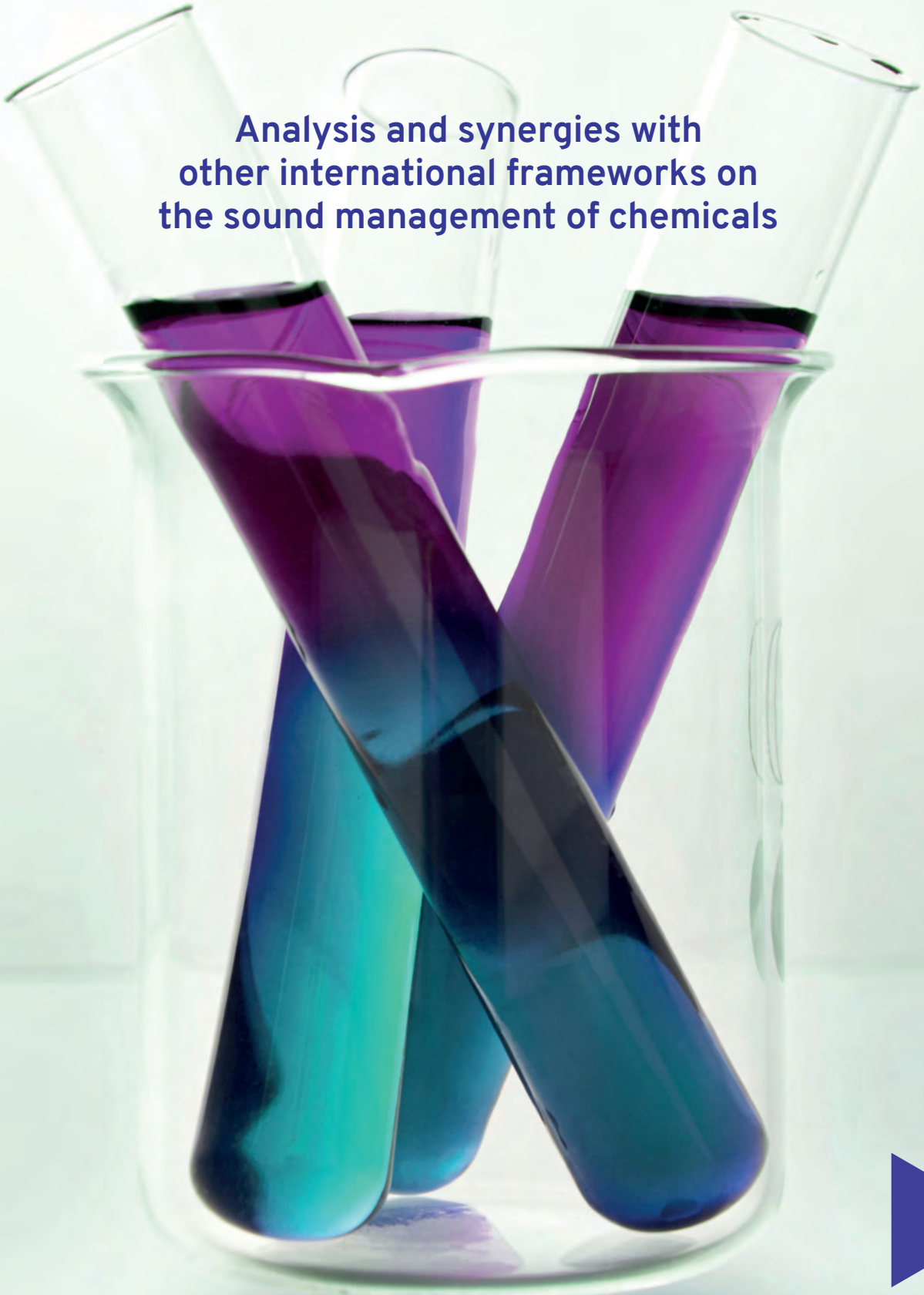
International Labour Organization

ILO INSTRUMENTS ON CHEMICAL SAFETY

Analysis and synergies with other international frameworks on the sound management of chemicals



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First published 2020

ILO instruments on chemical safety
Language: English

ISBN: 978-92-2-031384-8 (print)
978-92-2-031383-1 (web pdf)

Printed in Switzerland ILO
Design in Switzerland CPG

Acknowledgements

This report was prepared by ILO consultant Paul Peters with technical inputs from Halshka Graczyk, and under the overall technical guidance and coordination of Manal Azzi. The report benefited from the review and input of LABADMIN/OSH and NORMES colleagues. Special thanks to Tzvetomira Radoslavova for her technical review and contributions. The ILO wishes to thank the Federal Ministry for Environment, Nature Conservation and Nuclear Safety of Germany for supporting this work under the project "Enhancing the role and engagement of the world of work actors, including ministries of labour, employer and worker organisations in SAICM Beyond 2020."

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A. Preamble

This report analyses all major ILO instruments that address chemical hazards for human health and safety as well as the environment. The term chemical in this sense is understood in a broad way and generally covers all kinds of hazardous substances and mixtures, including hazards that may sometimes be considered as "physical", such as asbestos or nanoparticles.[1] [2]

The analysed ILO instruments in this report include legally binding Conventions and non-binding Recommendations as well as Codes of Practice, which are non-binding guidelines. All ILO instruments are adopted in a tripartite setting by governments, worker and employer representatives. In general, each Convention is accompanied by a Recommendation. Some are also accompanied by one or more Codes of Practice. The Recommendations provide guidance on the implementation of the Conventions and propose further measures not covered by Conventions. The Codes of Practice provide further practical guidance on the implementation of the Conventions and Recommendations.

The report reviews ILO chemicals instruments as regards their content, ratification rate, implementation and highlights. The instruments are then put in the wider context of other international instruments on chemicals such as the Basel, Rotterdam and Stockholm Conventions (BRS Conventions) and the Minamata Convention on Mercury as well as current international strategic frameworks which aim at eliminating or at least minimizing chemical hazards on a global scale. The aim of this report is to highlight the main contributions and strategic advantages of ILO instruments in the current global efforts to combat chemical hazards.

The report is structured in the following way: Following the Executive Summary **(B)**, a detailed analysis of each of the ILO instruments is provided **(C)**; The report then addresses other international instruments on chemicals, to examine their correlation and potential synergies with the ILO instruments **(D)**; In the next section, the main international strategic frameworks on chemicals, namely the Sustainable Development Goals (SDGs) and the Strategic Approach to International Chemicals Management (SAICM), are examined in order to analyse how the ILO instruments fit into these frameworks **(E)**; Finally, the paper provides an overall conclusion, in which the information from the previous parts is synthesized and the overall strategic advantages of the ILO instruments as well as suggestions for a way forward are presented **(F)**.

1 The definitions of "chemicals" in the two major ILO chemical instruments, the Chemicals Convention, 1990 (No. 170) and the Prevention of Major Industrial Accidents Convention, 1993 (No. 174), are both very broad. In Convention No. 170 a "chemical" is defined as all "chemical elements and compounds, and mixtures thereof" (Art. 2(a)). A hazardous chemical is further defined as a chemical with "health or physical hazards" (Art. 2(b) and 6(1)). The definition thus explicitly includes physical hazards such as dust, or asbestos. Convention No. 174 does not even refer to the term "chemicals" but more broadly refers to "hazardous substances", which are defined as substances which, "by virtue of chemical, physical or toxicological properties", constitute a danger (Art. 3(a)).

2 The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants.

B. Executive Summary

This comparative analysis of the ILO legal instruments on chemicals shows that the ILO instruments have a number of special characteristics that serve as key ILO contributions to the current global strategy for eliminating chemical risks around the world. This applies both to the Sustainable Development Goals (SDGs) and to the Strategic Approach to International Chemicals Management (SAICM).

Characteristics of ILO instruments

I. ILO instruments have their own range of application

The ILO Conventions as well as their accompanying Recommendations have their own range of application, which is not covered by any other international instruments on chemicals. This concerns the entire field of occupational safety and health **(OSH)** and the protection of workers against chemical risks, which is the main scope of ILO instruments and which is not substantially addressed by any other major international instrument on chemicals. Furthermore, some of the ILO Conventions also protect the public and the environment from chemical risks and can serve as a gap filler in this regard, as many of the areas they cover are not covered by other international standards. This for example concerns the protection of the general public and the environment from asbestos, lead, hazardous pesticides or the effects of industrial accidents.

II. ILO Conventions mainly operate in the area of domestic policy

Main non-ILO international instruments on chemicals, such as the Basel and Rotterdam Conventions,contain many procedural obligations relating to the process of importing and exporting chemicals (e.g. the prior informed consent procedure, notification requirements, etc.) but do not include substantive requirements regarding the use of the chemicals within each country (e.g. on the prohibition and restriction of their use, on measures for exposure reduction, etc.). The ILO Conventions, on the other hand, all contain extensive requirements on measures for the prevention and mitigation of chemical hazards as well as on the development of national policies on chemicals. They therefore operate much more in the area of domestic policy and risk reduction within each single country and not only the area of the transboundary effects of chemicals.

Unlike many of the non-ILO instruments, the main ILO Conventions on chemicals also do not solely cover a specific set of chemicals listed in an Annex, but include general obligations covering all chemical hazards. These open provisions provide for greater flexibility and facilitate the adaptation of the Conventions to emerging chemical risks. In addition, almost all of the ILO Conventions are supplemented by a Recommendation and many also by an extensive Code of Practice, thereby providing detailed guidance on how the substantive requirements of ILO Conventions can be implemented and how their objectives can be achieved.

III. The ILO has a strong and elaborate supervisory system

Implementation of ILO Conventions is ensured by a strong and elaborate supervisory system. This system includes a reporting mechanism which requires governments periodically to submit reports on the implementation of ratified Conventions. These reports are also sent to worker and employer organizations, which can submit further observations. The reports and comments are then reviewed by a committee of independent legal experts, the Committee of Experts on the Application of Conventions and Recommendations (CEACR), which publishes an annual report, examining the application of ratified Conventions. A selection of the most serious cases is then discussed by another committee, the Committee on the Application of Standards (CAS), which consists of representatives from governments, employers and workers. Next to the regular reporting mechanism, the ILO Constitution also provides for two grievance procedures, in Arts. 24 and 26, under which ILO constituents can file a "representation" or "complaint" concerning the non-compliance of any ILO Member State with an ILO Convention. The ILO Governing Body can then decide to set up an *ad hoc* tripartite committee (Art. 24) or a high-level commission of inquiry (Art. 26) to examine the case.

The fact that the implementation of ILO Conventions on chemicals is supervised by this system presents a major advantage in several ways, as compared to other international instruments. One advantage is that the regular supervision ensures better implementation of the ILO Conventions and helps detect cases of non-compliance that would otherwise go unnoticed.

Another important function of the supervisory bodies is the clarification of the content of the provisions of ILO Conventions and their application to individual cases. As many of the Conventions contain broad obligations, for example to protect workers against all chemicals risks by "appropriate means", they require further examination to determine whether a provision has been violated in a certain case. By determining whether a provision was violated in a specific setting, for example because the means used were not "appropriate", the supervisory bodies can thus considerably increase the reach and impact of the Conventions.

IV. ILO instruments promote the Sustainable Development Goals (SDGs)

The ILO instruments on chemicals contribute to the achievement of the SDGs. The most relevant SDGs in this regard are SDGs 3, 8 and 12, and especially their targets 3.9, 8.8 and 12.4.

Target 3.9 aspires to "by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination". As the ILO instruments on chemicals ultimately aim at reducing deaths and illnesses due to chemicals, not only for workers but also for the public, they contribute to achieving this target.

Target 8.8 aspires to "protect labour rights and promote safe and secure working environments of all workers, including migrant workers, particularly women migrants, and those in precarious employment". All ILO instruments on chemicals are OSH instruments and therefore contribute to achieving this target.

Target 12.4 aspires to "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." This Target is supported by all ILO instruments and policies on chemicals, all of which aim at promoting the sound management of chemicals throughout their life cycle.

Improving the application of ILO Conventions

I. Implementation

As explained above, implementation of ILO Conventions is constantly reviewed by the ILO supervisory system. While the majority of the countries that have ratified these Conventions have honoured all or almost all of their commitments, a few provisions of these Convention have, in some cases, not been correctly implemented and this has been highlighted by the ILO supervisory bodies. For example, with regard to the ILO Chemicals Convention, 1990 (No. 170) and the Prevention of Major Industrial Accidents Convention, 1993 (No. 174), several countries have had issues with implementing the Conventions' obligation to notify importing countries in the event of their exporting a chemical, use of which they have prohibited in their own country.[3] In several cases the supervisory bodies also noted insufficient implementation of national policies on chemicals which are required by both Conventions.[4]

Issues have also been raised by the supervisory bodies regarding the guarantee of the rights of workers to remove themselves from work situations presenting imminent dangers[5] and to access information on all chemicals used at their workplace[6] in Convention No. 170. Regarding Convention No. 174, supervisory comments have referred to a lack of regulations, obliging employers to ensure a documented system of major hazard control,[7] to provide safety reports[8] and to notify major hazard installations to the authorities.[9] Other comments referred to an insufficient guarantee of the right of workers to be consulted on major hazard installations.[10]

II. Ratification rates

It is important to note that ILO Conventions have been influential worldwide even when they are not ratified. The ILO Chemicals Convention, 1990 (No. 170) for example has had an important influence on other major international instruments on chemicals, which were adopted after it, such as the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) and the Rotterdam Convention. The GHS was developed as a follow-up to the adoption of Convention No. 170. ILO OSH Conventions relevant to chemicals are also often implemented or used as guidance tools, regardless of their ratification by a particular country. They are for example referenced in the standards of private compliance initiatives which monitor compliance with labour standards by companies around the world.[11]

Conventions Nos. 170 and 174 have each been ratified by around 20 countries. In the case of Convention No. 170, numerous countries which are important users and producers of chemicals have ratified it (e.g. China, Germany, Italy, Republic of Korea, Netherlands, Poland and Sweden). Convention No. 174 has also been ratified by a number of important producers and users of chemicals (e.g. Russia, Brazil, Saudi Arabia, Finland, the Netherlands and Sweden). Furthermore, as regards Convention No. 170 reference can also be made to the GHS which incorporates

3 For the comments related to Convention No. 170 see Lebanon, Direct Request (DR), 2016, 2015 and 2010; Brazil, DR, 2008 and 2007; Burkina Faso, DR, 2016; China, DR, 2003; Tanzania, DR, 2015. For the comments related to Convention No. 174, see Belgium, DR, 2011; India, DR, 2016; Russia, DR, 2016; Saudi Arabia, DR, 2015; Ukraine, DR, 2016; and Zimbabwe, DR, 2015.
4 For the comments related to Convention No. 170 see Colombia, Observation (Obs), 2012; Lebanon, Direct Request, 2010; Mexico, DR, 2015. For the comments related to Convention No. 174 see Bosnia and Herzegovina, DR, 2013; Brazil DR, 2016; Colombia, Obs and DR, 2014.
5 See Colombia, Obs, 2018; Dominican Republic, DR, 2017.
6 See Mexico, DR, 2015; Tanzania, DR, 2015.
7 See Armenia, DR, 2014; Brazil, DR, 2016; Colombia, Obs and DR, 2014; Russia, DR, 2016; Ukraine, DR, 2016; Zimbabwe, DR, 2015.
8 See Armenia, DR, 2014; Colombia, Obs and DR, 2014; Saudi Arabia, DR, 2015; Slovenia, DR, 2015; Ukraine, DR, 2016; Zimbabwe, DR, 2015.
9 See Colombia, Obs and DR, 2014; Russia, DR, 2016; Saudi Arabia, DR, 2015; Zimbabwe, DR, 2015.
10 See Colombia, Obs and DR, 2014; Estonia, DR, 2011; India, DR, 2016; Russian Federation, DR, 2016.
11 A good example are the ILO Occupational Safety and Health Convention, 1981 (No. 155), and the Occupational Health Services Convention, 1985 (No. 161), which both contain general provisions, covering all occupational risks and thus all chemicals related risks. Both Conventions have been quoted in the standards on OSH of major private compliance initiatives, such as the Global Reporting Initiative (GRI), see https://www.globalreporting.org/standards/gri-standards-download-center/.

several of the obligations contained in Convention No. 170 and which has been implemented by many countries. While some of these countries have not ratified Convention No. 170, they therefore nonetheless comply with several of its obligations.

The individual ratification rates of Conventions Nos. 170 and 174 have furthermore to be seen in the context of the ratifications of the other ILO Conventions. In this regard it should be noted that many of the ILO Conventions contain broad obligations covering many different OSH hazards and therefore overlap. This is for example the case with general ILO OSH Conventions, such as the Occupational Safety and Health Convention, 1981 (No. 155), the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187) and the Occupational Health Services Convention, 1985 (No. 161). These three Conventions all have a general scope covering all occupational risks and thus all chemicals risks.

When the ratification rates for Conventions Nos. 170 and 174 are combined with the ratifications of the last-mentioned Conventions, the number of ratifications totals 98. **This means that 98 countries have ratified at least one of the above mentioned Conventions and have committed themselves to adopting measures against all chemical risks at work.** This total is much higher than the individual ratification rates for each of the Conventions and therefore places the relevance of the ILO regulatory framework on chemicals in a different perspective.

It can thus be concluded that ILO Conventions, as well as their accompanying Recommendations and Codes of Practice, have been highly influential regardless of the ratification rates of the Conventions. Furthermore, even though some of these Conventions have not been ratified by all ILO member States, in combination the chemicals-related ILO Conventions have in fact received a large number of ratifications. The ILO regulatory framework on chemicals as a whole thus has an extensive reach and influence, both qualitatively and quantitatively. As a way forward, the ILO should nevertheless continue to promote the ratification of its chemicals related Conventions, to further increase their impact, in particular Conventions Nos. 170 and 174.[12]

12 A decision in this regard has recently been taken by the ILO Governing Body, see the document GB.331/LILS/2, available at https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_587514.pdf.


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C. Analysis of ILO instruments on Chemicals

I. ILO instruments on chemical risks at work

The Chemicals Convention, 1990 (No. 170) and Chemicals Recommendation, 1990 (No. 177), are the **main ILO instruments addressing hazards relating to chemicals**. They are both general in scope and **concern all risks relating to chemicals**. Convention No. 170 provides for a comprehensive national framework for the safe use of chemicals at work, including the formulation, implementation and periodic review of a coherent national policy. The instruments also provide for the **responsibility of employers and for the duties and rights of workers** at the level of the undertaking, as well as specific responsibilities of suppliers and exporting states. Instead of prohibiting the use of certain substances, the instruments prioritize prevention and only allow protective measures as a last resort if risks cannot be prevented, eliminated or minimized. Both instruments were classified as **up-to-date instruments** by the ILO Standard Review Mechanism Technical Working Group (SRM TWG) in 2017.[13]

Convention No. 170 and Recommendation No. 177 are **supplemented by the ILO Code of Practice on safety in the use of chemicals at work**, of 1993,[14] which provides practical guidance on the implementation of both instruments. It contains guidelines for the framing of provisions relating to the use of chemicals at work and guidance to employers, workers, suppliers and emergency services.

1. Chemicals Convention, 1990 (No. 170)

a. Ratifications

Convention No. 170 so far has received **22 ratifications**. By far the **largest number of ratifications are from Europe and Central Asia** (10), followed by the Americas (4), Africa (4) and Asia and the Pacific (4). The Convention regularly receives new ratifications, the latest being Côte d'Ivoire in November 2019.

b. Implementation[15]

The CEACR has regularly examined the application of Convention No. 170 by ratifying States. There are currently 16 pending comments on the Convention, concerning 16 different States. One representation was made in 2009 under Art. 24 of the ILO Constitution by workers' organizations, alleging non-compliance by Mexico with Convention No. 170. The CAS has so far not discussed a case on Convention No. 170. There also have been no complaints under under Art. 26 of the ILO Constitution.

13 See https://www.ilo.org/gb/GBSessions/previous-sessions/GB331/lils/WCMS_587514/lang--en/index.htm
14 See https://www.ilo.org/safework/info/standards-and-instruments/codes/WCMS_107823/lang--en/index.htm
15 The supervisory comments analysed in this section as well as the following sections on the other ILO Conventions cover both issues which are still pending as well as issues which have already been resolved. The issues which have already been resolved are also important for this analysis as they point to general trends. They show which provisions in the Conventions face implementation issues more frequently than others and what kinds of implementation issues occur in general.

The major recurrent issues raised by the supervisory bodies are:

- lack of application of the Convention to certain branches of economic activity, e.g. a lack of coverage of informal workers (Arts. 1 and 2) *(Colombia, Observation (Obs),*[16] *2012)*[17] or to certain risks, e.g. methane in mining *(art. 24 Representation, Mexico, 2009)*
- lack of implementation of a national policy on the use of chemicals at work in consultation with employers and workers (Arts. 3 and 4) *(Colombia, Obs, 2012; Lebanon, Direct Request (DR), 2010; Mexico, DR, 2015)*
- lack of maintenance of records of hazardous chemicals used at the workplace, including the accessibility of this information to workers and their representatives (Art. 10) *(Mexico, DR, 2015; Tanzania, DR, 2015)*
- lack of full implementation of the right of workers to remove themselves in the event of an imminent danger (Art. 18) *(Colombia, Obs, 2018; Dominican Republic, DR, 2017)*
- lack of compliance with the requirement of States exporting chemicals, the use of which they prohibit, to notify the importing country of their own prohibition and the chemical's dangers (Art. 19) *(Lebanon, DR, 2016, 2015 and 2010; Brazil, DR, 2008 and 2007; Burkina Faso, DR, 2016; China, DR, 2003; Tanzania, DR, 2015)*
- requests for information on compliance with the Convention in practice, including the role of labour inspection *(Brazil, Obs, 2012; Burkina Faso, DR, 2016; Korea, DR, 2015; Lebanon, DR, 2010)*

The following sections give a more detailed overview of each of the provisions of Convention No. 170, coupled with information on their implementation.

i. Part I: Scope and Definitions

Arts. 1 and 2: The Convention applies to all branches of economic activity and covers the production, handling, storage, transport, disposal and release of chemicals. It allows ratifying States to exclude certain branches of economic activity, which however has so far only rarely been used. The Convention applies to all chemical substances except for organisms and products which will not expose workers to a hazardous chemical under normal use.

Supervisory comments: There have not been many comments on Part I. Issues highlighted by the CEACR and art. 24 Committees mostly relate to a lack of protection of some types of workers, e.g. agricultural workers in the informal sector (Colombia, Obs, 2011 and 2012) or an exclusion of certain types of risk (e.g. methane gas in mining) (Mexico, art. 24 representation, 2009).

ii. Part II: General principles

Art. 3, Consultation: Social partners must be consulted on all measures to implement the Convention.

Art. 4, National Policy: Each ratifying State must, in consultation with the social partners, formulate, implement and periodically review a coherent policy on safety in the use of chemicals at work.

16 The CEACR issues to types of comments. "Observations" (Obs), in which it highlights shortcomings in the implementation of a Convention, as well as "Direct Requests" (DR), through which it requests further information on a certain aspect from a government.
17 The case on **Colombia** concerned informal workers in agricultural enterprises.

Art. 5, Prohibition and Restriction: Competent authorities must have the power to prohibit or restrict hazardous chemicals or require authorization for their use.

Supervisory comments: Comments of the CEACR relating to Part II mostly refer to Arts. 4 and 5. For Art. 4 they are mostly related to shortcomings in the establishment of the national policy, e.g. with regard to the involvement of social partners (Lebanon, DR, 2010; Colombia, Obs, 2012), but also the lack of a national policy specifically directed at chemical safety at work (Mexico, DR, 2015) or the lack of sufficient coverage of certain types of risk, such as occupational cancer (Colombia, Obs, 2012). They also refer to a lack of implementation of elements of the policy (e.g. the evaluation and authorization of chemicals) owing to the inadequate resources of implementing authorities (e.g. Norway, Obs, 2010 and 2005).

Comments on Art. 5 refer to delays in the adoption of lists of restricted chemicals (China, DR, 2019, 2010 and 2006).

iii. Part III: Classification and related measures

Art. 6, Classification: Competent bodies must establish systems and specific criteria appropriate for the classification of all chemicals, and mixtures of chemicals, according to the type and degree of their hazards, taking into account the UN Recommendations on the transport of dangerous goods. The classification system must be progressively extended.

Arts. 7 and 8, Labels and and Safety Data Sheets (SDS): Chemicals must be labelled. The labelling of hazardous chemicals must clearly explain their hazards. Employers must be provided with SDS for hazardous chemicals. The format and content of labels and SDS must be prescribed by the competent body.

