

Indicators, Reporting and Implementation of the 2020 goal

Foundational paper to support Part II, Chapter 1 and 2 of the Global Chemicals Outlook II

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Abstract¹

This paper provides an overview of the international system for the sound management of chemicals and waste and the mechanisms established to regulate the production, use, and trade of chemical substances worldwide and seeks lessons from other international mechanisms. It explains the origins of the system and its functions, and examines the targets and indicators established to measure progress on their implementation. Specifically, it provides a stocktaking of the existing reporting mechanisms in relevant global environmental conventions and other policy instruments. It identifies and reviews existing documents, which provide information on the state of implementation of various aspects of the 2020 goal. The analysis is based on indicators drawn from existing data and data sets on progress in implementing the goal across countries and regions and a set of global and regional maps illustrates progress. The paper provides guidance and options for assessing progress and setting priorities at the global and regional levels concerning the implementation of the 2020 goal and beyond.

¹ This paper draws from some of the previous work of the authors on the sound management of chemicals and waste, and in particular on:

1. Escobar-Pemberthy, Natalia; Ivanova, Maria; and Gabriela Bueno (2017) "The International Chemicals Regime: Protecting Health and the Environment," *Green Chemistry*. Eds. Dransfield, Timothy and Bela Torok. Oxford (UK), Elsevier.
2. Escobar-Pemberthy, Natalia (2017) *Environment, states and international organizations: The role of global environmental conventions in protecting the environment* (Doctoral Dissertation), University of Massachusetts Boston.
3. Urho, Niko (2018) *Options for effective governance of the Beyond 2020 Framework for sound management of chemicals and waste: Lessons learned from other regimes*, Center for Governance and Sustainability, University of Massachusetts Boston.

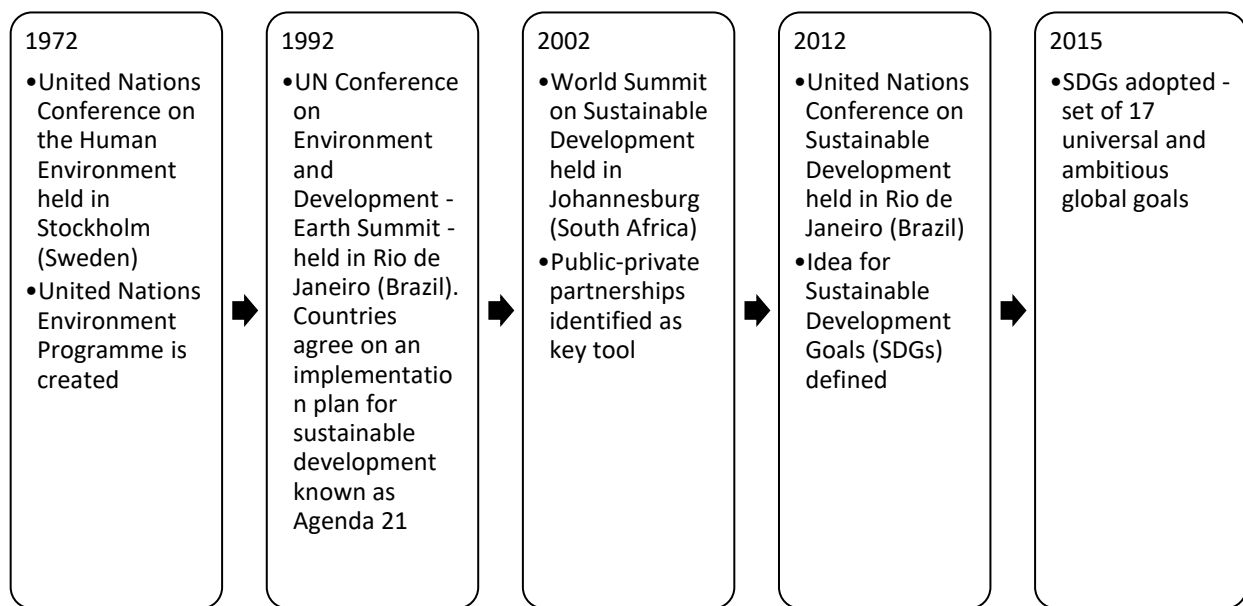
1 Mechanisms for the sound management of chemicals and waste

1.1 Chemicals and waste in the global development agenda

International policy developments to address chemical risks date back to the beginning of the 20th century. The International Labour Organization (ILO) White Lead (Painting) Convention of 1921 is one of the earliest chemical conventions. International initiatives in the second half of the century addressed specific chemical issues or sectors, as in the case of the Codex Alimentarius Commission, established in 1961, or the Recommendations on the Transport of Dangerous Goods, the first version of which was adopted by the United Nations Economic and Social Council (ECOSOC) in 1956.

The current system of global chemicals and waste governance has predominantly developed in tandem with development of global environmental governance, with key milestones indicated in Figure 1. These include agreements to regulate the production, use and trade of many of the most harmful chemical substances worldwide, together with mechanisms to bridge the science-policy gap, promote international co-operation, and increase awareness concerning the safety of chemicals. The agreements are guided by a set of goals and targets that address different aspects of the sound management of chemicals and waste. Most recently, the Sustainable Development Goals (SDGs) articulated targets in terms of human health, water management, and sustainable consumption and production that include the management of chemicals and waste (UN General Assembly, 2015).

Figure 1 Key milestones in the history of global environmental governance



Importantly, countries adopted the 2020 goal, which commits them to achieving environmentally sound management of chemicals throughout their lifecycle by the year 2020. The goal originated in Agenda 21 and two chapters on the sound management of chemicals and hazardous wastes:

1. Ch. 19. “Environmentally Sound Management of Toxic Chemicals, Including Prevention of Illegal International Traffic in Toxic and Dangerous Products” comprising 76 paragraphs and promoting

an integrated life-cycle approach to the management of chemicals covering production, storage, transport, use, recovery, and disposal

2. Ch. 20. “Environmentally Sound Management of Hazardous Wastes, Including Prevention of Illegal International Traffic in Hazardous Wastes” comprising 46 paragraphs and promoting integrated life-cycle management of hazardous wastes covering their generation, storage, treatment, recycling and reuse, transport, recovery and disposal

Paragraph 23 of the Johannesburg Plan of Implementation (JPOI) renewed this commitment “aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment, using transparent science-based risk assessment procedures and science-based risk management procedures...” The main section of this goal has been translated into the overall objective (known as the 2020 goal) of the Strategic Approach to International Chemicals Management (SAICM) as follows: “to achieve the sound management of chemicals throughout their life cycle so that by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health”, as outlined in paragraph 13 of its Overarching Policy Strategy (OPS).

Recently, other related international goals have been adopted that have their own nuances in relation to the 2020 goal. For instance, target 12.4 of the Sustainable Development Goals is broader than the 2020 goal as it refers also to “all wastes”. Different articulations of international goals related sound management of chemicals and waste are explained in table 1.

Table 1 Comparison between international goals related to the sound management of chemicals and waste

Conference	Document	International goal	Clarification
World Summit on Sustainable Development, Johannesburg, South Africa (2002)	Johannesburg Plan of Implementation (para 23)	‘Renew the commitment, as advanced in Agenda 21, to sound management of chemicals throughout their life cycle and of hazardous wastes for sustainable development as well as for the protection of human health and the environment, inter alia, aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment, using transparent science-based risk assessment procedures and science-based risk management procedures, taking into account the precautionary approach’	<ul style="list-style-type: none"> • Objective is to 'minimize significant adverse effects' instead of 'eliminate' • What constitutes 'significant adverse effects' remains undefined and open to interpretation • Reference to 'hazardous wastes' only in the preambular section of the goal
First International Conference on	Overarching Policy Strategy	‘To achieve the sound management of chemicals throughout their life-cycle so that,	<ul style="list-style-type: none"> • No reference to ‘hazardous wastes’

Conference	Document	International goal	Clarification
Chemicals Management, Dubai, United Arab Emirates (2006)	of SAICM, (para 13)	by 2020, chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment'	
United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil (2012)	Rio+20 Outcome Document The Future We Want (para 213)	'To achieve, by 2020, the sound management of chemicals throughout their life cycle and of hazardous waste in ways that lead to minimization of significant adverse effects on human health and the environment'	<ul style="list-style-type: none"> • Includes reference to 'hazardous wastes'
United Nations Sustainable Development Summit, New York, United States (2015)	2030 Agenda for Sustainable Development: Target 12.4	'By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment'	<ul style="list-style-type: none"> • The goal includes 'all wastes' • Asks for minimization of adverse effects (without the qualifier 'significant') • Covers 'environmentally sound management' and 'releases to air, water and soil' excluding occupational exposure or consumer product safety

1.2 Multilateral chemical and waste agreements and other policy frameworks

Global Conventions

Nine global conventions provide the basis for analysis in this paper and are summarized in Table 2. Each agreement addresses a specific element of the larger environmental issue with the common goal of protecting human health and the environment, has its own objectives, and carries separate legal, political, and practical implications (Krueger & Selin, 2002; Selin, 2010). The agreements also complement each other. The core of those interlinkages lies in the coordination of their functions, obligations, and objectives to guarantee that the overall goal of protecting human health and the environment is achieved.

Table 3 provides a summary of the scope the major agreements and an overview of the number of substances they regulate. Other agreements, such as the 1971 ILO Benzene Convention C-136 or the 1986 ILO Asbestos Convention C-162, are also part of the chemicals regime as they address individual

hazardous chemicals and their impact on occupational safety. However, they are not included in the analysis since they are not comprehensive in terms of their scope or membership.

Each agreement defines specific institutional arrangements to support parties in the process of implementation. For example, the Basel Convention, in Article 16, assigned to the parties the task of designating “the Secretariat from among those existing competent intergovernmental organizations which have signified their willingness to carry out the secretariat functions” (UNEP, 1989). The Rotterdam Convention established a joint secretariat between UNEP and the UN Food and Agriculture Organization (FAO) (Art. 19), while the Stockholm (Art. 20) and Minamata Conventions (Art. 16) assigned this role to the Executive Director of UNEP (FAO/UNEP, 1998; UNEP, 2013b; United Nations, 2001). Each convention has also established specific functions for its governing bodies, and the extent of its interaction with other institutional arrangements created for the operation of each agreement.

Table 2 Global conventions in the chemicals and waste regime

Agreement	Year of adoption	Year of entry into force	Goal	Number of parties ²
Montreal Protocol on Substances that Deplete the Ozone Layer	1987	1989	<ul style="list-style-type: none"> • Protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer; • Protect the ozone layer by taking precautionary measures to control equitably total global production and consumption of substances that deplete it, with the ultimate objective of their elimination on the basis of scientific knowledge, technical and economic considerations and the developmental needs of developing countries. 	197
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1989	1992	<ul style="list-style-type: none"> • Effective implementation of parties’ obligations on transboundary movements of hazardous and other wastes; • Strengthening the environmentally sound management of hazardous and other wastes; • Promoting the implementation of environmentally sound management of hazardous and other wastes as an essential contribution to the attainment of sustainable livelihood, the Millennium Development Goals and the protection of human health and the environment. 	187

² As of December 31, 2018

Agreement	Year of adoption	Year of entry into force	Goal	Number of parties ²
ILO Chemicals Convention C-170	1990	1993	<ul style="list-style-type: none"> • Reduce the incidence of chemically induced illnesses and injuries at work by ensuring that all chemicals are evaluated to determine their hazards; • Provide employers with a mechanism to obtain from suppliers information about the chemicals used at work; • Provide workers with information about the chemicals at their workplaces, and about appropriate preventive measures so that they can effectively participate in protective programs; • Establish principles for such programs to ensure that chemicals are used safely. 	21
Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and their Destruction	1992	1997	<ul style="list-style-type: none"> • Achieve effective progress towards general and complete disarmament under strict and effective international control, including the prohibition and elimination of all types of weapons of mass destruction; • Exclude completely the possibility of the use of chemical weapons; including the prohibition of the use of herbicides as a method of warfare; • Promote free trade in chemicals as well as international cooperation and exchange of scientific and technical information in the field of chemical activities for purposes not prohibited under the Convention; • Completely and effectively prohibit the development, production, acquisition, stockpiling, retention, transfer and use of chemical weapons, and their destruction. 	193
ILO Convention concerning the Prevention of Major Industrial Accidents C-174	1993	1997	<p>Having regard to the need to ensure that all appropriate measures are taken to:</p> <ul style="list-style-type: none"> • Prevent major accidents; • Minimize the risks of major accidents; • Minimize the effects of major accidents. 	18

Agreement	Year of adoption	Year of entry into force	Goal	Number of parties ²
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	1998	2004	<ul style="list-style-type: none"> Promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties. 	161
Stockholm Convention on Persistent Organic Pollutants	2001	2004	<ul style="list-style-type: none"> Protect human health and the environment from Persistent Organic Pollutants (POPs); Eliminate or restrict the production, use, import and export of listed POPs and require measures to be taken with respect to waste and unintentional releases of POPs. 	182
WHO International Health Regulations	2005	2007	<ul style="list-style-type: none"> Prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade. 	196
Minamata Convention on Mercury	2013	2017	<ul style="list-style-type: none"> Protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. 	101

Figure 2 illustrates the number of parties to the 9 main global chemicals and waste conventions. The Montreal Protocol has achieved universal membership with 197 members and the WHO International Health Regulations (IHR) and the Chemical Weapons Convention are close to universal membership with 196 and 195 parties respectively. The ILO conventions C-170 and C-174 have a strikingly low number of parties, 21 and 18 respectively.

Figure 2 Number of parties to global environmental conventions

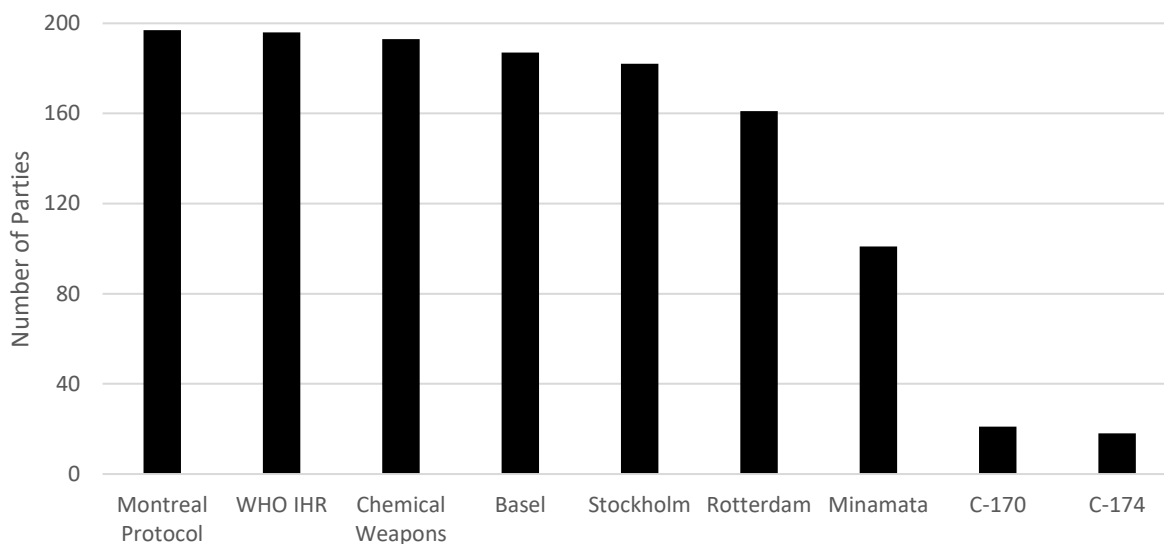


Table 3 Scope and substances covered by each international convention

Agreement	Scope	Number of substances regulated ³
Montreal Protocol	Ozone depleting substances	144
Basel Convention	Hazardous wastes defined based on their origin and/or composition and characteristics, with the exception of radioactive waste and those derived from a normal operation of a ship, and other wastes household waste and incinerator ash.	124 groups of wastes, according to Annex I, II and VIII List A, and wastes falling under the criteria of the list of hazardous characteristics in Annex III
Chemicals Convention C-170	All branches of economic activity in which chemicals are used	N/A
Chemical Weapons Convention	Chemical weapons, toxic chemicals and precursors, Chemical Weapons Production Facility, Riot Control Agents	15 toxic chemicals and 28 precursors
Convention concerning the Prevention of Major Industrial Accidents C-174	Major hazard installations, except nuclear installations processing radioactive substances (except when handling non-radioactive substances); military installations; and transport outside the site of an installation other than by pipeline	N/A

³ Not including isomers of listed substances. The list of substances in most conventions remains open to additions and other modifications.

