

## **Industrial Emissions Indicator IND 6.3:**

### **Industrial hazardous waste disposed in environmentally sound manner**

#### **Sub-indicators**

- 6.3.1) Total quantity of generated hazardous waste from industrial installations.
- 6.3.2) Quantity of industrial hazardous waste disposed in environmentally sound manner relative to total quantity of generated hazardous waste from industrial installations.

#### **Rationale**

##### Justification for indicator selection

This indicator reflects the provisions of the Strategic Action Programme (SAP-MED) and the legally binding requirements in relevant regional plans which call for proper handling, storage and sound disposal of hazardous industrial waste. It also addresses the legal obligations of the Basel and Stockholm Conventions with regards to reduction of transboundary movement of hazardous waste and chemicals; the minimization and prevention of hazardous waste generation; and the availability of disposal facilities for the environmentally sound management of stock piles of chemicals and hazardous waste. This indicator provides a measure of the commitments of the Mediterranean Countries to meet the obligations and deadlines set in the legally binding decisions regarding hazardous waste management as reflected in their operational targets and investment measures defined in their NAPs in terms of construction, expansion and upgrading of their industrial hazardous waste disposal facilities.

A close examination of pollution reduction programmes and environmental initiatives related to pollution reduction and control in the Mediterranean Sea reveals that this indicator is referenced by the IMAP, NAPs, MSSD and SDG. In that respect, it is noted that SDG indicators are regarded as the main drivers for updating the scope of the industrial emissions indicators. They are a measure of the strength of economic activities which represent at the same time the drivers of pollution generation and environmental pressures on the marine and coastal ecosystems. As these economic activities contribute to the wealth of the Mediterranean countries and to the social well-being of its people, this indicator should lead to an effective monitoring process capturing the principle of sustainable development, while promoting at the same time the creation of functional synergies among all stakeholders.

#### **Indicator definition**

This indicator addresses the stockpiling and disposal of hazardous waste in sound environmental manner. Below are definitions of key terms of this indicator:

- (1) **Hazardous waste** consists of the categories featuring on the list included in Decisions IG. 19/8 and IG. 20/8.3, Annex I of the Hazardous Waste Protocol, and in Annex I of the Basel Convention.
- (2) **Disposal of waste** means operations which do not lead to the possibility of resource recovery, recycling, reclamation, direct re-use or alternative uses of hazardous waste as defined in Annex IV(A) of the Basel Convention.
- (3) **Environmentally sound manner** means taking all practical steps to ensure that wastes are collected, transported, and disposed of (including after-care of disposal sites) in a manner which will protect human health and the environment against the adverse effects which may result from such wastes [UNEP(DEPI)/MED IG. 20/8 and Basel Convention (Article 2:8)]. For POPs, this means disposed of in such a way that the persistent organic pollutant content is destroyed or irreversibly transformed so that they do not exhibit the characteristics of persistent organic pollutants, or otherwise disposed of in an environmentally sound manner when destruction or irreversible transformation does not represent the environmentally preferable option, or the persistent organic pollutant content is low, taking into account international rules, standards, and

guidelines and relevant global and regional regimes governing the management of hazardous waste and the Basel Convention.

**(4) Industrial installations** are facilities intended for use in the manufacture or processing of products involving systematic labor or habitual employment. It consists of a fixed or semi-fixed location of a complete system or a self-contained unit, with its accompanying assemblies, accessories and parts.

#### Units

- The total quantity of generated industrial hazardous waste from industrial installations is reported in metric tons per year.
- The quantity of industrial hazardous waste disposed in environmentally sound manner relative to total quantity of generated industrial hazardous waste is reported in percent.

### **Policy context and targets**

#### Policy context description

In 1999, the parties to the Barcelona Convention adopted the Strategic Action Programme to Address Pollution from Land-Based Activities (SAP-MED). It foresees the implementation of national and regional actions for pollution reduction and for phasing out of toxic chemicals, environmental sound collection and disposal of hazardous waste.

In 2009 and 2012, the Contracting parties adopted several legally binding decisions and plans targeting specific industrial pollutants including persistent organic pollutants (POPs). The decisions include a number of legal requirements entailing reduction and elimination of releases, isolation and containment of wastes, and safe handling, collection, transport, storage and disposal of hazardous waste. The legally binding measures are:

- Regional Plan on the elimination of Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, Mirex and Toxaphene in the framework of implementation of Article 15 of the LBS Protocol (2009).
- Regional Plan on the elimination of Alpha hexachlorocyclohexane; Beta exachlorocyclohexane; Hexabromobiphenyl; Chlordecone; Pentachlorobenzene; Tetrabromodiphenyl ether and Pentabromodiphenyl ether; Hexabromodiphenyl ether and Heptabromodiphenyl ether; Lindane; Endosulfan, Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride, in the framework of the implementation of Article 15 of the LBS Protocol (2012).

The measures included in the regional plans are fully in line with the requirements of the Stockholm Convention. The prescribed chemicals to be eliminated according to these plans are included in Annex A of the Stockholm Convention. The Hazardous Wastes to be addressed by this indicator are listed in Annex I of the Hazardous Waste Protocol under the Barcelona Convention. These chemicals are also included in Annex I of the Basel Convention.