Art. 9, Suppliers: Chemical suppliers must ensure that the requirements of Arts. 6-8 are met for the chemicals they supply.

Supervisory comments: Comments of the CEACR on Part III as a whole concern the failure to adopt regulations on classification, labels and SDS for non-hazardous chemicals (Sweden, DR, 2005, 1998). Otherwise comments mostly refer to Art. 6, as well as to Arts. 7 and 9.

Comments on Art. 6 refer to the failure to take into account all relevant risks in the classification system, e.g. risks to the environment (China, DR, 2003 and 2006), or the failure to extend the classification to all relevant chemicals (Zimbabwe, Obs, 2011, 2010 and 2007). They also concern the failure to align the national classification with binding international classification systems (such as the EU REACH system – Norway, Obs, 2010) or the failure to take into account the UN Recommendation on transport (Tanzania, DR, 2007).

Comments on Art. 7 relate to the failure to provide labels in a language and format understandable to the workers (Zimbabwe, DR, 2003).

Comments on Art. 9 refer to shortcomings in the laws obliging all suppliers to comply, such as legal loopholes (e.g. Korea, DR, 2015)[18], as well as shortcomings in the implementation of such laws (e.g. Norway, DR, 2003 and 2001 and Obs, 1999).

18 In the case in question, employers used laws on the protection of business secrets, to limit the information they provided on SDS.

iv. Part IV: Responsibilities of employers

Art. 10, Identification: Employers must ensure that all chemicals are properly labelled and have SDS and that only chemicals for which a classification, labelling and SDS have been prescribed by the authority are used. In the event that they receive unlabelled chemicals and chemicals without SDS, employers must obtain the relevant information from the suppliers before using the substances. Employers must also maintain an open register of all hazardous chemicals in use, cross-referenced with the SDS. They must furthermore ensure that chemicals are used in accordance with the prescribed safety precautions.

Supervisory comments: Comments of the CEACR relating to Art. 10 refer to a failure to require employers to obtain information on unlabelled chemicals (Tanzania, DR, 2015 and 2011) or to use only classified chemicals and to maintain a register of chemicals used (Mexico, DR, 2015 and 2010).

Art. 11, Transfer of Chemicals: Employers must ensure appropriate labelling when chemicals are transferred to different containers.

Supervisory comments: Comments of the CEACR relating to Art. 11 refer to a lack of compliance of employers with the relabelling obligation (Poland, Obs, 2010).

Art. 12, Exposure: Employers must assess, monitor and record the exposure of workers to hazardous chemicals and ensure that exposure limits are not exceeded.

Supervisory comments: Comments of the CEACR relating to Art. 12 refer to the failure to oblige employers to keep exposure records for sufficient periods of time (Germany, DR, 2018, 2011 and 2010; Sweden, DR, 2005, 2003 and 1998; Finland, DR, 2019).[19] *They also relate to high numbers of employers not complying with the laws implementing the Article (Poland, Obs, 2010; Brazil, Obs, 2012, 2010 and 2008).*

Art. 13, Operational Control: Employers must assess chemicals' risks and appropriately protect workers by their choices of chemicals, technology, control measures, working systems, working practices, hygiene measures and, if the foregoing are insufficient, must provide personal protective equipment to workers free of charge.

Employers also must limit the exposure of workers to hazardous chemicals to a safe level and arrange for handling of emergencies and provision of first aid.

Supervisory comments: Comments of the CEACR relating to Art. 13 refer to insufficient enforcement of the obligations of employers and a resultant reluctance of employers to comply with assessment and protection obligations (Colombia, Obs, 2012 and 2011; Brazil, Obs, 2012, 2010 and 2008; Poland, Obs, 2010). Other comments refer to the absence of legal obligations to provide and maintain personal protective equipment free of charge (Tanzania, DR, 2015) and the absence of obligations to provide all workers exposed to chemicals with personal protective equipment, not only those involved in hazardous activities (Tanzania, DR, 2011).

19 In the case concerning **Germany**, the law required a period of 40 years to keep records on workers carrying out activities with hazardous substances. However, the law did not prescribe any minimum time for the keeping of records on risk assessments. In the cases of **Sweden** and **Finland**, the CEACR noted that there existed no laws prescribing any minimum periods for the keeping of records (except for records on carcinogens in the case of Sweden).

Art. 14, Disposal: Employers must ensure disposal of chemicals which minimizes the risk to workers and the environment, in accordance with national law.

Supervisory comments: Comments of the CEACR relating to Art. 14 refer to a lack of compliance of employers with laws requiring the safe storage and disposal of waste containers for used chemicals (Poland, Obs, 2010).

Art. 15, Information and Training: Employers must inform workers of chemical hazards to which they are exposed, instruct them on how to obtain and use the information on the label and SDS, develop safety instructions based on the SDS and train the workers on safety procedures on a continuing basis.

Supervisory comments: Comments of the CEACR relating to Art. 15 relate to insufficient enforcement of the requirements for employers to train and instruct workers (Brazil, Obs, 2012, 2010 and 2008; China, DR, 2011; Colombia, Obs, 2011; Poland, Obs, 2010). Comments also relate to insufficient obligations in national law to provide training and instruction (China, DR, 2019; Zimbabwe, DR, 2006), including a lack of legal obligations to train workers on SDS and labelling (Tanzania, DR, 2015).

Art. 16, Cooperation: Employers must cooperate with workers and their representatives as closely as possible in discharging their responsibilities.

Supervisory comments: Comments of the CEACR relating to Art. 16 refer to shortcomings in regulations requiring joint OSH committees in enterprises, such as a lack of coverage of small enterprises (Burkina Faso, DR, 2016).

v. Part V: Duties of workers

Art. 17: Workers must comply with chemical safety instructions of employers and must cooperate as closely as possible with employers in the discharge of their responsibilities. They themselves must take all reasonable steps to eliminate or minimize chemical risks.

Supervisory comments: The CEACR has not commented substantively on this Part.

vi. Part VI: Rights of workers and their representatives

Art. 18: Workers have the right to remove themselves from work situations presenting an imminent danger or serious risk, without undue consequences.

Workers also have the right to information and training on the chemicals used and their labels and SDS. Employers can however conceal information on chemicals, in accordance with regulations issued by the competent authority, if disclosure of information on the chemical to a competitor could cause economic harm.

Supervisory comments: Comments of the CEACR relating to Part VI mostly refer to the absence of specific provisions establishing the right of workers to remove themselves from dangerous situations without undue consequences (Colombia, Obs, 2018; Dominican Republic, DR, 2017; Lebanon, DR, 2016 and 2010; Mexico, DR, 2015 and 2010).

vii. Part VII Responsibility of exporting States

Art. 19: If parties export chemicals which are prohibited in their country for OSH reasons, they must communicate this information, and the reasons for the prohibition, to any importing country.

Supervisory comments: Comments of the CEACR relating to Art. 19 mostly refer to a lack of regulations to implement this obligation or a lack of information provided in the government's report on the existence such regulations (e.g. Lebanon, DR, 2016, 2015 and 2010; Brazil, DR, 2008 and 2007; Burkina Faso, DR, 2016; China, DR, 2003; Tanzania, DR, 2015). Some countries have implemented Art. 19 by requiring exporting companies to directly provide the information to importers, e.g. through SDS, in which case the CEACR asked for information ensuring that the information provided by the companies was sufficient and covered all the information required by Art. 19 (Korea, DR, 2015).

2. Chemicals Recommendation, 1990 (No. 177)

The Chemicals Recommendation No. 177 provides guidance on the implementation of the provisions of Convention No. 170 and proposes a number of more advanced measures which go beyond the obligations of the Convention. The Recommendation contains *inter alia* detailed provisions on the classification, labelling and marking of chemicals and the preparation of chemical SDS. It also lists additional information on the responsibilities of employers and on the rights of workers.

3. Code of Practice: Safety in the use of chemicals at work

The Code to a great extent follows the structure of Convention No. 170 and provides guidance on the implementation of all its provisions. It contains a section on general provisions (1), which defines the Code's objectives and scope, corresponding to the scope and definitions of Convention No. 170. The second part is on general obligations (2) and defines general obligations for authorities, employers, workers and suppliers, which further elaborate the general obligations defined in Convention No. 170. It also details the rights of workers and obligations relating to cooperation between workers and employers and further elaborates the treatment of confidential information.

The subsequent parts of the code provide extensive information on classification systems for chemicals (3), labelling and marking of chemicals (4) and SDS (5). The guidelines contained in this part reflect both the obligations in Convention No. 170, but also the general requirements of the GHS (see below under D.V.).

The following parts of the Code give guidance on the duties of employers under Convention No. 170 with regard to operational control measures (6), the design and installation of workspaces (7), work systems and practices (8), personal protection (9), information and training (10), maintenance of engineering control measures (11), monitoring in the workplace (12), medical and health surveillance (13), emergency procedures and first aid (14) and investigation and reporting of accidents, occupational diseases and other incidents (15).

4. Highlights of Convention No. 170 and its Recommendation

The obligations in Convention No. 170 are not limited to a specific list of hazardous chemicals, but generally refer to chemical substances as well as all kinds of chemical mixtures. Convention No. 170 can thus be used to address chemical hazards which are discovered following its adoption.

The GHS (see below under D.V.) was developed as a follow-up to the adoption of Convention No. 170. The Convention is in line with the GHS, as it requires ratifying States to implement all the components of the GHS, namely a classification system for all chemicals, requirements on appropriate labelling of chemicals, and the availability of SDS for workers and the training and education of workers on chemical risks. The CEACR has noted that many parties to Convention No. 170 have implemented the Convention by adhering to the GHS (see e.g. China, DR, 2019; Brazil, DR, 2007; Mexico, DR, 2010; Tanzania, DR, 2015; Italy, DR, 2007). The GHS itself is very relevant for SAICM as its implementation is *inter alia* referenced as a "main objective" in SAICM's "overarching policy framework". The GHS has been implemented by many chemical producing and using countries.

Another advantage of the requirements on classification and labelling in Convention No. 170 is that they not only apply to workplaces but also are general requirements for all chemicals used in a country (see Arts. 6 and 7). In this regard Convention No. 170 goes beyond the scope of OSH and also functions as a general instrument on chemicals. Another provision of Convention No. 170, which is not limited to OSH, is the obligation on sound disposal of chemical waste (Art. 14), which protects workers, but also the environment and the general public.

5. Promoting the global application of Convention No. 170 and its Recommendation

Feedback on the implementation of some provisions of the Convention: In response to a 2003 ILO survey, many member States indicated that the obligation of exporting States in Art. 19 of Convention No. 170 to communicate information to importing States on whether chemicals are prohibited for safety and health reasons in the country of origin has created difficulties in practice, as the responsibility fell on the State rather than on the exporting enterprise.[20]

This issue is also apparent when comparing Convention No. 170 with the Rotterdam Convention. In principle the Rotterdam Convention, in its Art. 12, contains a similar notification requirement. However, the provision is more flexible and therefore easier to implement. While Art. 19 of Convention No. 170 requires a notification for each export,[21] Art. 12(2) of the Rotterdam Convention only requires one initial notification to each importing State and then a renewal of this notification for each year the prohibition applies and the imports continue. Second, the Article also allows importing States to waive the notification requirement, which provides for even more flexibility, for example in cases where a notification is not necessary as the importing country is already fully informed on the prohibition and on the chemical's risks.

20 See http://www.ilo.org/global/standards/international-labour-standards-policy/WCMS_569991/lang--en/index.htm, p. 11.
21 It should be noted that the wording of Art. 19 of Convention No. 170 is not totally clear on this issue and that it could also be understood to require only one notification for each importing country, not one for each export. The CEACR has however so far not clarified this issue by explicitly reading the Article in the latter sense.

II. ILO instruments on major industrial accidents

The Prevention of Major Industrial Accidents Convention, 1993 (No. 174) and its accompanying Prevention of Major Industrial Accidents Recommendation, 1993 (No. 181) provide for **precautionary measures to avoid or minimize the consequences of industrial disasters** due to chemicals and other hazardous substances.

The purpose of Convention No. 174 is twofold: **prevention of major accidents** involving hazardous substances, and **limitation of the consequences of such accidents**. The Convention provides for the development of a "coherent national policy concerning the protection of workers, the public and the environment" and measures involving central and local government, employers and workers and bodies such as the police, fire and medical authorities concerned with emergency planning. Recommendation No. 181 supplements the provisions of Convention No 174, including the international exchange of information.

Both instruments were classified as **up-to-date instruments** by the ILO SRM TWG in 2017.[22] They are supplemented by the **ILO Code of Practice: Major Industrial Accidents** of 1991.[23]

1. Major Industrial Accidents Convention, 1993 (No. 174)

a. Ratifications

Convention No. 174 so far has received **18 ratifications**. By far the **most ratifications are from Europe and Central Asia (12)**, followed by the Americas (2) and the Arab States (2). Africa and Asia & the Pacific only have one ratification each.

b. Implementation

Currently, there are **14 pending comments** by the CEACR in relation to the application of Convention No. 174, relating to **14 different ratifying member State**s. A member State's implementation of Convention No. 174 has not yet been a discussed by the CAS and there also have been no article 24 or Art. 26 procedures related to it. The following main themes recur regarding the implementation of the Convention:

- lack of implementation of the obligation of exporting States to provide information to importing States on the prohibition of the use of hazardous substances, technologies or processes as a potential source of a major accident (Art. 22) *(Belgium, DR, 2011; India, DR, 2016; Russia, DR, 2016; Saudi Arabia, DR, 2015; Ukraine, DR, 2016; and Zimbabwe, DR, 2015)*
- insufficient formulation, implementation and review of a national policy on major industrial accidents (Art. 4) *(Bosnia and Herzegovina, DR, 2013; Brazil DR, 2016; Colombia, Obs and DR, 2014)*
- insufficient systems for the identification of major hazard installations (Art. 5) *(Brazil, DR, 2016; Colombia, Obs and DR, 2014; Estonia, DR, 2011; Russia, DR, 2016; Saudi Arabia, DR, 2015)*

22 See https://www.ilo.org/gb/GBSessions/previous-sessions/GB331/lils/WCMS_587514/lang--en/index.htm.
23 See https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/code-of-practice/WCMS_107829/lang--en/index.htm.

- lack of regulations guaranteeing the protection of confidential information (Art. 6) *(Brazil, DR, 2016; Colombia, Obs and DR, 2014; Estonia, DR, 2011)*
- lack of employer responsibilities to ensure a documented system of major hazard control (Art. 9) *(Armenia, DR, 2014; Brazil, DR, 2016; Colombia, Obs and DR, 2014; Russia, DR, 2016; Ukraine, DR, 2016; Zimbabwe, DR, 2015); to provide safety reports (Arts. 10, 11 and 12) (Armenia, DR, 2014; Colombia, Obs and DR, 2014; Saudi Arabia, DR, 2015; Slovenia, DR, 2015; Ukraine, DR, 2016; Zimbabwe, DR, 2015); and to notify major hazard installations (Art. 8) (Colombia, Obs and DR, 2014; Russia, DR, 2016; Saudi Arabia, DR, 2015; Zimbabwe, DR, 2015)*
- insufficient responsibilities of competent authorities in relation to off-site emergency preparedness (Arts. 15 and 16) *(Netherlands, DR, 2015; Saudi Arabia, DR, 2015) and siting policies (Art. 17) (Brazil, DR, 2016; Colombia, Obs and DR, 2014)* and
- lack of a guarantee of the rights of workers and their representatives under the Convention, such as the right to be consulted (Arts. 20 and 21) *(Colombia, Obs and DR, 2014; Estonia, DR, 2011; India, DR, 2016; Russian Federation, DR, 2016)*

The following sections give a more detailed overview of each of the provisions of Convention No. 174, coupled with information on their implementation.

i. Part I: Scope and definitions

Arts. 1 and 3: The Convention applies to all installations which handle, dispose of or store any hazardous substance in quantities which exceed a threshold, excluding nuclear and military installations and the transport of hazardous substances outside the site of an installation other than by pipeline. Member States can, after consultation of stakeholders and social partners, exclude certain types of installation or branches of economic activity for which equivalent protection is provided.

Art. 2: In the event that a member State is, owing to special problems, unable to implement all safety measures under the Convention immediately, it must draw up and implement, in consultation with social partners and stakeholders, a plan for the Convention's progressive implementation.

Supervisory comments: CEACR comments on Part I mostly relate to the scope set by Arts. 1 and 3. They concern the lack of coverage of certain branches of industrial activity (Saudi Arabia, DR, 2015).[24]

ii. Part II: General principles

Art. 4: Each member State must, in consultation with social partners and other affected parties, formulate, implement and periodically review a national policy on the protection of workers, the public and the environment from major accidents. The policy shall be implemented through preventative and protective measures and shall, where practicable, promote the best available technologies.

Supervisory comments: CEACR comments on Art. 4 inter alia relate to the total lack of the formulation of a policy (Bosnia and Herzegovina, DR, 2013) or the lack of a specific policy on industrial accidents, apart from general OSH policies (Brazil DR, 2016) or general disaster policies (Ukraine, DR, 2016). They also concern incomplete policies, e.g. only addressing risks to workers, not to

24 In the case on **Saudi Arabia**, the government provided legislation covering the oil, petrochemical, chemical manufacturing, electricity, water, gas, mining, metal manufacturing, civil explosives, industrial services, communication and port industries. It did however not indicate whether there existed other industries with major hazard installations in the country and whether there existed laws covering such other industries.

the public or the environment (Colombia, Obs and DR, 2014), or a lack of consultation with social partners during the policy's formulation (Saudi Arabia, DR, 2015). Comments also refer to insufficient measures to implement the policy (India, DR, 2016).

Art. 5: The competent body must, in consultation with social partners and stakeholders, establish and regularly review and update a system for the identification of major hazard installations.

Supervisory comments: Many CEACR comments on Art. 5 refer to several cases of a total lack of a system to identify installations (Brazil, DR, 2016; Colombia, Obs and DR, 2014; Estonia, DR, 2011; Saudi Arabia, DR, 2015; Zimbabwe, DR, 2015). Other comments relate to insufficient consultation of social partners during the system's implementation (Russia, DR, 2016; Ukraine, DR, 2016) as well as a lack of review and updating of the system (Ukraine, DR, 2016).

Art. 6: Special provision for the protection of confidential data transmitted in accordance with the Convention (Arts. 8, 12, 13, 14) must be made.

Supervisory comments: CEACR comments on Art. 6 relate to the lack of sufficient regulations guaranteeing the protection of confidential information transmitted by enterprises to the authorities (such as the notification of major hazard installations and accidents and the sending of safety reports) (Brazil, DR, 2016; Colombia, Obs and DR, 2014; Ukraine, DR, 2016).

iii. Part III: Responsibilities of employers

Art. 7, identification: Employers must identify major hazard installations in their enterprises, in accordance with the system under Art. 5.

Supervisory comments: There are not many comments from the CEACR on Art. 7. In a few cases, however, the Committee noted a failure of the government to indicate measures it had adopted to implement the Art. (Brazil DR, 2012; Russia, DR, 2016; Saudi Arabia, DR, 2011).

Art. 8, Notification: Employers must notify the competent authority of every major hazard installation they have identified, prior to putting it into operation. They must also notify the closure of any installation.

Supervisory comments: In a few cases the CEACR noted a failure of the government to name measures it adopted to implement the notification requirement in general (Brazil, DR, 2007) or concerning some types of installation (Zimbabwe, DR, 2015).[25] *Other comments also concerned the absence of regulations prescribing the notification of an installation's closure (Slovenia, DR, 2014) or a fixed time-frame for the notification of the closure (Russia, DR, 2012).*

Art. 9, Arrangements at the Installation: For every major hazard installation employers must create a hazard control system which covers risk assessment and the identification and analysis of hazards, technical safety measures and organizational safety measures (training, instruction, safety equipment, control of staffing levels and working hours, definition of responsibilities of, and controls on, outside contractors and temporary workers) as well as emergency plans and procedures and measures to limit the consequences of a major accident.

The system must also include procedures for the recording of information on accidents and nearmisses and their analysis. Lessons learned must be recorded and discussed with workers.

25 In the case on **Zimbabwe**, the government only provided regulations covering factories but no other types of installation.

Supervisory comments: In a few cases the Committee noted a total failure to adopt measures to implement Art. 9 (Brazil DR, 2012). It also noted inadequate implementation, e.g. through regulations which only prescribe a few general requirements for the hazard control system, but which do not address all the specific requirements listed in the Article (Colombia, DR, 2014; Ukraine, DR, 2014 and 2016; Russia, DR, 2016; Brazil. DR, 2016; Zimbabwe, DR, 2015).

Some comments also refer to the consultation requirements, noting a failure to adopt specific regulations on consultations with workers on the control system, aside from general consultation requirements (Finland, DR, 2019).

Arts. 10, 11, and 12, Safety Report: Employers must prepare a safety report based on the requirements of Art. 9 before putting into operation a major hazard installation. The report must be reviewed and updated in the event of significant modification of the installation or if the review becomes necessary owing to technological changes or a new hazard assessment. Otherwise it must be updated at intervals prescribed by law and at the request of the authorities.

The safety report must be made available to the competent authority.

Supervisory comments: Some comments of the CEACR on the safety report obligations note a complete failure to implement these requirements (Brazil, DR, 2012; Colombia, Obs, 2014).[26] *Other comments refer to shortcomings in the content of safety reports, e.g. incomplete implementation of the obligation to report on all requirements listed in Art. 9 (Armenia, DR, 2018; Ukraine, DR, 2016).*

Further comments note that the national legislation does not prescribe time limits for the preparation of the safety reports in accordance with the Convention (Netherlands, DR, 2010) or does not require an update of the report under all the conditions listed in the Convention (Armenia, DR, 2018; Colombia, DR, 2018; Slovenia, DR, 2015).

Some comments of the CEACR also refer to a lack of enforcement of regulations on safety reports, resulting in many employers failing to respect the requirements (Zimbabwe, DR, 2015).

Arts. 13 and 14, Accident Reporting: Employers must inform competent authorities as soon as a major accident occurs. They must, within a fixed time frame, present to the competent authority a detailed report, including an analysis of the causes and consequences of the accident, the measures taken to mitigate it and recommendations to prevent recurrences.

Supervisory comments: The CEACR did not make many comments on Arts. 13 and 14. A few comments, however, note a complete failure to implement these Articles (Brazil, DR, 2012; Saudi Arabia, DR, 2015; Colombia, DR, 2018 and 2014).[27] *Other comments note incomplete implementation, e.g. with regard to notifying the accident without delay (Russia, DR, 2012) or an exclusion of certain economic sectors (e.g. all sectors except for mining) from the notification requirement (Ukraine, DR, 2014).*

26 In the case of **Brazil**, the implementation failed due to a lack of tripartite consensus on the implementation measures. In the case of Colombia, the reasons were not clear enough for the CEACR.

27 See the previous footnote. In the case of **Saudi Arabia**, the reasons for the implementation failure were also unclear.

iv. Part IV: responsibilities of competent authorities

Arts. 15 and 16, Off-site Emergency Preparedness: Authorities must establish and update emergency plans for the protection of the public and the environment outside each installation, taking into account the information provided by employers. Authorities must also ensure that information on safety measures and correct behaviour during accidents is disseminated to the concerned public, that warning of accidents is given as soon as possible and, in the event of transboundary consequences, that neighbouring States are informed.

Supervisory comments: Comments of the CEACR on off-site emergency requirements note a general lack of requirements on the establishment of emergency plans (Zimbabwe, DR, 2015) or at least a lack of regulations requiring a regular review and update of these plans (Russia, DR, 2016).

Other comments refer to a lack of regulations requiring authorities to inform the public on safety measures and emergency plans (Netherlands, DR, 2015; Saudi Arabia, DR, 2015; Zimbabwe, DR, 2015) or to issue warnings and to inform neighbouring States (Russia, DR, 2016).

Art. 17, Siting of Major Hazard Installations: Authorities must establish a comprehensive policy to distance installations from residential areas and public facilities.

Supervisory comments: Comments of the CEACR on siting requirements refer to a lack of specific provisions to regulate the siting of major hazard installations (Netherlands, DR, 2015; Russia, DR, 2016; Brazil, DR, 2016; Colombia, Obs and DR, 2014).

Arts. 18 and 19, Inspection: Authorities must have competent staff to inspect installations and assess and advise on matters relevant to the Convention. Workers' and employer's representatives have the right to accompany inspectors, unless this is prejudicial to the inspector's duties.

Authorities must have the right to suspend operations posing an imminent danger.