Agreement	Scope	Number of substances regulated ³
Rotterdam Convention	Regulation for the prior informed consent for banned or severely restricted chemicals and severely hazardous pesticide formulations	50 substances and mercury compounds
Stockholm Convention	Persistent organic pollutants	28 substances as well as pentachlorophenol salts and perfluorooctane sulfonic acid salts
WHO International Health Regulations	All diseases and events of international public health concern, including those linked to biological, chemical and radiation hazards	N/A
Minamata Convention	Mercury and mercury compounds throughout their lifecycle	Mercury and mercury compounds

SAICM and its main instruments

A global policy framework – the Strategic Approach to International Chemicals Management (SAICM) – is the principal designated mechanism for the achievement of the 2020 goal in ways that contribute to sustainable development. In 2006, SAICM was adopted by the First International Conference on Chemicals Management (ICCM-1) in response to paragraph 23 b) of the JPOI as a voluntary framework to achieve the 2020 goal. SAICM differs from other chemical and waste agreements on several key points: it is a non-binding policy framework; it comprises a broad scope of activities; and it allows for active participation of non-governmental stakeholders (Persson, Persson, & Sam, 2016). SAICM includes three fundamental instruments, two of which were adopted at ICCM-1 organized in 2006 in Dubai, United Arab Emirates (See Box 1).

Box 1 The three main instruments of SAICM

The Dubai Declaration on International Chemicals Management, adopted at the 2006 International Conference, expresses high-level political support “for promoting the sound management of chemicals and hazardous wastes throughout their life-cycle, in accordance with Agenda 21 and paragraph 23 of the JPOI.” The declaration explicitly states that significant but insufficient progress has been made in international chemicals management through implementation of various international agreements concerning chemicals and hazardous wastes.

The Overarching Policy Strategy (OPS), also adopted at the Conference, has five key thematic objectives: risk reduction, knowledge and information, governance, capacity building and technical cooperation, and illegal international traffic in chemicals. These are further divided into 46 specific objectives. The OPS includes sections on financial considerations, principles and approaches, implementation and taking stock of progress statement of needs and scope. The OPS mentions the Global Plan of Action as one of the main implementation tools.

The Global Plan of Action (GPA) lists 299 activities. Each of the activities specify actors, timeframes and targets, indicators of progress and provides information on implementation aspects. The activities are grouped under the five key thematic objectives and further divided into 36 work areas. The GPA is a non-negotiated text and therefore has a different status than the Dubai Declaration and the OPS described above. Nevertheless, the Conference recommended its use and further development.

The Dubai Declaration states in paragraph 12 that, together with the Overarching Policy Strategy, it constitutes firm commitment to SAICM and its implementation. These two documents thus provide the rationale for the creation of SAICM and the overarching principles and goals (Persson et al., 2016). The Dubai Declaration, however, does not adopt the Global Plan of Action, but merely recommends its use and further development. The GPA is therefore not a negotiated text and does not have the same legal status as the Dubai Declaration and the Overarching Policy Strategy.

2 Indicators and reporting schemes under international agreements

Reporting on implementation is critical to monitor compliance with the international agreements and their effectiveness. National reports offer a unique opportunity for secretariats to gather information on the specific level of implementation for each party and all international agreements require some form of reporting of progress. Reporting, however, presents an important challenge in terms of compliance.

The content of the reports varies among agreements, but the common aim is to measure progress on technical obligations, implementation of legislation, establishment of institutions, and collection of data about the different environmental issues addressed by the agreements. Many of the reports also ask for progress on specific indicators and some contain specific questions about problems that parties have encountered in implementing the convention. See Table 5.

The role of the secretariats of the agreements is critical to the level of compliance with reporting obligations and thus the ability to monitor progress. Without robust analysis and discussion of national reports – including both availability and content – parties may undervalue the importance of accurate self-reporting. National reports offer an opportunity to identify barriers to implementation, an option which is possibly under-utilized by some conventions.

Importantly, reporting has evolved over time and reporting rates differ among different groups of countries and across world regions. Results also vary across conventions. Overall, these trends are essential to understanding the challenges and opportunities for implementation and to developing tools for improved information exchange and learning.

2.1 Chemicals and waste related SDGs, targets and indicators

In 2015, countries adopted the 17 Sustainable Development Goals seeking to advance development, environmental quality, and equity in an integrated manner. Sound management of chemicals and waste is essential to the achievement of all 17 SDGs (IOMC 2018). For example, as reflected in Table 2.2, Goals 3 and 12 include targets that speak directly to the need for sound management of chemicals and waste to protect health and the environment. Direct linkages to chemicals and waste can also be found in Goals 6 and 11. The IOMC has developed an overview which explains how the sound management of chemical and waste contribute as key factors for achieving all of the SDGs (IOMC 2018).

The existence of these targets brings new indicators and reporting obligations into the system of global governance for chemicals and waste. The chemicals and waste-related SDGs establish then six targets and eleven indicators that countries are expected to fulfill (See **Error! Reference source not found.**). Furthermore, the SDGs defined the High-Level Political Forum (HLPF), supported by the UN Economic and Social Council (ECOSOC) as the main follow up and review mechanism for progress on the goals. The HLPF conducts thematic reviews in a four-year cycle, with goal 3 being reviewed in 2017, and goals 6, 11

and 12 in 2018. For each meeting of the HLPF, countries are invited to prepare Voluntary National Reviews, that are expected to provide useful information, identify best practices and challenges and offer lessons that contribute to the implementation of the 2030 Agenda. The VNRs also offer opportunities for actors to identify multi-stakeholder collaboration and establish new partnerships on the implementation of the SDGs.

Table 4 Relation between chemicals and waste regime and SDGs

Goal	Target	Indicator
SDG 3 Good Health and Well-being	3.9. By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1. Mortality rate attributed to household and ambient air pollution 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) 3.9.3 Mortality rate attributed to unintentional poisoning
SDG 6 Clean water and sanitation	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1 Proportion of wastewater safely treated 6.3.2 Proportion of bodies of water with good ambient water quality
SDG 11 Sustainable Cities	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities 11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
SDG 12 Sustainable Consumption and Production patterns	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement 12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment
	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled

In terms of monitoring, the interaction with global environmental conventions and the targets and indicators they establish is critical. The Environment Live initiative provides useful insights defining the contribution that the chemicals and waste conventions – among many others – can provide to the SDGs, including specific actions and targets that are already part of the conventions and that can be used to measure progress on the implementation of several SDGs (see

Figure 3 for an example).

There are also clear linkages between the SDGs and SAICM. In 2018, in the ongoing SAICM Intersessional process considering the Strategic Approach and the sound management of chemicals and waste beyond 2020, progress reporting, proposed objectives (derived from the OOG), related milestones, and links to the SDGs and the 2030 Agenda were discussed and areas were identified where SAICM indicators could strategically relate to the SDG targets (SAICM, 2018a). Furthermore, the WHO has developed a Chemicals Road Map to enhance engagement by the health sector in SAICM towards the 2020 goal and beyond, addressing SDGs 3, 6 and 12 (WHO, 2017a). The Road Map includes a number of actions related to better measuring progress and improving indicators.

Figure 3 Some linkages between the Basel Convention and the SDGs



2.2 Reporting and indicators under global environmental conventions

A detailed diagnosis of the process of national reporting requires an analysis of three aspects: how the overall group of state parties complies with reporting obligations, how the process of national reporting has evolved over time, and how compliance with national reporting differs among different groups of countries. In the case of the Basel and Stockholm Conventions, for example, the agreements have specific reporting systems, requesting annual and periodic (every 4 years) reports, respectively. In both cases, reports include specific information on the measures taken to implement the convention, the effectiveness of those measures, designation of focal points to address convention-related matters, and statistical data on hazardous substances production, import, export, movement, and impact on human health and the environment (UNEP, 1989; United Nations, 2001).

Table 5 Reporting mechanisms in global conventions related to chemicals and waste

Agreement	Reporting obligation	Type of questions	Frequency	Indicators	Format	Display of information	Reporting rate ⁴	Review
Basel Convention	Art 13 para 3: the parties shall transmit to the Secretariat before the end of each year a report on the previous calendar year containing the information on the measures adopted in implementation of the Convention	Activity-based (e.g. measures on implementation, focal-points, information of international agreements) and outcome-based (e.g. the amount of wastes exported and imported)	Annual	None	Electronic reporting	Information is displayed as a raw data on the Basel Convention website	2016: 75/183 = 54.9%	Art. 15 para 5: The Conference of the Parties shall keep under continuous review and evaluation the effective implementation of this Convention
Stockholm Convention	Art 15: Each Party shall report to the Conference of the Parties on the measures it has taken to implement the provisions of this Convention and on the effectiveness of such measures in meeting the objectives of the Convention	Both activity-based and outcome based	Periodic, every 4 years	None	Electronic reporting	Information is displayed as a raw data on the Stockholm Convention website	2014: 92/179 = 51.3%	Article 19 para 5: The Conference of the Parties shall keep under continuous review and evaluation the implementation of this Convention
Rotterdam Convention	None	None	None	None	None	None	None	None
Minamata Convention	Art 21: Each Party shall report to the Conference of the Parties, through the Secretariat, on the measures it has	Both activity-based and outcome based	To be determined	N/A	Electronic reporting	To be determined	N/A	Art. The Conference of the Parties shall evaluate the effectiveness of this Convention, beginning no later than six years after the date of entry into force of the Convention

⁴ Figures in column "Reporting rate" are based on the data for the latest available reporting cycle.

Agreement	Reporting obligation	Type of questions	Frequency	Indicators	Format	Display of information	Reporting rate ⁴	Review
	taken to implement the provisions of this Convention and on the effectiveness of such measures and the possible challenges in meeting the objectives of the Convention.							and periodically thereafter at intervals to be decided by it.
Montreal Protocol	Art 7: Each Party shall provide to the Secretariat, within three months of becoming a Party, statistical data on its production, imports and exports of each of the controlled substances	Outcome-based	Annual	None	Electronic reporting	Ozone Data Access Center	2016: 169/197 = 85.7%	Art. 6: Beginning in 1990, and at least every four years thereafter, the Parties shall assess the control measures provided for in Article 2 and Articles 2A to 2J on the basis of available scientific, environmental, technical and economic information. At least one year before each assessment, the Parties shall convene appropriate panels of experts qualified in the fields mentioned and determine the composition and terms of reference of any such panels. Within one year of being convened, the panels will report their conclusions, through the Secretariat, to the Parties.
WHO International Health Regulations	Art 34: that 'States Parties and the Director-General shall report to the	Activity-based indicators that constitute a checklist with four	Annual	Reporting on 24 indicators that	The reporting questionnaire consists of a 'check-list' that	Information is displayed in the Global Health Observatory	2017: 164/196 = 84 %	The Director-General provides an annual report on the implementation of IHR, in accordance with

Agreement	Reporting obligation	Type of questions	Frequency	Indicators	Format	Display of information	Reporting rate ⁴	Review
	Health Assembly on the implementation of these Regulations as decided by the Health Assembly.'	different levels of progress with a single route of progression.		cover 13 core capacities.	can be filled online or submitted in paper or hard-copy.	data repository with interactive and static graphs, and raw data.		resolution WHA61.2 (2008).
Chemicals Convention C-170	Art. 22 of the ILO Constitution: Each of the Members agrees to make an annual report to the International Labour Office on the measures which it has taken to give effect to the provisions of Conventions to which it is a party. These reports shall be made in such form and shall contain such particulars as the Governing Body may request.	Activity-based, countries are required to provide information on legislation and regulation that were put in place which give effect to every article of the Convention	Annual	None	Electronic. Countries should provide information on every article according to the report form.	Information is supposed to be displayed at the Information System on International Labour Standards	Reports are not accessible online	
Convention concerning the Prevention of Major Industrial Accidents C-174	Art 22 of the ILO Constitution	Activity-based, in the First Report countries are required to provide information on legislation and regulation that were put in place which give effect to every article of the Convention. The following	Annual	None	Electronic. Countries should provide information on every article according to the report form.	Information is supposed to be displayed at the Information System on International Labour Standards	Not accessible online	

Agreement	Reporting obligation	Type of questions	Frequency	Indicators	Format	Display of information	Reporting rate ⁴	Review
		reports should contain updated on the new laws and policies						
Chemical Weapons Convention	Art IV para 7: Each state party shall submit detailed plans for the destruction of chemical weapons and declarations regarding the implementation of these plans Art V para 9: Each state party shall submit detailed plans for the destruction of chemical weapons production facilities and declarations regarding the implementation of these plans Art VII para 5: Each State Party shall inform the Organization of the legislative and administrative measures taken to implement this Convention.	Outcome-based (information on the destruction of chemical weapons)	Annual	None	Information can be submitted electronically through the Electronic Declarations Tool for National Authorities or in hard form.	Submitted under Art VII para 5: partially displayed at the Convention website	N/A	
The United Nations Economic Commission for Europe's Protocol on	Art 9: Each Party shall report, through the Executive Secretary of the Commission, to	Both activities and outcomes based	Periodic: annually for total national data, every fifth year for gridded data	None	Electronic	Displayed at the WebDab – EMEP Database	2016: 32/33 = 96%	Art 10: The Parties shall, at sessions of the Executive Body, keep under review the progress made

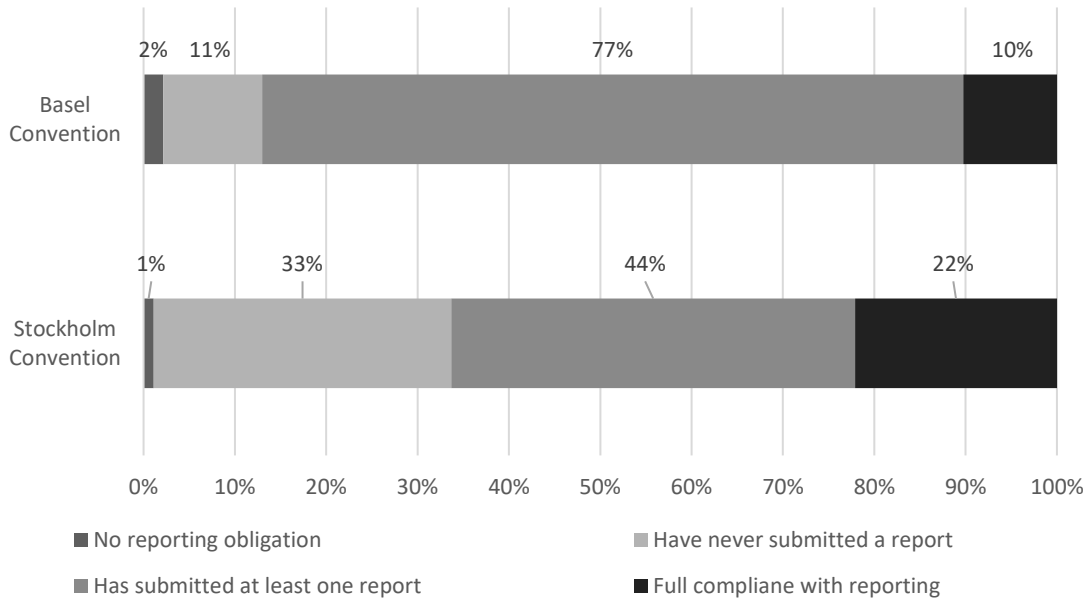
Agreement	Reporting obligation	Type of questions	Frequency	Indicators	Format	Display of information	Reporting rate ⁴	Review
Persistent Organic Pollutants of the Convention on Long-Range Transboundary Air Pollution	the Executive Body, on a periodic basis as determined by the Parties meeting within the Executive Body, information on the measures that it has taken to implement the present Protocol and information on the levels of emissions of persistent organic pollutants using, as a minimum, the methodologies and the temporal and spatial resolution specified by the Steering Body of EMEP.							towards achieving the obligations set out in the present Protocol and review the sufficiency and effectiveness of these obligations.

