

THE STOCKHOLM CONVENTION LISTING OF NEW POPS – INTRODUCTION, IMPLICATIONS AND FOLLOW UP ACTIVITIES

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Presentation Content

- **Stockholm Convention - Listing of chemicals (“new POPs”) in the Convention.**
- **Short introduction to the nine new POPs and tasks for the initial assessment.**
- **Identification and registration of exemptions.**
- **Application of NIP update to GEF.**





Parties to the Convention

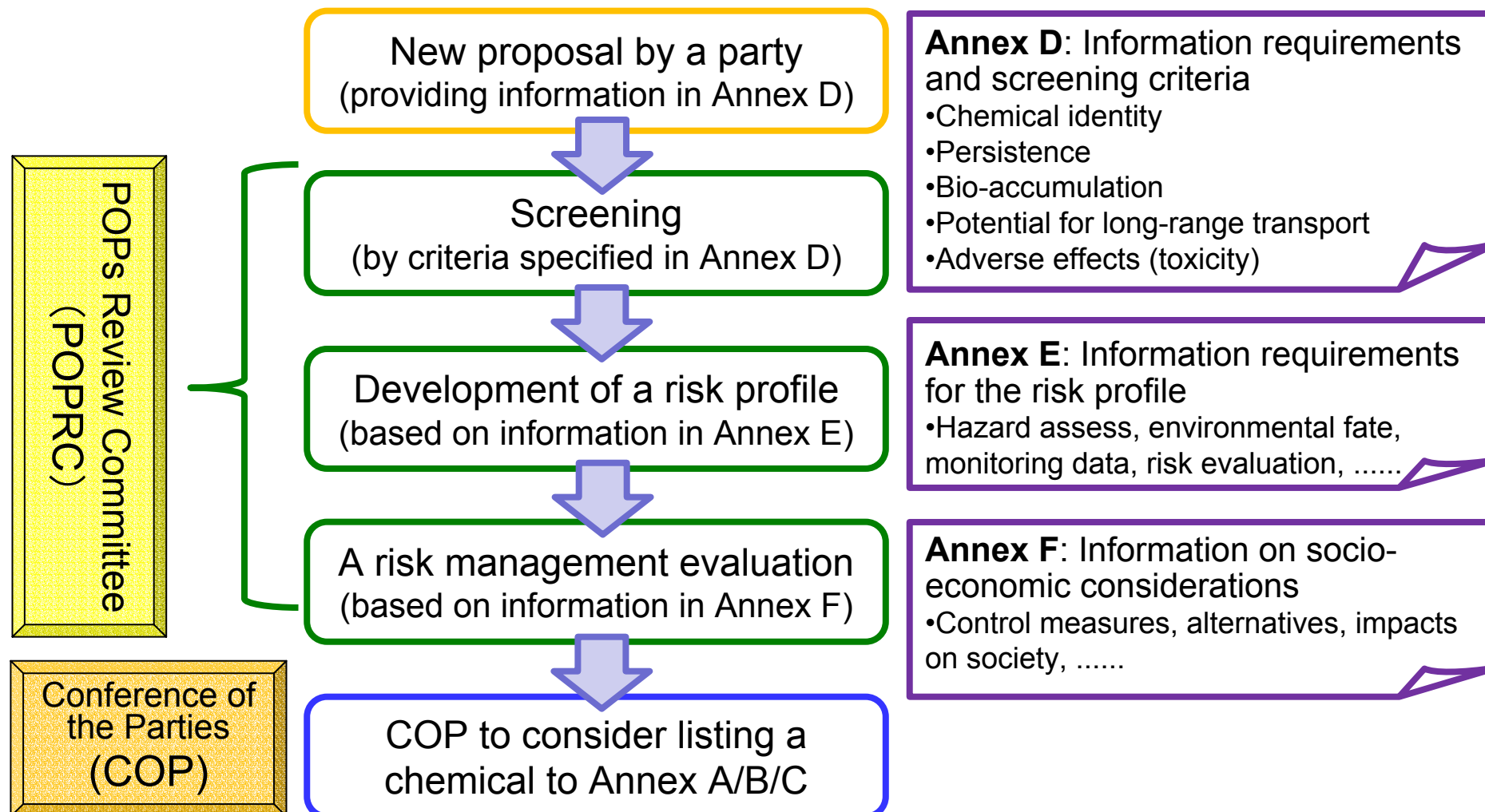


Russia ratified the Stockholm Convention 17.08.2011

12 Stockholm Convention POPs

	Pesticide	Industrial Chemical	By-product (UP-POPs)
Aldrin	+		
Chlordane	+		
DDT	+		
Dieldrin	+		
Endrin	+		
Heptachlor	+		
Mirex	+		
Toxaphene	+		
Hexachlorobenzene	+	+	+
PCB		+	+
PCDD			+
PCDF			+

Process to Assess Candidate POPs

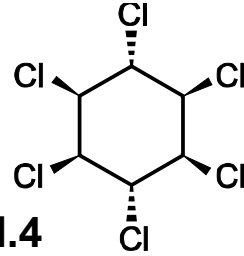


New POPs in Stockholm Convention

- **Nine New POPs were added to the Stockholm Convention (26. August 2009):**
 - Lindane (Gamma HCH)
 - Alpha HCH
 - Beta HCH
 - Chlordane
 - Pentachlorobenzene
 - Hexabromobiphenyl (HBB)
 - Commercial Pentabromodiphenyl ether (c-PentaBDE)
 - Commercial Octabromodiphenyl ether (c-OctaBDE)
 - Perfluorooctanoyl sulphates (PFOS, PFOSF & salts)

Amendments entered into force on 26. August 2010.

Endosulfan was adopted as new POPs by COP5 (April 2011)



Lindane

- Proposal: 2005, Mexico
- Risk profile: UNEP/POPS/POPRC.2/17/Add.4
- Risk management evaluation: UNEP/POPS/POPRC.3/20/Add.4

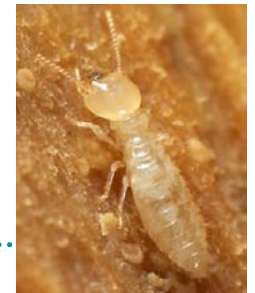
FACTSHEET

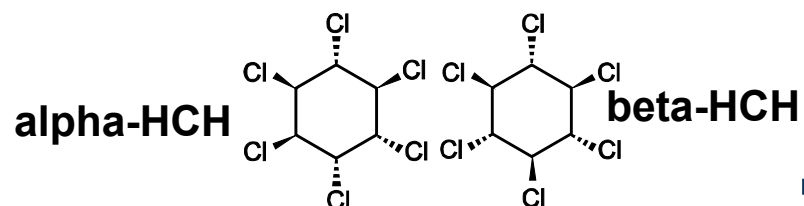
Past use: About 600,000 tons of lindane used globally 1950-2000 as pesticide and veterinary/human applications

Currently: Some countries are still known to produce or use lindane (e.g. for seed dressing, control of termites, head lice, etc)

Alternatives: Exists but not readily available in some countries especially for control of head lice and scabies

- Listed in: **Annex A (Elimination)**
- Production: **No exemption**
- Use: **Specific exemption** for human health pharmaceutical for control of head lice and scabies as second line treatment





Alpha-HCH and Beta-HCH

- Proposal: 2006, Mexico
- Risk profile: UNEP/POPS/POPRC.3/20/Add.8 and Add.9
- Risk management evaluation: UNEP/POPS/POPRC.4/15/Add.3 and 4

FACTSHEET

Past use: In technical HCH; high-volume **by-products of lindane**: Production of one ton of lindane generates approximately 8 tons of alpha- and beta-HCH.

Currently: Large stockpiles of alpha- and beta-HCH exist.

Alternatives: As there is no commercial use of alpha- and beta-HCH, alternatives are not needed.

→ Listed in: **Annex A (Elimination)**

→ Production: **No exemption**

→ Use: **No exemption**





Alpha-HCH and Beta-HCH Wastes and Stockpiles

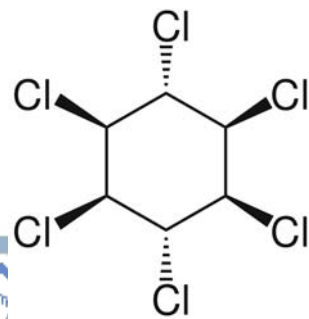
Large amount of obsolete waste and stockpile of alpha-, beta-HCH and lindane



Management and deposition of HCH waste isomers



East Germany 1960s



Global HCH Inventory Map Countries with Estimated Production Waste (IHPA 2009)



Vijgen et al Env Sci Pollut Res. 18, 152-162 (2011).

www.springerlink.com/content/a62a810418512421/fulltext.pdf



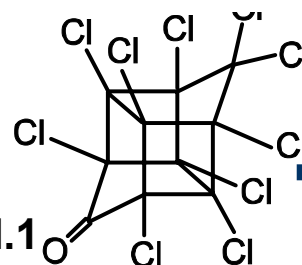
SC Country Assessment

New POPs: Lindane & HCHs

Areas relevant for assessing Lindane/HCH in country

- Situation for permitted uses: Head lice & scabies (2nd line treatment)
- Lindane: Currently applied for non permitted uses?
- **Stockpiles and contaminated sites of Lindane/HCH?**
 - Former Lindane producer or formulator?





Chlordecone

- Proposal: 2005, European Community
- Risk profile: UNEP/POPS/POPRC.2/17/Add.1
- Risk management evaluation: UNEP/POPS/POPRC.3/20/Add.1

FACTSHEET

Past use: Agricultural pesticide (banana plantation)

Used in 1966-1975 in the USA for ant and roach. In France until 1991.

Currently: No production and use reported.

French island of Martinique/Guadeloupe are heavily contaminated with chlordecone

Alternatives: Available

→ Listed in: **Annex A (Elimination)**

→ Production: **No exemption**

→ Use: **No exemption**



SC Country Assessment

New POPs: Chlordane

Areas relevant for assessing **Chlordane**:

- *“It cannot be excluded that Chlordane may still be produced or used as an agricultural pesticide in some developing countries, although there are no reports of such production or use.”* (UNEP/POPS/POPRC.3/20/Add.2).
⇒ First assessment: **No Chlordane on the market.**
- Is/was Chlordane registered and used in country?
(Former Trade Names: Chlordane, Clorane, Kepone, Merex, GC 1189, ENT 16391, Curlone)
- Contaminated sites and stockpiles:
 - Stockpiles/waste of Chlordane?
 - Former producer or formulator?