Supervisory comments: Comments of the CEACR on inspection requirements refer to practical difficulties of inspection services in fulfilling their duties, mostly related to insufficient resources (Colombia, DR, 2018). They also indicate the lack of explicit provisions allowing worker and employer representatives to accompany inspectors (Russia, DR, 2016; Ukraine, DR, 2016 and 2014).

Comments on the right to suspend operations in Art. 19 have inter alia referred to a lack of regulations giving effect to this provision (Russia, DR, 2016).

v. Part V: Rights and duties of workers and their representatives

Art. 20, Rights of Workers: In order to ensure a safe work system, workers and their representatives must be consulted through cooperative mechanisms. They must in particular be consulted on the preparation of safety reports, emergency plans and accident reports.

Workers and their representatives must also be informed on the hazards of all installations and on any safety instructions from the authorities. They must be regularly instructed and trained in practices and procedures for the prevention of major accidents.

Workers also must have the right to take corrective action and, if necessary, remove themselves from imminent danger of a major industrial accident, without undue consequences. They must furthermore be allowed to discuss with their employer any hazards they consider capable of generating major accidents and to notify such hazards to the authorities.

Art. 21, Duties of Workers: Workers at major hazard installations must comply with all safety and emergency procedures related to the installation.

Supervisory comments: Comments of the CEACR relating to Part V mostly refer to Art. 20. They inter alia refer to shortcomings in guaranteeing some workers' rights, such as the lack of specific regulations on workers' rights relating to industrial accidents, apart from general provisions on workers' rights (Zimbabwe, DR, 2015; s, Obs and DR, 2014; Estonia, DR, 2011), the absence of guarantees of some of the rights under Art. 20, such as the right to be informed, consulted and to discuss and notify hazards (Russian Federation, DR, 2016; Ukraine, DR, 2016) or the failure to extend workers' rights to their representatives (Saudi Arabia, DR, 2015).

Other comments also note the absence of concrete regulations giving workers the right to corrective action in the event of imminent danger, without undue consequences (India, DR, 2016).

vi. Part VI: Responsibility of Exporting States

Art. 22: Member States exporting hazardous substances, technologies or processes which they have prohibited as potential sources of major industrial accidents must inform importing countries of the prohibition and the reasons for it.

Supervisory comments: Comments of the CEACR on Art. 22 relate to either a complete a lack of implementation of the obligation (India, DR, 2016; Russia, DR, 2016; Ukraine, DR, 2016; Zimbabwe, DR, 2015), or shortcomings such as the absence of legal requirements obliging the government to provide the information (Belgium, DR, 2011) or also the failure to require notification in the event of an export of relevant technologies and processes (Saudi Arabia, DR, 2015).

2. Major Industrial Accidents Recommendation, 1993 (No. 181)

Recommendation No. 181 provides guidance on the implementation of some of the provisions of Convention No. 174 and proposes more advanced measures which go beyond the obligations in the Convention.

The Recommendation describes *inter alia* a system for an intergovernmental exchange of information on major industrial accidents, urges multinational enterprises to develop common prevention measures for all their undertakings and calls for the establishment of compensation schemes for workers harmed by industrial accidents. It also provides guidance on the implementation of national policies on major industrial accidents.

3. Code of Practice: Major Industrial Accidents

The ILO Code of Practice: Major Industrial Accidents was adopted in 1991 prior to the adoption of Convention No. 174 and Recommendation No. 181.[28] It can be used as a guidance tool for the implementation of the Convention and Recommendation. The Code is aimed at providing guidance for setting up an administrative, legal and technical system for the control of major hazard installations. In so doing it seeks *inter alia* to protect workers, the public and the environment by preventing major accidents from occurring at these installations and minimizing the

28 The historic reason for the adoption of the Code of Practice prior to the adoption of the Convention can be seen in the fact that, owing to a number of dramatic industrial accidents in the 1980s, the adoption of measures for the prevention of such accidents rose on the international agenda and was therefore handled by the ILO. At the outset, however, ILO constituents were unable to decide on the adoption of a binding Convention. However they agreed on the need for some measure and therefore agreed on the convening of a meeting of technical experts to draft a Code of Practice as a guidance document. A few years later the necessary consensus for adoption of a binding instrument was attained and Convention No. 174 and Recommendation No. 181 were drafted and adopted.

consequences of a major accident either on- or off-site, for example by proposing an appropriate separation of major hazard installations and housing as well as other nearby centres of population, such as hospitals, schools and shops. It also provides guidance on appropriate emergency planning.

4. Highlights of Convention No. 174 and its Recommendation

Like Convention No. 170, Convention No. 174 also generally applies to all hazardous substances which can cause major industrial accidents, and not just a fixed list of chemicals, and is thereby much more flexible as regards extending coverage to emerging chemical hazards.

Convention No. 174 also not only protects workers but also the public and the environment from hazards due to major industrial accidents.

5. Promoting the global application of Convention No. 174 and its Recommendation

Feedback on the implementation of some provisions of the Convention: In response to a 2003 ILO survey, many member States indicated that the obligation of exporting States, as set out in Art. 19 of Convention No. 170, to communicate information to importing States on whether chemicals are prohibited for safety and health reasons in the country of origin, created difficulties in practice, as the responsibility fell on the State rather than on the exporting enterprise.[29]

III. Relevant ILO instruments addressing the fundamental principles of OSH

The main ILO Conventions addressing the fundamental principles of OSH are the Occupational Safety and Health Convention, 1981 (No. 155), and its Protocol of 2002, the Occupational Health Services Convention, 1985 (No. 161) and the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187). This section, however, only analyses Convention No. 155 and its supplementary Recommendation No. 164 as, of the three Conventions, it is the one with the most supervisory comments related to chemical risks.[30]

Convention No. 155 and Recommendation No. 164 are **general OSH instruments** of the ILO, directed at **all risks to which workers can be exposed**. They thus also **cover all hazards related to chemicals**. They are both **up-to-date** ILO instruments, in line with the modern regulatory approach of the ILO on OSH.

29 See http://www.ilo.org/global/standards/international-labour-standards-policy/WCMS_569991/lang--en/index.htm, p. 11.
30 Convention No. 161 was analysed, but due to the lack of chemicals related supervisory comments on the implementation of the Convention, it was not included, given the length of the report.

1. Occupational Safety and Health Convention, 1981 (No. 155)

a. Ratifications

Convention No. 155 has so far been **ratified by 69 States**, making it one of the most ratified ILO Conventions on OSH.

b. Implementation

As mentioned above, Convention No. 155 generally applies to all hazards to which workers are exposed and prescribes measures to be taken by governments, employers and workers to prevent these hazards and mitigate the consequences of resulting occupational accidents and diseases. Risks related to chemicals are thus also covered. Alongside the general provision covering all risks, some of the provisions of Convention No. 155 also directly refer to chemical risks:

- Art. 5(a): The general national OSH policy, which is required by the Convention, must take into account the design, testing, choice, substitution, installation, arrangement, usage and maintenance of the material elements of work including chemical substances.
- Arts. 11(b) and (f): In order to give effect to the national OSH policy, authorities must determine all hazardous substances, exposure to which is prohibited, limited or made subject to authorisation, and must ensure that the introduction and extension of systems examining chemical agents at work is progressively carried out.
- Art. 12: persons who design, manufacture, import, provide or transfer chemical substances for occupational use must ensure that these substances do not entail a risk to health and safety and must make available information and instructions on the correct use of the substances, on their dangerous properties and how hazards can be avoided. In so doing they also must undertake research and keep up with technical knowledge.
- Art. 16(2): Employers must ensure that chemical substances under their control are without risk to health.

The ILO supervisory bodies have produced a number of comments in which they specifically refer to chemicals:

In the 2009 General Survey of the CEACR on Convention No. 155 and Recommendation No. 164, the Committee noted that the building of OSH capacities is a permanent effort being made in all ILO member States and that progress is still needed, *inter alia* with regard to increasing efforts to assess the hazards and risks associated with chemicals (p. 102).

Major case-specific CEACR comments on chemicals relate to:

- a lack of inspection and control of the chemical industry, resulting in non-compliance with safety measures and contamination of workers (Art. 9) (Brazil, Obs, 2012, 2010, 2008, 2003, 2000, 1999, 1998 and 1996) and leading to major accidents and mass contaminations of workers and the public (Art. 9) (Mexico, Obs, 1996);
- lack of enforcement of safety measures in relation to chemical hazards (Art. 9) *(Mongolia, Obs, 2011);*
- lack of adequate exposure limits for certain chemicals to protect workers (Art. 11(b) and (f)) *(Zambia, DR, 2019);*
- lack of legislation to oblige designers of (chemical) substances for occupational purposes to ensure that those substances do not entail a risk to health and safety and to provide information on hazards and instructions on how to mitigate risks (Arts. 12(a) and (b)) *(China-Macau, DR, 2019);*

- lack of obligation of employers to put in place controlling measures for chemicals at the workplace (Art. 16) *(Antigua and Barbuda, DR, 2019; Kazakhstan, DR, 2016);* and
- lack of training of workers on hazardous chemicals (Art. 19(d)) *(China, Obs, 2011)*.

2. Occupational Safety and Health Recommendation, 1981 (No. 164)

Recommendation No. 164 provides guidance on the implementation of some of the provisions of Convention No. 155 and proposes more advanced measures which go beyond the obligations contained in the Convention. It recommends *inter alia* the adoption of measures to ensure the safe manufacture, packing, labelling, transport, storage and use of dangerous substances and agents, the disposal of their wastes and residues, and, as appropriate, their replacement by other substances or agents which are not dangerous or at least less dangerous (para. 3(h)).

IV. List of Occupational Diseases Recommendation, 2002 (No. 194)

Recommendation No. 194 on the list of occupational diseases is an instrument which contains a list of the main diseases that should be qualified as occupational diseases. The list of occupational diseases (in an Annex to the Recommendation) was updated in 2010. The Recommendation represents the latest worldwide consensus on diseases which are internationally accepted as caused by work. It serves as a model for the establishment, review and revision of national lists of occupational diseases.

The list reflects the state-of-the-art development in the identification and recognition of occupational diseases in the world. It serves both a preventative purpose against occupational diseases and a compensatory purpose, by determining the types of diseases for which workers should be compensated under employment injury schemes.

Recommendation No. 194 is very relevant to chemical risks at work, as it mostly covers diseases caused by exposure to hazardous substances. Its most relevant section in this regard is section No. 1.1 of the Annex on diseases caused by chemical agents. It lists 40 different chemical substances (e.g. beryllium, cadmium, phosphorus, chromium, etc.) and groups of substances (asphyxiants, isocyanates, pesticides, etc.), exposure to which can cause diseases. In addition, under sub-Section 1.1.41 it also contains a "catch-all" clause which refers to all other chemical substances which can cause diseases.

Another relevant section is section 3 on occupational cancer, which lists a number of chemical agents causing cancer, such as benzidine, benzene and asbestos. Other sections of the list also refer to occupational diseases caused by chemicals, such as No. 2.2.4 relating to skin diseases caused by all kinds of chemical agents, or No. 2.1.12 relating to respiratory diseases caused by different substances.

V. ILO instruments on occupational cancer

The Occupational Cancer Convention, 1974 (No. 139) and the Occupational Cancer Recommendation, 1974 (No. 147) address the **prevention and control of occupational hazards caused by carcinogenic substances and agents**. The intention behind the instruments was to lay down general principles for implementation at national level with a view to the development of adequate control programmes for occupational cancer.

The Convention reflects the most essential principles on the mitigation of occupational risks related to carcinogenic substances, that is the replacement of carcinogenic substances by less dangerous substances, the establishment of a list of carcinogens to be prohibited or made subject to authorisation or control, the recording of data concerning exposure and exposed workers, medical surveillance and information, and education. In the Recommendation, these principles are expanded.

Large numbers of the carcinogens covered by the instruments are chemicals. Both instruments are **up-to-date ILO instruments**, in line with the modern regulatory approach of the ILO on OSH.

1. Occupational Cancer Convention, 1974 (No. 139)

a. Ratifications

Convention No. 139 so far has received **41 ratifications**. Most of the ratifications are from Europe and Central Asia (25), followed by the Americas (6), Asia (4) and Africa and the Arab States, with three each. The Convention regularly receives new ratifications, the last one being the Netherlands in 2017.

Most of the ratifications are from Europe and Central Asia (25), followed by the Americas (6), Asia (4) and Africa and the Arab States, with three each. **Ratifications have been decreasing over time**, with 22 ratifications between 1975 and 1990, 15 between 1991 and 2005 and just 4 since 2006.

b. Implementation

There are currently **36 pending comments** of the CEACR related to Convention No. 139, **relating to 34 different States**. The CAS has addressed the Convention on three occasions, in relation to Peru (1992) and Guinea (1991 and 1989). One representation under art. 24 concerning Convention No. 139 was made against Germany in 1987, but was declared not receivable. There has been no art. 26 complaint on Convention No. 139. Major topics occurring in the supervisory comments are:

- insufficient implementation of the requirement for health checks of workers during and after employment (Art. 5) *(Nicaragua, DR, 2000; Croatia, DR, 2006; Denmark, DR, 2010; Argentina, DR, 2003; Slovenia, DR, 2004; Slovakia, DR, 2013 and 2011)*
- insufficient inspection services for supervising the Conventions' application (Art. 6(c)) *(Japan, DR, 2016; Finland, DR, 2006; Brazil, Obs, 2010; Hungary, DR, 2017; Uruguay, Obs, 2010; Venezuela, DR, 2015);* and
- insufficient systems for recording carcinogens and their associated risks (Art. 3) *(Nicaragua, DR, 2000; Guyana, Obs, 2004; Egypt, DR, 1998).*

The following sections give a more detailed overview of each of the provisions of Convention No. 139, coupled with information on their implementation.

i. Art. 1, list of prohibited and regulated carcinogen substances

Each party must periodically determine a list of carcinogenic substances, the use of which is either banned from workplaces or subject to authorization and control or to other restrictions. The list must be determined taking account of the latest information contained in Codes of Practice and guidelines of the ILO and other competent bodies.

Supervisory comments: In some of its comments relating to Art. 1, the CEACR has noted a failure to determine the list of carcinogenic chemicals (Uruguay, Obs, 2006; Ukraine, DR, 2014; Peru, CAS, 1992; Guinea, CAS, 1989 and 1991), e.g. due to a lack of a regulatory mechanism to develop the list (Guyana, Obs, 2006). In other cases a list existed, but its regular update was not regulated (Lebanon, DR, 2016; Brazil, Obs, 2012; Uruguay, Obs, 2010), or the update was not done sufficiently frequently or sufficiently thoroughly, owing to inefficient regulatory mechanisms (Korea, Obs, 2014).

Other comments refer to a failure to take account of up-to-date international guidelines, such as the guidelines of the International Agency for Cancer Research (IARC), when determining the list (Finland, Obs, 1997).

ii. Art. 2, replacement of carcinogens

Parties must make every effort to replace all carcinogens to which workers are exposed by non-carcinogens or less harmful ones. The number of workers exposed to carcinogens must be as low as possible.

Supervisory comments: In some of its comments related to Art. 1, the CEACR has noted a complete failure to implement the Article (Afghanistan, DR, 2007; Nicaragua, DR, 2000; Egypt, DR, 1998),[31] or at least a partial failure related to some of the requirements, especially the requirement to replace carcinogens (Croatia, DR, 2016; Korea, Obs, 2014).

iii. Art. 3, measures to protect workers and records

Parties must prescribe all necessary measures to protect workers against carcinogens and must ensure the establishment of an appropriate system of records.

Supervisory comments: In some of its comments relating to Art. 1, the CEACR has noted a total failure to implement the Article (Nicaragua, DR, 2000; Afghanistan, DR, 2007).[32] Other comments indicate incomplete implementation of the obligation to ensure appropriate records of all carcinogenic substances, e.g. national regulations requiring employers to record carcinogenic substances and resulting diseases at their workplace, but which do not ensure a general system of records managed by the authorities (Guyana, Obs, 2004). Other comments relate to incomplete recording systems, e.g. systems only recording workers already suffering from a disease but not exposure risks (Egypt, DR, 1998), or the exclusion of some types of companies, e.g. small companies with under 15 employees, from recording obligations (Egypt, DR, 1998).

31 In the case of **Nicaragua**, the CEACR noted that the legislation on the implementation of the Convention, which the government provided, did not contain any provisions implementing the requirements contained in Arts. 2, 3 and 5 of the Convention. In this regard, the government indicated that it had lacked the technical expertise to draft appropriate legislation to implement these Articles and that it was in the course of receiving technical assistance from a multidisciplinary team, to help it with drafting the legislation. In the case of **Afghanistan**, the government, from the Convention's ratification in 1979, failed to indicate any legislation to implement the Convention. In the case of **Egypt**, the government referred to a general provision requiring employers to "ensure safety and health in the workplace". In its comments on Art. 2, the CEACR noted that this general provision was insufficient for the Article's implementation and that specific regulations requiring the replacement of carcinogens were needed.

32 See the previous footnote for more details on the cases of **Afghanistan** and **Nicaragua**.

iv. Art. 4, information for workers

Parties must ensure that workers who are exposed to carcinogens are provided with all available information on the dangers involved and the safety measures to take.

Supervisory comments: There are only a few CEACR comments on Art. 4 as, with a few exceptions (e.g. Egypt, DR, 1998; Afghanistan, DR, 2007), most parties have included such information requirements in their legislation implementing the Convention.

The CEACR did, however, in a few instances note a lack of enforcement of information requirements, resulting in non-compliance by many employers (Brazil, Obs, 2012).

v. Art. 5, medical checks

Parties must ensure that workers are, during and after employment, provided with medical checks and other tests which are necessary to evaluate their exposure to carcinogens and their health status in relation to the occupational hazards.

Supervisory comments: In some of its comments related to Art. 1, the CEACR noted a total failure to implement the Article (Nicaragua, DR, 2000; Croatia, DR, 2006)[33] or at least a partial failure, e.g. relating to health checks following termination of employment (Denmark, DR, 2010; Argentina, DR, 2003; Slovenia, DR, 2004; Slovakia, DR, 2013 and 2011). Other comments refer to shortcomings in implementation, for example on regulations which only apply to workers who have already contracted a disease (Egypt, Obs, 2001), or on provisions which only provide for voluntary checks at the discretion of workers (Sweden, DR, 1999). Sometimes provisions on checks also are too general and unspecific and therefore do not guarantee that checks are undertaken whenever necessary (Egypt, DR, 2004). In other comments the CEACR also noted that, while checks are performed, they are not free of charge for workers (Afghanistan, DR, 2016).

Comments of the CEACR also refer to an insufficient enforcement of requirements on health checks, resulting in a low number of workers checked (Korea, Obs, 2014; Brazil, Obs, 2012).

vi. Art. 6, implementation measures

Parties must implement the Convention through laws, regulations or any other method consistent with national practice, in consultation with social partners. They must designate competent bodies responsible for the Convention's implementation. They must also provide appropriate inspection services to supervise the Convention's application in practice.

Supervisory comments: There are not as many CEACR comments on the obligation to implement the Convention by appropriate means. They mostly refer to cases in which parties implemented the Convention via regulations which are not legally binding (Ecuador, DR, 1992; Guyana, Obs, 2002). Other comments also refer to a lack of involvement of social partners in the implementation process (Peru, Obs, 2015).

The CEACR also commented on the obligation to provide inspection services. These comments mostly refer to issues with the quality of the inspection services, such as problems with understaffing, underfunding or insufficient expertise (Japan, DR, 2016; Finland, DR, 2006; Brazil, Obs, 2010; Hungary, DR, 2017), or issues concerning insufficient setup of the structure and competences of inspection services, such as those that only act on complaints from workers (Uruguay, Obs, 2010), or cases in which inspection duties are entrusted to authorities with other roles such as the public prosecution service (Venezuela, DR, 2015).

33 For the case on **Nicaragua**, see the previous footnote. In the case of **Croatia**, the government indicated to the CEACR that it had not been able to draft and adopt the relevant legislation, but that a legislative process in this regard was under way.

2. Occupational Cancer Recommendation, 1974 (No. 147)

Recommendation No. 147 provides guidance on the implementation of some of the provisions of Convention No. 139 and proposes more advanced measures which go beyond the obligations contained in the Convention.

The Recommendation proposes *inter alia* additional measures on the prevention of occupational cancer, the supervision of the health of workers, and the information and education of workers.

3. Highlights of Convention No. 139 and Recommendation No. 147

A highlight of the Convention has a relatively high ratification rate compared to Conventions Nos. 170 and 174.

Another strength of the Convention is the innovative mechanism in Art. 1, which obliges ratifying States to periodically review their list of hazardous carcinogenic substances and adapt it to new scientific standards. This obligation takes into account the fact that scientific knowledge of carcinogens is rapidly evolving and that new carcinogens are regularly discovered. The mechanism in Art. 1 thus ensures that the national laws on carcinogens are constantly updated and keep up with scientific progress.

VI. ILO instruments on air pollution

The Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148) and its corresponding Working Environment (Air Pollution, Noise and Vibration) Recommendation, 1977 (No. 156) were adopted with the aim of providing a regulatory tool to **protect workers in all branches** of economic activity from **key risks in the working environment**, namely air pollution, vibration and noise. While the main focus of the instruments is not on chemicals, they are nevertheless relevant to chemical risks as they also cover air pollution by chemical substances. Both are **up-to-date** ILO instruments in line with the modern regulatory approach of the ILO on OSH. The instruments cover **preventative and protective measures** relating to the design and organisation of workplaces as well as other preventative measures to reduce risks for workers, including the supervision of the health of workers and the requirement to inform and train workers on risks, as well as to conduct research to assess existing risks.

1. Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148)

a. Ratifications

Convention No. 148 has so far received **46 ratifications**. Most ratifications are from Europe and Central Asia (33), followed by Africa (6), the Americas (5) and the Arab States (2). There are no ratifications from South and East Asia. The Convention regularly receives new ratifications, the last one being by the Netherlands in 2017.

Most ratifications are from Europe and Central Asia (33), followed by Africa (6), the Americas (5) and the Arab States (2). There are no ratifications from South and East Asia. **The ratification rate has been decreasing over time** with 22 ratifications from 1978-1990, 17 from 1991-2000, 4 from 2001-2010 and only 1 since 2011.

b. Implementation

i. Overview of the provisions of the Convention

Part I, Scope and Definitions (Arts. 1-3): The Convention applies to all branches of economic activity (Art. 1). It covers the contamination of air by all harmful or dangerous substances, including chemicals (Art. 3). Ratifying States can decide not to accept the Convention's obligations on air pollution (Art. 2), which however has so far not been done.

Part II, General Provisions (Arts. 4-7): Ratifying States must adopt regulations prescribing measures to protect workers from hazards due to air pollution (Art. 4). Social partners must be involved in the drafting, adoption and implementation of these regulations (Art. 5). Employers are responsible for ensuring compliance with the regulations. Employers engaged in the same workplace must cooperate on compliance measures (Art. 6). Workers must comply with safety measures. They also have the right to be informed and trained on air pollution hazards and on personal protective equipment by the authorities in relation to such risks (Art. 7).

Part III, Preventative and Protective Measures, (Arts. 8-14): Authorities must establish and regularly update criteria for the determination of air pollution hazards and, where appropriate, exposure limits, in accordance with up-to-date scientific knowledge (Art. 8). Working environments must be kept free from hazards due to air pollution as far as possible (Art. 9). In the event that a hazard cannot be mitigated, protective equipment must be provided (Art. 10). The health of workers exposed to air pollution hazards must be examined before and during the work assignment, at suitable time intervals, free of charge. Workers must be removed from occupations found to be medically inadvisable. They must either be transferred to other suitable employment, or else measures such as social security must be put in place to maintain their income (Art. 11). All work processes and substances exposing workers to air pollution hazards must be notified to the authorities (Art. 12). All persons exposed to hazards must be adequately informed and instructed on safety measures (Art. 13). Research in the field of prevention and control should be promoted (Art. 14).