Analysis of national reporting in the Basel and Stockholm conventions

A key initial finding from a closer analysis of these conventions is that reporting rates are relatively low. Not all countries submit the national reports they are required to submit, and, of the ones that do, some delay submission inhibiting the prompt availability of data to assess performance. Also, not all reports are available online, and only in recent reporting cycles—particularly in the case of the Basel Convention—data has been collected through electronic reporting systems. In the Basel Convention, countries have reported on average 52% of the time they were required to report since 2001, while for the Stockholm Convention they have only fulfilled this obligation 44% of the time since 2002 (Basel Convention, 2016; Stockholm Convention, 2016).

Figure 4 illustrates the compliance with national reporting obligations in the Basel and Stockholm conventions for 2016. Only 19 countries (10% of the parties) have a 100% reporting rate for the Basel Convention. Most of them (15) are developed countries, but Bahrain, Madagascar, Malaysia, and Thailand are also part of this group. However, 20 countries (11% of the parties)—all of them developing—have never submitted a report. For the Stockholm Convention, only 40 countries (22% of the parties) have submitted all the reports they were required to submit, including the Central African Republic, Costa Rica, Mali, Nepal, and Sri Lanka, while 59 countries (33% of the parties) have never submitted a report.

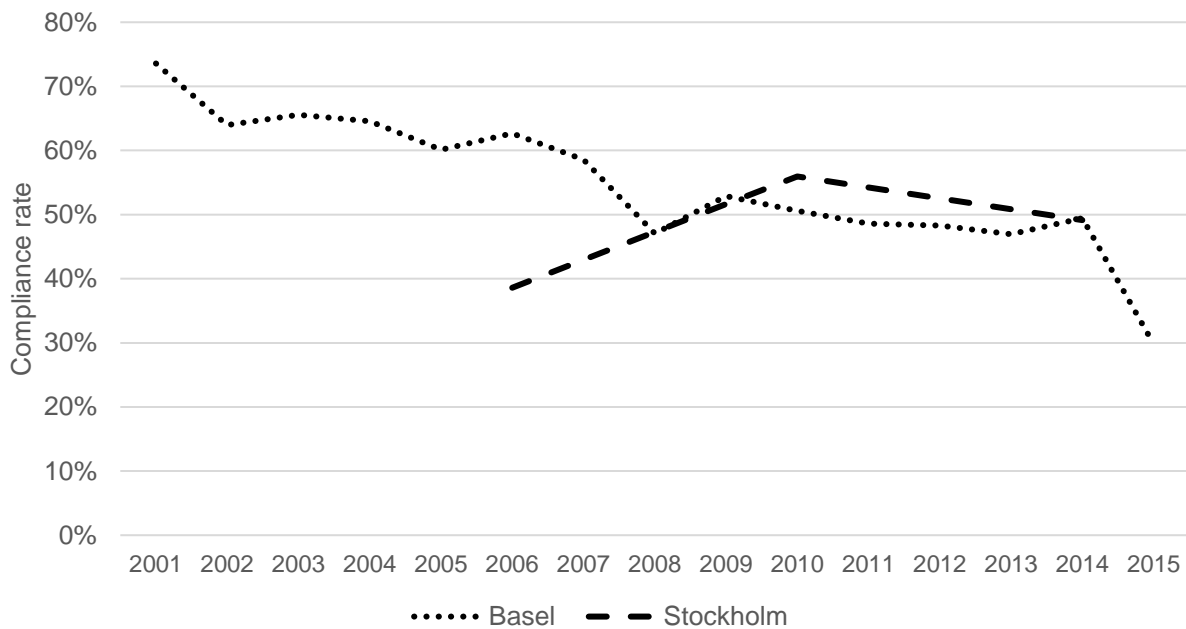
Figure 4 Compliance with national reporting obligations in the Basel and Stockholm conventions



Source of data: (Basel Convention, 2016; Stockholm Convention, 2016)

Historical analysis of reporting behavior illustrates a key challenge – low (and even decreasing) reporting rates over time (See Figure 5). For the Basel Convention, the number of countries submitting a report each year has decreased from 74% in 2001 to 30% in 2015. The Stockholm Convention exhibits a more positive trend, with countries’ reporting increasing from 39% in 2002-2006 to 56% in 2006-2010 and 49% in 2010-2014. However, there is still a significant group of countries for which data is not available, and it includes both developed and developing countries.

Figure 5 Historical evolution of general compliance to national reporting obligations in the Basel and Stockholm conventions

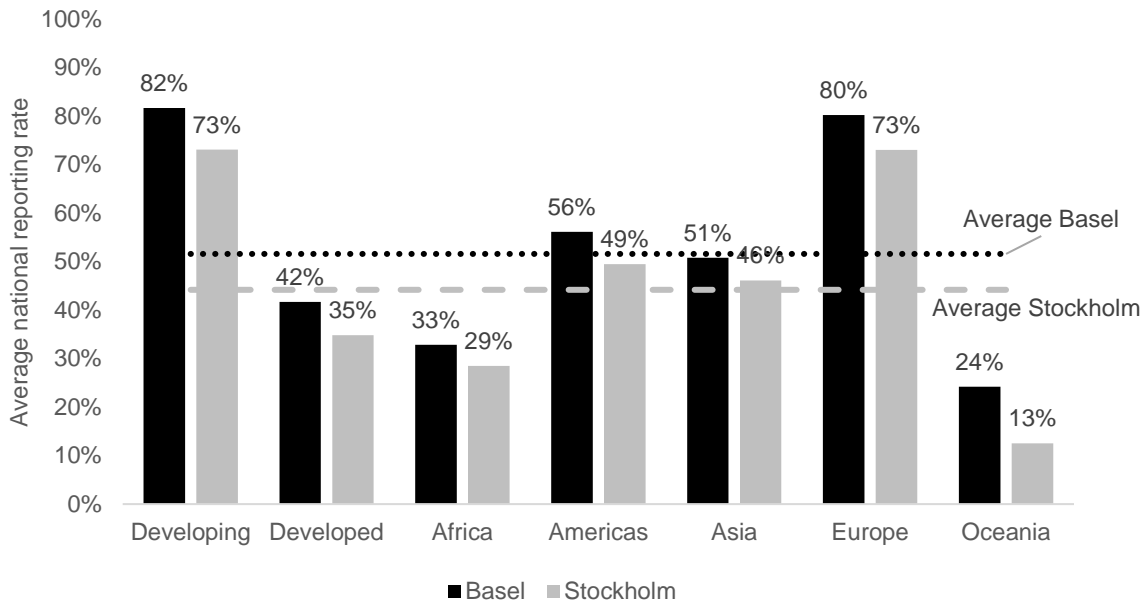


Importantly, reporting rates differ quite significantly for developed and developing countries. For the Basel Convention, the average national reporting rate for developed countries (82%) is almost twice as high as that for developing countries (42%). In terms of regions, Europe obtains the best results, submitting reports on average 80% of the time. Oceania, on the other hand, registers the lowest average national reporting rate (24%) (see Figure 6). Out of all the countries in that region that are state parties, only Australia and New Zealand have submitted reports since 2007. The Cook Islands, Papua New Guinea, and Samoa have reported less than 10% of the time, and Tonga and Palau have never submitted the reports they were obliged to since they joined the convention in 2010 and 2011 respectively.

For the Stockholm Convention, the average national reporting rate also differs between developed and developing countries. While for developed countries it is 73%, for developing countries it is only 35% (see Figure 6). Small islands in the Pacific and African countries fall short on this obligation. Out of 52 countries in Africa that are state parties to the Stockholm Convention, 22 have never submitted a report. Europe is the region with the highest average national reporting rate—73%.

The historical evolution of the compliance with the reporting obligations also differs across countries and regions. For the Basel Convention, the number of developed countries that submit reports has declined from 41 in 2001 to 22 in 2015, while for developing countries it has decreased from 62 in 2001 to 32 in 2015 (see Figure 7). Factors such as the lack of capacity at the national level and the frequency of the reporting cycles may explain this situation. In the case of the Stockholm Convention, however, trends differ. Both developed and developing countries have managed to increase the submission of national reports (see Figure 8).

Figure 6 Average national reporting rate by category of country and regions for the Basel and Stockholm conventions



There are still important gaps, however. In the last reporting cycle (2010-2014), 20% of developed countries and 60% of developing countries parties to the convention had not submitted reports as of December 31, 2016. Issues with the scientific information relevant to the management of POPs and technical capacity may cause non-compliance with this obligation. Furthermore, the historical trend of late submission for the reports to this agreement indicates that there is still a possibility for more countries to submit their reports, even two years after its original deadline (December 31, 2014). Interestingly, for both Basel and Stockholm, the number of countries submitting the reports has not changed drastically since 2009 and 2010 respectively, both in total and in the distribution among types of countries. Patterns for both regions and the average follow similar trends in the two conventions.

Figure 7 Evolution of national reporting compliance indicators for the Basel Convention

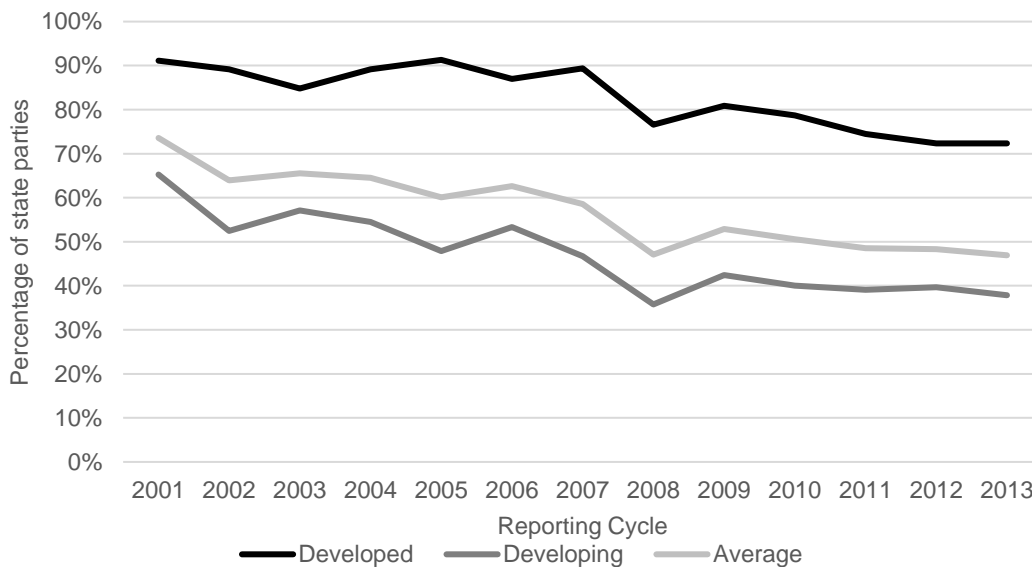
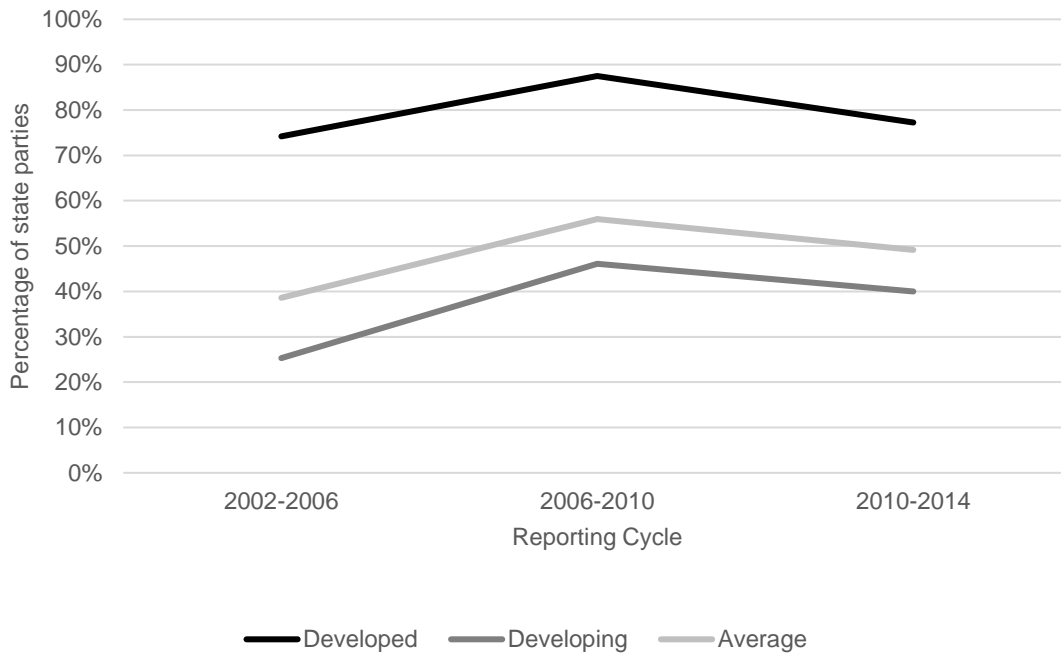


Figure 8 Evolution of national reporting compliance indicators for the Stockholm Convention



Reporting is a prerequisite to monitor and evaluate implementation. National reporting indicators as the ones presented above illustrate the characteristics of the reporting process, the challenges countries face in collecting the information and completing the reports, and the extent to which they impact the process of implementation. Analyzing and processing the information contained in national reports is essential to determine if countries have established the institutional, technical, and regulatory frameworks that will consequently contribute to the solution of environmental problems. If this information is not analyzed and processed, it will not be possible to determine the extent to which conventions are being translated into national policies. The next section addresses these issues.

Analysis of reporting under the Montreal Protocol

Statistical data on ozone-depleting substances (ODS) for national reports are submitted yearly to the UN Environment Secretariat of the Vienna Convention and its Montreal Protocol (Ozone Secretariat). The compliance of each country with its obligations under the Montreal Protocol is then determined. All Parties report data on the production, export, import and destruction of the nine groups of ODS regulated under the Protocol. Reporting obligations are also established by Meetings of the Parties, which require relevant countries to submit information on specific issues such as uses of ODS as process agents and as feedstocks; approved essential or critical uses; exempted laboratory and critical uses; and reclamation facilities and their capacities. In addition, Parties are required to report every two years on research, public awareness and information exchange activities.

To provide support for the implementation of the Montreal Protocol in developing countries, National Ozone Units (NOUs) have been established in these countries at government level. In addition to submitting ODS data to the Ozone Secretariat annually, NOUs collect data on the production, export, import and destruction of the nine groups of substances regulated by the Protocol. This information is submitted to the Secretariat of the Multilateral Fund for the Implementation of the Montreal Protocol, which continuously monitors activities at the project level. Monitoring of projects involves periodic

reporting to gauge a project's progress or lack of it. Projects experiencing delays and those with financial balances are monitored particularly closely and reported on to each Executive Committee meeting (Multilateral Fund for the Implementation of the Montreal Protocol, 2018).