Alternatives to Chlordane

Pesticide to control ants and/or cockroaches:

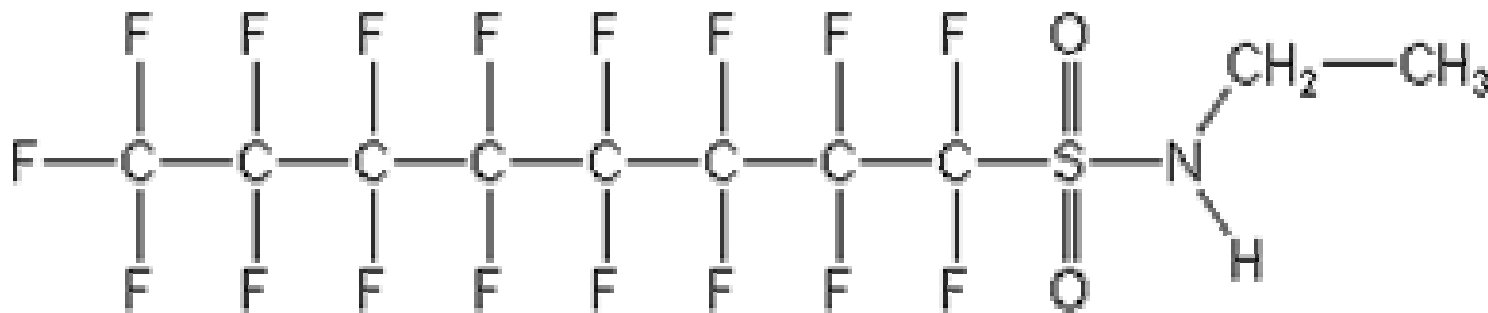
Azadirachtin, bifenthrin, boric acid, carbaryl, capsaicin, cypermethrin, cyfluthrin, deltamethrin, diazinon, dichlorvos, esfenvalerate, **imidacloprid**, lambda-cyhalothrin, malathion, permethrin, piperonyl butoxide, pyrethrins, pyriproxyfen, resmethrin, s-bioallethrin, tetramethrin, **?Sulfluramid? a PFOS precursor !!**





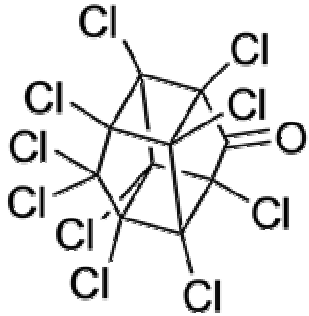
Challenges of Alternatives to Chlordane: Sulfluramid as PFOS Precursor

- According to information to POPRC from China, **Sulfluramid - a PFOS precursor (POP!)** - is used also against cockroaches, white ants and fire ants in China. China in POPRC: “The cost and the efficiency of alternatives would require further investigation.”



- What alternatives are used in a country for the control of cockroaches and ants?

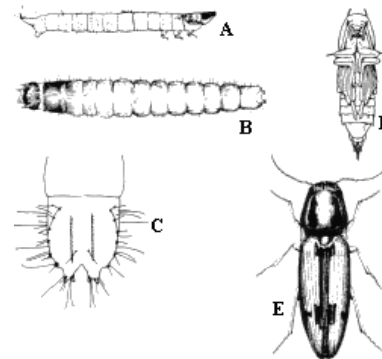




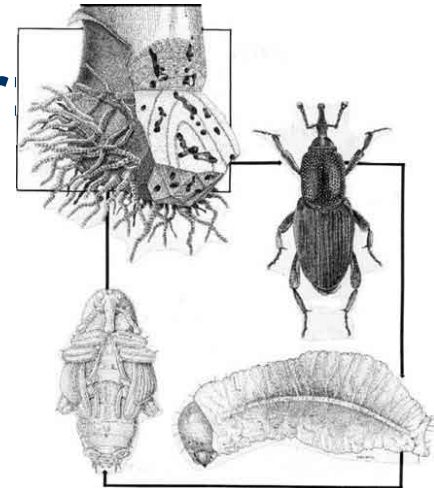
Alternatives to Chlordane

- Pesticide to control banana root borer
Ethoprop, oxamyl

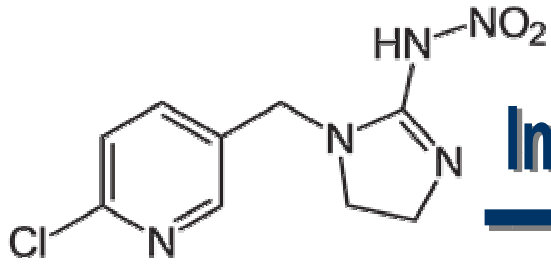
- Pesticide to control tobacco wireworms:
Cyfluthrin, **imidacloprid**



Tobacco wireworm. A-B, Larvae. C, Last larval segment. D, Pupa. E, Adult.



- General pest management.
Cultural practices like crop rotation, intercropping, and trap cropping; barrier methods, such as screens and bagging of fruit; use of traps such as pheromone and light traps to attract and kill insects; *Bacillus thuringiensis*;

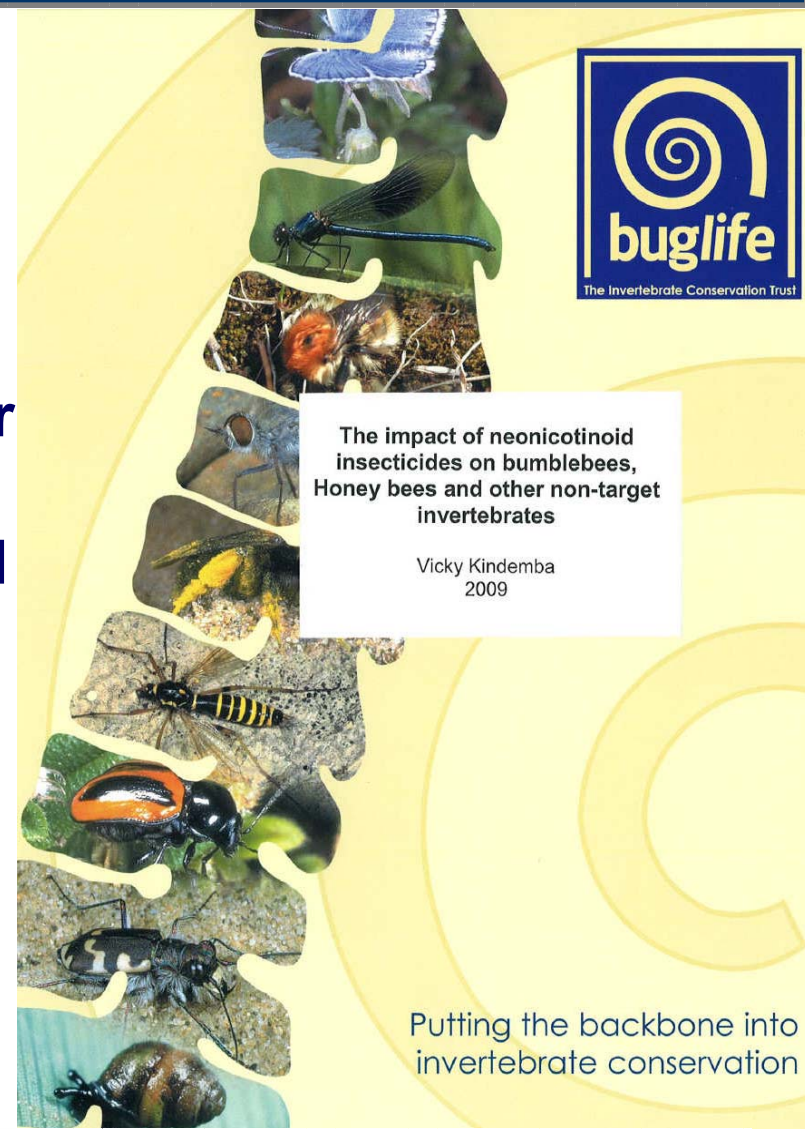


Challenges of Alternatives to Chlordecone: Imidacloprid/Neonicotinoids and Death of Bees

Alarming **declines of wild bees and honey bees** is reported in industrial countries. The decline of pollinators threatens harvest & nutrition safety. Neonicotinoid pesticides (in particular **imidacloprid**) have been closely linked to bee declines and are banned to different degrees in a number of European countries.

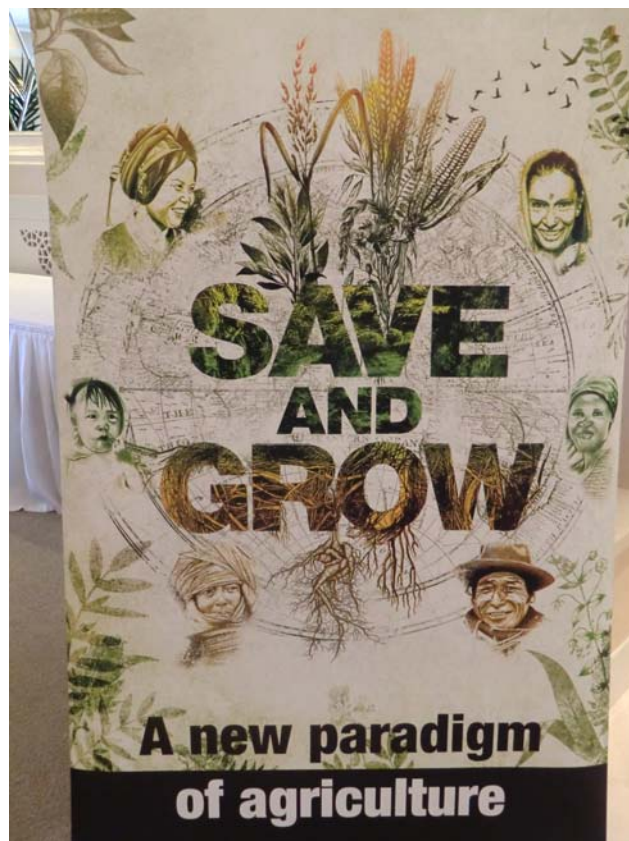
Other Neonicotinoids on the market suspected for impacting bee decline: **Clothianidin, acetamiprid, thiacloprid thiamethoxam**. Other key pesticide linked to bee decline: **Fibronil**.

