Global Workshop on Developing, revising and updating National Implementation Plans (NIPs) under the Stockholm Convention

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Outline

• Background and scope of inventories

• Overview of Toolkit revisions

• Process for updating and revising source inventories and release estimates of unintentionally produced POPs

• Examples of updating and revising source inventories and release estimates of unintentionally produced POPs
Background and scope
Unintentionally produced POPs

• During many anthropogenic activities, as undesired side effect, persistent organic pollutants may be unintentionally produced and released

• These are subject to the requirements of Article 5 and Annex C of the Stockholm Convention

• Each Party shall take measures to reduce the total releases derived from anthropogenic sources of each of the chemicals listed in Annex C with the goal of their continuing minimization and, where feasible, ultimate elimination
Unintentionally Produced POPs

• The following unintentionally produced POPs are listed in Annex C:

  • Polychlorinated dibenzo-p-dioxins (PCDD)
  • Polychlorinated dibenzofurans (PCDF)
  • Polychlorinated biphenyls (PCB)
  • Hexachlorobenzene (HCB)
  • Pentachlorobenzene (PeCBz)
Why are source inventories and release estimates needed

• Parties are required to:

  • **Identify, characterize, quantify** and **prioritize** sources of releases of Annex C chemicals
  • Develop strategies with measures, timelines and goals to minimize these releases (action plans under the NIP) considering the **Guidelines on BAT&BEP**
  • **Evaluate effectiveness of these strategies** and report such reviews in reports submitted pursuant to Article 15

Updating of inventories is required by Articles 5, 7 and 15
Scope of inventories

• **Source categories:**
  listed in Annex C Parts II and III

• **Inventoried POPs:**
  PCDD/PCDF formation is accompanied by releases of other unintentional POPs, which can be minimized or eliminated by the same measures used to minimize or eliminate PCDD and PCDF

• Parties do not need to compile full inventories of unintentional HCB, PCB and PeCBz releases

Focus on PCDD and PCDF as indicative of the presence of other unintentional POPs to identify and prioritize sources of ALL such substances and for devising applicable control measures
Overview of Toolkit revisions
Decision SC-2/5 initiated a process to revise and further develop the Toolkit, reinforced by SC-3/6 and SC-4/7.

Focus on key sources for which limited monitoring data are available and support developing countries to verify their emission factors.

Decision SC-6/9 welcomes the revised Toolkit and recommends that Parties use it taking into account the conclusions and recommendations of the Toolkit experts.
Main elements of the Toolkit revision

• Quality Assurance / Quality Control
• Data Quality
• Guidance on updating and revising source inventories
• **New/revised dioxin emission factors**, preliminary PCB and HCB emission factors, revised class definition, and additional source classes for:
  • Metal industry
  • Residential heating and cooking
  • Brick production
  • Open burning processes

The revised Toolkit is available at: [http://toolkit.pops.int](http://toolkit.pops.int). It includes the Excel templates for calculating releases in all UN languages.
Process for updating and revising source inventories and release estimates
Baseline release estimates

• The **baseline release estimate** is the first inventory of sources and releases of Annex C POPs elaborated by a Party, usually as part of the National Implementation Plan developed under Article 7.

• This serves as a baseline against which subsequent updated release estimates are assessed in order to **establish trends** in releases over time and evaluate efficacy of the strategies adopted.
Establishing trends in POPs releases over time

Updating of the inventory (for a particular reference year)

1. Examine initial/previous inventory
   - Identify the approach:
     - Classification of sources and EF used
     - Information sources on activity rates
     - Assumptions and expert judgment applied to fill the gaps

2. Review changes in data as compared with initial/previous inventory
   - Check for factors influencing changes in releases over time
   - Check for revised/new Toolkit EF
   - Reclassify sources according to the present situation
   - Establish activity rates for the reference year

3. Compute releases
   - If sources are reclassified and/or EF have been revised: assign new EF accordingly
   - If source classification unchanged: use the same EF
   - Multiply EF with new activity rates

Revision of the initial/previous inventory

1. Correct and/or adjust initial/previous inventory
   - Include missing information/fill gaps
   - Use the revised set of EF for computing releases / apply the same assumptions/expert judgment as in the updated inventory