Beginning in 1990, and at least every four years thereafter, Assessment Panels prepare quadrennial reports on available scientific, environmental, technical and economic information. The Panels present these reports to the Parties to enable them to take informed decisions, with a view to strengthening the Protocol's control measures. There are currently three Panels: the Scientific Assessment Panel, the Technology and Economic Assessment Panel, and the Environmental Effects Assessment Panel. At least one year before each quadrennial assessment, the Parties set out in a decision the terms of reference for the assessments to be prepared by the Panels.

This well-considered preparatory process, and the effective performance of the NOUs, could be responsible for the high rate of compliance of the Parties to the Montreal Protocol with the reporting obligation. There has been a 100 per cent level of compliance with the reporting obligations since 1989, when the Protocol entered into force.

Analysis of reporting under the ILO conventions: C-170 and C-174

Reporting is to be carried out on a five-year cycle basis with respect to both ILO Convention C170 concerning Safety in the use of Chemicals at Work, and ILO Convention C174 on Prevention of Major Industrial Accidents. Normally, the reporting format is built around the convention text. Parties are asked to specify actions taken by answering open-ended questions targeting relevant obligations. The reporting formats specify that in the first report full information should be given on each of the questions and each of the provisions of the convention. In subsequent reports information needs to be given only on new measures taken and questions concerning the practical application of the convention and on the communication of the report to the representative organizations of employees and workers and any observations received from these organizations. In addition, the reports must contain responses to possible comments by ILO supervisory bodies. The web-based Information System on International Labor Standards (NORMLEX) consists of country profiles with information of reports submitted on ILO conventions, but the reports cannot be accessed online.

Reporting under the ILO conventions is covered by two bodies: The Committee of Experts on the Application of Conventions and Recommendations (CEACR) and the Committee on the Application of Standards (CAS). CEACR consists of independent legal experts that meet once a year and provides comments, observations or direct requests on points of non-conformity; it also makes direct request for more information. It examines national reports and provides direct feed-back to countries if it considers that further action is needed to give effect to certain provisions of the conventions. CEACR also expresses its satisfaction of positive actions taken in response to comments and to provide an example for other countries to address similar issues. The input from CEACR feeds into the Committee on the Application of Standards (CAS), a subsidiary body of the International Labor Conference, which discusses how reporting obligations are fulfilled by countries and addresses serious cases of violation. Compliance with reporting for ILO conventions is in general low: 38.2 % in 2017. In repeated cases of failure with reporting, countries' names appear in CEACR and CAS reports. Since 2017, the Office has started sending letters to member states that have failed to report to remind them of their reporting obligations.

Analysis of reporting under the International Health Regulations (IHR)

Governments adopted the International Health Regulations in 2005 and they entered into force in 2007. Countries had a five-year period to put in place core capacities. The initial reporting framework consisted of 20 indicators including four performance levels on a continuum of progress. The goal was for countries to achieve levels 1 and 2 by June 2012 for all indicators. Implementation, however, was not complete and countries could request extensions to 2014 and 2016 provided they developed an IHR implementation plan. They could also ask for technical assistance from WHO to implement the plan.

As of 2018, countries have agreed to using the new State Party Self-Assessment Annual Reporting Tool, which requires them to report on 24 indicators in developing 13 core capacities (WHO 2018a). Each indicator is graded on five performance levels. Each indicator lists five activities (or attributes) with different capability levels indicated in a check-list format, which needs to be assessed and filled according to activities taken at the country-level. Attainment of a given capability level requires that all activities at lower levels are in place. It is a prerequisite to have all the activities for level 1 to examine the activities at level 2. The goal is to maintain level 5 for all 24 indicators. The level of achievement for each indicator is determined in the countries through workshops with stakeholders and reported annually. The reports provide the status in implementing the IHR at a point in time and progress over time in developing the core capacities.

Reporting for the IHR is high, reaching over 80% in 2017, with 100% reporting rate from African countries. This is likely due to the fact that the WHO follows up directly with countries that have not reported either through its headquarters or the relevant WHO Regional and Country Offices depending on specific regional arrangements. Countries that have not reported are mentioned in the WHA report putting peer-pressure on them to report in the next reporting round. In addition, WHO staff follow up with country delegations that have not reported, which often triggers immediate action and increases reporting the following year. Because of the involvement of senior officials in country delegations, i.e. country delegations are normally headed by the minister of health, non-compliance with the IHR is considered at a high political level.

The IHR Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation (WHA 68/22 Add.1) recommended “to move from exclusive self-evaluation to approaches that combine self-evaluation, peer review and voluntary external evaluations involving a combination of domestic and independent experts.” To this end, a Joint External Evaluation (JEE) framework has been developed to provide independent analysis of countries’ capacity to prevent, detect, and respond to public health threats. Interested countries can request a JEE mission to help them identify the most urgent needs within their health system (WHO 2018b). The first edition of the JEE tool was made available in February 2016 and by the end of 2017, 67 countries had requested a JEE and completed the voluntary evaluation using this tool.

As of May 2018, 76 JEEs had been conducted at a cost of approximately \$70,000 per mission. These costs cover travel and sometimes some local costs but external experts do not receive salary and all the preparatory work in the countries is not paid for either. JEEs are voluntary and help countries identify the most critical gaps to prioritize opportunities for enhanced preparedness and response. JEE mission reports are available online.⁵ The executive summaries of the JEEs provide an overview of the country’s strengths, challenges, and the proposed and/or agreed next steps toward increasing IHR core capacities.

⁵ <http://www.who.int/ihr/procedures/mission-reports/en/>

2.3 SAICM and other non-binding mechanisms

Paragraph 24 of the JPOI states that the International Conference on Chemicals Management will undertake periodic reviews of SAICM and seeks to “receive reports from all relevant stakeholders on progress in implementation and disseminate information.” In 2009, ICCM2 adopted modalities for reporting based on 20 indicators to review progress towards the 2020 goal (UNEP, 2009). These indicators were developed to cover the objectives of the Overarching Policy Strategy and relevant activities (rather than results). The questionnaire contains a mixture of mandatory and optional questions with at least one mandatory question for each indicator. Most of the mandatory questions include a list of relevant activities alongside a series of 'check-boxes.' The same questionnaire applies to all stakeholders, including governments, intergovernmental organizations, and NGOs. The 20 indicators were adopted with the understanding that impact indicators would need to be developed to assess the effectiveness of control measures, including the concentration of chemicals in the environment and in humans.

To date, two reporting rounds for SAICM have been completed for which information is available: 2009-2010 and 2011-2013. The reporting rates for both reporting rounds have been relatively low. The first reporting round received submissions from 78 Governments, 11 IGOs and 19 NGOs (including five private sector organizations) (SAICM 2012). Whereas, the second reporting round received submissions from 83 governments, 5 IGOs, 13 NGOs (including one private sector organization) (SAICM 2015a). Of the government responses, the overall response rate was 40 % for the first round and 43 % for the second round. Both reporting rounds had great regional variation, with under-representation of African governments (SAICM 2012, SAICM 2015a). The third reporting round for years 2014-2016 was carried out in 2017, but the results are not yet publicly available.

Box 2 SAICM activity-based indicators

- Number of countries (and organizations) implementing agreed chemicals management tools.
- Number of countries (and organizations) with mechanisms to address key categories of chemicals.
- Number of countries (and organizations) with hazardous waste management arrangements.
- Number of countries (and organizations) engaged in activities that result in monitoring data on selected environmental and human health priority substances.
- Number of countries (and organizations) having mechanisms in place for setting priorities for risk reduction.
- Number of countries (and organizations) providing information according to internationally harmonized standards.
- Number of countries (and organizations) that have specific strategies in place for communicating information on the risks associated with chemicals to vulnerable groups.
- Number of countries (and organizations) with research programmes.
- Number of countries (and organizations) with websites that provide information to stakeholders.
- Number of countries (and organizations) that have committed themselves to implementation of the Strategic Approach.
- Number of countries (and organizations) with multi-stakeholder coordinating mechanism.
- Number of countries (and organizations) with mechanisms to implement key international chemicals priorities.
- Number of countries (and organizations) providing resources (financial and in kind) to assist capacity-building and technical cooperation with other countries.
- Number of countries (and organizations) that have identified and prioritized their capacity building needs for the sound management of chemicals.

- Number of countries (and organizations) engaged in regional cooperation on issues relating to the sound management of chemicals.
- Number of countries where development assistance programmes include the sound management of chemicals.
- Number of countries (and organizations) with projects supported by the Quick Start Programme (QSP) Trust Fund.
- Number of countries (and organizations) with sound management of chemicals projects supported by other sources of funding (not QSP funding).
- Number of countries having mechanisms to prevent illegal traffic in toxic, hazardous and severely restricted chemicals individually.
- Number of countries having mechanisms to prevent illegal traffic in hazardous waste.

The underlying assumption of reporting is that progress results from more stakeholders carrying out activities of the survey's multiple-choice responses, with the 2020 goal being met when all stakeholders conduct all the activities (SAICM 2015a). However, this does not provide reliable information on progress for many reasons. First, for some activities that are periodic rather than ongoing (e.g. indicator 11 on establishing committees or indicator 14 on updating the national plan) respondents may not select activities in a given reporting period, if they reported it in a previous period. Second, the activity-based questions may be fairly subjective and open to variability in responses through changes in personnel. Lastly, regions have taken different strategies for meeting the 2020 goal giving more attention to specific indicators.

The second progress report identified some gaps in the indicators, including illegal national trade (such as through informal markets), the extent of national funding for chemicals management through government budgets and ODA and the use of non-chemical alternatives and agroecological approaches. The report recommends updating indicators relating to periodic activities (e.g. indicators 1, 11 and 14) and those that are not universally applicable (e.g. indicators 9, 13, 16 and 17). It also recommends providing additional support to respondents in the form of guidance or pre-filling surveys to increase the reporting rate and to ensure more consistency between reporting periods. Lastly, it recommends complementing activity-based indicators with objectively verifiable results-based indicators, which quantify reductions in health and environmental impacts of chemical use.

An independent assessment of SAICM 2006-2015 was commissioned by ICCM4 and a preliminary draft was available at the second meeting of the SAICM Intersessional Process considering the Strategic Approach and sound management of chemicals and waste in March 2018 in Stockholm, Sweden (SAICM, 2018b). The draft assessment reiterates many of the challenges observed in the SAICM progress reports. It also points out the challenge of interpreting information from governments vis-a-vis non-government stakeholders raising the question of restricting the online survey to government national focal points with non-government stakeholders' information presented as complementary information. Results from an online survey carried out as part of the evaluation revealed that 59% of respondents considered that indicators of progress had been very effective or had had some effect in assessing progress towards the sound management of chemicals and waste. On a positive note, the indicators were considered user-friendly, simple and straightforward making possible to highlight areas of success and concern. However, equally shared was the recognition of the limitations of the indicators particularly that they are not able to monitor the effectiveness or impact of the activities that they are measuring.

Relationship between GPA, OOG, and the 20 IOMC indicators

SAICM, through its three main instruments, provides a multifold framework for action. The OPS includes five thematic objectives with 46 specific objectives. Whereas, the GPA includes 273 activities that have been grouped into 36 work areas. The two documents have a different status, as the former constitutes a negotiated outcome and the latter has not been formally adopted. Furthermore, the two documents do not match entirely content-wise, for example, the GPA includes many work areas, which are not covered by the OPS, such as those regarding integrated programmes, protected areas and contaminated sites. The lack of strategic focus, resulting from the multitude of guiding documents - with varying content, emphasis and status - has often been cited as one of the weaknesses of SAICM that has hampered implementation and follow-up of progress (Honkonen & Khan, 2017; Urho, 2018).

To date, ICCM – the governing body of SAICM – has held four sessions and adopted altogether 20 resolutions, which form important additional guidance for stakeholders. In 2015, ICCM4 endorsed the Overarching Orientation and Guidance for achieving the 2020 goal for sound management of chemicals (OOG) The OOG identifies eleven basic elements considered as crucial at the national and regional levels for achieving the sound management of chemicals and waste. Observers have remarked that the OOG is beneficial for stakeholders, as it consolidates the necessary elements of what is essentially an extremely broad plan encompassing 299 activities listed in the GPA (Honkonen & Khan 2017).

Evidently, the 20 indicators have been formulated with the view to cover the broad scope of the three main SAICM documents, which is reflected in the reporting questionnaire that lists almost 200 activities. The SAICM Secretariat has prepared an initial analysis comparing the OOG with 20 SAICM indicators and other relevant indicators, including SDG indicators, IOMC indicators and GPA indicators (SAICM 2017). In essence, the analysis consists of a cross-mapping of the different indicators systems that has been developed, underlining the complexity of the system for keeping track of progress in the existing vast indicator landscape. Most importantly, the 20 SAICM progress indicators vis-à-vis the 299 GPA indicators provides contradictory guidance for following progress.

The IOMC organizations have an important role in SAICM, since 80% of the activities of the GPA make reference to the involvement of IOMC organizations (SAICM 2015b). In 2015, the IOMC proposed the introduction of a set of indicators that would help relevant IOMC organizations to track progress in 10 areas by analyzing data from verifiable sources and for which global data are available (SAICM 2015b). These indicators are intended to provide additional information to complement data provided through reporting, which has considerable gaps due to low reporting rates that impairs comprehensive global follow-up. The indicators are in use and are published on the IOMC website (WHO, 2010). The data will be provided by IOMC to the SAICM secretariat to supplement the SAICM secretariat's third progress report. Some of the IOMC indicators have been included in the SDG indicator framework, namely IOMC indicator 10 regarding the number of parties to the BRSM conventions (SDG indicator 2.4.1) and IOMC4 regarding number of countries that have achieved core capacities for chemicals under the IHR (SDG 3.d.1). The IOMC indicators address 'inherently' SAICM activities, but also a number of other voluntary and legally-binding agreements, as indicated in

Table 6. The table shows linkages to GPA activities and to the 11 basic elements of the OOG.

Table 6 IOMC Indicators and linkages to other policy instruments

IOMC Indicator	Inherently SAICM	Other vol. agreement	Binding agreement	Link to GPA	Link to OOG
1. Number of countries with National Profiles	x			1, 207, 211	4,5
2. Number of countries implementing GHS		x		22, 99-101, 168, 248-250	3,5
3. Number of countries with a Pollutant Release and Transfer Register (PRTR)	x			124-126, 177-180	10
4. Number of countries with poison centers	x			35, 221, 237	9, 10
5. Countries with controls for lead in decorative paint	x			57	2, 8 ,10
6. Number of countries that have achieved core capacities for chemicals under IHR			x		2
7. Number of countries with pesticide legislation referencing or based on the International Code of Conduct on Pesticide Management		x		23, 31, 189	3
8. Number of countries with effective pesticide evaluation and registration system and/or participating in a regional scheme	x			32	1
9. Number of countries addressing Highly Hazardous Pesticides (HHPs)	x			27-30, 114-117	1, 2, 3
10. Number of Parties to the BRSM conventions			x	169	3

3 Implementation of the 2020 Goal: What do we know?

This section aims to provide examples of progress in fulfilling the legally-binding conventions, SAICM and other voluntary instruments concerning sound management of chemicals and waste. Many areas of progress have been exemplified with global progress maps, where information is available. However, comprehensive information on progress is scarce due to the generally low reporting rates of the examined chemicals and waste instruments. To this end, an integral source of the progress maps used in this section are developed by the IOMC organizations and are based on the ten IOMC indicators presented in 2015 for ICCM4. Despite the fact that they have not been formally adopted the indicators provide useful information to complement reporting data as they draw from existing sources of information providing a comprehensive view of progress on selected topics and in attaining the 2020 goal. In addition, other global progress maps and other sources of information have been presented and discussed below.