Part. IV, Measures of Application, (Arts. 15-16): Employers must appoint a competent person to address air pollution risks (Art. 15). Parties must adopt appropriate laws and regulations and prescribe appropriate penalties and they must provide adequate inspection services to ensure the correct implementation of the Convention (Art. 16).

ii. Supervisory comments

There are currently **40 pending comments** of the CEACR on Convention No. 148, **concerning 38 different States**. The CAS has so far not addressed the Convention. One representation under art. 24 concerning Convention No. 148 was made against Germany in 1987, but was declared not receivable. There has been no art. 26 complaint under Convention No. 148. The main supervisory comments relating to air pollution by chemicals concern:

- the failure to ensure cooperation on safety measures against air pollution of two or more employers present in the same workplace (Art. 6) *(China-Macau, DR, 2019; Tajikistan, DR, 2019; Azerbaijan, Obs, 2018; Ecuador, Obs, 2003; Guatemala, DR, 2016; Russia, DR, 2016; Seychelles, DR, 2015; Spain, Obs, 2015)*
- lack of exposure limits on air pollution at work (Art. 8) *(China-Macau, DR, 2019; Finland, Obs, 1995; San Marino, DR, 2010; Anguilla, Obs, 2006; Iraq, DR, 2016; Tanzania, DR, 2010)*
- no or insufficient criteria laid down for assessing all occupational hazards related to air pollution (Art. 8) *(Finland, Obs, 1995; San Marino, DR, 2010; Tanzania, DR, 2010)*
- lack of regular revision of exposure limits and criteria to determine hazards due to air pollution (Art. 8) *(Egypt, DR, 1994)*
- lack of regulations requiring employers to provide workers with personal protective equipment in the event that air pollution hazards cannot be mitigated (Art. 10) (Guinea, Obs, 2009) and to prohibit workers from working without personal protective equipment (Art. 10) *(China-Macau, DR, 2019; Guatemala, DR, 2016)*
- lack of regular health checks for workers exposed to air pollution (Art. 11(1)) (Costa Rica, Obs, 2008) and lack of health checks prior to hazardous assignments (Art. 11(1)) *(Ecuador, Obs, 2003)* and
- lack of regulations requiring the provision of alternative employment or the maintenance of the income of workers removed from hazardous occupations (Art. 11(3)) *(Hungary, Obs, 2012; Germany, DR, 2011; Malta, DR, 2013; Montenegro, DR, 2015; Tanzania, DR, 2015)*.

2. Working Environment (Air Pollution, Noise and Vibration) Recommendation, 1977 (No. 156)

Recommendation No. 156 provides guidance on the implementation of some of the provisions of Convention No. 148 and proposes more advanced measures which go beyond the obligations contained in the Convention. The Recommendation proposes additional preventative and protective measures against air pollution and additional measures regarding the supervision of the health of workers and the information and education of workers.

VII. ILO instruments on asbestos

The ILO Asbestos Convention, 1986 (No. 162) and Asbestos Recommendation, 1986 (No. 172) aim at **the prevention and control of health hazards relating to the use of asbestos**, including through replacement or prohibition where necessary. They primarily provide for **preventative and control measures in exposure to asbestos**. Where exposure to asbestos may not be prevented or adequately controlled, the replacement of asbestos by substitutes and the prohibition of certain types of asbestos shall be undertaken.

Both instruments were classified as **up-to-date** ILO instruments, in line with the modern regulatory approach of the ILO to OSH, by the ILO Standard Review Mechanism Technical Working Group (SRM TWG) at its 3rd meeting in 2017.[34]

1. Asbestos Convention, 1986 (No. 162)

a. Overview of the ratifications of Convention No. 162

Convention No. 162 so far has received **35 ratifications**. Most ratifications are from Europe and Central Asia (20), followed by the Americas (8), Africa (4) and Asia and the Pacific (3).

b. Analysis of the provisions of Convention No. 162 and their implementation

i. Overview of the provisions of Convention No. 162

Part I, Scope and Definitions (Arts. 1-2): The Convention applies to all branches of economic activity. Parties may however exclude some branches under certain conditions (Art. 1).

Part II, General Principles (Arts. 3-8): Parties are required to adopt regulations prescribing measures to protect workers from hazards relating to asbestos (Art. 3). This Part also contains obligations on the consultation of social partners (Art. 4) on the establishment of a proper enforcement system including the prescription of penalties (Art. 5), on ensuring the responsibility of employers for safety measures, and on requiring several employers operating on the same site to cooperate (Art. 6). Part II also requires workers to comply with safety measures (Art. 7) and requires employers and workers and their representatives to cooperate as closely as possible (Art. 7).

Part III, Protective and Preventative Measures (Arts. 9-19): This Part prescribes a number of safety measures, including measures on the prevention and control of asbestos exposure (Art. 9); its replacement and total or partial prohibition whenever possible (Art. 10); notification of asbestos use to the authorities (Art. 13); adequate labelling (Art. 14); prescription of exposure limits (Art. 15); adequate work clothing and washing of clothing and appliances (Art. 18); and adequate disposal of used asbestos (Art. 19(1)). It also prohibits the use of certain types of asbestos (crocidolite asbestos and asbestos spray) (Arts. 11-12). Next to the protection of workers, the Convention also requires the authorities and employers to protect the general public from asbestos dust released from workplaces (Art. 19(2)).

34 See https://www.ilo.org/gb/GBSessions/previous-sessions/GB331/lils/WCMS_587514/lang--en/index.htm.

Part IV, Surveillance of the Working Environment and Workers' Health (Arts. 20-21): This Part contains obligations on the recording and monitoring of asbestos concentration levels at undertakings (Art. 20); on health checks and the monitoring of the health of workers exposed to asbestos and on the removal of workers from hazardous occupations while maintaining their income (Art. 21).

Part V, Information and Education, (Art. 22): The competent authorities must promote the information and education of workers on asbestos risks. Employers must establish policies for the education and training of workers and must ensure that they have information about risks.

ii. Supervisory comments on Convention No. 162

The application of Convention No. 162 by ratifying States has been regularly considered by the CEACR. There are 40 pending comments by the CEACR, relating to 31 ratifying States. The CAS addressed Convention No. 162 on three occasions (in 2008, 2006, and 2003) regarding a case on Croatia, and on another in 2011 regarding a case concerning Canada. There have been no Arts. 24-26 complaints on the Convention. The major recurrent issues raised by the CEACR concerning the application of Convention No. 162 are:

- the lack of specific legislation on the prevention and control of specific health hazards due to occupational exposure to asbestos (Bosnia and Herzegovina, DR, 2013; Bolivia, Obs, 2016; Cameroon, Obs, 2016; Guatemala, Obs, 2016; Kazakhstan, DR, 2016; Uruguay, DR, 2015)
- a lack of periodic reviews of national laws and regulations in the light of technical progress and advances in scientific knowledge (Art. 3(2)) (Colombia, Obs, 2016; Uganda, DR, 2016; Spain, Obs, 2015; Uruguay, DR, 2015; Zimbabwe, Obs, 2015)
- a lack of adequate labelling of products containing asbestos (Art. 14) *(Colombia, Obs, 2016; Portugal, DR, 2016)*
- the need for adequate protective processes by employers or contractors during demolition work and the removal of asbestos (Art. 17) *(Australia, DR, 2014, Colombia, Obs, 2016, Ecuador, DR, 2016, Guatemala, Obs, 2016, Japan, Obs, 2016, Uganda, DR, 2016)*
- the need to provide medical examination for workers after exposure to asbestos, including after termination of their employment, as well as the provision of compensation for workers diagnosed with occupational diseases caused by exposure to asbestos (Art. 21) *(Montenegro, DR, 2015; Sweden, DR, 2015; Croatia, Obs, 2014; Spain, Obs, 2015)*
- a lack of due consideration to technological progress and advances in scientific knowledge, including the latest recommendations of the IARC, according to which all forms of asbestos are classified as human carcinogens *(see e.g., Colombia, DR, 2016, and Zimbabwe, Obs, 2015)* and
- insufficient information provided by governments on the application in practice of the Convention, including in relation to labour inspection activities, statistics on workers exposed to asbestos and on workers affected by occupational diseases caused by asbestos *(Bosnia and Herzegovina, DR, 2013; Cameroon, Obs, 2016; Ecuador, DR, 2016; Japan, Obs, 2016; Kazakhstan, DR, 2016; Netherlands, Obs, 2015; Russian Federation, DR, 2016; North Macedonia, DR, 2015; Uganda, DR, 2016; Serbia, DR, 2015; Zimbabwe, Obs, 2015)*.

2. Asbestos Recommendation, 1986 (No. 172)

Recommendation No. 172 provides guidance on the implementation of some of the provisions of Convention No. 162 and proposes more advanced measures which go beyond the obligations contained in the Convention. The Recommendation proposes additional preventative and protective measures to limit the exposure of workers to asbestos and additional measures on the supervision of the health of workers as well as the information and education of workers.

3. Highlights of Convention No. 162 and Recommendation No. 172

Convention No. 162 and Recommendation No. 172 are among the few international instruments specifically concerned with asbestos. The Rotterdam Convention covers some forms of asbestos, but not the most used form of chrysotile asbestos, which accounts for 95 per cent of asbestos use. (The inclusion of chrysotile asbestos in Annex III to the Rotterdam Convention so far has been discussed eight times without achieving consensus.[35]) The Basel Convention only covers waste containing asbestos dust or fibres (Annex I, Y36). Convention No. 162 also not only relates to OSH but also contains obligations protecting the general public from asbestos dust, which makes it relevant for general strategies aiming at minimizing the risk of asbestos for all.

4. Special considerations for Convention No. 162 and Recommendation No. 172

A 2006 ILC Resolution recalled that, according to the International Agency of Research on Cancer (IARC) and the International Programme for Chemical Safety (IPCS), all forms of asbestos are classified as human carcinogens and also that there is no identifiable limit value below which asbestos is not carcinogenic. It resolved that there was a need for the full elimination of the use of asbestos. Moreover, so far more than 50 countries as well as the EU have decided to completely ban the use and also the export of asbestos. Convention No. 162 and Recommendation No. 172, however, do not require a complete ban of asbestos and only regulate its use. (although they still require a reduction of the use of asbestos as far as possible.) It should thus be ensured that the existence of Convention No. 162 and Recommendation No. 172 does not justify the continuing use of asbestos around the world.

In this regard it should however be noted that there have been cases in which implementation of Convention No. 162 has led to a complete ban on the use of asbestos. An important case is Canada where, based on information provided by trade unions, the CEACR issued comments which stated that, owing to Canada's technological advancement as well as new research indicating no safe exposure limit for asbestos, a total prohibition of asbestos had become technologically feasible and therefore also "necessary to protect workers' health" under Art. 10(b) of the Convention. Following these comments, an asbestos ban was imposed in Canada.[36]

35 See the document UNEP/FAO/RC/COP.8/11.
36 See CEACR, Canada, Obs and DR, 2018, 2013 and 2012.

VIII. ILO instruments on benzene

The ILO Benzene Convention, 1971 (No. 136) and Benzene Recommendation, 1971 (No. 144) were the last instruments adopted by the ILO which concerned a single chemical substance. Their purpose is to **protect workers from health hazards arising from exposure to benzene**. They require the use of less harmful substitute products when available and the prohibition of benzene use in certain work processes when adequate protection from exposure cannot be provided to workers.

Both instruments were not classified as up-to-date, but as **ILO instruments requiring further action** by the ILO SRM TWG at its 3rd meeting in 2017.[37] The SRM TWG found them not to be fully in line with the modern regulatory approach of the ILO on OSH, which requires a focus on tripartite social dialogue and the development of a national policy through consultation, along with the management of risks by employers and workers at enterprise level. The SRM TWG did not, however, classify the instruments as outdated but as instruments requiring further action to ensure continued and future relevance. In this regard the working group recommended the adoption of technical guidelines on Convention No. 136 and the revision of the Convention and Recommendation within a general effort to compile all outdated ILO OSH instruments on chemicals into a new coherent standard.

1. Benzene Convention, 1971 (No. 136)

a. Ratifications

Convention No. 136 has so far received **38 ratifications**, of which most are from Europe and Central Asia (20), followed by the Americas (9), Africa (4), the Arab States (4) and Asia and the Pacific (1).

b. Implementation

i. Overview of the provisions of the Convention

The Convention applies to all activities exposing workers to benzene or products with a benzene content of at least 1 per cent (Art. 1). It requires the replacement of benzene with less harmful substances wherever possible (Art. 2), the prohibition of the use of benzene as a solvent, diluent or for other uses prescribed by law (Art.4), and hygiene and technical measures to protect workers (Art. 5).

The Convention furthermore proscribes the use of benzene in enclosed premises as far as technically possible (Art. 7), and requires the prevention of the escape of benzene vapour and the constant monitoring of benzene in the air (Art. 6), protection for workers coming into contact with benzene (Art. 8), appropriate labelling of benzene containers (Art. 12), and prohibition of working with benzene for pregnant and nursing women and underage workers (Art. 11). The Convention also contains requirements on regular health checks and safety instructions for workers exposed to benzene (Arts. 9, 10 and 13).

37 See https://www.ilo.org/gb/GBSessions/previous-sessions/GB331/lils/WCMS_587514/lang--en/index.htm.

ii. Supervisory comments

The implementation of Convention No. 136 has been regularly reviewed by the CEACR. There are currently **25 pending comments, concerning 23** ratifying States. The CAS has addressed the Convention on four occasions, in 1994 regarding the Ivory Coast, in 1993 and 1988 regarding Morocco and in 1992 regarding Spain. There have been no Arts. 24 and 26 complaints on the Convention. CEACR and CAS comments on Convention No. 136, relate mainly to the following issues:

- the need to adopt regulations on specific safety measures relating to benzene, mainly protective measures against the risk of exposure to liquid benzene (Art. (8)) *(Colombia, Obs, 2017; Guinea, Obs, 2014; CAS, Morocco, 1993)*, the full prohibition of the use of benzene as a solvent or diluent (Art. 4) *(Bolivia, Obs, 2019; Colombia, Obs, 2016; Zambia, Obs, 2016; Ivory Coast, Obs, 1994; CAS, Ivory Coast, 1994)*, the replacement of benzene with less harmful substances (Art. 2) *(Ivory Coast, Obs, 1994; CAS, Ivory Coast, 1994)*, the prescription of hygiene and technical measures to protect workers (Art. 5) *(Colombia, Obs, 2017), the constant measurement of the benzene concentration in the air (Art. 6) (Guinea, Obs, 2014; Kuwait, Obs, 2016) and regular health checks for workers (Art. 9) (Colombia, Obs, 2017)*
- the absence of statistics on the application of the Convention in practice *(Guyana, Obs, 2018; Bosnia, DR, 2012; Colombia, Obs, 2010; Chile, DR, 2006)*

2. Benzene Recommendation, 1971 (No. 144)

Recommendation No. 144 provides guidance on the implementation of some of the provisions of Convention No. 136 and proposes more advanced measures which go beyond the obligations contained in the Convention.

The Recommendation proposes further restrictions on the use of benzene, additional technical measures for the prevention of hazards relating to benzene as well as additional measures on the surveillance of the health of workers and their education on the risks associated with benzene.

3. Scope of Convention No. 136 and Recommendation No. 144

There is an issue regarding the instruments' scope as defined by Art. 1, as Convention No. 139 does not apply to any substances with a benzene content of less than 1 per cent. Modern research has however shown that exposure to substances containing less than 1 per cent of benzene can be hazardous and that 1 per cent limit is therefore outdated.

IX. ILO instruments on chemical safety in agriculture

The ILO Safety and Health in Agriculture Convention, 2001 (No. 184) and Safety and Health in Agriculture Recommendation, 2001 (No. 192) were adopted in 2001 as **sectoral OSH instruments**, addressing numerous aspects of **occupational safety and health in agriculture and forestry**. Both are **up-to-date** ILO instruments, in line with the modern regulatory approach of the ILO on OSH. While most of the provisions of the instruments do not concern chemicals, they both include a section addressing the **sound management of chemicals in agriculture**, which makes them relevant to chemical hazards.

Both instruments are supplemented by two Codes of Practice, which provide additional information on ways of implementing Convention No. 184 and Recommendation No. 192. These are the **Code of Practice on Occupational Safety and Health in Agriculture** of 2011[38] and the **ILO Code of Practice on Safety and Health in Forestry work** of 1998.[39]

1. Safety and Health in Agriculture Convention, 2001 (No. 184)

a. Ratifications

The Convention has so far only received **18 ratifications**, of which **the overwhelming majority are from Europe and Central Asia** (10). The Convention regularly receives new ratifications, the most recent being from Malawi in 2019.

b. Implementation

i. Overview of the provisions of the Convention

The main provisions in Convention No. 184, concerning chemicals, are those in the Section on "Sound Management of Chemicals" (Arts. 12-14). They require the competent authority to take measures to ensure that there is a suitable system for the import, classification, packaging and labelling of chemicals and for the safe collection, recycling and disposal of chemical waste. In addition, importers, producers or other providers of chemicals must comply with safety standards and must inform both users of the chemicals and the authorities of any risks (Art. 12).

Moreover, they prescribe preventative and protective measures for the use of chemicals and the handling of chemical waste at the level of the undertaking, covering the preparation, handling, application, storage and transportation of chemicals; agricultural activities leading to the dispersion of chemicals; the maintenance, repair and cleaning of equipment and containers for chemicals; and the disposal of empty containers and the treatment and disposal of chemical waste and obsolete chemicals (Art. 13).

38 See https://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_159457/lang—en/index.htm.
39 See https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/code-of-practice/WCMS_107793/lang—en/index.htm.

ii. Supervisory comments

The implementation of Convention No. 184 has been regularly examined by the CEACR. Currently there are **16 pending** comments relating to 15 ratifying States. The CEACR also examined Convention No. 184 as part of its 2017 general survey on OSH, when it addressed the issue of chemicals in agriculture[40]. Comments relating to the requirements on chemicals in Arts. 12-14 concern mainly the following issues:

- the inability of governments to name an authority competent for the establishment of a system for the import, classification, packaging and labelling of chemicals (Art. 12(1)(a)) *(Argentina, DR, 2012)*
- the lack of regulations requiring providers of chemicals to inform the users, including workers, of the associated risks (Art. 12(b)) *(Ukraine, DR, 2016; Argentina, Obs, 2017; Moldova, DR, 2016)*
- the failure to establish a suitable system for the collection, recycling and disposal of chemical waste managed by the authorities (Art. 12(c)) *(Burkina Faso, DR, 2016; Portugal, DR, 2017; Moldova, DR, 2016)*
- the failure to prescribe the implementation of preventative and protective measures against chemical hazards (Art. 13) *(Sao Tome and Principe, DR, 2016; Argentina, Obs, 2017; Ghana, DR, 2019) and*
- insufficient legislation implementing Arts. 12-14, which only covers some of the relevant chemicals, e.g. pesticides, but not other relevant types of chemical *(Burkina Faso, DR, 2013)*

2. Safety and Health in Agriculture Recommendation, 2001 (No. 192)

Recommendation No. 192 provides guidance on the implementation of some of the provisions of Convention No. 184 and proposes more advanced measures which go beyond the obligations contained in the Convention.

It provides *inter alia* additional guidance on the sound handling of chemicals and proposes a set of preventative and protective measures to be taken at the level of the undertaking, such as the provision of personal protective equipment and spraying precautions for pesticides, the handling and disposal of chemicals which are no longer used, the keeping of registers on pesticides, and the training of workers on chemical risks.

3. Code of Practice on Occupational Safety and Health in Agriculture and Code of Practice on Safety and Health in Forestry work

The **ILO Code of Practice on Occupational Safety and Health in Agriculture** of 2011[41] contains a full section on the safe handling of hazardous chemicals such as pesticides (see pp.66-87), including detailed guidelines on hazard descriptions, control strategies, exposure mitigation, medical surveillance and other issues.

40 See https://www.ilo.org/ilc/ILCSessions/previous-sessions/106/reports/reports-to-the-conference/WCMS_543647/lang--en/index.htm, paras. 391-392.
41 See https://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_159457/lang—en/index.htm.

The **ILO Code of Practice on Safety and Health in Forestry work** of 1998[42] also contains several guidelines on safety requirements for hazardous chemicals (see e.g. paras. 141-142).

4. Highlights of Convention No. 184 and Recommendation No. 192)

According to its Art. 12(c), Convention No. 184 does not only protect workers from hazardous chemicals but also requires employers to handle and dispose of chemicals such as pesticides in a manner that protects the environment. This makes the instrument also relevant for general strategies aimed at protecting the environment and the public against risks relating to pesticides and other chemicals used in agriculture.

X. ILO instruments on chemical safety in construction

The ILO Safety and Health in Construction Convention, 1988 (No. 167) and Safety and Health in Construction Recommendation, 1988 (No. 175) were adopted as **sectoral OSH instruments**, addressing numerous aspects of **OSH in construction**. Both are **up-to-date** ILO instruments, in line with the modern regulatory approach of the ILO on OSH.

While most of the provisions of the instruments do not concern chemicals, Convention No. 167 includes a provision addressing **OSH risks relating to explosives** and another provision **protecting workers against risks related to any hazardous substances**, including chemicals. Recommendation No. 175 provides additional guidance on hazardous substances and also contains recommendations on fire precautions.

Both instruments are supplemented by the **ILO Code of Practice on Safety and Health in Construction** of 1992.[43] The code contains chapters on explosives and other hazardous substances (chapters 16 and 17.4) and provides detailed guidelines on safety measures to prevent and mitigate risks relating to these substances.

1. Safety and Health in Construction Convention, 1988 (No. 167)

a. Ratifications

Convention No. 167 so far received **32 ratifications**. It regularly receives new ratifications, the most recent one being Russia in 2018.

42 See https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/code-of-practice/WCMS_107793/lang—en/index.htm.
43 See https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/code-of-practice/WCMS_107826/lang--en/index.htm.

b. Implementation

i. Overview of the provisions of the Convention

The main provisions in Convention No. 167 addressing chemicals are those on explosives (Art. 27) and those on "health hazards", including the handling of hazardous substances and the disposal of hazardous waste (Art. 28).

Art. 27 prescribes that explosives can only be handled, transported and stored by appointed competent persons, who take all necessary steps to avoid risks to workers.

Art. 28 requires that all appropriate measures against the exposure of workers to chemical hazards must be taken, including the replacement of hazardous substances with less dangerous substances, safety precautions in the event that workers enter areas where toxic chemicals are present and – if other measures are insufficient – provision of personal protective equipment. Hazardous waste at a construction site must be disposed of in a manner that presents no risks to safety and health.

ii. Supervisory comments

The implementation of Convention No. 167 has been regularly examined by the CEACR. Currently there are **30 pending comments relating to 27 ratifying States**. The CEACR also examined Convention No. 167 as part of its 2017 general survey on OSH, in which it also addressed the issue of chemicals in construction (see paras. 387-389).

Comments relating to the requirements on chemicals in Arts. 12-14 refer mainly to the following issues:

- a lack of regulations requiring the replacement of hazardous substances with less hazardous ones wherever possible (Art. 28(2)(a)) *(Lesotho, DR, 2010)*
- a lack of regulations on safety measures related to the disposal of hazardous chemicals and asbestos (Art. 28(4)) *(Malaysia, CEACR, General Survey 2017, para. 389)*
- a lack of implementation of the principle that personal protective equipment shall only be provided when preventative safety measures are insufficient (Art. 28(2)(c)) *(Belarus, DR, 2012)*
- a lack of compliance of employers with safety regulations on the handling of hazardous substances (Art. 28) (Dominican Republic, CEACR, General Survey 2017, para. 389; China, DR, 2019 and 2013) and on requirements for the provision of personal protective equipment (Art. 28(2)(c)) *(China, DR, 2019 and 2013) and*
- a failure to require the appointment of competent persons for the handling of explosives (Art. 27) *(Guatemala, DR, 2016; Lesotho, DR, 2006; Belarus, DR, 2017; China-Macau, DR, 2012; Italy, DR, 2012)*.

2. Safety and Health in Construction Recommendation, 1988 (No. 175)

Recommendation No. 175 provides guidance on the implementation of some of the provisions of Convention No. 167 and proposes more advanced measures which go beyond the obligations contained in the Convention. It also provides additional guidance on the mitigation of risks connected with hazardous substances, including on the establishment of an information system for architects, contractors, employers and workers' representatives on the health risks associated with such substances.

3. Code of Practice on Safety and Health in Construction

The Code of Practice on Safety and Health in Construction of 1992[44] contains chapters on explosives and on other hazardous substances (chapters 16 and 17.4) and provides detailed guidelines on safety measures to prevent and mitigate risks relating to these substances.

XI. ILO instruments on chemical safety in mining

The ILO Safety and Health in Mines Convention, 1995 (No. 176) and Safety and Health in Mines Recommendation, 1995 (No. 183) were adopted as **sectoral OSH instruments**, addressing numerous aspects of **occupational safety and health** in mining. Both are up-to-date ILO instruments, in line with the modern regulatory approach of the ILO on OSH.

Convention No. 176 includes a provision **protecting workers from chemical hazards**. Recommendation No. 183 provides additional guidance on the types of hazards covered by this provision.

