefore consider for the NIP/action plans:***

- **POPs should not be addressed on their own but should be linked/integrated with general chemicals and waste and plastic management.** This may include, national chemical profiles, GHS implementation, and **national chemical and waste management plans**.
- **Synergies** between **Basel, Rotterdam, Stockholm Convention** and **Minamata Convention**.
- **Linking to the management of major POP impacted plastic uses & related waste sectors.**
- **Linking to broader issues of the Global Framework on Chemicals (GFC) and synergies.**
- Linkage to Sustainable Production & Consumption and to the SDGs.



Integrated approach of POPs management: Stockholm Convention and synergies with the Global Framework on Chemicals (GFC/SAICM)

There are close links between POPs and GFC (former SAICM) **"issues of concern":**

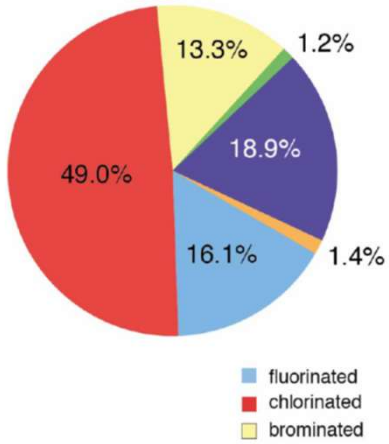
- Highly Hazardous Pesticides (GGKP Webinar https://www.youtube.com/watch?v=Ar6TYGXRTVg&t=1415s)
- Perfluorinated and polyfluorinated (as precursors) alkylated substances (PFAS) and the transition to safer alternatives. (GGKP Webinar https://www.youtube.com/watch?v=oYUl38yxJr8)
- **Chemicals in products**
- **Hazardous substance within the life cycle of electrical and electronic products.**
- **Endocrine-disrupting chemicals**
- Lead in paints
- Environmentally persistent pharmaceutical pollutants
- Nanotechnology and manufactured nanomaterials

UN environment programme Global Framework on Chemicals

saicm

Here the specific POPs issue can/should be addressed within the larger frame of managing a wider group of POPs-like and other hazardous substances with a science-based approach.

http://www.saicm.org/Implementation/EmergingPolicyIssues/tabid/5524/language/en-US/Default.aspx



Action plans in the recommended NIP structure – Chapter 3

3. Strategy and action plan elements of the national implementation plan

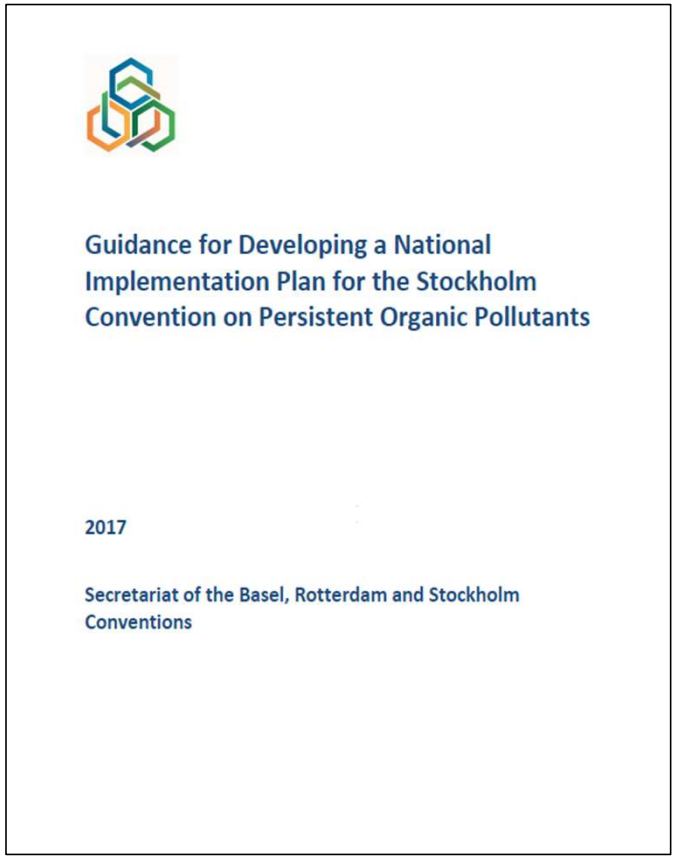
3.1 Policy Statement

3.2 Implementation Strategy

This section can be used to elaborate on the integrated approach, including how the NIP links and can contribute to national chemical management and national waste management including plastic management. Also the link to Sustainable Consumption & Production, circular economy, and gender equality can be elaborated.

3.3 Activities, strategies and action plans

- Subchapter 3.3 **would list country-specific action plans, activities, and strategies, including those required by the Convention, designed to meet Convention obligations**.



Structure and content of the NIP – Chapter 3

3. Strategy and action plan elements of the national implementation plan

3.3 Activities, strategies and action plans

- **Each action plan would identify objectives/goals and activities**.
- **The NIP harmonized template** includes also **templates for the action plans** considering **Objectives, Activities and Performance Indicators as content.**
- **Also Time Frames, Implementers and Resource Needs are included.**
- **In today's webinar options for objectives and activities for Action Plans for POPs plastic additives including brominated and chlorinated flame retardants will be introduced considering the sectoral approach.**

https://www.youtube.com/watch?v=46Nd5ShR-I4
https://www.youtube.com/watch?v=cGJgmVcpp74

Objectives	Activities	Performance indicators	Time Frame	Implementers (and stakeholder)	Resources / Needs	Remarks

Thank you for your attention ! Questions?

More Information https://www.thegef.org/; https://en.wikipedia.org/wiki/Triple_planetary_crisis

Basel Convention: www.basel.int

Rotterdam Convention: www.pic.int

Stockholm Convention: http://chm.pops.int/;

Montreal Protocol/Vienna Convention: http://ozone.unep.org

GFC: https://www.chemicalsframework.org/ **FAO:** www.fao.org **WHO** www.who.int/

Climate Convention https://unfccc.int/ **Biodiversity Convention:** https://www.cbd.int/

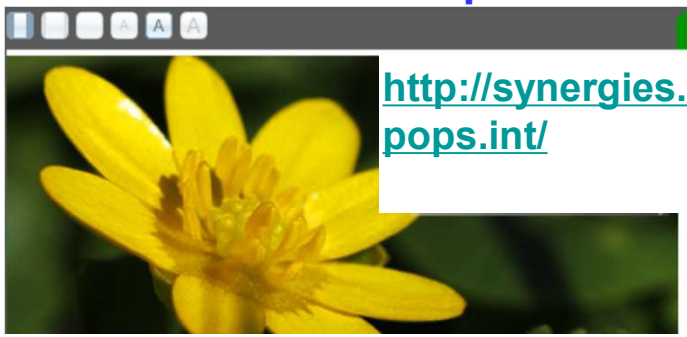
OECD/IOMC: http://www.oecd.org/chemicalsafety/

Science:; https://www.ipcc.ch/; https://www.ipbes.net/; www.unep.org/oewg-spp-chemicals-waste-pollution

Industry: http://www.suschem.org/; https://icca-chem.org/; https://cefic.org/

NGO: www.ipcp.ch; www.ipen.org; www.ciel.org/; www.ban.org; www.chemsec.org; www.wecf.org

Better-world-links: http://www.betterworldlinks.org/



http://synergies.pops.int/