3.1 Implementation of conventions

International environmental agreements operate in a system without hierarchical authority and there is no direct effort to enforce them. The existing literature offers no definitive arguments or evidence about the extent to which these agreements are being implemented. While some experts argue that conventions are effective instruments, others contend that they are not able to resolve the problems they were designed to address and are highly dependent on countries' capacity, political will, and

resources (Brown-Weiss & Jacobson, 1998; Haas, Keohane, & Levy, 1993). Measuring the actions of member states is critical to tracing the impact of the international conventions. To this end, it is necessary to understand the extent to which state parties are ‘domesticating’ the conventions, complying with the expectations as signatories, and adopting regulations to facilitate implementation. In the chemicals and waste regime, national laws need to be enacted to comply with international requirements. National action in the appointment of focal points and other institutional, legal and strategic arrangements is also necessary.

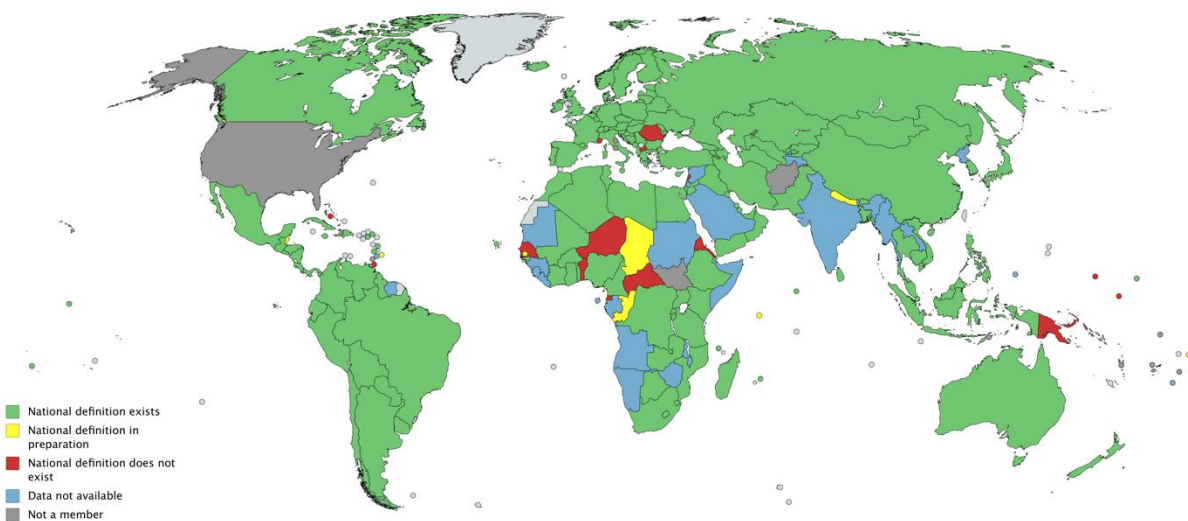
A preliminary assessment indicates that the implementation of the global conventions related to chemicals and waste evidences some challenges, including compliance with national reporting, development of national policies, and reducing the export of chemicals. Since data are incomplete, however, additional information is necessary to evaluate the extent to which the conventions effectively address the threat of chemical pollution and its effects on human health and the environment. Furthermore, additional assessments are necessary to evaluate the extent to which the conventions are managing the substances they cover through the establishment of mechanisms and institutions, and the definition of “high priority substances” for countries to establish national policies and baselines (UNEP, 2013a). Existing disparities in the implementation across types of countries and across regions call for “chemicals policy instruments and approaches that are appropriate to the economic conditions and strategies” of specific countries (UNEP, 2013a).

Basel Convention

In the case of the Basel Convention, the level of implementation can be measured across specific countries and regions. While on average developed countries obtain better results than developing countries in the implementation of their international environmental obligations in the management of hazardous wastes, a detailed analysis of individual country performance shows that countries such as Colombia, Madagascar, Algeria, Ecuador, Indonesia, Rwanda and Nigeria are achieving important progress in this area.

Figure 9 illustrates the extent to which countries have fulfilled their obligation regarding the existence of a national definition of hazardous waste. Furthermore, the level of implementation has consistently improved since 2001, in a similar trend for developed and developing countries, with regions such as Latin America and the Caribbean, for example, showing important progress. However, evidence from other developing countries shows the importance of state capacity and resources to the implementation of global environmental conventions. Fifteen countries, most of them developing, have reported that they still have not fulfilled the basic obligation under the Basel Convention to develop a national definition of hazardous waste. Six of them are located in Africa. Furthermore, there is no data for 25 of member states of the Basel Convention and 12 of them are located in Africa.

Figure 9 Basel Convention Implementation – Existence of a national definition of hazardous waste

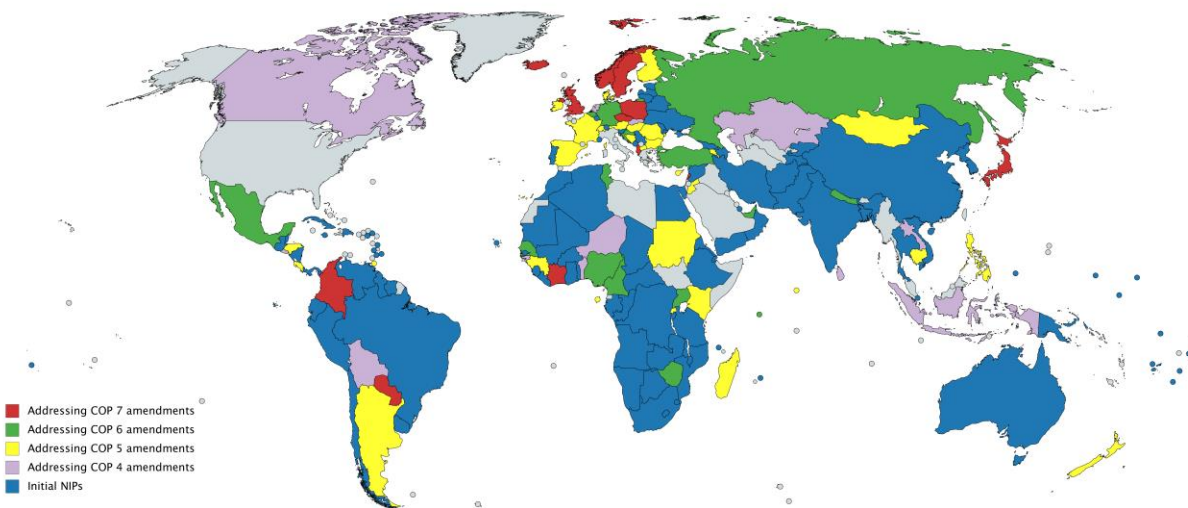


Stockholm Convention

Monitoring progress on these commitments, however, is not is not an easy task, but certainly a worthwhile investment. The Stockholm and Minamata conventions have developed a periodic effectiveness evaluation to provide feedback to understand if the conventions are on track to deliver their intended objectives. Article 7 of the Stockholm Convention obliges parties to develop and periodically update National Implementation Plans (NIPs) for the implementation of the obligations under the convention. NIPs should provide information about all the measures taken with regard to POPs such as legislative and policy measures, preparation of action plans and setting up monitoring schemes related to the occurrence and releases of POPs, and efforts to reduce their environmental concentrations. To date, 91% of parties have submitted NIPs covering the twelve initial POPs (Secretariat of the Stockholm Convention 2017a). NIPs are intended to be 'living documents' and to be periodically updated as the convention evolves and new substances are listed in the annexes. However, since 2011, only around one quarter of NIPs have been updated to reflect the inclusion of new substances (Secretariat of the Stockholm Convention 2017b).

Figure 10 shows the current global status of the preparation of NIPs, including if they address amendments made in COPs 4-7.

Figure 10 Number of countries with NIPs under the Stockholm Convention



In the process of promoting implementation and guaranteeing compliance, chemicals conventions also established specific institutional mechanisms. The Basel and the Minamata Convention for example, have implementation and compliance committees as subsidiary bodies of the Conferences of the Parties, with the mandate of assisting countries to comply with the different obligations established by each agreement and to “facilitate, promote, monitor and aim to secure” implementation (UNEP, 1989, 2013b). These committees have an established programme of work that reviews the general issues of compliance and implementation under each agreement. Another instrument is the definition of effectiveness evaluations. The Stockholm Convention, for example, requires in its Article 16 that the parties conduct regular evaluation of the measures adopted.

The effectiveness evaluation of the Stockholm Convention is operational and has been carried out twice: in 2009 and 2017. It draws from many sources of information, including reporting, national implementation plans, monitoring data, and non-compliance information. The evaluations have concluded how the convention “provides an effective and dynamic framework to regulate POPs throughout their lifecycle, addressing the production, use, import, export, releases, and disposal of these chemicals worldwide” (Stockholm Convention, 2017b). In addition, the evaluation identified that the Convention has put in place the mechanisms required to support parties. Results on the monitoring of POPs evidence important reductions in the level of POPs in the environment for those listed in 2004, and initial decreases for the newly listed ones. However, inadequate implementation is still a key issue and further work is required to create the procedures and mechanisms to support countries on compliance and to address the challenge of the limited reporting and availability of data in the national reports and national implementation plans. The effectiveness evaluation is conducted in partnership with the Conventions’ Regional Center, the WHO, the Arctic Monitoring Assessment Programme (AMAP), and UN Environment.

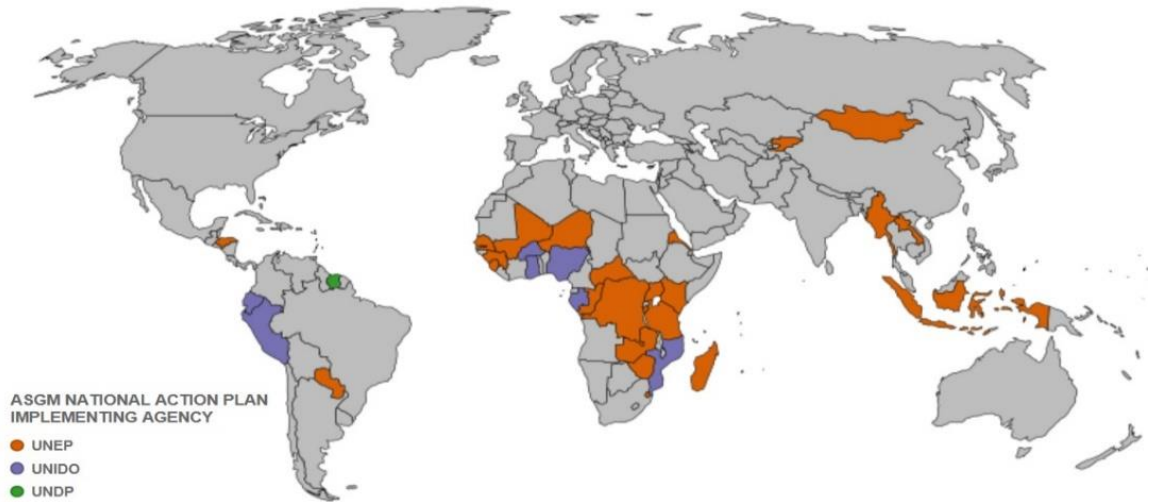
The Minamata Convention established similar measures for an effectiveness evaluation and has been working with experts from around the world representing parties, civil society, intergovernmental organizations, indigenous communities and industries in the development of a framework for the effectiveness evaluations and the arrangements for comparable monitoring data collection.

The Global Monitoring Plan (GMP), an initiative established to offer state parties a harmonized framework for data collection and monitoring on the presence of POPs, forms the backbone of the effectiveness evaluation, since it provides information on trends in the occurrence of POPs in human matrices and the environment. The first GMP report (2009) provided information on baseline concentrations for 12 legacy POPs, whereas the second report (2017) provided the first indications of changes in concentrations of legacy POPs, as well as baseline information on the newly listed POPs. Results are also exemplified by the convention’s monitoring of the presence of polychlorinated biphenyls (PCBs) since one of the objectives established by the convention is to detoxify the planet from these substances, so that the last remaining routes of exposure, including contaminated equipment and PCBs waste, will be eliminated by 2028.

The Minamata Convention

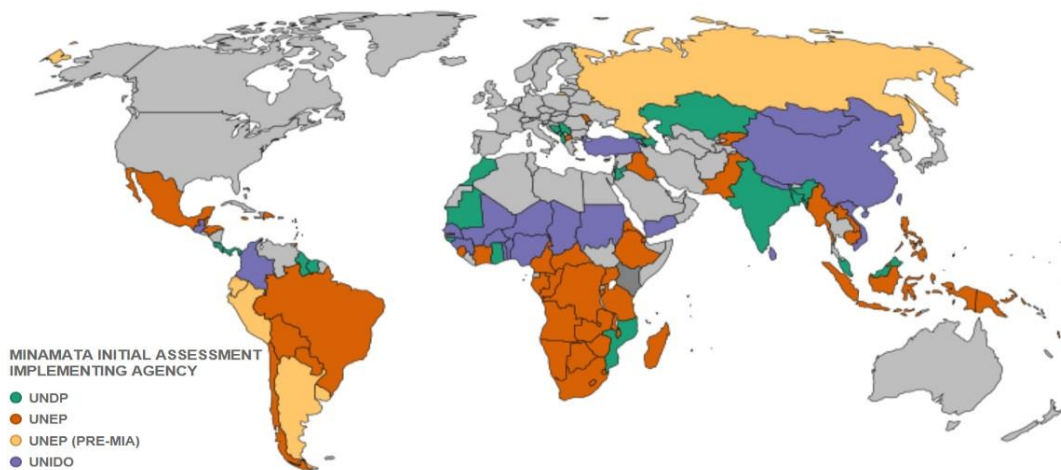
The Minamata Convention, the newest agreement in the chemicals and waste regime, requires countries to develop National Action Plans (NAPs) for artisanal and small-scale gold mining, an activity that constitutes one of the main sources of anthropogenic emissions of mercury. Figure 11 shows countries that are implementing NAPs on artisanal and small-scale gold mining. The Global Environment Facility (GEF) supports parties to the Minamata Convention in the implementation of the Minamata Initial Assessments (MIAs) including a series of enabling activities to strengthen national capacity toward ratification of the convention and to build national capacity for implementation of future obligations (UNDP 2017). Figure 12 shows countries that have undertaken MIAs with indication of the lead implementing agency.

Figure 11 Countries with National Action Plans for Artisanal and Small-Scale Gold Mining



Source: (UNEP, 2018)

Figure 12 Countries that have undertaken Minamata Initial Assessments (MIAs)



Source: (UNEP, 2018)

Rotterdam Convention

Another indicator that reflects the extent to which countries are achieving results on the objectives they have established comes from the Prior Informed Consent (PIC) scheme under the Rotterdam Convention. The Rotterdam Convention has contributed to the establishment of key parameters for the trade of hazardous substances, and it constitutes a massive effort for the transfer of information to developing countries. The convention requires the exporting party to receive prior consent from an importing party before exporting a regulated chemical. The PIC Circular is a report prepared by the secretariat every six months with information on new import responses provided by the parties and all valid notifications for each of the chemicals subject to the PIC procedure. In addition, the convention has created the policy space to collaborate with other organizations such as the World Customs Organization and the Globally Harmonized System of Classification and Labelling of Chemicals to facilitate trade on hazardous substances and materials. However, as the PIC procedure has evolved,

there are challenges for the effective implementation of the regulations established by these agreements.