<http://www.buglife.org.uk/Resources/Buglife/Neonicotinoid%20insecticides%20report.pdf>

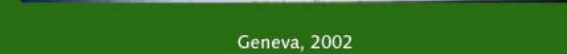


http://www.chem.unep.ch/Publications/pdf/POPred_E.pdf

FAO book: “Safe and Grow Campaign”



THE CHINESE JOURNAL OF LINGUISTICS



100%



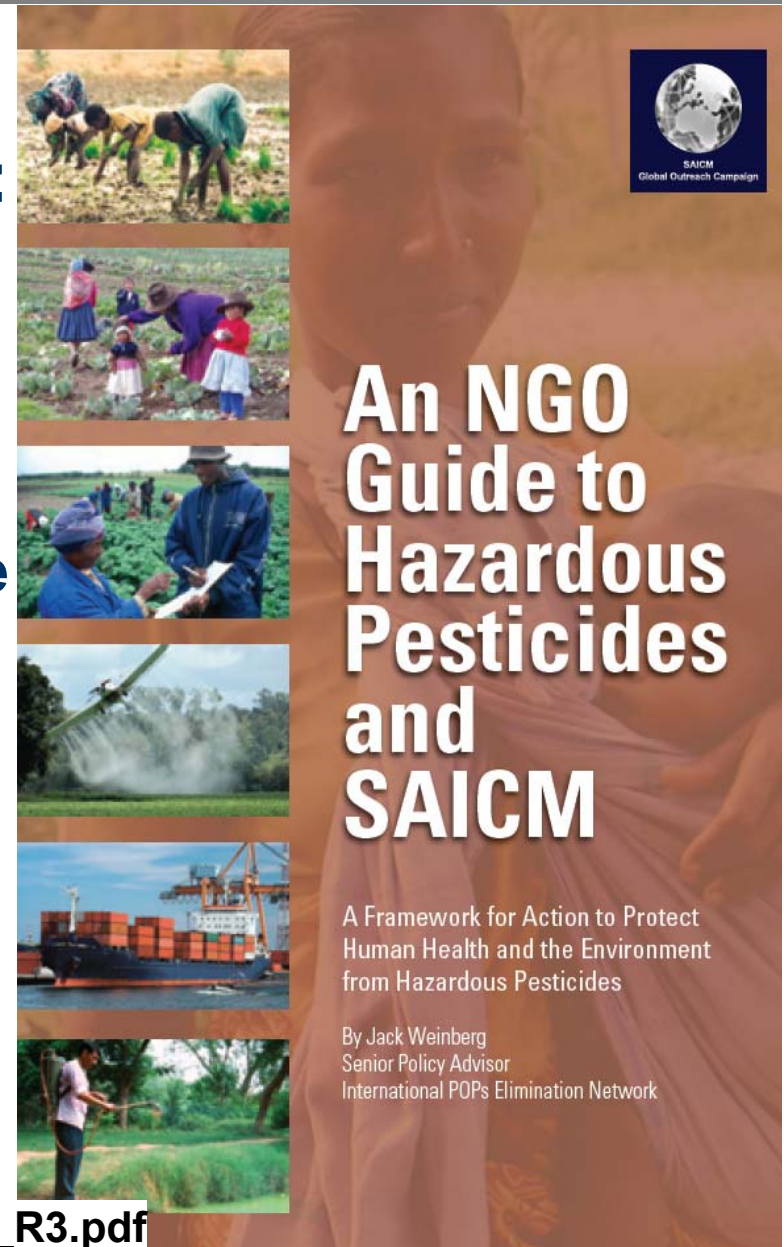
Managing Hazardous Pesticides

An NGO Guidance to managing Hazardous Pesticides & SAICM:

Chapter 9

Substitution & management

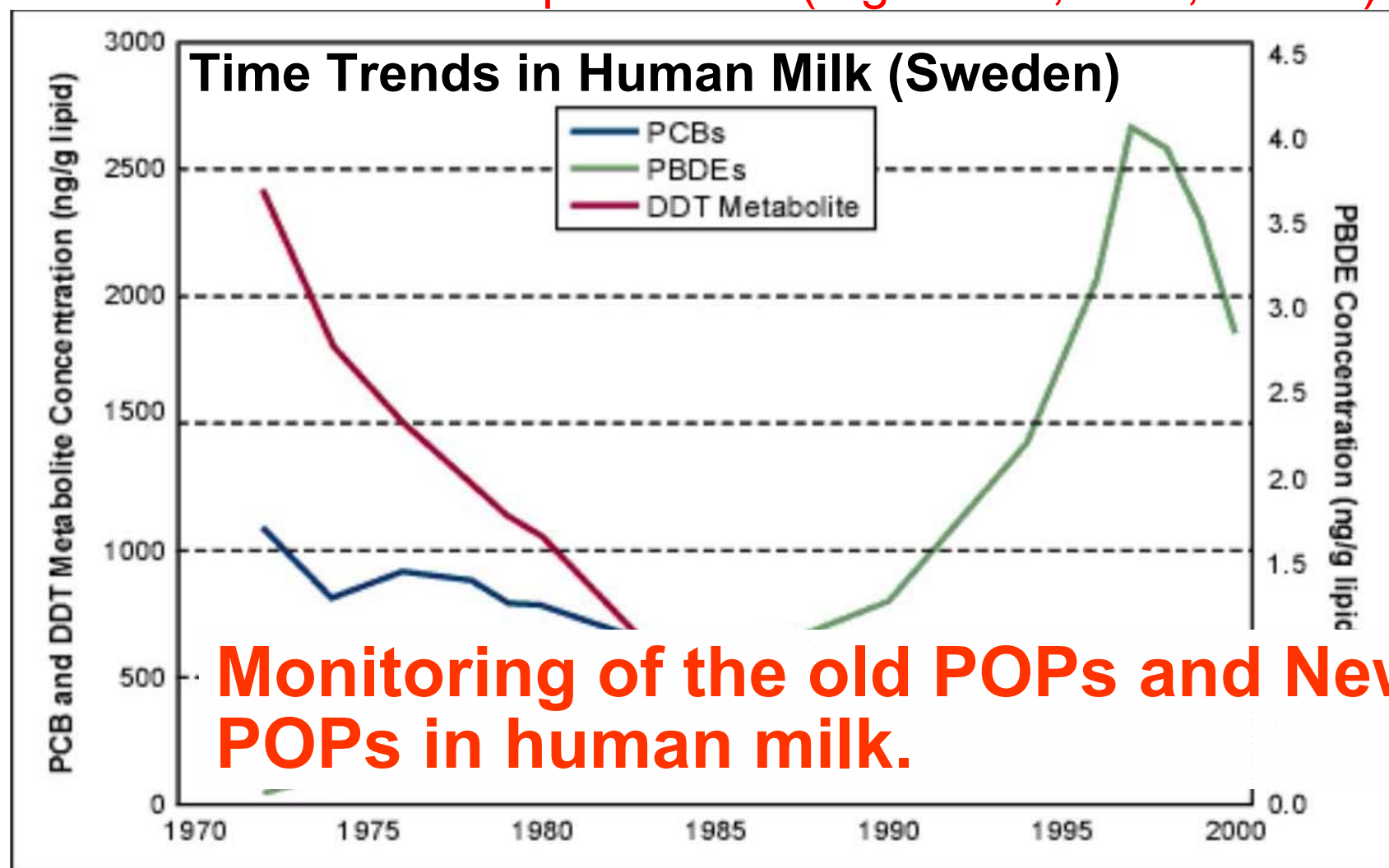
Chapter 11. Appendix: Summary of the International Code of Conduct on the Distribution and Use of Pesticides

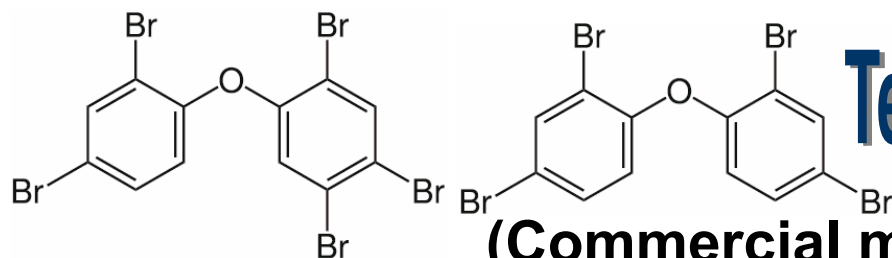


http://www.ecoaccord.org/pop/doc/HazPesticidesGuide_R3.pdf

Set the Old POPs into Perspective with New-POPs

- SC POPs (PCB, DDT; PCDD/F): Significant decrease
- **New-POPs: Sharp increase (e.g. BFRs, PFC, SCCP)!**





Tetra- and Pentabromodiphenyl Ether

(Commercial mixture of pentabromodiphenyl ether)

- Proposal: 2005, Norway
- Risk profile: UNEP/POPS/POPRC.2/17/Add.1
- Risk management evaluation: UNEP/POPS/POPRC.3/20/Add.1

FACTSHEET

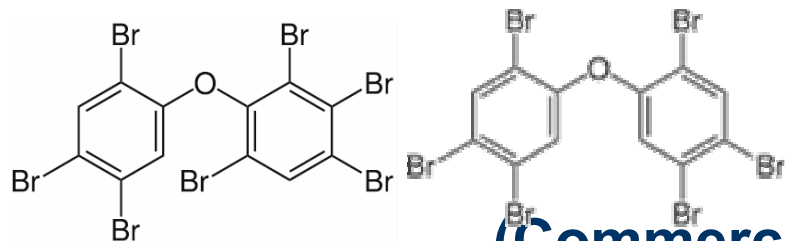
Production: Production ceased in Europe/Japan (1990s), in US/China (2004/200X). Total ca. 100000 tonnes.

Past use: Was used as flame retardant in flexible polyurethane foam (PUF); car, bus, insulation, furniture, textile.

Currently: Only articles older 2004 and in waste- & recycling flow.