Both instruments are supplemented by the **ILO Code of Practice on Safety and Health in Opencast Mines** of 2018[45] and the **ILO Code of Practice on Safety and Health in Underground Coalmines** of 2006.[46]

1. Safety and Health in Mines Convention, 1995 (No. 176)

a. Ratifications

Convention No. 176 has so far received **33 ratifications**, of which 18 are from Europe and Central Asia. The Convention regularly receives new ratifications, the most recent being from Mozambique in 2018.

44 See https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/code-of-practice/WCMS_107826/lang--en/index.htm
45 See https://www.ilo.org/sector/Resources/publications/WCMS_617123/lang--en/index.htm.
46 See https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/code-of-practice/WCMS_110254/lang--en/index.ht.

b. Implementation

i. Provisions of Convention No. 176 relating to chemicals

The main provision in Convention No. 176 addressing chemicals is Art. 9 on chemical, biological and physical hazards. Art. 9 mandates that employers must inform workers of existing chemical hazards and all relevant preventative and protective measures for these hazards; take appropriate measures to eliminate or minimise those hazards; provide free protective equipment in the event that safety cannot otherwise be ensured; and ensure provision of first aid, transportation and appropriate access to medical facilities for workers suffering from injury or illness due to chemical hazards.

ii. Supervisory comments on provisions related to chemicals

Implementation of Convention No. 167 has been regularly examined by the CEACR.[47] Currently there are 29 pending comments relating to 26 ratifying States. The CEACR also examined Convention No. 176 as part of its 2017 general survey on OSH, in which it addressed the issue of chemicals in mining (see para. 390). However, among the supervisory comments of the CEACR on Convention No. 167, specific comments on the obligations relating to chemical hazards in Art. 9 are relatively rare.

The main topics treated in such comments are:

- A lack of regulations requiring the training and information of workers on chemical risks (Art. 9(a)) *(Zambia, DR, 2013)*
- A lack of regulations on the provision to workers of free protective equipment against chemicals (Art. 9(c)) *(USA, DR, 2010; Albania, DR, 2018) and*
- A lack of regulations on appropriate medical facilities and transportation for injured workers (Art. 9(d)) *(Albania, DR, 2018; Finland, DR, 2016; Brazil, DR, 2011).*

2. Safety and Health in Mines Recommendation, 1995 (No. 183)

Recommendation No. 183 provides guidance on the implementation of some of the provisions of Convention No. 176 and proposes more advanced measures which go beyond the obligations contained in the Convention. As regards hazardous substances, it proposes several additional measures such as additional requirements to inform workers and their representatives of hazardous substances present in the mine and the risks associated with these substances.

3. Code of Practice on Safety and Health in Opencast Mines and Code of Practice on Safety and Health in Underground Coalmines

The Code of Practice on Safety and Health in Opencast Mines was adopted in 2018. The Code of Practice on Safety and Health in Underground Coalmines was adopted in 2006. Both codes contain detailed guidelines on the safe handling, storage and disposal of chemicals and other hazardous substances used in mines (Section 9.1 in the 2018 Code and Sections 6.2, 7, 8 and 9 of the 2006 Code).

47 It also has been discussed once in the CAS in 2015 in a case related to the **Philippines**.

4. Highlights of Convention No. 176 and Recommendation No. 183

The ratification rate for Convention No. 176 is higher than that for other relevant OSH Conventions on chemicals such as Conventions Nos. 170 and 174.

A highlight of Convention No. 176 is its potential synergies with the Minamata Convention on Mercury (see below under D.IV). The use of hazardous chemicals in mining is a major issue. Use of mercury in mining, especially in gold mining, continues to constitute a major health and environmental hazard. While neither Convention No. 176 and Recommendation No. 183 nor the two Codes of Practice mention mercury directly, the open provisions on chemicals in Art. 9 of Convention No. 176 also cover this substance and therefore mandate the elimination or at least minimization of hazards relating to mercury as well as other hazardous chemicals used in gold mining. Mercury in mining is also addressed by the Minamata Convention, which contains provisions on the dangers relating to small-scale and artisanal gold mining. Convention No. 176 and the Minamata Convention therefore complement each other, as Convention No. 176 closes the gaps left open by the Minamata Convention, for example regarding other hazardous chemicals used in mines such as cyanide and solvents.

XII. ILO instruments on labour inspection

The ILO has adopted a number of instruments on labour inspection. The main ones are the Labour Inspection Convention, 1947 (No. 81) and its corresponding Labour Inspection Recommendation, 1947 (No. 81), as well as the ILO Labour Inspection (Agriculture) Convention, 1969 (No. 129) and its corresponding Labour Inspection (Agriculture) Recommendation, 1969 (No. 133). The two Conventions have high ratification rates[48] and are part of the "Governance" Conventions of the ILO.

While they do not contain any substantive provisions on chemicals,[49] these instruments are very relevant for the prevention of chemical risks at work, as the existence of an effective labour inspection system is vital for ensuring the correct implementation of regulations on chemical safety and the protection of workers against chemical risks to which they are exposed.

Shortcomings in the inspection of chemical hazards at work have been addressed by several supervisory comments on the implementation of the two Conventions. The main chemicals-related issues, on which ILO supervisory bodies have commented, refer to a lack of sufficient training to enable inspectors to detect chemical risks, in violation of Art. 7(3) and 10 of Convention No. 81 (Hungary, Obs, 2012; Saudi Arabia, DR, 2009) and Art. 9(3) of Convention No. 129 *(Albania, DR, 2012; Bolivia DR, 2016; French Polynesia, DR, 2014; North Macedonia, DR, 2014; Burkina Faso, DR, 2013; Togo, DR, 2015; Ivory Coast, Obs, 2014)*.

48 Convention No. 81 currently has 147 ratifications and Convention No. 129 53.

49 Convention No. 81 does however provide for the removal of samples of substances (Art. 12) and requires that duly qualified technical experts and specialists, including specialists in chemistry, be associated in the work of inspection (Art. 9). Convention No. 129 has only one provision addressing "hazardous substances" in Art. 18, which refers to the power of inspectors to take immediate steps on shortcomings concerning the use of dangerous substances, which constitute a threat to health or safety.

XIII. ILO codes of practice on shipbuilding and shipbreaking

While there exist no specific ILO Conventions or Recommendations on OSH in shipbuilding and shipbreaking, the ILO has developed two non-binding guidance tools which provide guidelines on OSH measures in these industries, including measures to prevent and mitigate chemical hazards. These tools are therefore also relevant ILO instruments on chemicals.

The first tool is the **ILO Code of Practice on Safety and Health in Shipbuilding and Ship Repair** of 1974, as revised up to 2019.[50] It contains a number of guidelines on specific chemical hazards, such as on toxic cleaning solvents (section 9.3.1), painting (9.4) and chemical paint (9.3.2), as well as a large section on the handling of hazardous substances in general (10).

The second tool is the **ILO Safety and Health in Shipbreaking: Guidelines for Asian countries and Turkey** of 2004.[51] The tool contains a large number of guidelines on OSH measures during shipbreaking activities which, despite its title, can serve as guidance for shipbreaking operations in all countries. It also contains a large section on the management of hazardous substances (Section 9).

A **main chemical hazard** of shipbreaking operations is the **exposure of workers to asbestos**, which can still be found in many old ships. Both codes address this issue in several ways: the Code of Practice on Safety and Health in Shipbuilding and Ship Repair of 1974 states that it must be ensured that ships which are broken down have asbestos registers, so that preventative measures against exposure to asbestos can be taken (10.1(4)(c)). It also calls for exposure limits for workers, determined in accordance with Convention No. 162 on asbestos (10.2(3)), as well as for a number of control measures against worker exposure to asbestos (10.4).

The ILO Safety and Health in Shipbreaking Guidelines for Asian countries and Turkey also recognizes asbestos as a main risk for shipbreaking workers (2.4.1(a), especially at the start of shipbreaking operations, when asbestos must be removed from many parts of the ship (7.2.4.4). It also refers to Convention No. 162 (9.2.3) and prescribes several control measures for asbestos hazards (9.4).

50 See https://www.ilo.org/sector/Resources/publications/WCMS_618575/lang--en/index.htm.
51 See https://www.ilo.org/safework/info/standards-and-instruments/codes/WCMS_107689/lang--en/index.htm.

XIV. OSH Management Systems

The ILO OSH Management System guidelines, which were adopted in 2001,[52] are a non-binding guidance tool on the establishment of efficient OSH management systems, which ensure the continual improvement of the working environment and of preventative measures on OSH. They provide the basis for the sound management of OSH at the workplace, including the sound management of chemicals.

The guidelines can be applied on two levels – national and organizational. At the national level, they provide for the establishment of a national framework for OSH management systems, preferably supported by national laws and regulations. They also provide precise information on developing voluntary arrangements for strengthening compliance with regulations and standards which, in turn, lead to continuous improvement in OSH performance.

At the organizational level, the guidelines encourage the integration of OSH management system elements as an important component of overall policy and management arrangements. Organizations, employers, owners, managerial staff, workers and their representatives are motivated to apply appropriate OSH management principles and methods to improve OSH performance.

The guidelines establish a hierarchy of controls which structures all OSH control measures in decreasing order of effectiveness. It requires employers at first to try to eliminate a risk and then substitute the substance creating the risk. Only if elimination or substitution are not possible should risks be mitigated by engineering controls which isolate workers from risks, and by administrative controls, for example changes to working procedures. The provision of personal protective equipment to workers can only be used as a measure of last resort, if none of the other control measures sufficiently mitigates the risk. The guidelines also place important emphasis on ensuring cooperation and communication between employers and workers and their representatives regarding implementation of the OSH management systems.

52 See https://www.ilo.org/global/topics/safety-and-health-at-work/normative-instruments/WCMS_107727/lang--en/index.htm.

XV. ILO Guidelines for a just transition towards environmentally sustainable economies and societies for all

The ILO's green jobs programme[53] promotes the "greening" of enterprises, workplace practices and the labour market as a whole. These efforts create decent employment opportunities, enhance resource efficiency and build low-carbon sustainable societies. Green jobs in this regard are defined as "decent jobs that contribute to preserving or restoring the environment".

As part of the green jobs programme, the ILO constituents adopted in 2015 a set of guidelines on the just transition towards environmentally sustainable economies and societies for all.[54] These guidelines also provide guidance on the environmentally sound use of chemicals at work and are therefore also valuable for this analysis.

Relevant Sections of the guidelines are, for example, Section 26(g) on the improvement of research on OSH risks across the life-cycle of products and new technologies; 26(i) on the reduction and elimination of hazardous products across supply chains; 26(j) on legislation to oblige companies to mitigate adverse impacts on workers' health and the environment; and 27(b) on the promotion of OSH training in green jobs for workers.

53 See https://www.ilo.org/global/topics/green-jobs/WCMS_213842/lang--en/index.htm.
54 To see the full guidelines, go to https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_432859.pdf.

D. Synergies between ILO instruments and other major international instruments on chemicals

I. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

The Basel Convention[55] was **adopted in 1989**. It has so far been **ratified by 187 States**, which is close to universal ratification among UN member States. The Convention is an international treaty designed to reduce the movements of hazardous waste between nations and especially the shipping of hazardous waste from industrialized countries to less developed nations.

1. Overview of the content of the Convention

This section gives a short overview of the main provisions contained in the Convention.[56] Given its purpose, the Convention mostly contains obligations relating to the export and import of hazardous waste. It however also includes a number of general obligations relating to the treatment of hazardous waste within member States.

a. Scope and Definitions

According to Art. 1, a waste material falls within the scope of the Convention if it is within the category of wastes listed in Annexes I and VII of the Convention and if it exhibits one of the hazardous characteristics contained in Annex III. In other words, it must both be listed and possess a characteristic such as being explosive, flammable, toxic or corrosive. In addition, waste may be considered hazardous under the laws of either the exporting country, the importing country, or any of the countries of transit. The Convention does not cover radioactive waste.

Annex I contains a list of 45 different types of waste containing different hazardous substances or groups of substances, most of them chemicals. Annex VII contains another list of 62 substances or types of substance. Annex III contains a list of 14 hazardous characteristics of chemicals (e.g. explosive, flammable, corrosive, etc.).

55 For the official website go to http://www.basel.int/.
56 For the full text go to http://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx.

b. Obligations relating to the export and import of hazardous waste

The main obligation on the export and import of waste is the "prior informed consent" (PIC) obligation contained in Art. 4(1). It mandates that all exporting States must prohibit the export of any hazardous waste covered by the Convention if the exported product goes either to a party which has generally prohibited the import of such waste, or, if such a general prohibition does not exist, to a party which has not explicitly consented to the export in question. Furthermore, according to Art. 4(9) the export is only permissible if the exporting State does not have sufficient disposal facilities for it or if the waste is intended for recycling in the importing country. The Convention furthermore places a general prohibition on the export or import of wastes between parties and non-parties (Art. 4(4)). The exception to this rule is where the waste is subject to another treaty that does not contradict the Basel Convention.

The Convention contains stringent requirements for the notice and tracking of movements of wastes across national boundaries (Arts. 6 and 4(2)(f) and (h), & (7)(b) and (c)), including the obligation to properly package and label the moved waste and to inform the importing State of the waste's hazards.

c. Obligations relating to the treatment and management of hazardous waste

Alongside the obligations relating to import and export, the Convention also contains a number of obligations relating to the generation and management of hazardous waste in member States. According to Art. 4(2) parties must ensure that the generation of hazardous waste and other waste is reduced to a minimum, that adequate disposal facilities are as much as possible available in the country generating the waste and in an area close to the place where the waste is produced, and that pollution of the environment is prevented or reduced as much as possible. To implement these provisions, the Conference of Parties to the Convention has adopted a number of guidelines on the environmentally sound management of hazardous and other waste.[57]

d. Amendment mechanisms

The Convention includes a special mechanism for amending the Convention, its Annexes and Protocols (Arts. 17 and 18). Any party to the Convention can propose any amendment which can then be adopted by the parties with a three-fourths majority (two-thirds majority for Protocols). Amendments to the Convention or to a Protocol, however, only come into force for those States which have voted for it or which have subsequently accepted or ratified it. So far no such amendment has been adopted. Since 1995, however, an amendment is pending that would prescribe a complete ban on the export of hazardous wastes from developed to less developed countries (the "Basel Ban Amendment"), which has so far received 96 ratifications.[58] An amendment to the Annexes comes into force for all parties after its adoption, unless a party declares within 6 months of its adoption that it does not wish to be so bound. The Annexes of the Convention have been amended several times to date, mostly by adding new types of hazardous waste.

e. Supervisory and enforcement mechanisms

The Convention does not contain any regulations on the consequences of violations of the Convention. In this regard, in 1999 a Protocol to the Convention was adopted which establishes liability rules and procedures for damage caused by illegal waste movement.[59] The Protocol is however not yet in force, as it has so far been ratified by only 12 States instead of the required 20.

57 See http://www.basel.int/Implementation/Publications/LatestTechnicalGuidelines/tabid/5875/Default.aspx.
58 See http://www.basel.int/Implementation/LegalMatters/BanAmendment/Overview/tabid/1484/Default.aspx.
59 See http://www.basel.int/TheConvention/Overview/LiabilityProtocol/tabid/2399/Default.aspx.

The Convention has a report-based supervisory mechanism, regulated in Arts. 13(3) and 15(5), according to which States must submit reports on the measures they take to comply with the Convention, which are reviewed by the "Committee for Administering the Mechanism for Promoting Implementation and Compliance", which then produces an "implementation report" with conclusions on cases of non-compliance. This report is submitted for adoption to the Conference of Parties. The current reporting cycle is biannual.

Next to the reporting procedure, there also exists a complaints system in which either a State with implementation problems or another party can make a submission on a case of non-compliance, followed by an investigation procedure and recommendations by the implementation and compliance Committee. These recommendations are then submitted to the Conference of Parties for approval. (The Basel Secretariat can also issue submissions, but only regarding non-compliance with reporting obligations.)[60]

2. Complementarities between the Basel Convention and ILO instruments

The issue of hazardous waste is of high importance for the ILO. As already mentioned, the topic is also treated by several ILO chemicals instruments. There thus exist a number of synergies between the Basel Convention and ILO chemical Conventions, Recommendations and Codes of Practice.

The main obligations of the Basel Convention concern the import and export of hazardous waste. As mentioned, the export of hazardous chemicals is also treated under Art. 19 of Convention No. 170 and Art. 22 of Convention No. 174, which both require States exporting chemical substances, use of which they prohibit to inform the importing country of the prohibition and of the reasons for it. "Substances" in this regard can also include waste.[61] In this regard there exists an overlap with the Basel Convention, which also includes such notification requirements (Arts. 6 and 4(2)(f) and (h), (7)(b) and (c)). The ILO Conventions and the Basel Convention thus complement each other in this respect and countries which have ratified both standards can streamline their measures to implement both notification requirements.

As regards the obligations on the environmentally sound management of waste in the Basel Convention, there is also an overlap with ILO Conventions. Conventions Nos. 170 and 174 both generally cover the disposal of hazardous chemicals (Art. 2(c)(v) of Convention No. 170 and Art. 3(c) of Convention No. 174). In addition, Convention No. 162 covers the disposal of asbestos (Art. 17(2)(c)), Convention No. 167 covers the disposal of chemicals used in construction (Art. 28(4)), and Convention No. 184 covers the disposal of pesticides and other chemicals used in agriculture (Art. 12(c)). The provisions of the ILO Conventions on waste disposal are however more detailed as they contain a whole range of different obligations regarding concrete safety measures rather than the very general obligations of the Basel Convention. [62] The ILO Conventions and their accompanying Recommendations and Codes of Practice thus complement the Basel Convention in this regard and can be used as a gap filler to expand the Basel obligations.

It is important to note however that certain respective approaches of the ILO and the Basel Convention on waste differ. In contrast to Basel, which is mostly focused on waste disposal and recycling, the ILO takes an inclusive life-cycle approach to chemicals and waste. Under this

60 For a full overview over the whole supervisory system, go to http://www.basel.int/Implementation/LegalMatters/Compliance/OverviewandMandate/tabid/2308/Default.aspx#

61 As the ILO Conventions only refer to the prohibition of the "use" of the substances, which does not cover the disposal of waste, they however only apply to the export of waste which is further used, for example for recycling.

62 There exist, however, official implementation guidelines for the Convention, with more details; see above.

approach, the concept of "waste" is not a stand-alone issue, but rather is inherently inter-connected with the life-cycle of production processes across all sectors. According to ILO chemical instruments, questions of "disposal" must always be integrated into preliminary workplace risk assessments, to ensure safe work systems and practices and the protection of the general public and the environment. In this way the ILO aims to protect workers, the public and the environment from hazardous chemicals along the entire value and supply chain. This life cycle approach is an additional element, through which ILO instruments complement the Basel Convention.

3. Highlights of the Basel Convention

A main strength of the Basel Convention is its high ratification rate, covering almost all relevant countries exporting and importing hazardous waste. This high rate can also be explained by the Convention's prohibition on importing or exporting any waste from or to any non-party. This mechanism creates a high incentive for every State involved in the movement of hazardous waste to become "part of the club" and be able to trade with the others. Even for the USA, which has so far refused to become a party, this provision has led the country to conclude bilateral agreements replicating the content of the Basel Convention with countries importing their hazardous waste, in order for those states to be allowed to import the waste under the Basel Convention.

4. The scope of the Convention

The scope of the obligations in the Convention has generated certain concerns. This mainly relates to the provisions on the import and export of hazardous waste, especially the main obligation on the PIC mechanism which, according to some commentators, may be considered as legitimizing trade in hazardous waste rather than preventing it. This issue is also not mitigated by the Convention's additional prohibition on exporting any waste which can be disposed of in the country of origin. In this regard certain parties have made use of the "loophole" in Art. 4(9) (b) and have declared the waste as being used for recycling, in which case the requirements regarding disposal in the country of origin do not apply. These concerns have led many of the parties to the Convention to push for the "Basel Ban" amendment to ban all export of hazardous waste from OECD countries to developing nations. As mentioned, this amendment has so far been unsuccessful. It has however been implemented by a number of parties to the Basel Convention via unilateral, bilateral and regional multilateral agreements (see for example the Bamako Convention[63] or EU Regulation (EC) No 1013/2006 of 14 June 2006[64]).

63 A treaty between African countries prohibiting the import of hazardous waste, see https://www.unenvironment.org/explore-topics/environmental-rights-and-governance/what-we-do/meeting-international-environmental.
64 The regulation bans all export of hazardous waste for all EU member States, see https://ec.europa.eu/environment/waste/shipments/.

II. Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

The Rotterdam Convention[65] was **adopted in 1998**. It is a multilateral treaty to promote shared responsibilities in relation to the import of hazardous chemicals. The Convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labelling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Signatory nations can decide whether to allow or ban the import of chemicals listed in the treaty, and exporting countries are obliged to ensure that producers within their jurisdiction comply. So far the Rotterdam Convention has been **ratified by 161 states.**[66]

1. Overview of the content of the Convention

This section gives a short overview of the main provisions contained in the Convention.[67]

a. Scope and definitions

The Convention generally covers all chemicals which are banned or severely restricted by parties and all severely hazardous pesticides (Arts. 3(1), 5 and 6). It excludes any wastes, radioactive materials, narcotics, chemical weapons, pharmaceuticals, food-related chemicals and chemicals in quantities unlikely to affect human health (Art. 3(2)). However the Convention's main obligation, the PIC procedure, only applies to chemicals listed in Annex III (Arts. 10, 11), which so far contains a list of 46 hazardous chemicals or groups of chemicals.

b. Obligations regarding the import and export of chemicals

The Convention's central obligation is the PIC procedure contained in Arts. 10 and 11. According to Art. 10, every party must submit a decision for each substance listed in Annex III, expressing its consent, non-consent or conditional consent to the importation of this substance. All parties exporting chemicals must then adopt and implement legislation banning the export of chemicals to parties who have not explicitly consented to their import. The Convention furthermore contains several notification and information requirements for chemical exports, *viz.*:

- Parties exporting chemicals which they have prohibited or severely restricted must provide a notification to the importing State containing information on the chemicals' properties and hazards, safety measures to reduce exposure, the contact details of the national authority handling chemical exports, the name of the importing company and other information listed in Art. 12 and Annex V.

- Exported chemicals must also be properly labelled and provided with a customs group code of the WCO and SDS if the chemical is used for occupational purposes (Art. 13).

- Furthermore, all parties must facilitate the exchange of scientific, technical, economic and legal information on the chemicals covered by the Convention (Art. 14).

65 For the official website go to http://www.pic.int/.
66 See http://www.pic.int/Countries/Statusofratifications/tabid/1072/language/en-US/Default.aspx.
67 For the full text go to http://www.pic.int/TheConvention/Overview/TextoftheConvention/tabid/1048/language/en-US/Default.aspx

c. Amendment mechanisms

The Convention includes a special mechanism for adding substances to Annex III or removing them by unanimous decision of the Conference of the Parties (Arts. 7, 9 and 22(5)). There also exists an advisory body (the Chemical Review Committee) which selects new chemicals to add to the list and suggests them to the Conference. Arts. 21 and 22 contain mechanisms for amendments to the Convention and the Convention's other Annexes. Amendments are adopted by a three-fourths majority of the conference of the parties. The amendments then only come into force for those parties accepting it.

d. Supervisory and enforcement mechanisms

The Rotterdam Convention does not envisage a supervisory mechanism to control its implementation by member States, whether report-based or complaint-based (according to Art. 18(5) the Conference of Parties shall keep the Convention's implementation under continuous review and to this end shall establish supervisory bodies and procedures. This however has so far not been done.)

2. Complementarities between the Rotterdam Convention and ILO instruments

As mentioned, the Rotterdam Convention is mainly concerned with the import and export of chemicals and includes a notification requirement for the export of hazardous chemicals. The Convention therefore has an overlap with the obligations in Art. 19 of Convention No. 170 and Art. 22 of Convention No. 174 for States exporting chemicals, the use of which they prohibit, to inform the importing country of this prohibition and of the reasons for it. The ILO Conventions and the Rotterdam Convention thus complement each other in this respect, as countries which have ratified both standards can streamline their measures to implement both notification requirements.

Moreover, it can be noted that, while the Rotterdam Convention is mainly focused on trade and the transboundary effects of chemicals, the ILO chemical instruments primarily focus on the safe use of chemicals within countries. The ILO instruments thus also complement the Rotterdam Convention in this broader sense, by addressing domestic policies on hazardous chemicals, alongside the international policies which are handled under the Rotterdam Convention.