Regarding its implementation, it is estimated that the overall response rate to the voluntary mechanism has been only 50% (Selin, 2010). Challenges include financial and technical capacity to manage customs systems, and to review all the requests for imports and control them. The convention also requires an effective compliance mechanism. The success on the implementation of the Rotterdam Convention also depends on the inclusion of substances on the chemicals review mechanisms. Those have become very vulnerable to political concerns and to influence from industry organizations and environmental NGOs. The convention also creates possible contestation with other governance mechanisms such as the regulations of the World Trade Organization.

As the chemicals and waste conventions advance in the process to develop joint, synergistic operations at the global and national levels, it is important to determine the extent to which countries are following the guidance and objectives established by the conventions. Greater cooperation and coordination between the chemicals and waste conventions provide an opportunity for capacity building, knowledge transfer, enhanced awareness, and efficiency as well as for improved implementation of the conventions and of the SDGs.

The chemicals and waste conventions also establish measures to support and control the process of implementation. These include a series of initiatives in areas such as technical assistance, e-learning, the establishment of financial mechanism, public awareness, the design and availability of resource kits to support parties in the definition of national legislation, and specific chemicals or activities-based programs that have a limited scope such as the Basel Convention e-waste program of the Chemicals Weapons Convention implementation kit for the definition of national legislation. An example that refers to the collaboration among conventions and other international conventions comes from the BRS conventions International Trade Control Measures designed to establish set conditions and procedures to be followed for the import and export of the substances and wastes covered by these agreements.

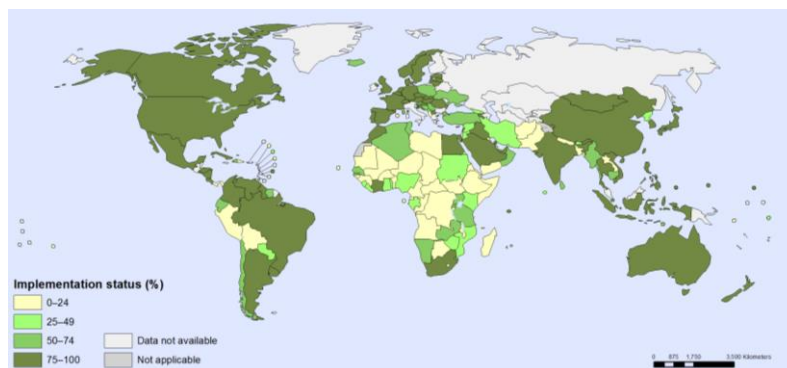
The national reports templates follow up with state parties on some of these measures. For the Basel Convention, for example, countries are expected to report on the status of the control procedure for the transboundary movement of waste, including the use of the notification and movement document forms and any additional requirements in addition to those established by Annex V of the convention. In the case of the Stockholm Convention, countries should report on measures for the management of PCBs, including measures to reduce or eliminate releases from stockpiles and wastes.

WHO's International Health regulations

The International Health Regulations (IHR) requires monitoring the development and implementation of 13 core public health capacities to detect, assess, notify and report events, and respond to public health risks and emergencies of national and international concern. Core capacity 12 covers specifically the detection and alert of chemicals events, including emergencies arising from technological incidents, natural disasters, deliberate events and contaminated foods and products (WHO 2018a). Other capacities include legislation and policies, preparedness planning and response for chemical events including emergencies, and strategic coordination. 9 shows the development of core capacities for chemicals under the IHR in 2016. The implementation status is shown across four levels with 59 countries (30%) having achieved the highest level – 75-100 – whereas 17 countries (9%) score at the

second level, 23 countries (12%) at the third level and 27 countries (14%) have achieved the basic level. 67 countries (35%) lack data.

Figure 13 Countries with core capacities for chemicals under the International Health Regulations



Source: (WHO, 2017b)

3.2 Progress in implementing SAICM

SAICM’s multi-stakeholder nature engages governments, international organizations, NGOs, the private sector, academia, and other stakeholders on equal footing in implementation and follow-up. The GPA specifies stakeholders expected to deliver each of the activities. This provides strategic focus to implementation and follow-up as all stakeholders have specific roles.

Results from the SAICM progress reports

The second progress report of SAICM identified the absence of important issues from the existing set of indicators, including illegal trade, such as through informal markets, the extent of national funding for chemicals management through government budgets and ODA, and non-chemical alternatives and agroecological approaches. However, five indicators ('Rio markers') exist to monitor bilateral ODA for environmental purposes within the OECD covering environment, biodiversity, desertification, and climate change adaptation and climate change mitigation (OECD 2018). The OECD could track the level of ODA in support for sound chemicals and waste management. A comparison between the first and second progress reports shows an increase of around 10% in the number of specific activities selected under all indicators by all stakeholders. However, a decline in the number of activities reported for all Least Developed Countries (LDCs) was discovered, possibly “indicating that the gap in chemicals management capacities is widening rather than narrowing” (SAICM 2015a).

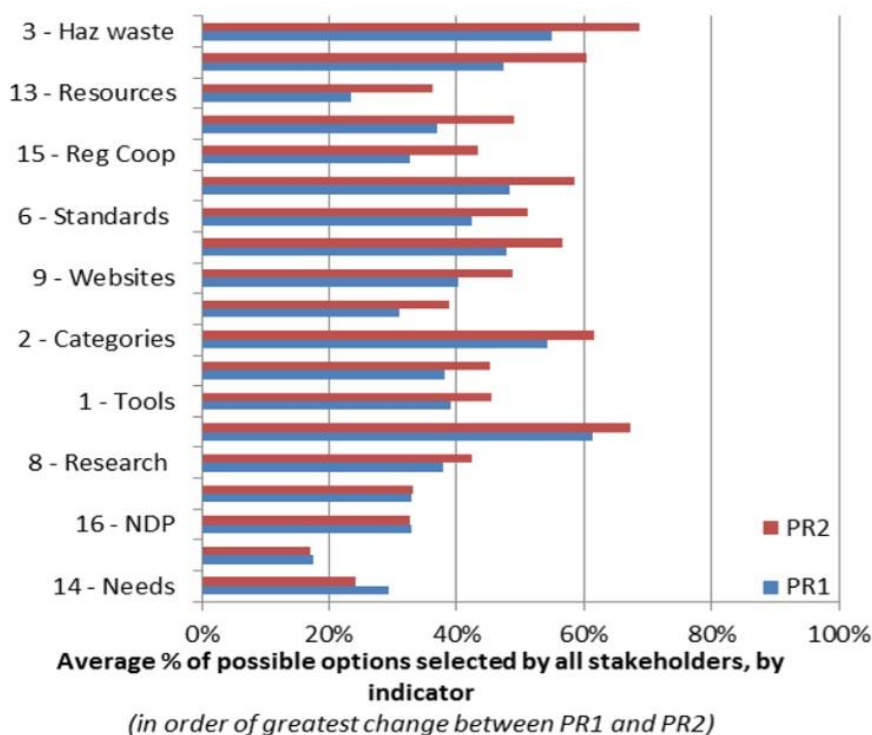
The progress reports of SAICM show that the efforts of most countries focus on obligations stemming from legally binding instruments, in particular for the Montreal Protocol, the Stockholm Convention, and the Basel Convention. Countries also report a high degree of activity on mechanisms to address pesticides and mercury, monitoring activities and national chemicals safety committees. The least commonly selected activities relate notably to accessing finance.

Figure 14 **Error! Reference source not found.** shows changes in selected SAICM indicators comparing results for 2009-2010 and 2011-2013. The biggest increase observed in the number of activities selected was in indicator 3 on hazardous waste arrangements, 12 on implementation of international chemicals tools (conventions), 20 on illegal waste, and 5 on numbers of mechanisms for prioritizing key chemicals.

By contrast, small reductions in the average number of selections are observed in accessing non-QSP sources of finance, and prioritization of capacity building needs (SAICM 2015a).

The figure shows the average number of activities chosen for each indicator as a percentage of all possible activities listed for the given indicator. More precisely, each indicator is composed of sub-questions (which all list activities) and the score given for each indicator is the average for the sub-questions of each indicator.

Figure 14 Selected SAICM indicators comparing results for 2009-2010 and 2011-2013



Source: (SAICM, 2014)

Preliminary findings from the independent evaluation of SAICM 2016-2015

In 2016, SAICM started an independent evaluation for progress at the national and the global level, with the objective of collecting data that informed decisions for its strategic approach and the sound management of chemicals and waste beyond 2020. The evaluation departed from the multi-stakeholder nature of the SAICM approach and took under consideration the progress made in the different pathways for impact in the period 2006-2015. Preliminary findings of the evaluation were presented to the Second Meeting of the SAICM Intersessional process considering the Strategic Approach and the sound management of chemicals and waste beyond 2020, that took place in Stockholm (Sweden) in March 2018.

In summary, the evaluation recognizes the unique and ambitious nature of the “multi-stakeholder, multi-sector voluntary global policy framework” established by SAICM as a policy space for cooperation, coordination and discussions on the management of chemicals through their life cycle. In this context, the overarching objective of knowledge and information sharing has been essential to collaborate with different stakeholders and sectors and disseminate information to national focal points. Institutional collaboration at the national level has also been critical to achieve some of SAICM other overarching objectives including the reduction of risks and the definition of governance regulations.

The evaluation also highlights SAICM’s success in the identification and definition of actions regarding the emerging policy issues that the strategic approach has defined. Among them, the assessment recognizes the efforts regarding the management of lead in paint and the work of UNEP and the WHO to support governments in the definition of legally binding restrictions to the use of this material.

However, challenges are also highlighted. The under-capacity of the SAICM secretariat affects the fulfillment of some of its mandated functions, including the establishment of an information-clearing house. Additional indicators also need to be defined, since they are not sufficient to measure the impacts on health and the environment from SAICM-related activities. Furthermore, the SAICM model is highly dependent on national capacities and resources at the focal point level, which are often minimized by the lack of cooperation among authorities and by constraints in the flow of information. SAICM also still needs to work to address the issue of illegal international trade, since counterfeit pesticides, trade in mercury, e-waste dumping, and the smuggling of prohibited chemicals are some of the issues that still require action, public awareness and increase capacity from international trade and customs authorities.

Regional perceptions about the success and gaps in SAICM implementation also vary. While all regions identify specific aspects in which the strategic approach has managed to impact the chemicals management, areas that still require action are different. While in Africa the region still needs to make progress in the management of agrochemicals, mercury and POPs, the Asia Pacific countries need to balance the challenges of urbanization and industrialization, and the Pacific Islands are particularly vulnerable to contamination of fish stocks.

Progress maps on selected topics

The Global Plan of Action of SAICM specifies the need to develop National Profiles in numerous activities (1, 165, 166, 207 and 211). UNITAR’s revised guidelines for the development of national profiles specifies that the primary objective of national profiles is to develop an official national reference document providing a clear picture of the national legal, institutional, administrative, and technical infrastructure for national chemicals management (UNITAR 2012). National Profile development/updating is recognized as a key element of SAICM implementation plans. To date 118 countries have produced a national profile, and many have developed a second or third edition. The regional distribution of the preparation of National Profiles is as follows: Africa (40), Asia (24), CEE (17), LAC (24) and WEOG (13) (see Figure 15).

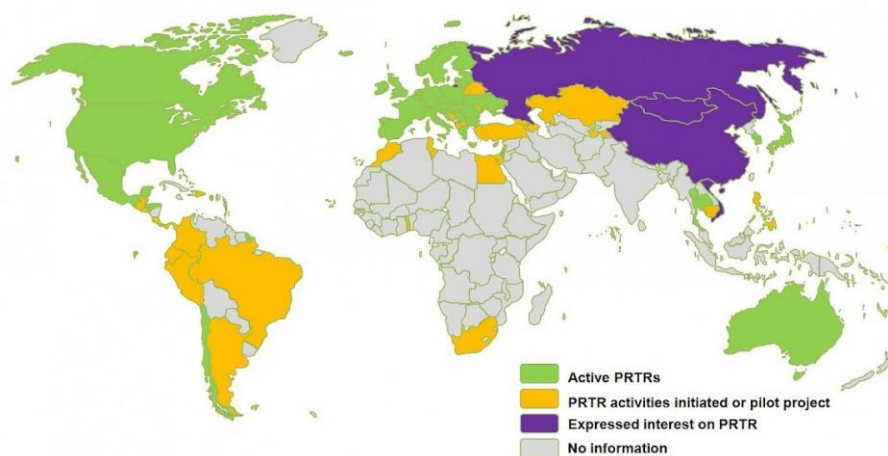
Figure 15 National Profiles to assess the chemicals and management infrastructure



Source: (UNITAR, 2007)

The SAICM GPA includes work areas for the development of Pollutant Release and Transfer Registers (PRTRs) reflected in activities 124–126 and 177–180. PRTRs are registers containing information on the releases and emissions from facilities into the environment and on transfers of a defined set of pollutants to other facilities. The information contained in a PRTR is generated through periodic reporting, usually on annual and mandatory basis, by the facilities responsible for the activities causing the releases and transfers. 6 shows the global status in the development of PRTRs.

Figure 16 National Pollutant Release and Transfer Registers

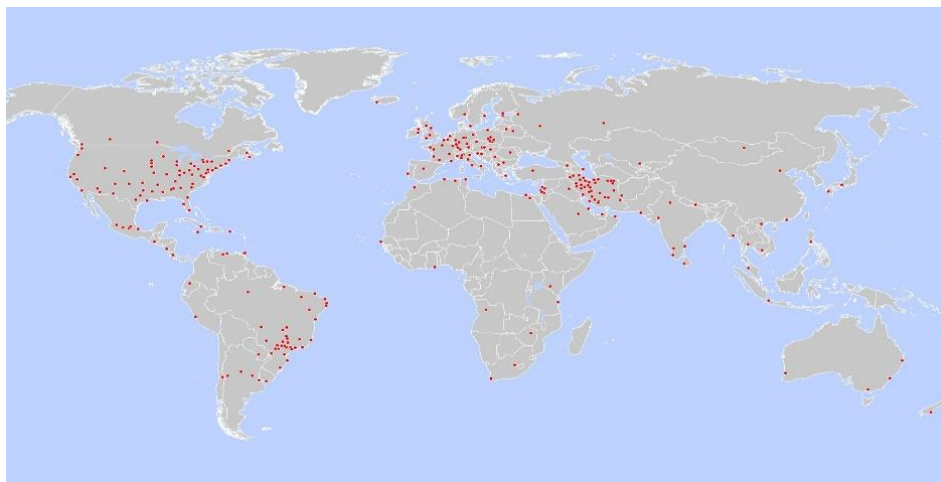


Source: (UNITAR)

Paragraph 9 of the Overarching Policy Strategy calls for strengthening “capacities to deal with poisonings and other chemical incidents” by establishing poisons centers as underlined in GPA activities 5, 35, 74, 221, and 23. A poisons center is a specialized unit that advises on, and assists with, the prevention, diagnosis and management of poisoning. Figure 17 shows the global distribution of poisons centers (as of September 2017). There has been limited progress in establishing poisons centers and only 46% of

countries have a poisons center, with the most notable gaps being in the African, Eastern Mediterranean, and Western Pacific regions.