Alternatives: Guidance on alternatives to PentaBDE (POPRC)





Hexa- and Heptabromodiphenyl Ether

(Commercial mixture of octabromodiphenyl ether)

- **Proposal:** 2006, EU
- **Risk profile:** UNEP/POPS/POPRC.3/20/Add.6
- **Risk management evaluation:** UNEP/POPS/POPRC.4/15/Add.1

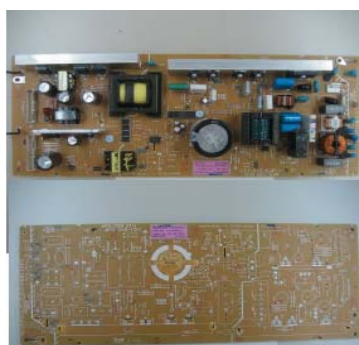
FACTSHEET

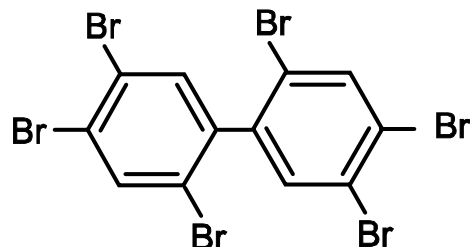
Production: Production ceased in Europe/Japan (in 1990s), in US/China (2004/200X). Ca 100000 tonnes

Past use: Most commonly used as a flame retardant in plastic in electronics*

Currently: In recycling flow of E-waste.

Alternatives: Guidance on feasible flame-retardant alternatives to commercial pentabromodiphenyl ether (POPRC)





Hexabromobiphenyl

- Proposal: 2005, European Community
- Risk profile: UNEP/POPS/POPRC.2/17/Add.3
- Risk management evaluation: UNEP/POPS/POPRC.3/20/Add.3

FACTSHEET

Production: In US from 1970 to 1976 (several 1000 tonnes)

Past use: Flame retardant. Added to polymers used in products such as car seats, textiles, plastic foams

Currently: No production/use. Old US cars 1970-1976.

Alternatives: Available

→ Listed in: **Annex A (Elimination)**

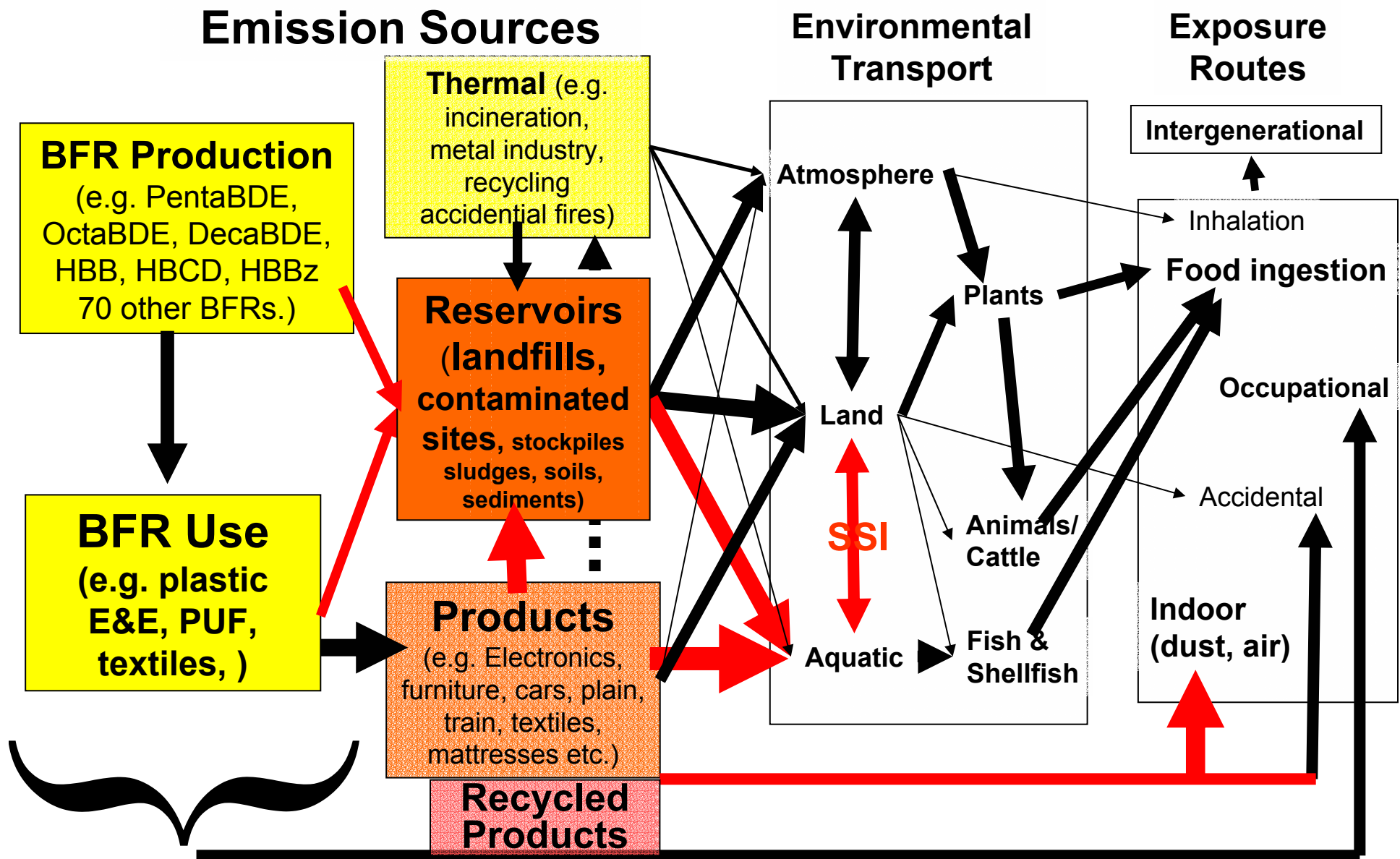
→ Production: **No exemption**

→ Use: **No exemption**

US car***



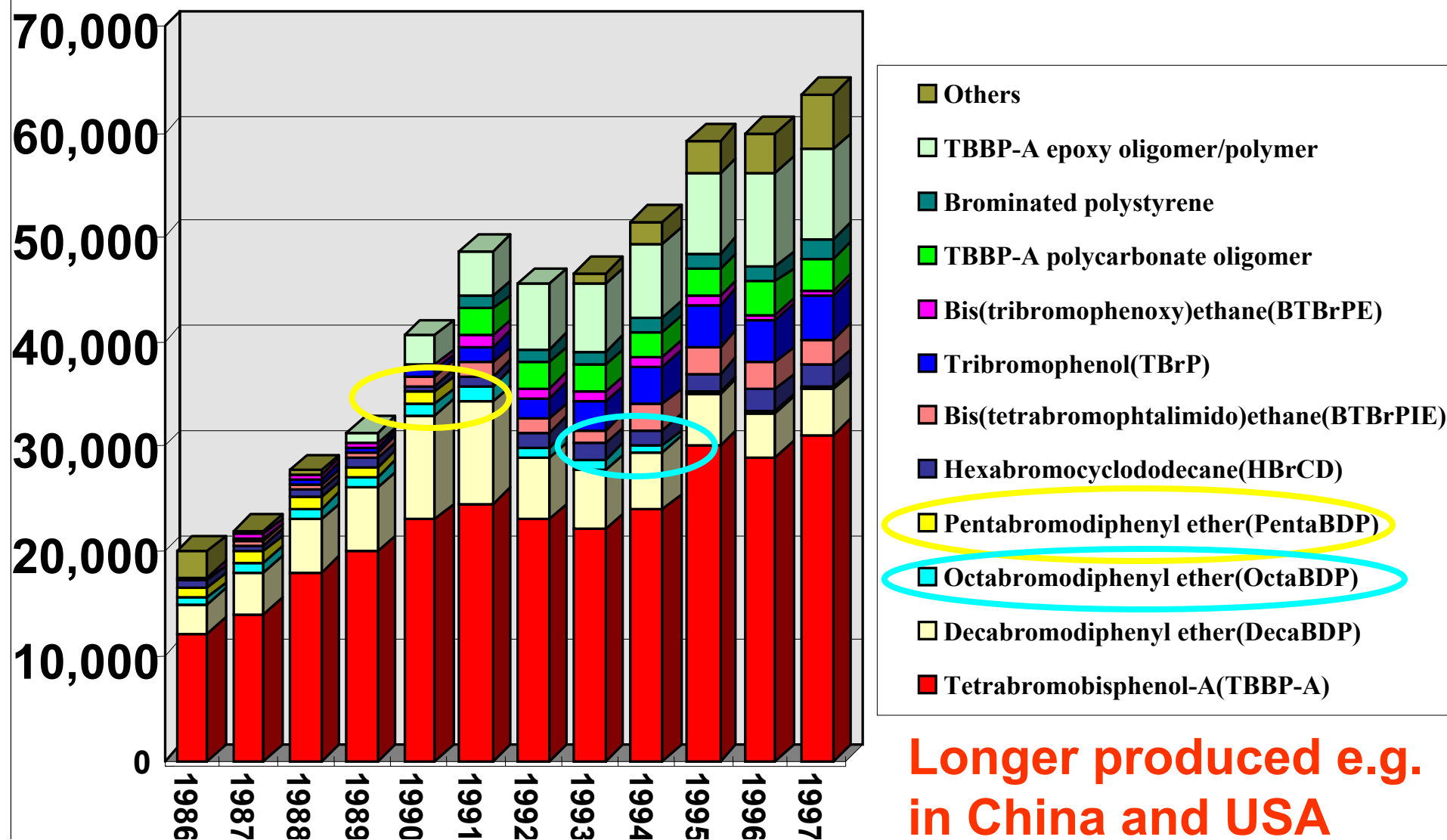
Life-Cycle PBDEs/HBB (BFRs)



Annual BFR Consumption Japan

tons/year

Accumulated total : 516,320 tons(1986-1997)



Longer produced e.g.
in China and USA

Commercial PentaBDE

Commercial OctaBDE

- Listed in **Annex A (Elimination)**
- Production: No exemption
- Exemption for use: **may allow recycling of articles that may contain the chemicals**, and the use and final disposal of articles manufactured from recycled materials that may contain the chemicals



What to do with PBDE in Use, Recycling & Waste?