3. Scope of the Convention

The Convention has received certain concerns regarding its scope. As mentioned, the main obligations of the Convention only apply to the chemicals listed in its Annex III. The Annex however lacks reference to certain hazardous chemicals, namely chrysolite asbestos, the main form of asbestos used (see above under C.VII.3). So far there have been several attempts to add chrysolite asbestos to the Annex, which have however failed.[68]

68 See the document UNEP/FAO/RC/COP.8/11.

III. Stockholm Convention on Persistent Organic Pollutants

The Stockholm Convention[69] was **adopted in 2001**. It is an international environmental treaty that aims at eliminating or restricting the production and use of persistent organic pollutants (POPs). POPs are organic compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes. Because of their persistence, POPs accumulate in human bodies and other organisms, with potential adverse impacts on human health and the environment. Many POPs are used as pesticides, solvents, pharmaceuticals, and industrial chemicals. So far, the Stockholm Convention has been **ratified by 183 States**.[70]

1. Overview of the content of the Convention

This section gives a short overview of the main provisions contained in the Convention.[71]

a. Scope and Definitions

The Convention applies to the list of POPs contained in Annexes A, B and C of the Convention. Annex A (on POPs to be eliminated) contains a list of 21 different substances or groups of substances. Annex B (on POPs to be restricted) contains two substances (DDT and perfluoro octane sulfonic acid). Annex C contains a list of six substances or groups of substances which are POPs that are produced and unintentionally released from anthropogenic sources.

b. Obligations

The Convention's main obligations are contained in Art. 3. According to this provision, all parties must prohibit the production and use of all POPs listed in Annex A (subject to certain exemptions and transitory requirements for certain substances) and restrict the use and production of POPs listed in Annex B. The import of substances listed in Annexes A and B as well as the export of substances in Annex B is only possible for the purpose of their environmentally-sound disposal (as well as for several exceptional reasons listed in the Convention). The export of substances in Annex A is prohibited (apart from a few special exceptions).

As regards the POPs in Annex C, Art. 5 mandates that parties must reduce their total release as much as possible and, where feasible, eliminate them, by *inter alia* developing and implementing an action plan to identify and address their release, by adopting available and feasible measures against their release, by promoting the development of less harmful substitutes, and by promoting the use of the best available technologies for their reduction or elimination.

Furthermore, according to Art. 9 each party must facilitate the exchange with other parties of information relevant to the reduction and elimination of POPs as well as alternatives to them and other relevant issues. According to Arts. 10 and 11, parties must also promote awareness and education campaigns on POPs and shall, within their capabilities, encourage or undertake research on POPs.

69 For the official website go to http://www.pops.int/.
70 See http://www.pops.int/Countries/StatusofRatifications/PartiesandSignatoires/tabid/4500/Default.aspx.
71 For the full text go to http://www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx.

c. Amendment procedures

Art. 8 prescribes a procedure for the amendment of the lists in Annexes A, B and C. Under this procedure any party can submit a proposal for listing a new chemical in any Annex, which is then transmitted to an advisory organ (the "POP Review Committee"), which reviews the chemical on the basis of certain criteria and decides on the submission of the amendment to the Conference of Parties. The conference can then adopt the amendment by a two-thirds majority (Art. 19(6)(c)). Arts. 21 and 22 contain an amendment procedure for the other parts of the Convention. Amendments can be submitted by any party and are adopted by the conference by a three-fourths majority. However they then only come into force for the States accepting them.

d. Supervisory and enforcement mechanisms

There currently exists no properly functioning supervising system for the Stockholm Convention. A report-based system is envisaged by Arts. 15 and 19(5), which state that parties must regularly submit implementation reports to the Conference of Parties which shall regularly review the Convention's implementation based on the information in the reports. So far, however, the Conference of Parties has not been able to agree on setting up such a mechanism to review these reports.

2. Complementarities between the Stockholm Convention and ILO instruments

The Stockholm Convention applies to POPs. In this regard there exist many synergies with ILO instruments, mainly Convention No. 170, the open scope of which covers all hazardous chemicals and thus also POPs. The Stockholm Convention mainly focuses on the prohibition or at least strong restriction of the use of these substances. ILO Conventions on chemicals such as Convention No. 170, on the other hand, do not contain prohibitions or restrictions on specific chemicals but take a different approach by generally prescribing the adoption of measures to prevent and mitigate risks relating to any chemicals. However, as the POPs in the Convention, especially those contained in Annex A, are hazardous, they would also fall under the general obligation in Art. 12(a) of Convention No. 170, to ensure that workers are not exposed to chemicals to an extent that exceed exposure limits.

IV. Minamata Convention on Mercury

The Minamata Convention[72] was **adopted in 2013**. It is an international treaty designed to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. It contains provisions that relate to the entire life-cycle of mercury, including controls and reductions across a range of products, processes and industries in which mercury is used, released or emitted. The treaty also addresses the direct mining of mercury, its export and import, its safe storage and its disposal. The Convention so far has been **ratified by 115 States**.[73]

1. Overview of the content of the Convention

This section gives a short overview of the main provisions contained in the Convention.[74]

a. Scope and definitions

The Convention applies to mercury (and substances containing at least 95 per cent of mercury) and mercury compounds (mercury chloride, -oxide, -sulphate, -sulphide, -nitrate and cinnabar) as well as the mercury-added products listed in Annex A (Arts. 3(1) and 4). Annex A, Part I contains a list of 10 types of product containing mercury (e.g. batteries, switches, lamps, cosmetics, pesticides, thermometers, etc.) which are to be prohibited. Part II of Annex A lists dental amalgam as a product to be restricted. The Convention also applies to the manufacturing processes in which mercury or its compounds is used, which are listed in Annex B. Annex B contains a Part I and II, each listing a number of chemical production processes (e.g. chloral-kali production). The Convention contains special regulations for artisanal and small-scale gold mining (Art. 7 and Annex C).

b. Obligations

Mercury supply sources and trade (Art. 3): parties must prohibit new primary mercury mining. If the mining was already conducted when the party joined the Convention, it must be prohibited within 15 years. Newly-produced mercury can only be used in accordance with the Convention's other obligations.

The export of mercury to another party is prohibited except if this party explicitly consents to it and uses the mercury in accordance with the Convention. The export to non-parties is only allowed if the importing State consents and guarantees a use that is in accordance with the Convention. Import from non-parties is only allowed when the exporting State guarantees that the mercury was obtained in accordance with the Convention.

Mercury-added products (Art. 4): parties must prohibit the production, import and export of the mercury-added products listed in Part I of Annex A (subject to certain exceptions and the possibility for parties to exclude some products from the list). They must phase down the use of products listed in Part II by implementing an action plan, setting objectives and other measures prescribed in Annex A. Any other mercury-added products can only be produced using mercury which has been obtained in accordance with Art. 3. Production and use of such products shall also be discouraged.

72 For the official website go to http://www.mercuryconvention.org/
73 See http://www.mercuryconvention.org/Countries/Parties/tabid/3428/language/en-US/Default.aspx.
74 For the full text go to http://www.mercuryconvention.org/Convention/Text/tabid/3426/language/en-US/Default.aspx.

Manufacturing processes in which mercury or its compounds are used (Art. 5): parties must prohibit the use of mercury or its compounds in manufacturing processes listed in Part I of Annex B (subject to certain transitory periods) and must restrict the use of mercury and its compounds in processes listed in Part II.

Artisanal and small-scale gold mining (Art. 7 and Annex C): the Convention does not prohibit the use of mercury in small-scale and artisanal gold mining. However, it obliges ratifying States to adopt action plans and other measures to ensure a progressive formalization of such mining operations as well as a progressive reduction of the mercury emitted by them. It also obliges States to prohibit certain especially hazardous work operations involving mercury (e.g. open burning of amalgam and cyanide leaching in sediment).

Emissions, releases, storing and disposal (Arts. 8, 9, 10, 11 and 12): parties must take steps to control and reduce mercury emissions and releases into the environment, using the best available techniques. The storage of mercury and the management and disposal of mercury wastes must be managed in an environmentally-sound manner, taking into account the Basel Convention. The risks from mercury-contaminated sites must be reduced as much as possible.

The Convention also contains provisions on information exchange, awareness-raising measures and research (Arts. 17, 18 and 19). According to Art. 16(2)(b) the Conference of Parties to the Convention shall promote cooperation and exchange of information with the ILO and WHO.

c. Amendment mechanisms

Arts. 4(7)-(9), 5(9)-(11) and 27 prescribe a mechanism for the amendment of Annexes A and B. Amendments can be submitted by any party and are then adopted by the conference by a three-fourths majority. The amendment becomes binding on all parties which have not declared that they do not want to be bound within one year of the amendment's adoption. According to Arts. 26 and 27, the text of the Convention and the other Annexes can be amended using the same procedure. Amendments to the text, however, only come into force for the States accepting them.

d. Supervisory mechanisms

In according with Art. 15 an implementation and compliance committee is established as a supervisory body for the Convention. The committee meets annually (so far it has met in 2018 and 2019). According to Art. 21 parties must regularly send implementation reports regarding the Convention. These reports are reviewed by the committee, which issues recommendations on cases of non-compliance. These recommendations are then approved by the Conference of Parties. (The exact review procedure and the adoption of additional procedures such as a complaints procedure will be laid down in the committee's rules of procedure, which have so far not been adopted but are in the process of preparation.)

2. Complementarities between the Minamata Convention and ILO instruments

There exist many synergies between the Minamata Convention and the ILO chemicals instruments. Mercury is covered by the general chemicals Conventions (Nos. 170, 174 and also 155), which cover all chemical risks. Convention No. 176 is also of specific importance for the issue, as it covers the important issue of mercury use in mining. Convention No. 176 in this regard complements the Minamata Convention, as the latter focuses on mercury use in small-scale and artisanal gold mining, while Convention No. 176 also covers the use of other chemicals in mining.

Next to mining, the obligations in the Convention with the most overlap with ILO Conventions is Art. 5 on manufacturing processes involving mercury. As mercury is a hazardous chemical, it is covered by the general provisions in ILO Conventions No. 170 and 174, which protect workers against exposure to mercury in all manufacturing processes involving this substance. Mercury is also addressed in the ILO List of Occupational Diseases Recommendation, which covers occupational diseases caused by mercury or its toxic compounds.

V. Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

The GHS[75] is an internationally agreed standard which was set up to create an internationally harmonized approach to classification and labelling of chemicals. Core elements of the GHS include standardized hazard testing criteria, universal warning pictograms, and harmonized SDS which provide users of chemicals with hazard information.

The GHS is not a legally binding instrument like the ILO Conventions or the BRS and Minamata Conventions, but a soft law instrument. It is nevertheless open for voluntary implementation. The system has been implemented to a significant extent in 72 UN member States, including many important chemical producing and using countries of the world, including the EU and the USA and most other G20 countries. The GHS was developed at the initiative of the ILO and the OECD. Its development was mandated at the 1992 Rio Conference.

1. Overview of the content of the GHS

The GHS is made up of a hazard classification and hazard communication system.[76] The GHS classification system classifies chemical substances according to the different hazards related to them. It covers all chemicals except pharmaceutical products. In addition to hazards for the health and safety of humans, the system also covers risks to the environment. Furthermore, the system does not only cover individual substances but also hazards relating to chemical mixtures.

The hazard communication system takes into account these classified hazards and prescribes measures to ensure that those hazards are appropriately communicated to the users of the chemicals. One element is a system of harmonized labels which explain all hazards relating to a chemical and which are easily understandable for all persons and across national and language boundaries. The labels include symbols (hazard pictograms), signal words (like “danger”, “warning”) and a GHS hazard statement, which includes standard phrases assigned to a hazard class and category that describe the nature of the hazard. It can also include GHS precautionary statements (i.e. measures to minimize or prevent adverse effects). Labels should also contain information on product ingredients and supplier information as well as other supplementary information.

75 For an overview of the system go to https://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html.
76 For the full text of the GHS with revisions up to 2019, go to https://read.un-ilibrary.org/environment-and-climate-change/globally-harmonized-system-of-classification-and-labelling-of-chemicals-ghs_f8fbb7cb-en#page1.

Along with the labels, the GHS also requires the provision of SDS for chemicals, specifically aimed at use in the workplace. These SDS must provide comprehensive information that allows employers and workers to obtain concise, relevant and accurate information in relation to the hazards, uses and risk management for each chemical product used in the workplace. In this regard the ILO, in cooperation with the WHO and EU, has developed a system of International Chemical Safety Cards (ICSCs). The ICSCs include information for more than 1,700 different chemicals which conform to the SDS requirements of the GHS. These cards are peer-reviewed and are available in 18 languages on the ILO website.[77] Finally the GHS also includes recommendations on the education and training of workers on chemical hazards.

2. Finding complementarities between the GHS and ILO instruments

As mentioned, the ILO was one of the initiators of the GHS system and has been a major contributor to its success through steering its development and adoption as a UN technical standard, through ensuring the full participation of organizations of employers and workers in the process, and also through making available the ICSCs.

The GHS is well-aligned with ILO chemical Conventions, notably Convention No. 170, which had an important influence on the development of the GHS, as the Convention contains obligations covering all components of the GHS (i.e. the classification and labelling of chemicals, the provision of SDS for workers and the training of workers on chemical hazards). The implementation of the GHS is therefore a synergistic method of applying certain elements of Convention No. 170 which, as noted by the CEACR, has been done by many parties *(see e.g. China, DR, 2019; Brazil, DR, 2007; Mexico, DR, 2010; Tanzania, DR, 2015; Italy, DR, 2007)*.

3. State of implementation of the GHS

Despite the fact that the GHS is not a legally binding instrument, it has proved to be effective since many important chemical producing and using countries have implemented it, including the USA which has not ratified any of the other major international instruments on chemicals analysed in this document. On the other hand, however, there remain important implementation gaps in several regions. This concerns a significant number of developing countries, including countries with economies in transition with growing chemicals industries. Countries in Africa, the Middle East, Latin America and South Asia are of particular note.

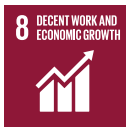
Owing to the persisting GHS implementation gaps, in many countries hazardous chemicals are not labelled or at least not properly labelled (e.g. using language understood by users). Particular challenges have been identified in small and medium-size industries and in the informal sector. Other challenges include ensuring that hazard information communicated through the GHS is fully understood by the target audience, that is workers and consumers.

77 See https://www.ilo.org/safework/info/publications/WCMS_113134/lang--en/index.htm.

E. ILO instruments in relation to SDGs and major international frameworks and strategies on chemicals

The following section examines the major existing international strategies on chemical risks and analyses how ILO instruments fit into these frameworks and how they can make strategic contributions to their success.

I. Sustainable Development Goals



The SDGs cover a range of targets on the protection of the health and safety of workers and also of the public and the environment. These goals are promoted by the ILO chemical instruments. The most relevant SDGs in this regard are **SDGs 3, 8, 12** and **16** and especially their **Targets 3.9, 8.8, 12.4 and 16.6**.

SDG 3 is the "health" SDG which is related to the whole field of OSH. Its Target 3.9 is to "by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination". As all the ILO instruments on chemicals ultimately aim at reducing deaths and illnesses due to chemicals, for both workers and employers but also for the public, they they all promote this target.

SDG 8 is the "jobs" SDG; its Target 8.8 is to "protect labour rights and promote safe and secure working environments for all workers, including migrant workers, particularly women migrants, and those in precarious employment". All ILO instruments on chemicals are OSH instruments and therefore promote this target.

SDG 12 is the "responsible consumption" SDG; its Target 12.4 4 is the requirement to "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." This Target is supported by all ILO instruments and policies on chemicals, which all aim at promoting the sound management of chemicals throughout their life cycle.

II. SAICM and the Beyond 2020 process

The Strategic Approach to International Chemicals Management (SAICM) is a global policy framework for fostering the sound management of chemicals, which was **adopted in 2006**. It supports the achievement of the goal agreed at the 2002 Johannesburg World Summit on Sustainable Development of ensuring that, by the year 2020, chemicals will be produced and used in ways that minimize significant adverse impacts on the environment and human health.

The SAICM secretariat is managed by the UN Environmental Programme (UNEP). SAICM focal points include **175 governments and 85 NGOs**. Members of SAICM regularly meet at the International Conference on Chemicals Management (ICCM), which undertakes periodic reviews of SAICM. The main SAICM documents are the 2006 Dubai Declaration on International Chemicals Management and the corresponding "Overarching Policy Strategy" for SAICM, adopted with it.[78]

After it became apparent that SAICM would miss its 2020 goal, in 2015 the 4th ICCM initiated an inter-sessional process to prepare recommendations regarding the Strategic Approach beyond 2020. The first meeting of the inter-sessional process was held in 2017.

1. Synergies between ILO instruments and the SAICM "Overarching Policy Strategy"

The ILO instruments, which are mostly focused on OSH, clearly align within the strategy's scope, which according to Section 3(a) of the policy covers "health and labour aspects of chemical safety". ILO instruments also fit well into the objectives listed in part IV of the strategy:

Risk Reduction

According to Section 14 of SAICM, the objective of "risk reduction" should *inter alia* be achieved by minimizing risks to the health of workers and the environment throughout the life-cycle of chemicals (14(a)) and by implementing effective risk management strategies aimed at risk reduction and elimination, including detailed safety information on chemicals (14(c)).

ILO chemicals instruments such as Conventions Nos. 170 and 174 mirror these objectives. Both these instruments aim at reducing the risks of hazardous chemicals for workers and the environment. The objective of an overall "risk management strategy" is embodied by Art. 4 of Convention No. 170 and Art. 4 of Convention No. 174, which both require the implementation and periodic review of a national policy on chemical safety at work. The policy must advance, at all relevant levels, the rights of workers to a safe and healthy working environment and promote principles such as assessing risks or hazards, combating risks or hazards at source, and developing a national preventative safety and health culture.

The objective of detailed safety information on chemicals in section 14(c) of SAICM is furthermore specifically advanced by Convention No. 170, which contains extensive requirements on the classification and labelling of chemicals, on SDS and on the training and information of workers about hazards. ILO instruments furthermore fit well into the SAICM objective of giving priority consideration to the application of preventative measures (Section 14(f)).

The primacy of prevention over protection is embodied in both Conventions Nos. 170 and 174. Convention No. 174 already refers in its title to the prevention of major accidents and contains numerous obligations directed towards this goal. Convention No. 170 also contains many preven-

78 For the text of both documents go to http://www.saicm.org/Portals/12/Documents/saicmtexts/New%20SAICM%20Text%20with%20ICCM%20resolutions_E.pdf.

tative provisions (e.g. Art. 10 on risk identification, Art. 12 on exposure reduction and Art. 15 on information and training). A main provision in this regard is also Art. 13 on operational control, which explicitly states that employers must first take all steps to eliminate or minimize a chemical risk to workers and can only revert to protective measures (such as provision of protective equipment) if prevention measures are insufficient.

ILO instruments also correspond well with the SAICM objective of ensuring that existing, new and emerging issues of global concern are sufficiently addressed (Section 14(g)). In this regard Conventions Nos. 170 and 174 are especially helpful as both, unlike the BRS and Minamata Conventions, contain general provisions addressing all hazardous chemicals, not just a list of specific chemicals. The provisions of the ILO Conventions are therefore much more flexible and can easily accommodate any new chemical risks which emerge, while the BRS and Minamata Conventions first have to be amended to cover such new risks.

Knowledge and Information

ILO instruments also fit well into the SAICM objective of ensuring knowledge and information about chemical risks. According to Section 15 of SAICM, the objective of "knowledge and information" should *inter alia* be achieved by ensuring that knowledge and information on chemicals are sufficient and that such information is available to all stakeholders and disseminated in appropriate language (Sections 15(a) and (b)). SAICM also specifically refers to the need to promote GHS (15(h)). As mentioned above, this aim is well reflected in ILO chemicals instruments, especially Convention No. 170, the core obligations of which cover all elements of the GHS (i.e. the classification, labelling and SDS as well as the training and education of workers). As mentioned, Convention No. 170 also had an important influence on the development of the GHS and the ILO has been one of the main initiators of the GHS and is constantly promoting its implementation.

Governance

Finally, ILO instruments also correspond to the SAICM "governance" objective. According to Section 16 of SAICM, the objective of "governance" should *inter alia* be achieved by establishing comprehensive national and international mechanisms that are multi-sectoral and ensure accountability (16(a)). This corresponds to the approach of ILO Conventions such as Nos. 170 and 174, which are both multi-sectoral and, as mentioned, prescribe the establishment of national policies on chemical hazards, which must include the establishment of appropriate national mechanisms to address chemical risks at all levels and ensure accountability. ILO Conventions also provide for a robust international system which ensures the accountability of ratifying States by *inter alia* subjecting them to supervision by the ILO supervisory system.

Section 16 of SAICM furthermore calls for the provision of guidance to stakeholders and the promotion of relevant codes of conduct (Sections 16(c) and (e)). As mentioned above, the ILO has pursued many activities in this regard and has *inter alia* developed and published a number of relevant codes of conduct on many different aspects of chemical safety at work.

Section 16 of SAICM calls for the promotion of the active participation of civil society and workers in regulatory and other decision-making processes (Section 16(g)). As tripartism is one of the core principles of the ILO, this objective is also well reflected in ILO instruments which all require the active involvement of workers and employers in decision-making processes, whether at national or factory levels (e.g. Arts. 4 and 18 of Convention No. 170 and Arts. 4, 5, 6 and 20 of Convention No. 174).

Capacity-building

The objective of "capacity-building" in Section 17 of SAICM is also reflected in ILO instruments such as Conventions Nos. 170 and 174 but also in most other ILO chemicals Conventions which, as mentioned, contain obligations on the constant improvement of chemical safety measures and the promotion of innovations in this regard, as well as on information and education on such measures. The last objective on "illegal international traffic" in Section 18 of SAICM is however less relevant to ILO instruments.

2. Synergies between ILO instruments and SAICM emerging policy issues (EPIs)

In the course of the work of SAICM a number of EPIs have been formulated, which are of special relevance to the strategic approach in the coming years. The following section analyses the way in which ILO chemicals instruments can contribute to these objectives.

a. Lead in paint

This EPI concerns the abolition of the use of lead in paint. This topic was one of the first OSH issues discussed by the ILO which, as long ago as 1923, adopted Convention No. 13 which prohibits the use of white lead in the internal painting of buildings. The Convention has 63 ratifications and is therefore quite relevant to the achievement of the SAICM aim of abolishing the use of lead in paint worldwide.[79]

b. Pesticides

This EPI addresses the need to reduce the use of highly hazardous pesticides and their replacement with less harmful substances. In this regard reference can be made to ILO instruments on OSH in agriculture, especially Convention No. 184, which contains a number of obligations relating to pesticides. The main provision in this regard is Art. 13, which prescribes the adoption of regulations which require that agricultural undertakings must establish preventative and protective measures for the handling of chemicals such as pesticides. This obligation is further specified by the ILO Code of Practice on Safety and Health in Agriculture (see above). This code contains numerous guidelines on pesticide handling and *inter alia* lists relevant pesticides with regard to their hazard levels, including a list of pesticides which are highly or extremely hazardous (see para. 10.2.2.1.2). It also contains guidelines on the handling of hazardous pesticides and limiting of the exposure of workers to them (para 10.3.1.4) and recommends the substitution of hazardous pesticides by less harmful products (paras. 10.3.2 and 10.3.1.4) as the preferable solution.

In its comments on Convention No. 184, the CEACR has also referred to the issue of the use of toxic pesticides and has urged States to improve the protection of agricultural workers against them (e.g. Kyrgyzstan, DR, 2019 concerning workers in tobacco fields).

79 It should however be noted that the ILO's SRM TWG did not classify this Convention as up-to-date but as an instrument regarding which further action is needed to ensure its continued and future relevance, see https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_587514.pdf.

c. Chemicals in products

This EPI concerns the management and tracking of harmful chemicals in products. As a general chemical risk, chemicals in products fall under the general obligations on chemical safety in Convention No. 170 (see Art. 1(1) and 2(a) and (b)). In this regard Convention No. 170 mainly protects workers against excessive exposure to hazardous chemicals in the products they produce (Art. 12).

As mentioned, Convention No. 170 also contains several provisions protecting the general public and thus also the consumers of such products. In this regard, Convention No. 170 requires labelling of all products containing hazardous chemicals (Art. 7) and also protects the public and the environment against the unsound disposal of products containing hazardous chemicals (Art. 14). (So far, however, the issue of chemicals in products has not been addressed by comments of the CEACR on Convention No. 170 or other ILO chemicals Conventions).

d. Electrical and electronic products

This EPI concerns the minimization of risks from hazardous substances within the life-cycle of electrical and electronic products and especially the minimization of risks related to e-waste. The general obligations of Convention No. 170 apply to hazardous substances in electronic products and provide for protection in relation to occupational risks, labelling and the sound disposal of e-waste.