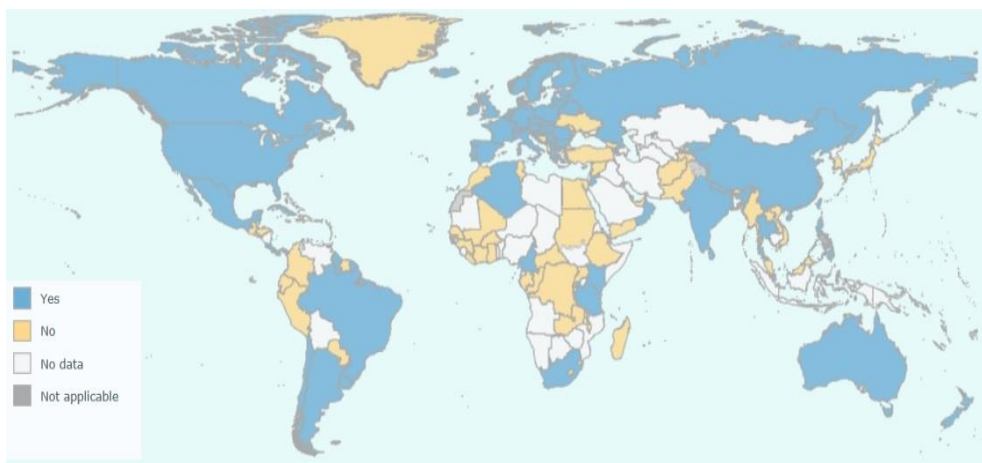
Figure 17 Existence and Distribution of Poisons Centers



Source: (WHO, 2017c)

Controls for lead in decorative paint refers to adoption of legally binding laws, regulations, standards and/or procedures to control the production, import, export, sale, and use of lead paints with special attention to the elimination of lead decorative paints and lead paints for other applications most likely to contribute to childhood lead exposure. Phasing out lead in paint is not regulated globally, but UNEP is leading a voluntary partnership – Global Alliance to Eliminate Lead Paint – with the overall aim to prevent children’s exposure to paint containing lead and to minimize occupational exposure to lead paint. Even though progress has been steady it can hardly be comparable to phasing out lead in petrol. The voluntary nature of the commitment has been criticized by civil society that would like to see the development of global regulation to speed up phasing out of lead in paint. Figure 18 shows that (as of gained similar October 2017) 78 countries (38%) have controls for lead in decorative paint. Whereas, 71 countries (34%) do not have controls for lead in decorative paint and 57 countries (28%) lack data. Geographically largest gaps on controls for lead in decorative paint are in Africa and Middle East.

Figure 18 Countries with controls for lead in decorative paint

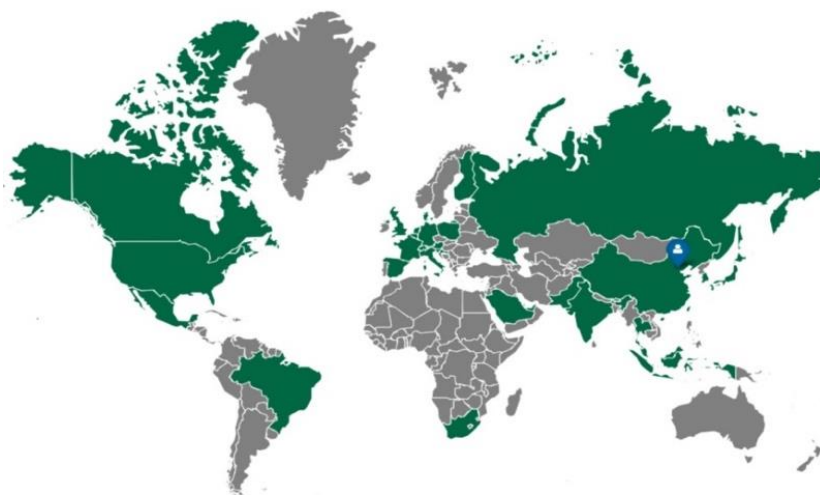


Source: (WHO, 2017d)

Progress of companies' implementation of responsible care

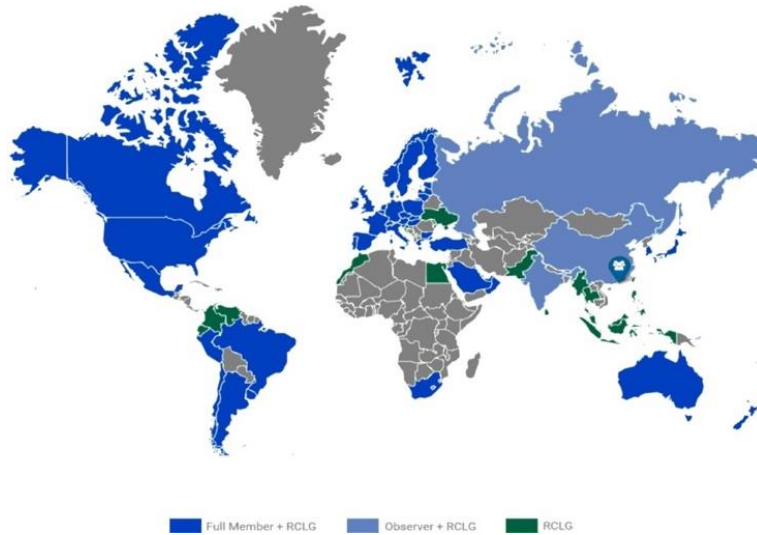
The private sector can be an important driver of progress given the significant resources it possesses. In 2016, world chemical sales totalled \$3.4 trillion (CEFIC 2017), which represents almost 5% of the global Gross Domestic Product (GDP). The need for engaging the industrial sector in sound management of chemicals and waste has been articulated repeatedly, starting from Agenda 21, which in paragraph 19.8 states that “industry initiative on responsible care and product stewardship should be developed and promoted” and that “industry should apply adequate standards of operation in all countries in order not to damage human health and the environment.” The need to promote industry’s voluntary Responsible Care programme is reflected in all the main SAICM instruments. The Responsible Care Global Charter forms the backbone of the initiative and outlines nine key elements aiming to enhance partners’ health, safety, and environmental performance. As shown in Figure 19, the Global Charter has been signed in 67 countries by 580 companies comprising 96% of the largest chemical companies. However, there is significant regional variation in the implementation of the Responsible Care programme with major gaps especially in Africa and Latin America, partly explained by the lack of major chemicals companies’ operations in many countries in these regions. The number of chemicals associations can be used as another indicator of responsible industry practice (see Figure 20).

Figure 19 Countries implementing the Responsible Care programme



Source : (ICCA, 2015b)

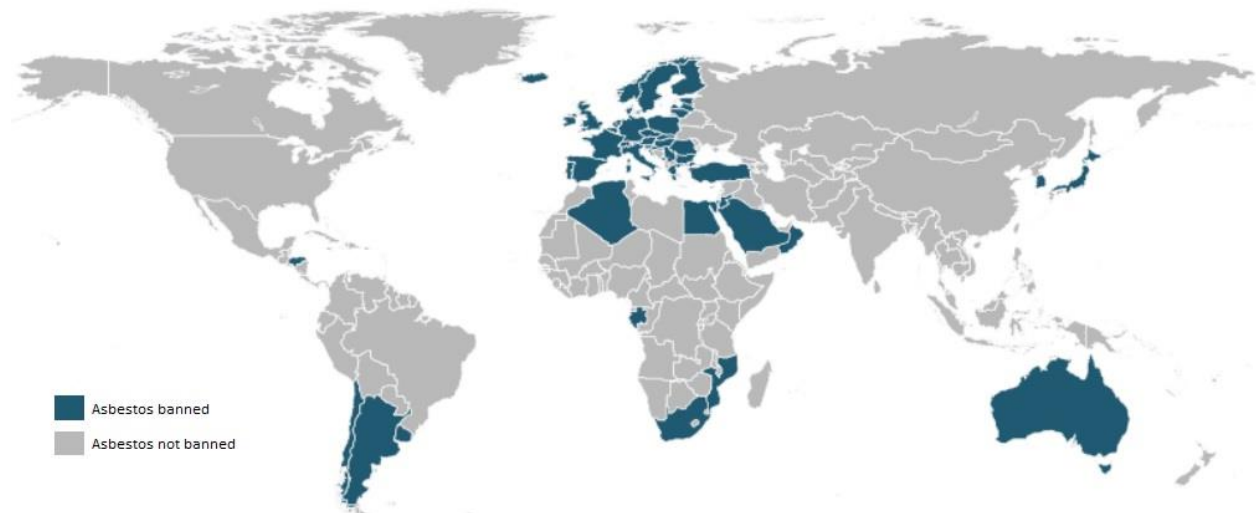
Figure 20 Countries with national chemicals associations



Source : (ICCA, 2015a)

Governments and stakeholders do not always agree to take adequate control measures on chemicals, despite the existence of scientific evidence showing their toxicity to human health and the environment. This often results from the inability to match environmental and commercial interests. For instance, more than 100,000 people die each year from asbestos-related health conditions, including mesothelioma, a rare cancer that affects the lining of the lungs, abdominal cavity and heart (WHO 2014). The Chemical Review Committee of the Rotterdam Convention has for a decade recommended listing chrysotile asbestos – the most common type of commercial asbestos – in Annex III to make it subject PIC procedure in international transfers, but the Conference of Parties has not agreed to this. However, many countries have acted to control its use and altogether 55 countries have enacted legislation to strictly ban all use of asbestos, as shown in Figure 21.

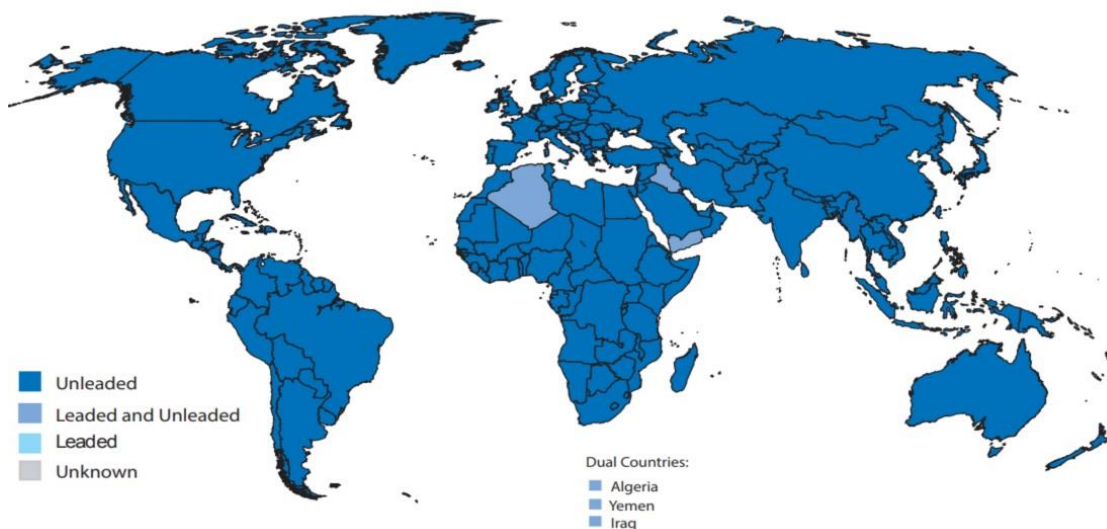
Figure 21 Number of countries that have banned the use of asbestos



Source: (Asbestos Nation, 2018)

In addition, voluntary initiatives can be successful if they are taken seriously and tackled in innovative ways by all actors of society. Phasing out lead in petrol is a good example of making progress on a voluntary basis. In June 1996, the second United Nations Conference on Human Settlements (Habitat II) included the elimination of lead from gasoline as a goal on its agenda. The commitment is also reflected in many other later documents, including SAICM's Global Plan of Action (activity 49). Progress has been steady and, as of March 2017, lead in petrol has been phased out globally with the exception of three countries: Algeria, Yemen, and Iraq (see Figure 22). Although phasing out of lead in petrol can be considered a success story, it reveals that eliminating commonly used substances requires time and large-scale investment.

Figure 22 Global status of phasing out lead in petrol



Source: (UNEP, 2017)

3.3 Progress in implementation of other non-binding agreements

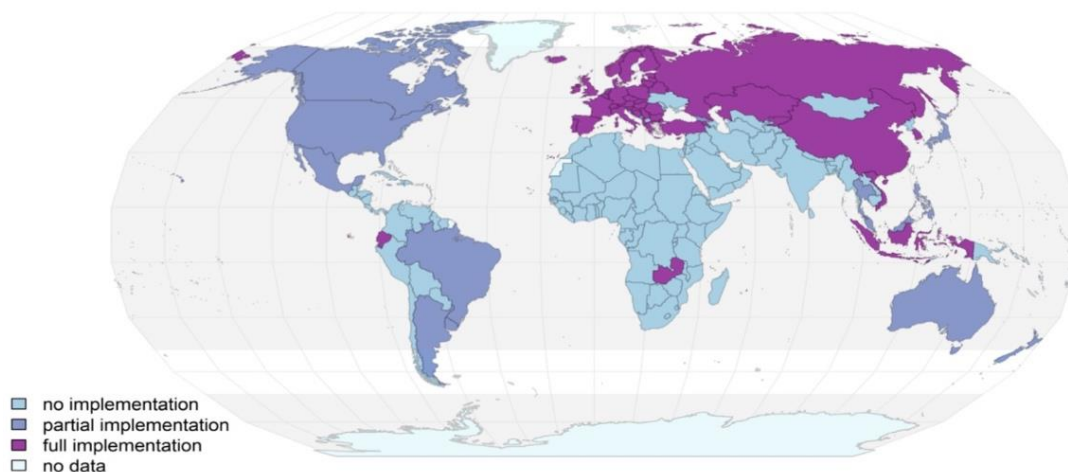
Globally Harmonized System of Classification and Labelling of Chemicals

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is a system for classifying and labelling chemicals according to their intrinsic hazardous properties. It originates from an international mandate for the development of a globally harmonized hazard classification and labelling system under Agenda 21 (para 19.4 b). Its implementation is encouraged in paragraph 23 c) of the Johannesburg Plan of Implementation and the objective was to have the system fully operational by 2008. The GHS was developed by the sub-committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals under the UN Economic and Social Council (ECOSOC), which finalized the work originally initiated the IOMC (Persson et al. 2017). In other words, it was called for and developed by states in various fora and later included SAICM when it was adopted in 2006 (Persson et al. 2017). All SAICM instruments refer to the implementation of the GHS and it constitutes one of the basic elements of the OOG. The GHS covers four sectors: the transport, workplace (industrial), consumer and agricultural sectors. The GHS is regularly updated under the GHS sub-committee and the seventh and latest revision was published in 2017. The implementation of GHS encompasses three stages: (1) formal adoption by states; (2) incorporation into national legislation; and (3) facilitation and

enforcement of uptake and use of GHS among companies and any other relevant actors (Persson et al. 2017)

Figure 23 shows the global status of GHS implementation. To date, 50 countries (26%) have fully implemented GHS, 15 countries (8%) have partially implemented GHS, and 128 countries (66%) have not yet implemented GHS. Despite the long history of the GHS, there are significant disparities in implementation between developing countries and developed countries. Full legal GHS implementation is most common in Europe, and parts of Central Asia, East Asia, and Southeast Asia. In Latin America, one country, Ecuador, has implemented the GHS fully, and in Africa, Zambia and Mauritius have done so. Most of the 15 countries classified as partially implementing GHS resulted mainly from limitation of implementation to the workplace, hence excluding consumer and agriculture sectors. These countries are the United States, Canada, Mexico, Brazil, Argentina, Uruguay, Japan, Singapore, Malaysia, Australia, New Zealand, the Philippines, and Thailand.

Figure 23 Global GHS implementation status



Source: (Persson, Karlsson-Vinkhuyzen, Lai, Persson, & Fick, 2017)
FAO International Code of Conduct on Pesticide Management

The International Code of Conduct on the Distribution and Use of Pesticides was adopted by FAO in 1985. It was subsequently amended in 1989 to include the prior informed consent (PIC) procedure and revised in 2002. Since 2007, highly hazardous pesticides have been a focus area in implementing the FAO Code of Conduct. The new Code of Conduct on Pesticide Management was approved by the FAO Conference in June 2013. In 2014, the WHO also adopted the Code of Conduct as its reference framework for international guidance on pesticide management. The International Code of Conduct on Pesticide Management is the framework on pesticide management for all public and private entities engaged in, or associated with, production, regulation and management of pesticides. The guidelines on Pesticide Legislation forms an important tool to operationalize the Code of Conduct by helping to make necessary legislative changes (FAO & WHO 2015). Furthermore, FAO hosts an online repository of national legislation relevant to agriculture that is called FAO-LEX.⁶ To date, progress has been remarkable, since almost all countries have implemented pesticide legislation in accordance with the FAO Code of Conduct (see Figure 24).