SC exemption on recycling of PBDE containing materials

- Waste plastic from e-waste and transport
- Polyurethane (PUR) foam (mattresses, furniture, transport)
- ⇒ **Management of (PBDE in) important material flows**
- E-waste and related plastic
- Transport (cars, busses, trucks, plane) PUR foam/plastic
- Furniture, mattresses
- Construction materials (PBDE in PUR foam)



Where Does Ewaste/Used Electronics End Up?

Known and Suspected Routes of e-waste Dumping



There is currently no system for tracking legal or illegal (under international law) shipments of electronic waste, and therefore, there is no quantitative data on volumes or even all of the true destinations. Some electronic waste is shipped as "working equipment" only to end-up as waste upon arrival. This map indicates information collected through investigations by organizations such as the Basel Action Network, Silicon Valley Toxics Coalition, Toxics Link India, SCOPE (in Pakistan), Greenpeace and others.

Mixtures of Toxic Chemicals from E-Waste into Water and Soil

A wide range of released POPs (PBDEs, BFRs, PCBs), UPOPs (PCDD/F; PBDD/F, PXDD/Fs, PAHs), heavy metals cause complex polluted mega-sites from E-waste.



**E-waste, at river bank SE-Asia
„Flooding used as waste
management tool“**



**Ashes from e-waste burning covered with
sand and dumped at Langjiang river
Guiyu, China (Photo: Basel Action Network**

PBDE/BFR Contamination of Recycled Plastic?

- What is the flow of PBDE/BFR in recycled materials? What articles are contaminated? What are risks to human and the environment?



PBDE/BFRs in video tapes (5/5) PBDE in children toys South China (Hirai et al, BFR 2007.) *(Chen et al, ES&T 43, 4200, 2009)*

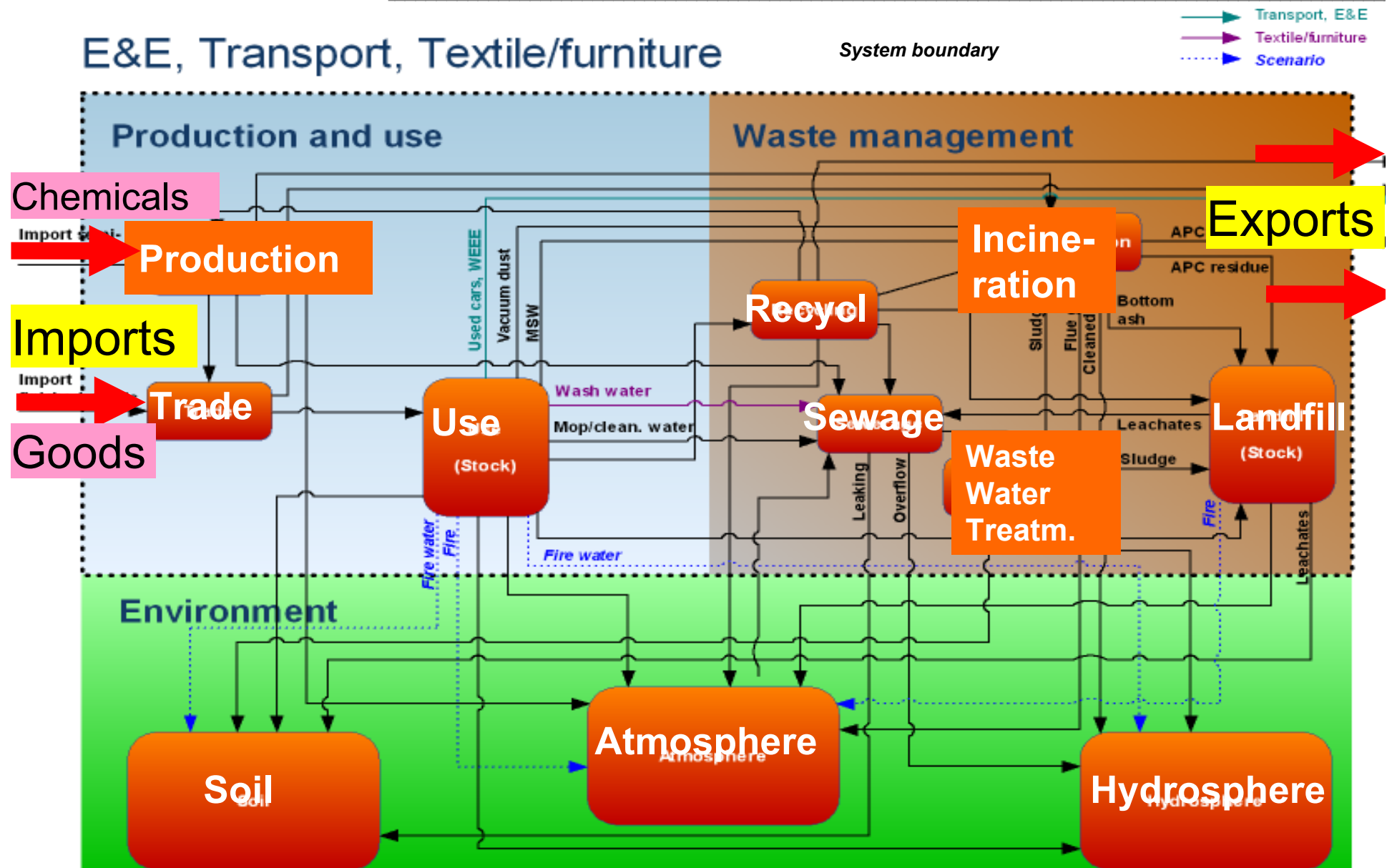
- ⇒ **The recycling flow of PBDE/BFR containing plastic seems largely uncontrolled. Need improvement and control!.
Recommendation of COP5: Separation of PBDE containing materials.**

Key Considerations New POPs Assessment of - PBDE/BFRs

Areas relevant for assessing **PBDEs in a country:**

- **Import of: used and waste electronics, used cars and carpets (from US),**
- **E-waste management&recycling activities in a country**
- **Plastic recycling from e-waste (level of POPs PBDE?)**
- **Treatment of automotive shredder residues.**
- **Secondary metal industries treating equipment possibly containing PBDEs (copper smelters (PrCB), secondary iron from scrap (car, bus, WEEE, others), secondary aluminium (car, bus, plain, WEEE, others).**
- **(Possible) former use as oil drilling chemical**
- **Inventory, management and destruction of PBDE/BFR containing materials.**

Material Flow Analysis Scheme PBDE/BFRs: Production/Use - Waste Management - Environment



Landfills Containing Hazardous Consumer/Production Waste

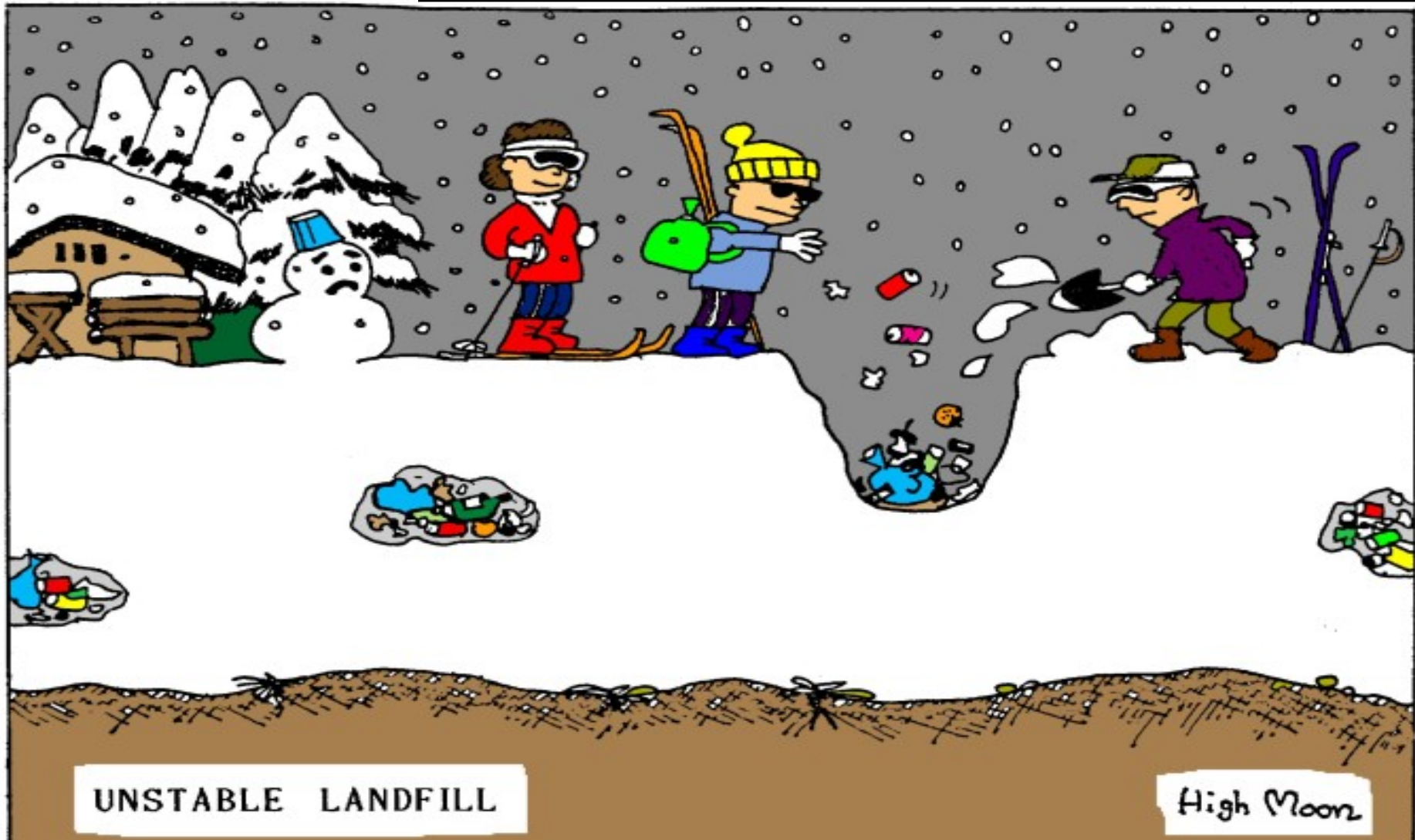
Landfills containing hazardous waste (car shredder, e-waste, chemicals) might need remediation:

- **E.g.: Japan hazardous dump site on Tejima island**
 - **500,000 t car shredder, E-waste and industrial sludge were deposited 70th/80th (waste contained approx. 1.5 kg TEQ PCDD/F; PCB and PBDE).**
 - **Leachate contaminate surroundings/sea.**
 - **The site was secured (360 m wall).**
 - **The waste is currently dugged out, transported to the mainland and incinerated and melted.**
 - **Cost of project is approx. 450 million \$**
 - **Japan government made investigation and discovered ca. 10 similar sites in Japan.**

Takeda, Organohalogen Compounds 69, 873-876 (2007).