Factors triggering the need to revise initial/previous inventories, e.g.:
- Toolkit EF have been changed or new EF added
- Approach has been changed (e.g. assumptions/expert judgment)
- Activities/sources:
  - were not identified in the baseline
  - were incorrectly classified

Factors influencing changes in releases over time, e.g.:
- Economic/demographic growth
- Changes in technology e.g. phasing in BAT&BEP
- Building, reconstruction, or close down of production facilities
- Substitution of fuels and/or raw material
- Introduction or reconstruction of abatement techniques

Consistent time trends
Examples of updating and revising inventories
Example 1: Revised emission factor

Baseline inventory [2003 data, Toolkit 2005]
Source group: Open burning
Source category: Waste burning
Source class: Uncontrolled domestic waste burning
Activity rate [2003]: 60'000 t/yr
EFAir [Toolkit 2005]: 300 µg TEQ/t
Release to air from open burning of waste: 18 g TEQ/yr

Updated inventory [2010 data, Toolkit 2011]
Source group: Open burning
Source category: Waste burning
Source class: Uncontrolled domestic waste burning
Activity rate [2010]: 20'000 t/yr
EFAir [Toolkit 2011]: 40 µg TEQ/t
Release to air from open burning of waste: 0.8 g TEQ/yr

Revised inventory [2003 data, Toolkit 2011]
Source group: Open burning
Source category: Waste burning
Source class: Uncontrolled domestic waste burning
Activity rate [2003]: 60'000 t/yr
EFAir [Toolkit 2011]: 40 µg TEQ/t
Release to air from open burning of waste: 2.4 g TEQ/yr

Incorrect assessment

95% decrease

66% actual decrease
Example 2: Additional class

Baseline inventory
[2003 data, Toolkit 2005]
Source group: Open burning
Source category: Biomass burning
Source class: Agricultural residue burning, poor conditions
Activity rate [2003]: 4'000'000 t/yr
EFAir [Toolkit 2005]: 30 µg TEQ/t
Release to air from agricultural residue burning: 120 g TEQ/yr

Updated inventory
[2010 data, Toolkit 2011]
Source group: Open burning
Source category: Biomass burning
Source class: Agricultural residue burning, poor conditions
Activity rate [2010]: 2'000'000 t/yr
EFAir [Toolkit 2011]: 30 µg TEQ/t
Release to air from agricultural residue burning: 60 g TEQ/yr

Revised inventory
[2003 data, Toolkit 2011]
Source group: Open burning
Source category: Biomass burning
Source class: Agricultural residue burning, poor conditions
Activity rate [2003]: 3'000'000 t/yr
EFAir [Toolkit 2011]: 30 µg TEQ/t
Release to air from agricultural residue burning: 90 g TEQ/yr

New source class: sugarcane burning
Activity rate [2010]: 1'000'000 t/yr
EFAir [Toolkit 2011]: 4 µg TEQ/t
Release to air from sugarcane burning: 8 g TEQ/yr
Example 3: Missing source

Baseline inventory [2003 data, Toolkit 2005]
Source group: Waste incineration
Source category: Destruction of animal carcasses
-no information
-releases considered negligible

Updated inventory [2010 data, Toolkit 2011]
Source group: Waste incineration
Source category: Destruction of animal carcasses
Source class: Old facility, no APCS
New information discovered
Activity rate [2010]: 1,000 t/yr
EFAir [Toolkit 2011]: 500 µg TEQ/t
Release to air from destruction of animal carcasses: 0.5 g TEQ/yr

Revised inventory [2003 data, Toolkit 2011]
Source group: Waste incineration
Source category: Destruction of animal carcasses
Source class: Old facility, no APCS
Activity rate [2003]: 2,000 t/yr
EFAir [Toolkit 2011]: 500 µg TEQ/t
Release to air from destruction of animal carcasses: 1 g TEQ/yr

Correct assessment
Release to air from destruction of animal carcasses: 0.5 g TEQ/yr

Increase +0.5 g TEQ
Conclusions

- **Same approach** needs to be applied consistently in all release estimates to:
  - Ensure results **comparable over time**
  - Enable assessment of **consistent time trends**

- If the approach changes, previous inventories need to be revised by applying the same approach to estimate releases in each reference year
Thank you