⁶ <http://faolex.fao.org/>

Figure 24 Countries with pesticide legislation



Source: (FAO, 2017)

4 Analysis and proposals

Progress in attaining the 2020 goal can be measured through a range of different indicators across the chemicals and waste regime as well as through the ways goals are established, data is collected, and policy mechanisms are implemented. Improved tracking of activities, indicators, and results can help identify best practices that facilitate action at the national level, promote learning, and engage different stakeholders with the instruments designed for the sound management of chemicals and waste.

4.1 Improving reporting mechanisms and the definition of indicators

Reporting is critical to measuring progress but it is only useful if it generates the necessary data and information. Reducing the reporting burden will be critical for improving reporting rates and reducing the number of activities to report on could help. Information on activities can be collected through alternative mechanisms. The IOMC indicators, for example, measure progress by utilizing readily available information. They can help reduce the reporting burden and enhance the geographical display of information. Formally endorsing the 10 IOMC indicators would facilitate obtaining information on progress. The IOMC organizations have created maps showing progress on most of the 10 indicators but the maps lack uniformity in terms of visual design, core content, and ability to see and work with the underlying data. For instance, the different IOMC organizations use different regional displays of the IOMC indicators based on their specific geographical division of regions that varies across the organizations. The methodology for presenting information could be harmonized across the indicators and, eventually, new indicators could be added.

Based on existing information, it is possible to identify certain trends, both success stories and areas where progress has not been as expected. Most importantly, the progress maps show that the FAO Code of Conduct on Pesticide Management and phasing out lead in petrol have been implemented almost universally. A more detailed analysis in these areas could identify critical factors that contributed

to successful implementation. However, progress has been less visible in other areas. For instance, in 2002, the global community determined to achieve universal implementation of the GHS by 2008, but to date only one quarter of countries have fully implemented it. Similarly, progress has been limited in establishing poison centers and the development of PRTRs, just to mention a few examples.

Importantly, the absence of a coherent and simple framework for action hampers the ability to track progress. For example, the number of diverse priorities identified in the Overarching Policy Strategy and the activities of the Global Plan of Action makes it a challenge to implement, report, and follow up. The 20 SAICM indicators represent a decent attempt to capture the main features of the Overarching Policy Strategy and the Global Plan of action but the primary weakness is that indicators are solely activity-based rather than result-based. The activities are listed in the current reporting framework as check-boxes that keep growing in number in each successive reporting round and the list has reached almost 200 activities. The activity-based indicators of SAICM need to be complemented with result-based indicators to provide information of implementation on the ground. This could include, for instance, the level of official development assistance for or public awareness of sound chemicals and waste management. Both of these measures are used in the biodiversity cluster.

4.2 Better understanding of progress at the national level

Making reporting more meaningful would help increase reporting rates. When reporting assists countries to monitor progress within their jurisdiction and compare themselves to peers, policymakers will demand it. The WHO's International Health Regulations core capacities model is an example of a reporting framework that reflects progress over time. Similar to reporting in SAICM, it is based on an indicator system but the indicators are divided into five performance levels. Each indicator lists five activities with different capability levels indicated in a check-list format, which needs to be assessed and filled according to activities undertaken at the country-level. The benefit is that it enables tracking progress over time and comparisons among countries. Similarly, the indicator framework for SAICM could be refined so that countries could define their stage of implementing the activities. Reporting on the implementation of core capacities in the IHR has been quite challenging, however, in terms of indicator development and defining implementation levels. While the principal idea of IHR monitoring could be a model for SAICM reporting, the indicators and the implementation levels would need to be developed anew.

The use of individual country-specific reviews is common practice under many international instruments to provide in-depth analysis of progress and challenges encountered in implementation at the national level. For instance, the United Nations Framework Convention on Climate Change (UNFCCC) has relied for almost a decade on country reviews carried out by international expert review teams, which result in in-depth country reports. Similarly, the IHR has recently initiated the preparation of Joint External Evaluations (JEE), which are voluntary country-specific reviews that an interested country can request to better understand their capacity to prevent, detect, and respond to public health threats. Following the example of IHR, other chemicals and waste instruments could decide to complement reporting with country-specific reviews to provide more detailed data of progress, thereby, helping to support more targeted capacity building efforts.

4.3 Strengthening reporting and monitoring through regional mechanisms

[UNEP to complete]

4.4 Information management and display

The chemicals and waste instruments have various ways to manage and display reporting and monitoring data. The Global Health Observatory (GHO) constitutes the most advanced systems, since it displays online up-to-date information of progress with user-friendly and interactive static graphs and maps, and raw data. For instance, annual reporting data from the IHR is immediately accessible for the general public and other information users through GHO. Similarly, the Ozone Access Data Center provides real-time information on progress on achieving the Montreal Protocol, based on information submitted in national reports, and allows to trace implementation trends by country or by Annex group of substances. In other cases, reporting data is compiled by the secretariat into summary progress reports, which are accessible online, but are difficult to understand or even up-to-date (for instance, the most recent information of progress on SAICM is from 2013). The effectiveness evaluation of the Stockholm Convention provides a unique method to synthesize information from various sources (reporting, national implementation plans, monitoring data, and non-compliance information) to regularly provide a comprehensive analysis of the extent to which the convention is delivering on its objectives. A similar mechanism is developed under the Minamata Convention. Reporting data from the ILO conventions is not accessible online, nor are any progress reports issued. In essence, the data from the various instruments is scattered in different databases making it difficult to track progress in a systematic manner. In the future, the more efficient use of contemporary information tools such as interactive databases and mobile device apps could increase the appeal of measuring progress and the demand for regular and rigorous reporting. Moreover, they could provide a way for the public – nationally as well as globally – to learn, to engage meaningfully, and to demand action and accountability.

4.5 Learning from and mainstreaming with other policy areas and mechanisms

Lessons from other policy areas could help advance the definition and monitoring of targets and indicators to measure progress in the chemicals and waste cluster. The biodiversity cluster, for example, offers a number of relevant best practices (See Box 3). The Biodiversity Indicators Partnership could be replicated in the chemicals and waste field and a similar partnership could be formalized with the mandate to develop simple indicators and to systematically follow-up progress in critical areas. The indicator initiative of the IOMC organizations could then expand to a multi-stakeholder partnership involving relevant research institutions, NGOs, and other bodies interested to engage in the development and communication of progress indicators. Ideally, the partnership would receive support from the Global Environment Facility to enable its operationalization. Engagement of the UN Statistical Division will also be important to link to relevant SDGs.

Box 3 Lessons learned from the biodiversity cluster

In 2002, The Convention on Biological Diversity (CBD) committed to a significant reduction in the rate of biodiversity loss by 2010. In 2007, the Biodiversity Indicators Partnership (BIP, www.bipindicators.net) was created in response to CBD decision VII/30 to track progress of the 2010 biodiversity target. However, tracking progress towards the target was hindered by an underdevelopment of, and underinvestment in, biodiversity indicators (Walpole et al. 2009). In 2010, renewed commitment to halt biodiversity loss was made as the new Strategic Plan for Biodiversity 2011–2020 was adopted. A central element of the plans is the 20 Aichi Biodiversity Targets covering pressures on, states of, and benefits from biodiversity as well as responses to the biodiversity crisis (Mcowen et al. 2016). The need to develop suitable and sufficient global

biodiversity indicators for monitoring progress became even more relevant after the adoption of the new plan since it significantly broadened the number of strategic subjects in comparison to the 2010 target.

The BIP is the principal mechanism supporting the delivery of indicators for the Strategic Plan and also supports progress reporting for other biodiversity-related MEAs. The BIP also aims to strengthen capacity at the national level for indicator development and use in implementation and reporting of National Biodiversity Strategies and Action Plans (NBSAPs) and the SDGs. For over a decade, in collaboration with partner organizations, the BIP has successfully mobilized action to track changes in biodiversity (Butchart et al. 2010; Tittensor et al. 2014). Currently, the partnership consists of 70 indicator providers, users and supporters that work internationally on indicator development to provide the most comprehensive information on biodiversity trends. The partnership includes, inter alia, NGOs, universities, research institutes, secretariats of relevant MEAs, and other intergovernmental bodies, including the UN Statistical Division.

The BIP has a series of mandates from CBD Decisions (mostly recently XIII/28 in 2016) to support the development and supply of indicators for the Convention. However, the list of indicators in Decision XIII/28 is a framework at the global and national scales, and they are not mandatory or defined in detail in the way that the SDG indicators are. This framework was first developed by a CBD Technical Expert Group (AHTEG), and the BIP and UNEP-WCMC have had major roles in providing information and advice in the AHTEG meetings. The actual use of indicators in Global Biodiversity Outlook reports changes each time, and the BIP is a resource to help ensure the supply and good use of indicators. At national level parties use indicators as they are able. The BIP supports understanding how the global indicators can be used at national level.

In 2017, the BIP incorporated 55 indicators, including ten official SDG indicators for goals 2, 6, 14, and 15. Thematically, the vast majority of the indicators measure the protection or sustainable use of species (18) and the coverage of protected or sustainably used areas (14). Others measure changes in genetic resources (1), public awareness (1), use of policy and economic instruments, and adoption of conventions (8), use of natural resources (2), traditional knowledge (2), financial resources (1), pollution (4), and one focuses on several drivers. Most of the indicators are produced from monitoring data. Some are transferable to track sound management of chemicals and waste. These include the activity-based indicators and some other indicators, namely, the Biodiversity Barometer that measures public awareness of biodiversity in five case countries and the indicator measuring official development assistance for biodiversity.

The indicators support the delivery of the Aichi Biodiversity Targets and have been grouped under each of the targets as primary or secondary indicators. Indicators based on data sets with multiple attributes, such as the Red List Index, are of particular value due to their ability to be disaggregated to report against various targets (McOwen et al. 2016). However, several targets lack indicators (2, 3, and 15) and other targets (1, 13, and 16-20) have significant gaps (McOwen et al. 2016). In 2018, additional 18 indicators were included in the BIP in response to these gaps comprising existing indicators recognized by a peer-review process as well as new indicators developed to meet the needs of Aichi Targets reporting.

The partnership has received substantial funding from the Global Environment Facility, UN Environment, and the European Commission that has helped it to expand and formalize indicator development. The partnership has shown the importance of institutions that champion indicators by taking responsibility for their continued production and communication. While the partnership supports the development of global indicators, it also provides support at country level to ensure their delivery. The secretariat role is provided by UNEP-WCMC and operates with the oversight of a Steering Committee.

In order to make sense of what is strategically important to achieve the 2020 goal, in October 2015, stakeholders agreed on the Overall Orientation and Guidance for achieving the 2020 goal including 11

basic elements and six core activity areas. Although the OOG was not originally designed for reporting purposes, it could provide a uniform template for designing a reporting framework, since it captures the multitude of activities dispersed in several documents under 11 basic elements. In other words, a simple and coherent framework for measuring progress could build on the OOG and incorporate both output-oriented and results-based indicators, including relevant SDG indicators.

4.6 Looking Beyond 2020

As the chemicals and waste conventions advance in the process to develop joint, synergistic operations at the global and national levels, it is important to monitor countries' implementation of the objectives established by the conventions. Greater cooperation and coordination between the chemicals and waste conventions provide an opportunity for capacity building, knowledge transfer, enhanced awareness, and efficiency as well as for improved implementation. The chemicals and waste regime is being integrated with other global agendas. The Sustainable Development Goals – specifically Goal 12 'Responsible Production and Consumption' – aim to achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, a goal that goes hand in hand with the framework of the conventions. Attaining this target will require the full implementation of the conventions, which now have both the opportunity and the responsibility to coordinate their efforts and integrate chemical management strategies in ways that contribute to the ultimate objective of sustainable development at the global, national, and local levels.

In 2015, the fourth session of the International Conference on Chemicals Management (ICCM4) initiated an intersessional process to prepare recommendations regarding the Strategic Approach and the Sound Management of Chemicals and Wastes Beyond 2020. Preparation for the Beyond-2020 Framework includes three intersessional meetings to provide recommendations for consideration at the ICCM5 to be held in September 2020. The second intersessional meeting held in March 2018 in Stockholm, Sweden resulted in the co-hosts consolidated document that refers to reporting by stating that "countries have been burdened by their reporting obligations under different regimes" and notes that "reporting under the beyond 2020 structure should take this into account when determining reporting mechanisms." This commitment provides clear guidance of the way forward.

4.7 Options for action

Undoubtedly, the 2020 goal has provided an aspirational aim for action but it has been criticized for lack of measurability due to the absence of an effective and meaningful reporting and indicators framework. Countries and other actors need to agree on how to measure progress in the Beyond 2020 Framework and any related reporting mechanisms. This is a valuable opportunity to develop an improved indicators and reporting framework that provides more meaningful information without increasing the reporting burden. Several non-mutually exclusive options for measuring progress could form the basis for a simple tool that would allow countries to monitor their activities, results, and progress (See Table 7). The ability to easily compare one country's actions and achievements to peers or a group of peers will be important and could provide the foundation for friendly competition and a race to the top as well as promote south-south cooperation.

Table 7 Non-mutually exclusive options for action in developing an indicator and reporting framework for sound chemicals and waste management beyond 2020

Option for measuring progress	Benefits	Drawbacks	Link to OOG
The 20 indicators will continue to be used (following current practice under SAICM)	<ul style="list-style-type: none"> • This would help to provide a continuum of displaying information that started in 2009. 	<ul style="list-style-type: none"> • The indicator and reporting framework would remain activity-based, preventing to measure progress on the ground • Does not incorporate the SDG indicators the remain in separate track • Limited reporting to date 	<ul style="list-style-type: none"> • Covers the OOG
The ten simple IOMC indicators are formally adopted	<ul style="list-style-type: none"> • Better geographical coverage of progress • Reduces reporting burden • Data collection and communication is delegated to interested organizations • Can be used to complement data acquisition under any reporting format 	<ul style="list-style-type: none"> • The indicators are activity-based and need to be complemented with results-based indicators 	<ul style="list-style-type: none"> • Covers the OOG partially
A model with a single use of progression is adopted (following the example of the IHR)	<ul style="list-style-type: none"> • Reports provide data of the status of progress for each country at a point of time • Enables to set time-bound standards for progress 	<ul style="list-style-type: none"> • Indicators and the implementation levels would need to be developed from the beginning • Is solely activity-based 	<ul style="list-style-type: none"> • The 11 basic elements of the OOG could be used as a basis for indicator development
Development of a coherent framework incorporating results-based indicators	<ul style="list-style-type: none"> • Would help to measure progress on the ground • Can easily incorporate the SDG indicators 	<ul style="list-style-type: none"> • Requires the identification of results-based indicators 	<ul style="list-style-type: none"> • The 11 basic elements of the OOG could be used as a basis for indicator development
Use of voluntary national reviews (following the example of the 2030 Agenda)	<ul style="list-style-type: none"> • Provides the opportunity for countries to report in and open-ended format • Encourages sharing information on best practices 	<ul style="list-style-type: none"> • Not possible to compare progress between countries • Not possible to see trends over time • Discourages reporting on failures 	<ul style="list-style-type: none"> • The 11 basic elements of the OOG could be used as a basis for guidelines for development of national reviews

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