The ILO is also involved in a number of activities relating to e-waste, including participation in the UN E-waste Coalition, which provides a global platform for support on this issue. In November 2019 the ILO Governing Body endorsed the points of consensus agreed at the Dialogue Forum, which inter alia requested the ILO secretariat to undertake research with a view to convening a tripartite meeting to develop guidelines or a Code of practice on decent and sustainable work in the management of ewaste.[80]

e. Nanomaterials, endocrine-disrupting chemicals, environmentally persistent pharmaceutical pollutants and perfluorinated chemicals

Further EPIs concern the risks related to a number of specific hazardous substances, that is nano-materials, endocrine-disrupting chemicals, environmentally persistent pharmaceutical pollutants and perfluorinated chemicals. These hazards are also all covered by Convention No. 170 and there exist a number of policy papers (co-)produced by the ILO on most of the risks.[81]

80 See https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/meetingdocument/wcms_685681.pdf.

81 e.g. the background paper drafted for the development of an ILO policy framework for hazardous substances, which extensively addresses nanomaterials; see https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/meetingdocument/wcms_160746.pdf; a "Nanosafety and Ethics Strategic Plan (2012-2016)" of Thailand, development of which the ILO supported or an IPCS paper on endocrine disruption co-prepared by the ILO, see https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3620733/.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F. Conclusion

As seen, ILO instruments have a number of special characteristics which can serve as key contributions by the ILO to the current global strategy to eliminate chemical risks around the world within the framework of the SDGs and SAICM. Furthermore, With its unique tripartite structure, the ILO international standards are negotiated and adopted in a tripartite setting involving governments as well as workers' and employers' organizations from around the world.

I. ILO instruments have their own scope of application

The ILO instruments have high relevance to the objectives of both the SDGs and SAICM. In this regard they also clearly have their own range of application which is not covered by any of the other international instruments on chemicals. This of course concerns OSH and the protection of workers against chemical risks, which is the main scope of ILO instruments and which is also a main objective of the SDGs (especially SDG 8.8) and SAICM (see Section 3(a) of the overarching policy framework).

Furthermore, as seen above, along with OSH, ILO instruments also protect the public and the environment from chemical risks and are therefore also relevant for other objectives (e.g. SDGs 3.9 and 16.6). This concerns hazards related to major industrial accidents caused by chemicals, which are covered by Convention No. 174 (see e.g. Art 4(1)). Furthermore, Convention No. 170 also contains provisions protecting the general public and the environment in relation to the classification and labelling of chemicals and the disposal of chemical waste (Art. 6, 7 and 14). Some of the more risk-specific ILO chemical Conventions also have a wider scope of application. This concerns Convention No. 162 regarding the protection of the public against asbestos dust (Art. 19(2)), Convention No. 184 which protects the environment and the general public against hazardous pesticides and other chemicals used in agriculture (Art. 12(c)), and the white lead Convention No. 13, which protects workers and the public from white lead paint inside buildings (Art. 1(1)).

A special focus in this regard should be on asbestos and Convention No. 162. As mentioned above, this substance has attracted major attention as a human carcinogen, the full prohibition of which has been prominently suggested by organizations such as the IARC. Owing to several failed attempts to add asbestos to the Annex of the Rotterdam Convention, ILO Convention No. 162 can be considered as the main international instrument explicitly addressing the issue in a comprehensive manner (The Basel Convention also covers asbestos, but only hazards related to asbestos in waste.) Convention No. 162 could thus be promoted as a main policy tool for addressing the remaining use of asbestos around the world.[82] This especially concerns Russia and Kazakhstan, which are among the last remaining large producers of asbestos and which have both ratified Convention No. 162.

82 This has also been confirmed by the ILO's SRM TWG, which has recently classified the Convention as up-to-date instrument and has called for its promotion to address the continued use of asbestos around the world, see https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_587514.pdf.

II. ILO Conventions mainly operate in the area of domestic policy

As seen above, the main non-ILO international chemical instruments such as the Basel and Rotterdam Conventions mostly contain procedural obligations relating to the process of importing and exporting chemicals (e.g. the prior informed consent procedure, notification requirements, etc.) but not many "substantive" requirements regarding the use of the chemicals (e.g. on the prohibition and restriction of their use, measures for exposure reduction, etc.). The Stockholm and Minamata Conventions, on the other hand, contain many such substantive requirements although with a limited scope, applying only to a few chemicals (POPs and mercury).

This is in contrast to the ILO Conventions, which all contain extensive obligations regarding measures for the prevention and mitigation of chemical hazards as well as on the development of national policies on chemicals. The ILO Conventions therefore operate in the area of domestic policy and risk reduction within each country, and not only the area of transboundary effects of chemicals and international relations.

ILO Conventions also are more inclusive. This concerns, for example, the issue of hazardous waste, on which ILO Conventions adopt an approach which treats waste as an issue interconnected with the life cycle of production processes across all sectors. In addition, as shown, almost all the ILO Conventions are supplemented by both Recommendations and Codes of Practice which provide detailed guidance on how the substantive requirements of ILO Conventions can be implemented and how their objectives of risk elimination and reduction can be achieved.

Furthermore, the main ILO chemicals Conventions, namely Nos. 170 and 174, but also Convention No. 155, do not solely cover a specific set of chemicals listed in their Annex, but include general obligations covering all chemical hazards (or all major hazardous substances in the case of Convention No. 174). As seen, these open provisions provide for greater flexibility and facilitate the adaptation of ILO Conventions to newly discovered chemical risks, including emerging substances and mixtures. This can inter alia be seen with the EPIs of SAICM, regarding which even the issues not addressed by specific ILO Conventions are covered by the open provisions of the general chemicals Conventions. These risks thus also all fall within the scope of supervision by the ILO supervisory bodies, which can single them out and scrutinize ILO member States with regard to the measures they have taken to mitigate or eliminate them.

III. The ILO has a strong and elaborate supervisory system

As seen, the fact that the ILO Conventions are supervised by the ILO supervisory system presents a major advantage in several ways. First, regular supervision ensures better implementation of the ILO Conventions by identifying cases of non-compliance and urging the concerned countries to comply, which in many cases leads to substantial progress in resolving cases.[83] In this regard it is especially important that the ILO supervisory system also includes mechanisms involving employers' organizations and trade unions, for example the complaint-based mechanisms (Arts. 24 and 26) and especially the fact that, under Art. 23 of the ILO Constitution, workers and employers can submit observations on the implementation of the Conventions and on reports of governments submitted to the CEACR. As the CEACR comments on the OSH Conventions addressing with chemicals show, reports from employers and especially trade unions have been vital for the detection of many of the cases of non-compliance highlighted by the CEACR, which otherwise would not have been discovered *(see e.g. Colombia, Convention No. 170, DR, 2018; Brazil, Convention No. 170, Obs, 2012; Korea, Convention No. 170, DR, 2015; Armenia, Convention No. 174, DR, 2014; Bosnia, Convention No. 174, DR, 2018 or the Netherlands, Convention No. 174, DR, 2015).*

Next to ensuring better implementation, another important function of the supervisory bodies is the application of the ILO Conventions to individual cases. As seen above, many of the ILO Conventions such as Conventions Nos. 170 and 174, contain broad obligations, such as the obligation to protect workers against all chemicals risks by "appropriate means". These provisions require further interpretation to determine whether the provision has been violated in a specific case. Without strong supervisory bodies such general obligations tend to have less impact as it is difficult to identify cases of non-compliance. In the case of the ILO Conventions, however, the CEACR and the other supervisory bodies can elaborate these obligations by applying them to special national circumstances and specific cases.[84] Clarifications by the supervisory bodies can furthermore help overcome ambiguities in the Conventions' texts.

IV. ILO instruments support the SAICM framework

As shown above, ILO instruments contribute to several aspects of the SAICM overarching policy framework. Concerning SAICM's objective of "risk reduction", it is undisputed that a main part of achieving a substantial reduction in chemical risks around the world requires the adoption of concrete preventative and protective policies at domestic level. However, as seen above, several of the non-ILO chemicals instruments may not address the domestic level or only address limited aspects of domestic policies. Such domestic aspects are however addressed extensively by ILO instruments.

ILO instruments also support the SAICM objective of "knowledge and information", specifically the classification and labelling of chemicals, along with SDS and training of workers. While the GHS is an important international instrument in this regard, it is not legally binding and therefore does not ensure regular supervision of compliance. This gap is however perfectly filled by Convention No. 170 and the ILO supervisory system controlling it.

83 Since 1964, the CEACR has kept track of the number of cases of progress in which it has noted changes in law and practice which have improved the application of a ratified Convention. To date, over 3,000 cases of progress (cases in which the Committee has expressed "satisfaction") have been noted, see https://www.ilo.org/global/standards/applying-and-promoting-international-labour-standards/the-impact-of-the-regular-supervisory-system/lang--en/index.htm and https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---normes/documents/publication/wcms_672549.pdf.

84 In this regard, it must be mentioned that the function of the CEACR as an organ interpreting ILO Conventions has recently been questioned by ILO constituents in the course of the controversies surrounding the question whether a right to strike is contained in ILO Convention No. 87. It can however also be noted that with regards to the other ILO Conventions, including all OSH ones, the validity of the comments of the CEACR so far has not been questioned.

Finally, ILO instruments also support the SAICM objective of "governance", especially towards the aim of establishing comprehensive national and international mechanisms that ensure accountability. As mentioned, ILO instruments contain many comprehensive provisions on the establishment of national mechanisms on chemicals, especially the provisions on the establishment of national policies in Conventions Nos. 170, 174 or 155. Furthermore, as regards accountability at international level, the ILO Conventions have a major advantage in that they are monitored by a comprehensive and sophisticated supervisory system.

In further support tothe SAICM "overarching policy framework", ILO instruments are very useful tools for implementing SAICM EPIs. As reflected above, ILO's risk specific and sector specific OSH instruments address for instance: worker exposure to lead and chemicals in agriculture. Furthermore, the EPIs not covered by risk and sector specific instruments which are, at least as regards occupational risks, fully covered by the general provisions of Conventions Nos. 170, 174 and 155. The ILO instruments in this regard serve as important gap fillers, as several of these issues are not the focus of other international instruments (the Basel and Rotterdam Conventions cover pesticides, environmentally-persistent pharmaceutical pollutants, perfluorinated chemicals and lead, but not nanomaterials and endocrine-disrupting chemicals. The Basel Convention furthermore covers electronic waste. The Stockholm Convention only covers environmentally persistent pharmaceutical pollutants. Minamata only covers mercury-added products, which relates to the EPI on chemicals in products.)

V. Ratification rates

It is important to note that **ILO Conventions have been influential worldwide even when they are not ratified**. The ILO Chemicals Convention, 1990 (No. 170), for example, has had an important influence on other major international instruments on chemicals, which were adopted after it, such as the GHS and the Rotterdam Convention. The GHS was developed as a follow-up to the adoption of Convention No. 170. ILO Conventions relevant to chemicals are also often implemented or used as guidance tools, regardless of their ratification by a particular country. They are for example referenced in the standards of several private compliance initiatives, which monitor the compliance with labour standards by companies around the world.[85]

Conventions Nos. 170 and 174 have each been ratified by around 20 countries. In the case of Convention No. 170, numerous countries which are important users and producers of chemicals have ratified it (e.g. China, Germany, Italy, Republic of Korea, the Netherlands, Poland and Sweden). Convention No. 174 has also been ratified by a number of important producers and users of chemicals (e.g. Russia, Brazil, Saudi Arabia, Finland, the Netherlands and Sweden). Furthermore, as regards Convention No. 170, reference can also be made to the GHS, which incorporates a number of the obligations contained in Convention No. 170 and which has been implemented by many countries. Therefore, while many of these countries have not ratified Convention No. 170, they nonetheless comply with several of its obligations.

The individual ratifications of Conventions Nos. 170 and 174 furthermore have to be seen in the context of the ratifications of the other ILO Conventions. In this regard it should be noted that many of the ILO Conventions contain broad obligations covering many different OSH hazards and therefore overlap. This is for example the case with general ILO OSH Conventions, such as the Occupational Safety and Health Convention, 1981 (No. 155), the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187) and the Occupational Health Services Convention, 1985 (No. 161). These three Conventions all have a general scope covering all occupational risks and thus all chemical risks.

85 A good example are the ILO Occupational Safety and Health Convention, 1981 (No. 155), and the Occupational Health Services Convention, 1985 (No. 161), which both contain general provisions, covering all occupational risks and thus all chemicals related risks. Both Conventions have been quoted in the standards on OSH of major private compliance initiatives, such as the Global Reporting Initiative (GRI), see https://www.globalreporting.org/standards/gri-standards-download-center/.

When the ratification rates for Conventions Nos. 170 and 174 are combined with the ratifications of the last-mentioned Conventions, the number of ratifications totals 98. This means that 98 countries have ratified at least one of the mentioned Conventions and have committed themselves to adopting measures against all chemical risks at work. Taking into account the ratifications of Convention No. 139 on carcinogens and Convention No. 148 on air pollution, which both cover a large number of different chemical hazards, the number reaches 109. This total is much higher than the individual ratification rates for each of the Conventions and therefore places the relevance of the ILO regulatory framework on chemicals in a different perspective.

It can thus be concluded that ILO Conventions, as well as their accompanying Recommendations and Codes of Practice, have been highly influential regardless of their ratification rates. Furthermore, even though some of these Conventions have not been ratified by all ILO Member States, in combination the chemicals-related ILO Conventions have in fact received a large number of ratifications. The ILO regulatory framework on chemicals as a whole has thus an extensive reach and influence, both qualitatively and quantitatively. As a way forward, the ILO should nevertheless continue to promote the ratification of its chemicals-related Conventions, to further increase their impact, in particular Conventions Nos. 170 and 174.[86]

86 A decision in this regard has recently been taken by the ILO Governing Body, see the document GB.331/LILS/2, available at https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_587514.pdf.

Annex 1

Table of ratifications of ILO Conventions

	Convention No. 170	Convention No. 174	Convention No. 148	Convention No. 139	Convention No. 155	Convention No. 187	Convention No. 161
Afghanistan				x			
Albania		x			x	x	
Algeria					x		
Antigua and Barbuda					x		x
Argentina				x	x	x	
Armenia		x					
Australia					x		
Austria						x	
Azerbaijan			x				
Bahrain					x		
Belarus					x		
Belgium	x	x	x	x	x	x	x
Belize					x		
Benin							x
Bosnia and Herzegovina		x	x	x	x	x	x
Brazil	x	x	x	x	x		x
Bulgaria							x
Burkina Faso	x					x	x
Cabo Verde					x		
Canada						x	
Central African Republic					x		
Chile						x	x
China	x				x		
Colombia	x	x					x
Costa Rica			x				
Croatia			x	x	x		x
Cuba			x		x	x	
Cyprus	x				x	x	
Czech Republic			x	x	x	x	x
Côte d'Ivoire					x	x	x
Denmark			x	x	x	x	
Dominican Republic	x					x	
Ecuador			x	x			
Egypt			x	x			
El Salvador					x		
Estonia		x					
Ethiopia					x		
Fiji					x		
Finland	x	x	x	x	x	x	x
France			x	x		x	
Gabon					x		x
Germany	x		x	x		x	x
Ghana			x				
Grenada					x		

	Convention No. 170	Convention No. 174	Convention No. 148	Convention No. 139	Convention No. 155	Convention No. 187	Convention No. 161
Guatemala			x				x
Guinea			x	x		x	
Guyana				x	x		
Hungary			x	x	x		x
Iceland				x	x	x	
India		x					
Indonesia						x	
Iraq			x	x		x	
Ireland				x	x		
Italy	x		x	x			
Japan				x		x	
Kazakhstan			x		x	x	
Korea, Republic of	x			x	x	x	
Kyrgyzstan			x				
Latvia			x		x		
Lebanon	x	x	x	x			
Lesotho					x		
Luxembourg	x	x	x	x	x		x
Malaysia						x	
Mali					x		
Malta			x				
Mauritius					x	x	
Mexico	x				x		x
Moldova, Republic of					x	x	
Mongolia					x		
Montenegro			x	x	x	x	x
Morocco						x	
Netherlands	x	x	x	x	x		
New Zealand					x		
Nicaragua				x			
Niger			x		x	x	x
Nigeria					x		
North Macedonia			x	x	x	x	x
Norway	x		x	x	x	x	
Peru				x			
Philippines						x	
Poland	x		x				x
Portugal			x	x	x	x	
Russian Federation		x	x	x	x	x	
Rwanda					x	x	
San Marino			x				x
Saudi Arabia		x					
Sao Tome and Principe					x		
Serbia			x	x	x	x	x
Seychelles			x		x		x
	Convention No. 170	Convention No. 174	Convention No. 148	Convention No. 139	Convention No. 155	Convention No. 187	Convention No. 161
Singapore					x	x	

Slovakia			x	x	x	x	x
Slovenia		x	x	x	x	x	x
South Africa					x		
Spain			x		x	x	
Sweden	x	x	x	x	x	x	x
Switzerland				x			
Syrian Arab Republic	x			x	x		
Tajikistan			x		x		
Tanzania	x		x				
Thailand						x	
Togo						x	
Turkey					x	x	x
Ukraine		x		x	x		x
United Kingdom			x	x		x	
Uruguay			x		x		x
Venezuela, Bolivarian Republic of				x	x		
Viet Nam					x	x	
Zambia			x		x	x	
Zimbabwe	x	x			x		x

Overall number of countries which have ratified the above Conventions

All	109
C155 + C187 + C161 + C170 + C174	98
C155 + C187 + C170 + C174	94
C155 + C161 + C170 + C174	85
C155 + C170 + C174	80
C155 + C170 + C174 + C148 + C139	98
C155 + C170+ C174+ C148	93

Annex 2

Table of ILO member States which did not ratify any of the analysed ILO Conventions

Afghanistan	Malawi
Angola	Maldives
Azerbaijan	Malta
Bahamas	Marshall Islands
Bangladesh	Mauritania
Barbados	Mozambique
Bolivia, Plurinational State of	Myanmar
Botswana	Namibia
Brunei Darussalam	Nepal
Burundi	Nicaragua
Cambodia	Oman
Cameroon	Pakistan
Chad	Palau
Comoros	Panama
Congo	Papua New Guinea
Cook Islands	Paraguay
Costa Rica	Peru
Democratic Republic of the Congo	Qatar
Djibouti	Romania
Ecuador	Saint Kitts and Nevis
Egypt	Saint Lucia
Equatorial Guinea	Saint Vincent & the Grenadines
Eritrea	Samoa
Eswatini	Senegal
Gambia	Sierra Leone
Georgia	Solomon Islands
Ghana	Somalia
Greece	South Sudan
Guinea - Bissau	Sri Lanka
Haiti	Sudan
Honduras	Suriname
Iran, Islamic Republic of	Switzerland
Israel	Timor-Leste
Jamaica	Tonga
Jordan	Trinidad and Tobago
Kenya	Tunisia
Kiribati	Turkmenistan
Kuwait	Tuvalu
Kyrgyzstan	Uganda
Lao People's Democratic Republic	United Arab Emirates
Liberia	United States
Libya	Uzbekistan
Lithuania	Vanuatu
Madagascar	Yemen

ILO member States which did not ratify Conventions Nos. 139, 148, 155, 187, 161, 170, 174,

- Angola
- Bahamas
- Bangladesh
- Barbados
- Bolivia, Plurinational State of
- Botswana
- Brunei Darussalam
- Burundi
- Cambodia
- Cameroon
- Chad
- Comoros
- Congo
- Cook Islands
- Democratic Republic of the Congo
- Djibouti
- Equatorial Guinea
- Eritrea
- Eswatini
- Gambia
- Georgia
- Greece
- Guinea – Bissau
- Haiti
- Honduras
- Iran, Islamic Republic of
- Israel
- Jamaica
- Jordan
- Kenya
- Kiribati
- Kuwait
- Lao People's Democratic Republic
- Liberia
- Libya
- Lithuania
- Madagascar
- Malawi
- Maldives
- Malta
- Marshall Islands
- Mauritania
- Mozambique
- Myanmar
- Namibia
- Nepal
- Oman
- Pakistan
- Palau
- Panama
- Papua New Guinea
- Paraguay
- Qatar
- Romania
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Samoa
- Senegal
- Sierra Leone
- Solomon Islands
- Somalia
- South Sudan
- Sri Lanka
- Sudan
- Suriname
- Timor-Leste
- Tonga
- Trinidad and Tobago
- Tunisia
- Turkmenistan
- Tuvalu
- Uganda
- United Arab Emirates
- United States
- Uzbekistan
- Vanuatu
- Yemen

ILO members which did not ratify any of the analysed Conventions (i.e. Conventions Nos. 13, 155, 139, 148, 161, 167, 170, 174, 176, 184, 187)

Angola	Namibia
Bahamas	Nepal
Bangladesh	Oman
Barbados	Pakistan
Brunei Darussalam	Palau
Burundi	Papua New Guinea
Cook Islands	Qatar
Equatorial Guinea	Saint Kitts and Nevis
Eritrea	Saint Lucia
Eswatini	Saint Vincent and the Grenadines
Gambia	Samoa
Georgia	Sierra Leone
Guinea-Bissau	Solomon Islands
Haiti	Somalia
Honduras	South Sudan
Iran, Islamic Republic of	Sri Lanka
Jamaica	Sudan
Kenya	Timor-Leste
Kiribati	Tonga
Liberia	Trinidad and Tobago
Libya	Turkmenistan
Lithuania	Tuvalu
Malawi	United Arab Emirates
Maldives	Uzbekistan
Marshall Islands	Vanuatu
Myanmar	Yemen

Annex 3
Overview of supervisory comments on ILO chemicals Conventions

Overview of the main comments of the ILO supervisory system on Convention No. 170

CEACR: 16 pending comments on the Convention, from 16 different States

CAS: 0 cases

art. 24: 1 representation in 2009 on Mexico

art. 26: 0 complaints

Overview of the comments

Major recurrent issues raised by the supervisory bodies	• lack of application of the Convention to certain branches of economy, e.g. a lack of coverage for informal workers (Arts. 1 and 2) (Colombia, Obs, 2012)[a] or certain risks, e.g. methane in mining (art. 24 Representation, Mexico, 2009) • lack of establishment of a national policy on the use of chemicals at work in consultation with employers and workers (Arts. 3 and 4) (Colombia, Obs, 2012; Lebanon, DR, 2010; Mexico, DR, 2015) • lack of maintenance of records of hazardous chemicals used at the workplace, including the accessibility of this information to workers and their representatives (Art. 10) (Mexico, DR, 2015; Tanzania, DR, 2015) • lack of full implementation of the right of workers to remove themselves in the event of imminent danger (Art. 18) (Colombia, Obs, 2018; Dominican Republic, DR, 2017) and • requests for information on compliance with the Convention in practice, including the role of labour inspection (Brazil, Obs, 2012; Burkina Faso, DR, 2016; Korea, DR, 2015; Lebanon, DR, 2010) • lack of compliance with the requirement of States exporting chemicals, the use of which they prohibit, to notify the importing country of their own prohibition and the chemical's dangers (Art. 19) (Lebanon, DR, 2016, 2015 and 2010; Brazil, DR, 2008 and 2007; Burkina Faso, DR, 2016; China, DR, 2003; Tanzania, DR, 2015)
Comments on each Part of the Convention	

Endnotes for annexes: see page 107

PART I. SCOPE AND DEFINITIONS	
Arts. 1 and 2: the Conventions apply to all branches of economic activity and covers the production, handling, storage, transport, disposal and release of chemicals. It however allows ratifying States to exclude partial branches of economic activity, which however has only rarely been used so far. The Convention applies to all chemical substances except organisms and products which will not expose workers to a hazardous chemical under normal use.	*Supervisory comments:* There have not been many comments on Part I. Issues highlighted by the CEACR and art. 24 Committees mostly relate to a lack of protection of some types of workers, e.g. agricultural workers in the informal sector (Colombia, Obs, 2011 and 2012) or an exclusion of certain types of risks (e.g. methane gas in mining) (Mexico, art. 24 representation, 2009).
PART II. GENERAL PRINCIPLES	
Art. 3, consultation: social partners must be consulted on all measures to implement the Convention. **Art. 4, national policy:** EACH ratifying State must, in consultation with the social partners, formulate, implement and periodically review a coherent policy on safety in the use of chemicals at work. **Art. 5, prohibition and restriction:** competent Authorities must have the power to prohibit or restrict hazardous chemicals or require authorization for their use	*Supervisory comments:* Comments of the CEACR related to Part II mostly refer to Arts. 4 and 5. For Art. 4 they are mostly related to shortcomings in the establishment of the national policy, e.g. with regard to the involvement of social partners (Lebanon, DR, 2010; Colombia, Obs, 2012) but also the lack of a national policy specifically directed at chemical safety at work (Mexico, DR, 2015) or the lack of sufficient coverage of certain types of risks, such as occupational cancer (Colombia, Obs, 2012). They also refer to a lack of implementation of elements of the policy (e.g. the evaluation and authorization of chemicals) owing to the inadequate resources of implementing authorities (e.g. Norway, Obs, 2010 and 2005). Comments on Art. 5 refer to delays in the adoption of lists of restricted chemicals (China, DR, 2019, 2010 and 2006).
PART III. CLASSIFICATION AND RELATED MEASURES	
Art. 6, classification: competent bodies must establish systems and specific criteria appropriate for the classification of all chemicals, and mixtures of chemicals, according to the type and degree of their hazards, taking into account the UN Recommendations on the transport of dangerous goods. The classification system must be progressively extended. **Arts. 7 and 8, labels and SDS:** chemicals must be labelled. The labels of hazardous chemicals must clearly explain their hazards. Employers must be provided with SDS for hazardous chemicals. The format and content of labels and SDS must be prescribed by the competent body. **Art. 9, suppliers:** chemical suppliers must ensure that the requirements of Arts. 6-8 are met for the chemicals they supply.	*Supervisory comments:* Comments of the CEACR on Part III as a whole concern the failure to provide regulations on classification, labels and also SDS for non-hazardous chemicals (Sweden, DR, 2005, 1998). Otherwise comments mostly refer to Art. 6, as well as Arts. 7 and 9. Comments on Art. 6 refer to the failure to take into account all relevant risks in the classification system, e.g. risks to the environment (China, DR, 2003 and 2006), or to extend the classification to all relevant chemicals (Zimbabwe, Obs, 2011, 2010 and 2007). They also concern the failure to align the national classification with binding international classification systems (such as the EU REACH system – Norway, Obs, 2010) or the failure to take into account the UN Rec. on transport (Tanzania, DR, 2007). Comments on Art. 7 relate to the failure to provide labels in a language and format understandable to the workers (Zimbabwe, DR, 2003) Comments on Art. 9 refer to shortcomings in the law to oblige all suppliers to comply, such as legal loopholes (e.g. Korea, DR, 2015)[b] , as well as shortcomings in the implementation of such laws (e.g. Norway, DR, 2003 and 2001 and Obs, 1999).