Most Mediterranean Countries have ratified the Basel and Stockholm Conventions which link the issue of national data on waste generation to the control of transboundary movement of wastes. National data on waste generation provides a basis for decision-makers to prioritize issues concerning waste management. Moreover, the waste minimization and reduction and/or elimination of the generation and the amount of wastes subject to the transboundary movement could be dealt more efficiently. The Basel convention also addresses the availability of disposal facilities for generated hazardous waste by seeking specific data on the annual amount of waste that the facility is designed to treat, and remaining capacity of landfills for disposal of generated hazardous waste.

The European Union Directive 75/442/EEC on wastes and Directive 91/689/EEC on hazardous waste regulate pollution reduction and elimination by the EU Member states.

### Targets

SAP-MED proposes the year 2025 as a target date to dispose all hazardous wastes in a safe and environmentally sound manner and in conformity with the provisions of the LBS Protocol and other international agreed provisions. The Regional Plan on the elimination of Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, Mirex and Toxaphene stipulates that each Party shall implement the measures to eliminate the chemical wastes and stock piles by 31 December 2012 at the latest. The Regional Plan on the elimination of Alpha hexachlorocyclohexane; Beta exachlorocyclohexane; Hexabromobiphenyl; Chlordecone; Pentachlorobenzene; Tetrabromodiphenyl ether and Pentabromodiphenyl ether; Hexabromodiphenyl ether and Heptabromodiphenyl ether; Lindane; Endosulfan, Perfluorooctane sulfonic acid, its salts and perfluorooactane sulfonyl fluoride states that each Party shall implement the measures to eliminate the chemical waste and stock piles by 2013 at the latest.

### **Methodology**

#### Methodology for indicator calculation

The proposed methodology for calculating the total quantity of generated industrial hazardous waste is based on the summation of amounts of generated hazardous waste from individual industrial installations in metric tons per year.

The disposed quantity of hazardous industrial waste in environmentally sound manner is computed in metric tons per year based on the following equation:

$$D = Q + I - E - S$$

where:

- D = disposed quantity of industrial hazardous waste in environmentally sound manner.
- Q = total generated quantity of industrial hazardous waste.
- I = imported quantity of hazardous waste for environmentally sound disposal.
- E = exported quantity of hazardous waste for environmentally sound disposal.
- S = stockpiled quantity of hazardous stored on site under controlled or uncontrolled conditions in metric tons per year.

#### Geographical coverage

Administrative regions of the whole Mediterranean sea watershed as defined in section 3.1 of the “Updated guidelines to assess national budget of pollutants (NBB)” [UNEP(DEPI)/MED WG. 404/4].

#### Basis for aggregation

Due to the common characteristics of the hazardous industrial chemicals, all hazardous waste and chemicals included in the relevant regional decisions can be aggregated for the purpose of determining each of the two sub-indicators.

#### Temporal coverage

Contracting parties report to Barcelona Convention Reporting System (BCRS) for Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal (HW Protocol). Datasets are available for 2008-2009; 2010-2011; 2012-2013 and 2014-2015. Counteracting Parties reports to Stockholm Convention Secretariat and the periodicity of the national reporting is every four years in accordance with a format as established by the COP at its first meeting (decision SC-1/22).

#### Trend analysis

Can be performed once sufficient data are collected by all countries, but not earlier than 2020.

### Methodology for gap filling

Data required for determining the sub-indicators can be obtained from national inventories on disposal of hazardous waste. In that respect, it should be noted that required data for the sub-indicators are partly covered with those required for reporting on the Basel and Stockholm Conventions. In case such data are lacking, a survey of land-based industrial sources generating hazardous waste should be undertaken, and waste registers maintained by the individual industrial facilities should be referred to for the purpose of determining the total amounts of wastes disposed or stockpiled.

## **Data specifications**

### Data sets availability

Key source of data needed for estimating amounts of waste for the sub-indicators may be found in national inventories for management of hazardous waste compiled by environmental authorities in compliance with the obligations of the Basel and Stockholm conventions. Data sets are available for 1<sup>st</sup> reporting cycle (31 December 2006); 2<sup>nd</sup> reporting cycle (31 October 2010); 3<sup>rd</sup> reporting cycle (31 August 2014); 4<sup>th</sup> reporting cycle (still ongoing till 31 August 2018).<sup>1</sup>

## **Uncertainties**

### Methodological uncertainties

Methodological uncertainties may be attributed to several aspects including:

- Reluctance of industries to report actual amounts of generated hazardous waste.
- Reluctance of industries to release accurate information on stockpiles of chemicals and wastes maintained on- or off-site.
- Lack of regular updating of data in national inventories.
- Presence of illegal disposal facilities (i.e. operating without permits) which are used for disposal of hazardous waste.

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<sup>1</sup> <http://chm.pops.int/Countries/Reporting/NationalReports/tabid/3668/Default.aspx>