Non Sustainable Landfilling of POPs/PTS Containing Articles



Weber et al "Persistent Organic Pollutants and Landfills - A Review of Past Experiences and Future Challenges" Waste Management & Research 29 (1) 107-121 (2011).



- # FACTSHEET

Past use: PFOS is both intentionally produced and an unintended degradation product of PFOS-related substances (PFOS precursors). **High performance chemical; best surfactant.**

Currently: PFOS is still produced and used in several countries.

Alternatives: Available for most types of use but technically feasible of alternatives not known for some applications e.g. semiconductor, photo imaging, aviation hydraulic fluids.

→ Listed in **Annex B (Restriction)** with several **Specific exemptions and Acceptable purposes**



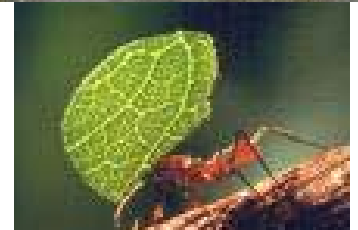
PFOS - Acceptable Purposes SC

(SC: Currently no alternatives are available)

- Metal plating in closed loop systems,
- Fire fighting foam (**Oil; refineries**, air ports, military)
- **Insect baits** for control of leaf-cutting ants.
- Photo imaging,
- Photo resist and anti-reflective coatings for semi-conductors,
- Etching agent for semi-conductors and ceramic filters,
- **Aviation hydraulic fluids air planes**
- Certain medical devices (e.g. ETFE layers, radio-opaque ETFE, in vitro diagnostic medical devices),



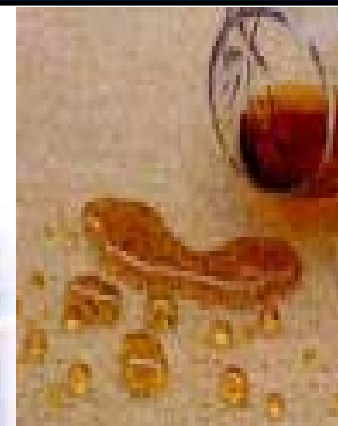
Includes
fluorinated
surfactants!



PFOS - Specific Exemptions SC

(Alternatives needs phase-in)

- Paper and packaging (Recy.?)
- Carpets, (Recy.?)
- Textiles and upholstery, (Recy.?)
- Leather and apparel, (Recy.?)
- Coatings and coating additives,
- Chemically driven oil production,
- Insecticides for control of red imported fire ants and termites,
- Hard metal plating, Decorative metal plating
- Photo masks in semiconductor and LCD industries,
- Electric/electronic parts for some color printers/copy machines,
- Rubber and plastics (Recy.?)



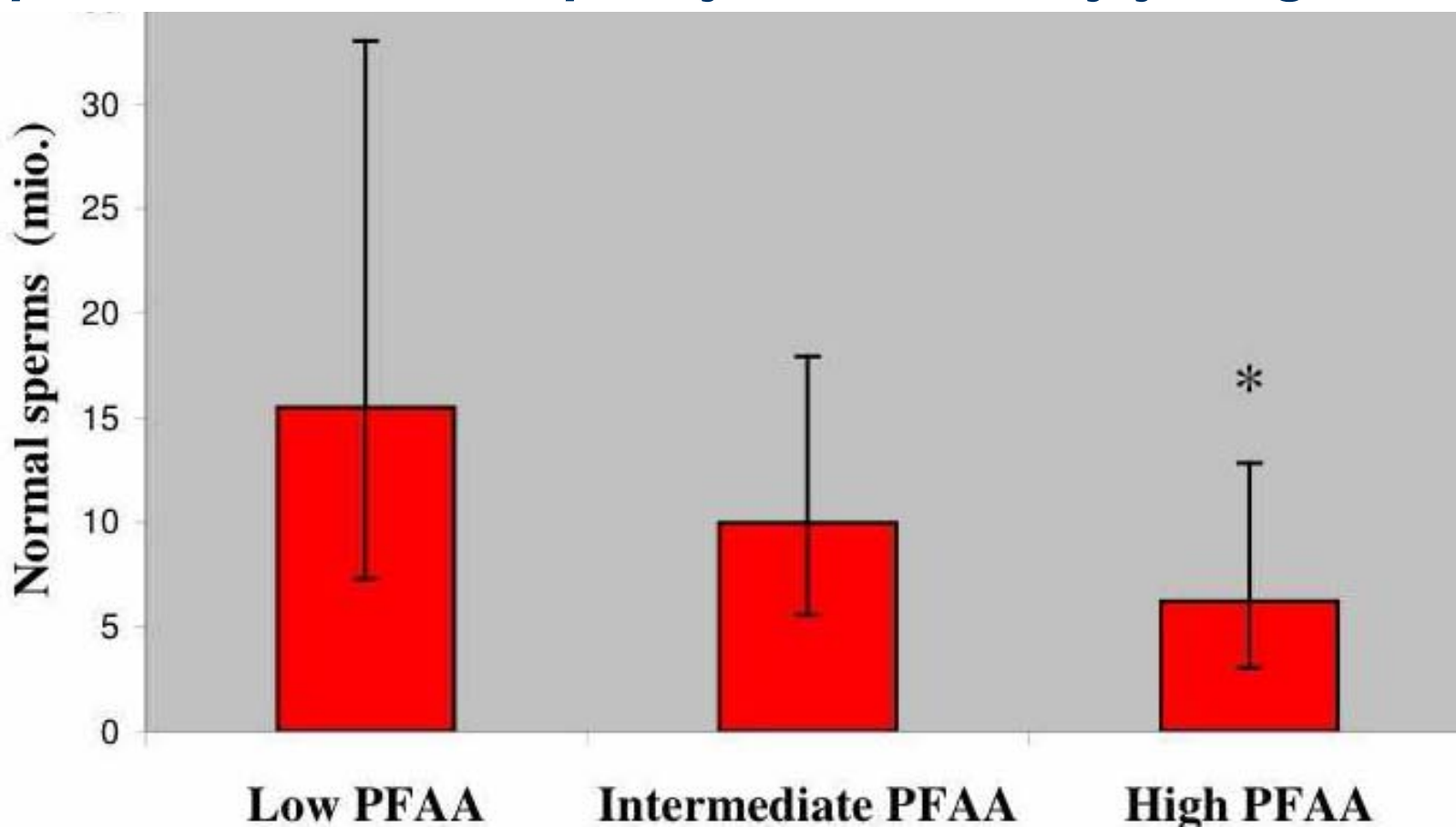
3M stopped
PFOS[™] in 2000



Health Effect PFOS (and PFOA)

Semen quality (Morphologically normal spermatozoa)

Conclusion: „High levels of PFAAs may contribute to otherwise unexplained low semen quality seen in many young men.“



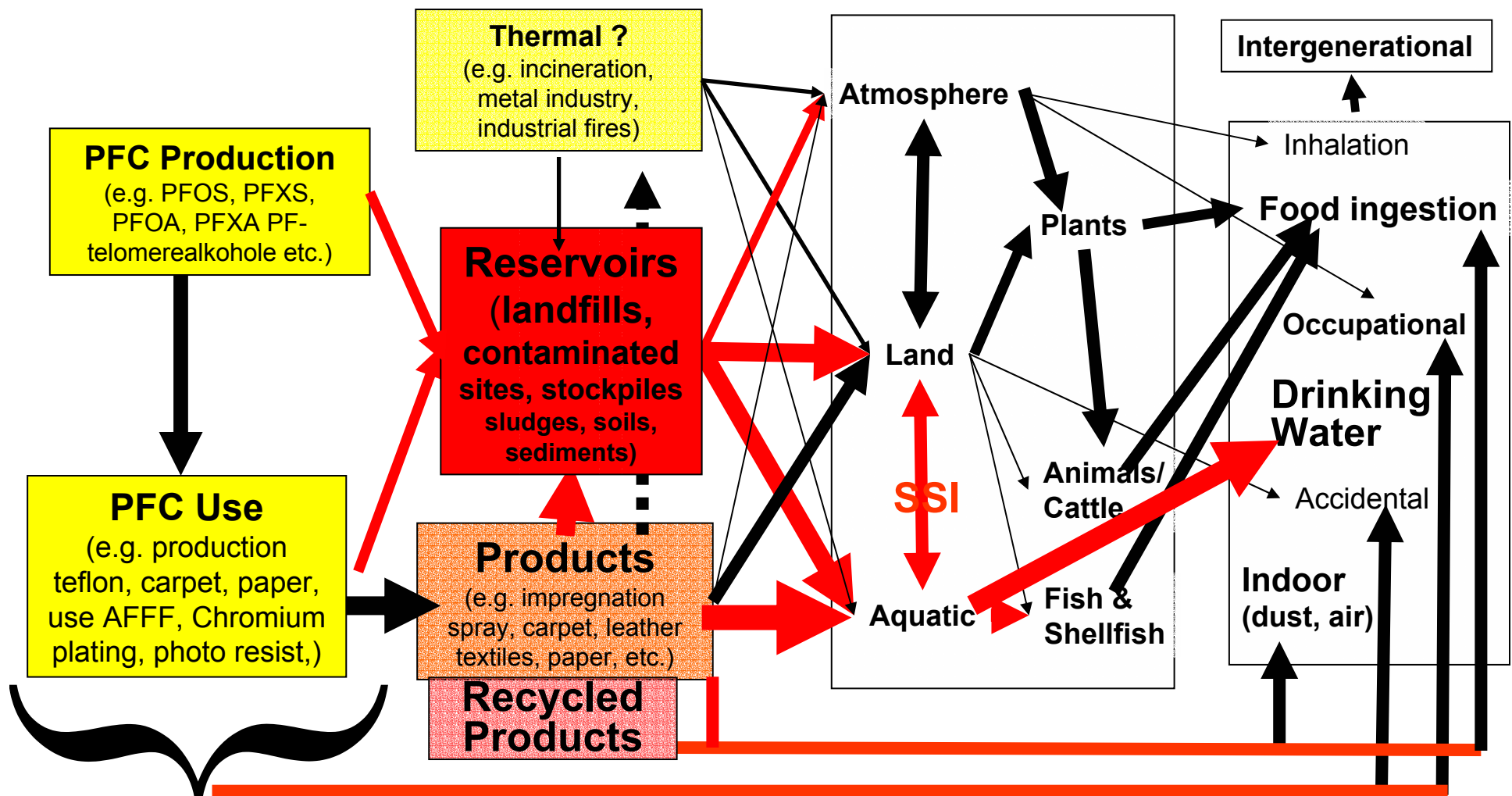
Source: Joensen et al: ENV. HEALTH PERSPECTIVES 03/2009 doi: 10.1289/ehp.0800517

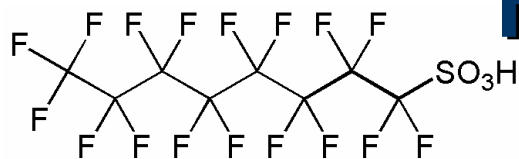
Life-Cycle PFOS (PFCs)

Emission Sources

Environmental Transport

Exposure Routes





Per/Polyfluorinated Chemicals in Landfill Effluents

PFCs are released via landfill leachates !

	(3M, 2001) (n = 3)	(Woldegiorgis et al., 2008) (n = 4)	(Kallenborn et al., 2004) (n = 6)	(Busch et al., 2010) (n = 20)
PFBS	NA	<0.5–110 (37.3)	5.64–112 (51.5)	<0.39–1356 (220)
PFHxS	NA	12–1800 (518)	12.4–143 (77.0)	<0.24–178 (22.2)
PFOS	<25–52.7 (17.7)	32–1500 (555)	32.8–187 (82.5)	0.01–235 (30.9)
PFDS	NA	<1–0.28 (0.07)	NA	ND
PFBA	NA	<12–30 (7.5)	NA	<3.36–2968 (458)
PFHxA	NA	<7–310 (77.5)	26.4–697 (228)	<0.37–2509 (234)
PFHpA	NA	<20–260 (197.5)	NA	<0.12–280 (48.1)
PFOA	ND–48.1 (16.9)	38–1000 (537)	92.4–516 (293)	<0.40–926 (145)
PFNA	NA	<18–100 (43.5)	4.7–61.5 (34.8)	<3.63–80.1 (7.29)
PFDA	NA	<20–220 (82.5)	NA	<0.21–55.1 (5.98)
PFUnA	NA	<59	NA	<0.11–2.98 (0.36)
PFOSA	NA	<2–7 (2.75)	NQ–3.28 (1.17)	<0.15–14.0 (2.77)

^a NA = not analysed. ND = not detected. <x = below the respective method quantification limit (MQL).

Landfills in industrial countries are a source for PFOS/PFC-release into the environment and have to be considered as stock or even “hot spots“.

Probably >80% of PFOS/precursor deposited!

Key Considerations on New POPs

Assessment - PFOS

PFOS use/stocks with possible relevance country

- **Fire fighting foams**
- **Synthetic carpets (production, use and waste)**
- **Aviation fluids air plane;**
- **Oil extraction**
- **Chromium plating and other plating industry**
- **Import functional textile; import functional paper**
- **Other specific industrial applications (listing in the POPRC document)**
- **Pesticides (Sulfluramid?);**
- **Detergents and impregnations**

Recycling of PFOS containing materials:

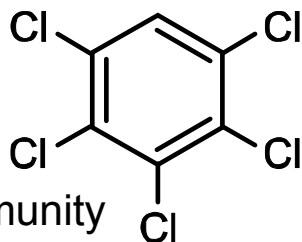
Recycling synthetic carpets, PFC paper, PFC textiles?

Key Considerations on New POPs Assessment - PFOS

Areas relevant for assessing PFOS in a country:

- **Potentially contaminated sites:**
 - **PFOS/PFC producers**
 - **Fire incidents (where AFFF foam was used);**
 - **Fire fighting practice (air ports, refinery, oil).**
 - **PFOS user (carpet, plating industry, others?),**
 - **Landfills (producer, user, products)**





Pentachlorobenzene

- Proposal: 2006, European Community
- Risk profile: UNEP/POPS/POPRC.3/20/Add.7
- Risk management evaluation: UNEP/POPS/POPRC.4/15/Add.1

FACTSHEET

Past use: Component PCB transformer oil, fungicide, flame retardant

Currently: Possible continuous use as intermediate for production of quintozone (pentachloronitrobenzene: fungicide).

Unintentional production: organochlorines (solvents, EDC, pigments etc.), combustion, metal industry (see toolkit).

Impurities in products e.g. solvents, pesticides, pigments.

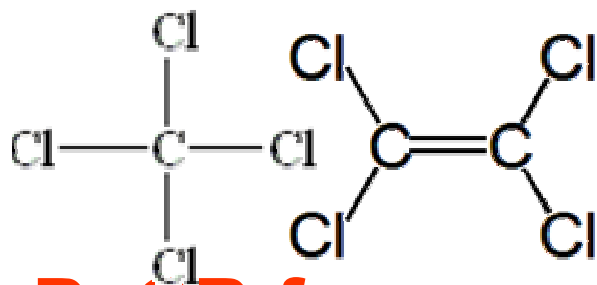
Alternatives: Available

→ Listed in: **Annex A (Elimination)** and **Annex C (Unintentional production)**

→ Production: **No exemption**

→ Use: **No exemption**





UPOPs PeCBz and HCB from Organochlorine Products - Solvents

PeCB from production of chlorinated organics:

- **Ukraine (Kalush city):** HCB stockpile of more than **11,000 tonnes** from production CCl₄/Tetrachloroethene manufacture **PeCB levels were one order of magnitude lower than HCB.** (UNEP & Europe Commission emergency mission 2010).
- **Australia (Orica Pty. Ltd formerly ICI Australia)** **10,000 tonnes** of concentrated “HCB waste” as by-product of production of CCl₄), terachlorethene et al.) (<http://www.oricabotanytransformation.com/>).
- **Czech Republic (Spolchemie Ústí):** around **80,000 drums** of HCB-containing waste deposited in a landfill at Chabařovice near Ústí n. L. (Heinisch et al, Fresenius Environmental Bulletin 2006, 2007).
- Assuming 1/10 of HCB is **PeCB** would result in an estimate of **100 to 1,000 tonnes PeCB for each of these sites.**
- **How many similar factories exist in the region?**

Key Considerations on New POPs

Assessment - PeCB

Areas relevant for assessing **PeCB**:

- Country had/have certain **solvent production (CCl₄, TetraCE, TriCE, EDC etc.)**.?
- **Certain organochlorines** (pesticides, pigments, etc.) can contain UPOP PeCB/HCB. Only a few pesticides have been assessed yet for PeCB. This requires a broader PeCB screening of organochlorine chemicals for UPOP content (not a task of this project).
- Degradation of pesticide PCNB/Quintozene
- Further, PeCB is **formed as UPOPs in Dioxin sources** listed in the toolkit. Most countries have inventoried Dioxins sources and started to address them.



National Implementation Plan

- Provides a framework for a country to develop and implement priority policy and regulatory reform, capacity building and investment programmes to reduce and control POPs.
- Party should transmit **NIP within two years** of the entry into force of the Convention.
- **Reviewed and updated on a periodic basis**
 - **NIP update for the new POPs, by August 2012 ****



Assessment of the Implications of New POPs Listing at National Level

Identify the national implications of the listing of new POPs given the national infrastructure already in place for the sound management of chemicals throughout the life-cycle:

- 1. Review existing legal and regulatory frameworks as well as institutional arrangements established at the national level to implement the Convention and manage chemicals and wastes in an environmentally sound manner;**
- 2. Identify the areas where there is a need to develop and/or update existing legal/regulatory and institutional frameworks to comply with the obligations on new POPs;**

Identification and Inventory of of New POPs in Country

Identification of the presence of new POPs in the country and inventory at the national level.

The following aspects to be addressed:

- 1a Types and quantities of articles containing new POPs
(potentially relevant for PFOS, PBDEs, Lindane, PeCB)
- 1b Types of processes using new POPs including concentrations of those substances used in such processes; *(potentially relevant for PFOS, PeCB)*



Identification and Inventory of of New POPs in Country

Identify the presence of new POPs:

- 2. Types of articles recycled, extent of recycling, types of articles produced from recycling, options for the environmental management of recycling operations and releases resulting from recycling operations (potentially relevant for PBDE, PFOS*)**
- 3. Types and quantities of new POPs stockpiles (PFOS, PBDE, Lindane & HCHs, Chlordane, PeCB)**
- 4. Identification of contaminated sites (possibly relevant for all new POPs – international contamination limits?).**

Types of alternatives identified at the international level used in products and processes at the national level (relevant for PFOS, Lindane, PeCB, others?)

Identify National Needs for Exemptions

- **Collect information on status of use and production of the chemical**
 - Purpose of use, quantities, stakeholders
- **Find and assess the available alternatives**
 - Evaluate technical feasibility, costs, efficacy, risk, availability, accessibility
- **Assess impacts of implementing possible control measures including use of alternatives**
 - Economic impacts, environmental and health impacts



Registration for Exemptions

Meetings | Documents | Contact

 Stockholm Convention
on persistent organic
pollutants (POPs)

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CONVENTION PROGRAMMES COUNTRIES SECRETARIAT

Exemptions

- Overview
- Decisions & Recommendations
- Register of Specific Exemptions
- DDT Register
- PFOS and PFOSF Register
- Articles in use
- Closed-system site-limited production/use

New POPs
Unintentional POPs
BAT/BEP
ToolKit
DDT
PCBs
Waste & Stockpiles
Exemptions
Global Monitoring Plan
NIPs
Reporting
Regional Centres
Technical Assistance
Financial Mechanism
Effectiveness Evaluation

ns ▶ Register of Specific Exemptions

Register of Specific Exemptions

4 of the Convention, the Register is established for the purpose of Annex A or Annex B.

the Parties, pursuant to Article 4 of the Convention and by decision specific exemptions, with the exception of polychlorinated biphenyls or the persistent organic pollutants listed in Annex A or B of the Convention. No Parties registered for the specific exemptions listed in Annex A or B of the Convention may register for any exemption listed in Annex A or B of the Convention.

Overview
Decisions & Recommendations
Register of Specific Exemptions
Registers of Acceptable Purposes
Articles in use
Closed-system site-limited notification of production and use

DDT Register
PFOS and PFOSF Register

Also, in accordance with paragraph 4 of Article 22, the amendment shall be a declaration regarding the amendment to those Annexes in



GEF SUPPORTED ACTIVITIES FOR REVIEWING AND UPDATING NIPs

The following activities are supported:

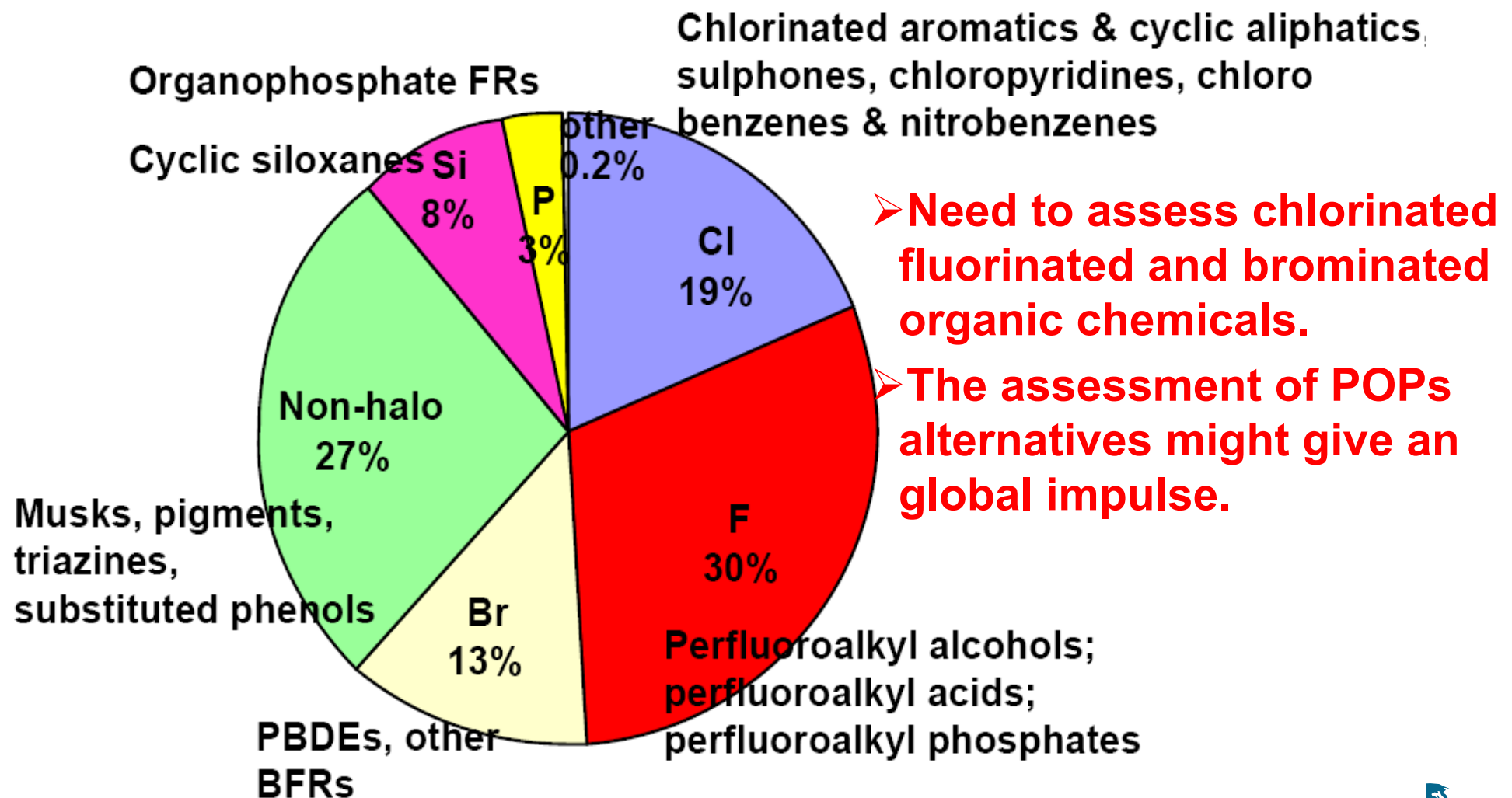
- 1) Coordination mechanism.**
 - 2) Inventories of new POPs in products, articles and processes.**
 - 3) Priority setting.**
 - 4) Assessment of nat. capacities to manage new POPs.**
 - 5) Development of specific Action Plans for new POPs.**
- Maximum funding 250,000 \$ per country.**

First Task: Application to GEF for updating NIP.

**GEF/C.39/Inf5: “GUIDELINES FOR REVIEWING AND UPDATING THE NIP
UNDER THE STOCKHOLM CONVENTION ON POPS”**

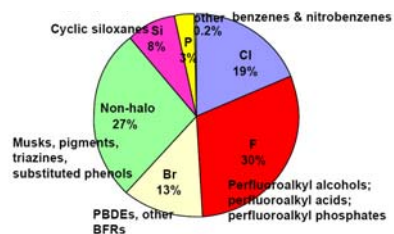
http://www.thegef.org/gef/GEF_39_Inf5

Classes of 610 Priority PBTS (Muir 2010)



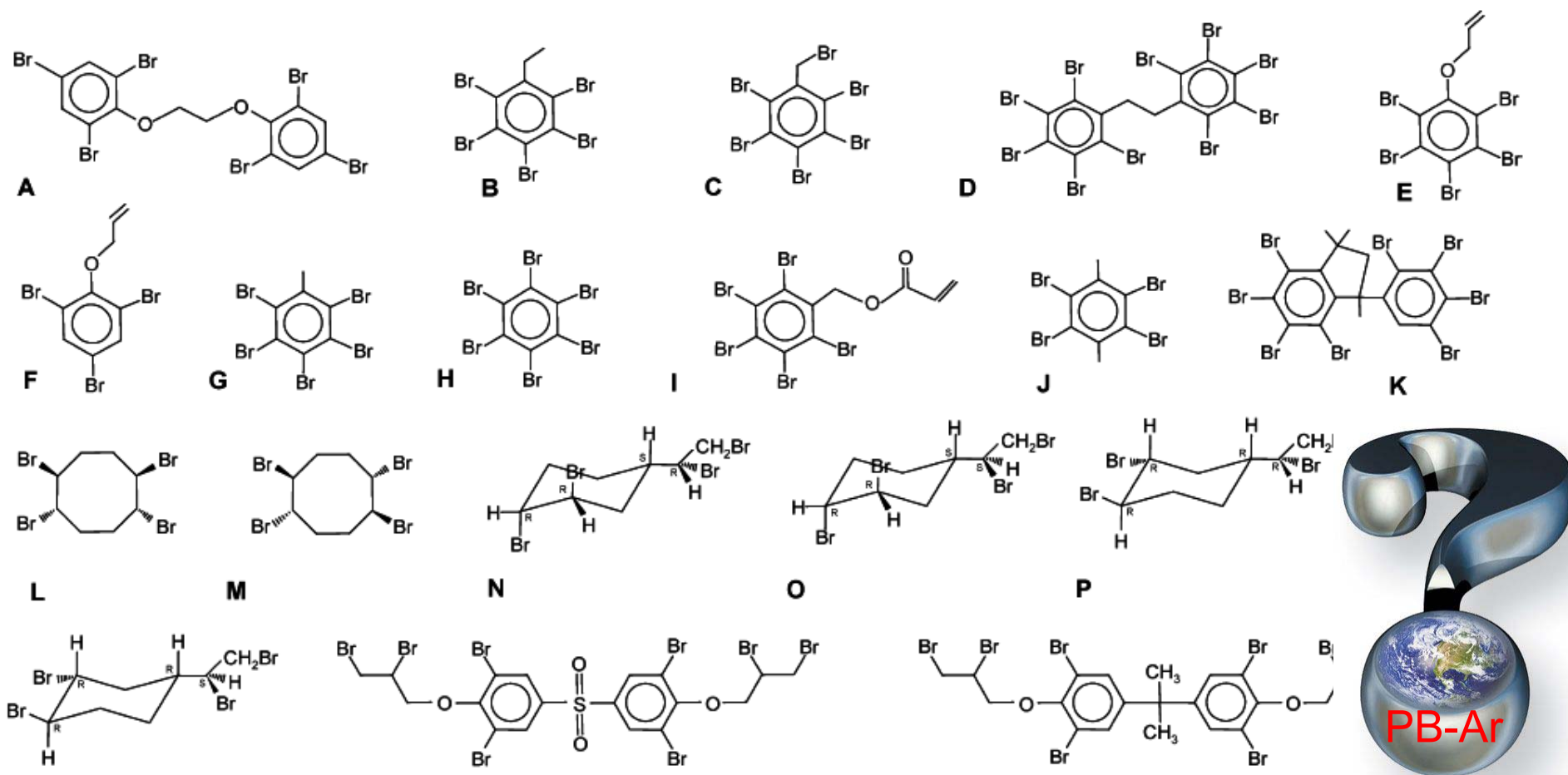
Source: Muir, Presentation Dioxin 2010, San Antonio, September 2010.





Other Brominated Flame Retardants

- **Assessment of alternative brominated flame retardants: Need a much more rigorous evaluation and control !**



Structures of emerging BFRs addressed by Gauthier (Gauthier, Potteret *et al.* 2009)

Thank you for your attention!



“More dirt!”

PFOA, PFXSi, PFHx
DeBDE, HBCD, PBB
PBDD/F, HBBz, PBF
TBBPA, TBPAE,
SCCP, MCCP, LCCP
PCN, HCBd, OCS,
PAHs, Nitro-PAH
Halogenated PAHs
Endosulfan,
PT-Pesticides
PT-Biocides
PT-Pharmaceuticals
Sn-Organics
Siloxanes
Hg, Cd, Pb et al.

www.pops.int ; www.saicm.org; www.ospar.org
<http://www.springerlink.com/content/0q10km8582605r1x/fulltext.pdf>