PART IV. RESPONSIBILITIES OF EMPLOYERS	
Art. 10, identification: employers must ensure that all chemicals are properly labelled and have SDS and that only chemicals for which a classification, label and SDS have been prescribed by the authority, are used. They must maintain an open register of all hazardous chemicals in use, crossreferenced with the SDS. They also must ensure that chemicals are used in accordance with the prescribed safety precautions.	*Supervisory comments:* Comments of the CEACR relating to Art. 10 refer to a failure to require employers to obtain information on unlabelled chemicals (Tanzania, DR, 2015 and 2011) or to use only classified chemicals and to maintain a register of chemicals used (Mexico, DR, 2015 and 2010).
Art. 11, transfer of chemicals: employers must also ensure appropriate labelling when chemicals are transferred to different containers.	*Supervisory comments:* Comments of the CEACR relating to Art. 11 refer to a lack of compliance of employers with the relabelling obligation (Poland, Obs, 2010).
Art. 12, exposure: employers must assess, monitor and record the exposure of workers to hazardous chemicals and ensure that exposure limits are not exceeded.	*Supervisory comments:* comments of the CEACR relating to Art. 12 refer to the failure to oblige employers to keep exposure records for sufficient amounts of time (Germany, DR, 2018, 2011 and 2010; Sweden, DR, 2005, 2003 and 1998; Finland, DR, 2019).[c] They also relate to high frequency of non-compliance by employers with the laws implementing the Article (Poland, Obs, 2010; Brazil, Obs, 2012, 2010 and 2008).
Art. 13, operational control: employers must assess chemicals risks and appropriately protect workers by the choice of chemicals, technology, control measures, working systems and practices, hygiene measures and, if the above are not sufficient, must provide personal protective equipment to workers free of charge. Employers also must limit the exposure of workers to hazardous chemicals to a safe level and make arrangements to handle emergencies and provide first aid.	*Supervisory comments:* Comments of the CEACR relating to Art. 12 refer to an insufficient enforcement of the obligations for employers and a resultant reluctance of employers to comply with assessment and protection obligations (Colombia, Obs, 2012 and 2011; Brazil, Obs, 2012, 2010 and 2008; Poland, Obs, 2010). Other comments refer to the absence of legal obligations to provide and maintain personal protective equipment free of charge (Tanzania, DR, 2015) and the absence of obligations to provide all workers exposed to chemicals with personal protective equipment, not only those involved in hazardous activities (Tanzania, DR, 2011).
Art. 14, disposal: employers must ensure disposal of chemicals, which minimizes the risk to workers and the environment, in accordance with national law.	*Supervisory comments:* Comments of the CEACR relating to Art. 14 refer to a lack of compliance of employers with laws requiring the safe storage and disposal of waste containers for used chemicals. (Poland, Obs, 2010)
Art. 15, information and training: employers must inform workers of chemical hazards, instruct them how to obtain and use the information on the label and SDS, develop safety instructions based on the SDS and train the workers on safety procedures on a continuing basis.	*Supervisory comments:* Comments of the CEACR relating to Art. 15 refer to insufficient enforcement of the requirements for employers to train and instruct workers (Brazil, Obs, 2012, 2010 and 2008; China, DR, 2011; Colombia, Obs, 2011; Poland, Obs, 2010). Comments also relate to insufficient obligations in the national law, to provide training and instructions (China, DR, 2019; Zimbabwe, DR, 2006), including a lack of obligations to train workers on SDS and labels (Tanzania, DR, 2015).
Art. 16, co-operation: employers must cooperate with workers and their representatives as closely as possible in discharging their responsibilities.	*Supervisory comments:* Comments of the CEACR relating to Art. 16 refer to shortcomings in regulations requiring joint OSH committees in enterprises, such as a lack of coverage of small enterprises (Burkina Faso, DR, 2016).

PART V. DUTIES OF WORKERS	
Art. 17: workers must comply with chemical safety instructions of employers and must cooperate as closely as possible with employers in the discharge of their responsibilities. They themselves must take all reasonable steps to eliminate or minimize chemical risks.	*Supervisory comments:* The CEACR has not commented substantively on this Part.
PART VI. RIGHTS OF WORKERS AND THEIR REPRESENTATIVES	
Art. 18: workers have the right to remove themselves from work situations with an imminent danger or serious risk, without undue consequences. Workers also have the right to information and training on the chemicals used and their labels and SDS. Employers can however conceal information on chemicals, in accordance with regulations of the competent authority, if disclosure of information on the chemical to a competitor could cause economic harm.	*Supervisory comments:* Comments of the CEACR relating to Part VI mostly refer to the absence of specific provisions establishing the right of workers to remove themselves from dangerous situations without undue consequences (Colombia, Obs, 2018; Dominican Republic, DR, 2017; Lebanon, DR, 2016 and 2010; Mexico, DR, 2015 and 2010).
PART VII. RESPONSIBILITY OF EXPORTING STATES	
Art. 19: if parties export chemicals which are prohibited in their country for OSH reasons, they must communicate this information and the reasons for the prohibition to any importing country.	*Supervisory comments:* Comments of the CEACR relating to Art. 19 mostly refer to a lack of provisions to implement this obligation or a lack of information provided to the CEACR by the government on such regulations (e.g. Lebanon, DR, 2016, 2015 and 2010; Brazil, DR, 2008 and 2007; Burkina Faso, DR, 2016; China, DR, 2003; Tanzania, DR, 2015). Some countries have implemented Art. 19 by requiring exporting companies directly to provide the information to importers, e.g. through SDS, in which case the CEACR asked for information ensuring that the information provided by the companies was sufficient and covered all the information required by Art. 19 (Korea, DR, 2015).
(Arts. 20-27 are final and transitory provisions and are therefore not analysed)	

Overview of the main comments of the ILO supervisory system on Convention No. 174

CEACR: 14 pending comments on the Convention, concerning 14 different States

CAS: 0 cases

art. 24: 0 representations

art. 26: 0 complaints

Overview of the comments

Major recurrent issues raised by the supervisory bodies	• A lack of implementation of the obligation of exporting States to provide information to importing States on the prohibition of the use of hazardous substances, technologies or processes as a potential source of a major accident (Art. 22) (Belgium, DR, 2011; India, DR, 2016; Russia, DR, 2016; Saudi Arabia, DR, 2015; Ukraine, DR, 2016; and Zimbabwe, DR, 2015) • Insufficient formulation, implementation and review of a national policy (Art. 4) (Bosnia and Herzegovina, DR, 2013; Brazil DR, 2016; Colombia, Obs and DR, 2014) • An inadequate system for the identification of major hazard installations (Art. 5) (Brazil, DR, 2016; Colombia, Obs and DR, 2014; Estonia, DR, 2011; Russia, DR, 2016; Saudi Arabia, DR, 2015) • Lack of regulations guaranteeing the protection of confidential information (Art. 6) (Brazil, DR, 2016; Colombia, Obs and DR, 2014; Estonia, DR, 2011) • Lack of employer responsibilities to ensure a documented system of major hazard control (Art. 9) (Armenia, DR, 2014; Brazil, DR, 2016; Colombia, Obs and DR, 2014; Russia, DR, 2016; Ukraine, DR, 2016; Zimbabwe, DR, 2015); the provision of safety reports (Arts. 10, 11 and 12) (Armenia, DR, 2014; Colombia, Obs and DR, 2014; Saudi Arabia, DR, 2015; Slovenia, DR, 2015; Ukraine, DR, 2016; Zimbabwe, DR, 2015); and the notification of major hazard installations (Art. 8) (Colombia, Obs and DR, 2014; Russia, DR, 2016; Saudi Arabia, DR, 2015; Zimbabwe, DR, 2015) • Responsibilities of competent authorities in relation to off-site emergency preparedness (Arts. 15 and 16) (Netherlands, DR, 2015; Saudi Arabia, DR, 2015) and siting policies (Art. 17) (Brazil, DR, 2016; Colombia, Obs and DR, 2014) and • Lack of guarantee of rights of workers and their representatives under the Convention, such as rights to be consulted (Arts. 20 and 21) (Colombia, Obs and DR, 2014; Estonia, DR, 2011; India, DR, 2016; Russian Federation, DR, 2016)
Comments on each Part of the Convention	

PART I. SCOPE AND DEFINITIONS	
Arts. 1 and 3: the Convention applies to all installations which handle, dispose or store any hazardous substance in quantities which exceed the threshold (major hazard installations), excluding nuclear and military installations and transport outside the site of an installation other than by pipeline. Member States can, after consultation of stakeholders and social partners, exclude certain types of installations or branches of economic activity, for which equivalent protection is provided. Art. 2: where a member State is, owing to special problems, unable to immediately implement all safety measures under the Convention, it must draw up and implement, in consultation with social partners and stakeholders, a plan for the Convention's progressive implementation.	*Supervisory comments:* CEACR comments on Part I mostly relate to the scope, as set by Arts. 1 and 3. They concern the lack of coverage of certain branches of industrial activity (Saudi Arabia, DR, 2015).[d]
PART II. GENERAL PRINCIPLES	
Art. 4: each member State must, in consultation with social partners and other affected parties, formulate, implement and periodically review a national policy on the protection of workers, the public and the environment from major accidents. The policy shall be implemented through preventative and protective measures and shall, where practicable, promote best available technologies.	*Supervisory comments:* CEACR comments on Art. 4 relate inter alia to the total lack of the formulation of a policy (Bosnia and Herzegovina, DR, 2013), the lack of a specific policy on industrial accidents, apart from general OSH policies (Brazil DR, 2016) or general disaster policies (Ukraine, DR, 2016). They also concern incomplete policies, e.g. addressing risks only for workers and not also the public and the environment (Colombia, Obs and DR, 2014), or a lack of consultation with social partners during the policy's formulation (Saudi Arabia, DR, 2015). Comments also refer to insufficient measures to implement the policy (India, DR, 2016).
Art. 5: the competent body must, in consultation with social partners and stakeholders, establish and regularly review and update a system for the identification of major hazard installations.	*Supervisory comments:* Many CEACR comments on Art. 5 refer to several cases of a total lack of a system to identify installations (Brazil, DR, 2016; Colombia, Obs and DR, 2014; Estonia, DR, 2011; Saudi Arabia, DR, 2015; Zimbabwe, DR, 2015). Other comments relate to insufficient consultation of social partners during the system's implementation (Russia, DR, 2016; Ukraine, DR, 2016) as well as a lack of review and updating of the system (Ukraine, DR, 2016).
Art. 6: special provision for the protection of confidential data transmitted in accordance with the Convention (Art. 8, 12, 13, 14) must be made.	*Supervisory comments:* CEACR comments on Art. 6 relate to the lack of sufficient regulations guaranteeing the protection of confidential information transmitted by enterprises to the authorities, to comply with the obligations of the Convention (such as the obligation to notify major hazard installations and accidents and to make available safety reports) (Brazil, DR, 2016; Colombia, Obs and DR, 2014; Ukraine, DR, 2016).

Endnotes for annexes: see page 107

PART III. RESPONSIBILITIES OF EMPLOYERS	
Art. 7, identification: employers must identify major hazard installations in their enterprise, in accordance with the system under Art. 5.	*Supervisory comments:* There are few comments of the CEACR on Art. 7. In a few cases, however, the Committee noted a failure of the government to name measures it adopted to implement the Art. (Brazil DR, 2012; Russia, DR, 2016; Saudi Arabia, DR, 2011).
Art. 8, notification: employers must notify the competent authority of every major hazard installation they have identified, prior to putting it into operation. They must also give notification of the closure of any installation.	*Supervisory comments:* In a few cases, the CEACR noted a failure of the government to name measures it adopted to implement the notification requirement in general (Brazil, DR, 2007) or concerning some types of installation (Zimbabwe, DR, 2015).[e] Other comments also concerned the absence of regulations prescribing the notification of an installation's closure (Slovenia, DR, 2014) or a fixed time-frame for the notification of the closure (Russia, DR, 2012).
Art. 9, arrangements at the installation: for every major hazard installation, employers must maintain a hazard control system which covers risk assessment and the identification and analysis of hazards, technical safety measures, organizational safety measures (training, instruction, safety equipment, control of staffing levels and working hours, definition of responsibilities and controls on outside contractors and temporary workers), emergency plans and procedures, measures to limit the consequences of a major accident. The system must also include procedures for consultation with workers and their representatives and measures to improve the system (information gathering and analysis of accidents, recording and discussion with workers of lessons learned).	*Supervisory comments:* In a few cases, the Committee noted a total failure to adopt measures to implement Art. 9. (Brazil DR, 2012).[f] In other comments it also noted insufficient implementation, e.g. through regulations which only prescribe a few general requirements for the hazard control system, but which do not address all of the specific requirements listed in the Article (Colombia, DR, 2014; Ukraine, DR, 2014 and 2016; Russia, DR, 2016; Brazil. DR, 2016; Zimbabwe, DR, 2015). Some comments also refer to the consultation requirements, noting a failure to adopt specific regulations on consultations with workers on the control system, apart from general consultation requirements (Finland, DR, 2019).
Arts. 10, 11, and 12, safety report: employers must prepare a safety report based on the requirements of Art. 9 before putting into operation a major hazard installation. The report must be reviewed and updated in the event of a significant modification of the installation or in case it becomes necessary due to technological changes or a new hazard assessment. Otherwise it must be updated at intervals prescribed by law and at the request of the authorities.	*Supervisory comments:* Some comments of the CEACR on the safety report obligations note a complete failure to implement these requirements (Brazil, DR, 2012; Colombia, Obs, 2014).[g] Further comments refer to shortcomings in the prescribed content of safety reports, e.g. incomplete implementation of the requirement to report on all requirements listed in Art. 9 (Armenia, DR, 2018; Ukraine, DR, 2016). Other comments note that the national legislation does not prescribe time limits for the preparation of the safety reports in accordance with the Convention (Netherlands, DR, 2010) or does not require an update of the report under all the conditions listed in the Convention (Armenia, DR, 2018; Colombia, DR, 2018; Slovenia, DR, 2015). Some comments of the CEACR also refer to a lack of enforcement of regulations on safety reports, resulting in many employers disrespecting the requirements (Zimbabwe, DR, 2015).

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Arts. 13 and 14, accident reporting: employers must inform competent authorities as soon as a major accident occurs. They must, within a fixed time frame, present to the competent authority a detailed report, containing the analysis of the causes and consequences of the accident, the measures taken to mitigate it and recommendations to prevent recurrences.	*Supervisory comments:* There are only few substantive comments of the CEACR on Arts. 13 and 14. Some of them, however, note a complete failure to implement these Articles (Brazil, DR, 2012; Saudi Arabia, DR, 2015; Colombia, DR, 2018 and 2014).[h] Other comments note incomplete implementation, e.g. with regard to giving notification of the accident without delay (Russia, DR, 2012) or an exclusion of certain economic sectors (e.g. all sectors except for mining) from the notification requirement (Ukraine, DR, 2014).
PART IV. RESPONSIBILITIES OF COMPETENT AUTHORITIES	
Arts. 15 and 16, off-site emergency preparedness: authorities must establish and update emergency plans for the protection of the public and environment outside each installation, taking into account the information provided by employers. Authorities must ensure that information on safety measures and correct behaviour for accidents is disseminated to the concerned public, warning of accidents as soon as possible and, in the event of transboundary consequences, informing neighbouring States.	*Supervisory comments:* Comments of the CEACR on off-site emergency requirements note a general lack of requirements on the establishment of emergency plans (Zimbabwe, DR, 2015) or at least a lack of regulations requiring a regular review and update of these plans (Russia, DR, 2016). Other comments also refer to an absence of regulations to require authorities to inform the public of safety measures and emergency plans (Netherlands, DR, 2015; Saudi Arabia, DR, 2015; Zimbabwe, DR, 2015) or to issue warnings and to inform neighbouring States (Russia, DR, 2016).
Art. 17, siting of major hazard installations: authorities must establish a comprehensive policy to distance installations from residential areas and public facilities.	*Supervisory comments:* Comments of the CEACR on siting requirements refer to a lack of specific provisions to regulate the siting of major hazard installations (Netherlands, DR, 2015; Russia, DR, 2016; Brazil, DR, 2016; Colombia, Obs and DR, 2014).
Arts. 18 and 19, inspection: authorities must have competent staff to inspect installations and assess and advise on matters relevant to the Convention. Worker and employer representatives have the right to accompany inspectors, unless it is prejudicial to the inspector's duties. Authorities must have the right to suspend operations posing an imminent danger.	*Supervisory comments:* Comments of the CEACR on inspection requirements refer to practical difficulties of inspection services to fulfil their duties, mostly related to insufficient resources (Colombia, DR, 2018). They also indicate a lack of explicit provisions allowing worker and employer representatives to accompany inspectors (Russia, DR, 2016; Ukraine, DR, 2016 and 2014). There have been no substantive comments on Art. 19 so far.

PART V. RIGHTS AND DUTIES OF WORKERS AND THEIR REPRESENTATIVES	
Art. 20, rights of workers: in order to ensure a safe work system, workers and their representatives must be consulted through cooperative mechanisms. They must in particular be consulted on the preparation of safety reports, emergency plans and accident reports. Workers and representatives must also be informed on the hazards of all installations and on any safety instructions of the authorities. They must be regularly instructed and trained in practices and procedures for the prevention of major accidents. Workers also must have the right to take corrective action and if necessary remove themselves from imminent danger of a major industrial accident, without undue consequences. They must also be allowed to discuss with their employer any hazards they consider capable of generating major accidents and to notify such hazards to the authorities. **Art. 21, duties of workers:** workers at major hazard installations must comply with all safety and emergency procedures relating to the installation.	*Supervisory comments:* Comments of the CEACR relating to Part V mostly refer to Art. 20. They refer inter alia to shortcomings in the guarantee of the workers' rights, such as the lack of specific regulations on workers' rights in relation to industrial accidents, apart from general provisions on workers' rights (Zimbabwe, DR, 2015; Colombia, Obs and DR, 2014; Estonia, DR, 2011), the absence of guarantees of some of the rights under Art. 20 such as the right to be informed, consulted and to discuss and notify hazards (Russian Federation, DR, 2016; Ukraine, DR, 2016), or the failure to extend workers' rights to their representatives (Saudi Arabia, DR, 2015). Other comments also include the absence of concrete regulations giving workers the right to corrective action in the event of an imminent danger, without undue consequences (India, DR, 2016).
PART VI. RESPONSIBILITY OF EXPORTING STATES	
Art. 22: Member States exporting hazardous substances, technologies or processes which they have prohibited as potential source of major industrial accidents must inform importing countries on the prohibition and the reasons for it.	*Supervisory comments:* Comments of the CEACR on Art. 22 relate to either a complete a lack of implementation of the obligation (India, DR, 2016; Russia, DR, 2016; Ukraine, DR, 2016; Zimbabwe, DR, 2015), or shortcomings such as the absence of legal requirements obliging the government to provide the information (Belgium, DR, 2011), or the failure to also regulate the provision of information for the export of technologies and processes (Saudi Arabia, DR, 2015).
(PART. VII ONLY CONTAINS FINAL AND TRANSITORY PROVISIONS AND IS THEREFORE NOT ANALYSED)	

Overview of the main comments of the ILO supervisory system on chemical specific Convention of the ILO

This list covers Conventions Nos. 139, 148, 162 and 136

Number of comments	CEACR: 36 pending comments on the Convention, concerning 34 different States CAS: 3 cases (Peru, 1992, Guinea, 1991, 1989) Art. 24: 1 representation in 1987 on Germany (unreceivable) Art. 26: 0 complaints
Major recurrent issues raised by the supervisory bodies	• Insufficient implementation of the requirement for health checks of workers during and after employment (Art. 5) *(Nicaragua, DR, 2000; Croatia, DR, 2006; Denmark, DR, 2010; Argentina, DR, 2003; Slovenia, DR, 2004; Slovakia, DR, 2013 and 2011)* • Insufficient inspection services to supervise the Convention's application (Art. 6(c)) *(Japan, DR, 2016; Finland, DR, 2006; Brazil, Obs, 2010; Hungary, DR, 2017; Uruguay, Obs, 2010; Venezuela, DR, 2015)* and • Insufficient systems to record carcinogens and the associated risks (Art. 3) *(Nicaragua, DR, 2000; Guyana, Obs, 2004; Egypt, DR, 1998)*
CONVENTION No. 148, WORKING ENVIRONMENT (AIR POLLUTION, NOISE AND VIBRATION) CONVENTION, 1977	
Number of comments	CEACR: 40 pending comments on the Convention, concerning 38 different States CAS: 0 cases Art. 24: 1 representation in 1987 on Germany (unreceivable) Art. 26: 0 complaints
Major recurrent issues raised by the supervisory bodies	• Failure to ensure cooperation of two or more employers engaged in the same workplace regarding safety measures against air pollution (Art. 6) *(China-Macau, DR, 2019; Tajikistan, DR, 2019; Azerbaijan, Obs, 2018; Ecuador, Obs, 2003; Guatemala, DR, 2016; Russia, DR, 2016; Seychelles, DR, 2015; Spain, Obs, 2015)* • Lack of exposure limits on air pollution at work (Art. 8) *(China-Macau, DR, 2019; Finland, Obs, 1995; San Marino, DR, 2010; Anguilla, Obs, 2006; Iraq, DR, 2016; Tanzania, DR, 2010).* • A complete lack of or insufficient criteria laid down to assess the all occupational hazards related to air pollution (Art. 8) *(Finland, Obs, 1995; San Marino, DR, 2010; Tanzania, DR, 2010)* • Lack of regular revision of exposure limits and criteria to determine hazards due to air pollution (Art. 8) *(Egypt, DR, 1994)* • Lack of provisions requiring employers to provide workers with personal protective equipment in the event that air pollution hazards cannot be mitigated (Art. 10) (Guinea, Obs, 2009) and to prohibit employers from letting workers work without personal protective equipment (Art. 10) *(China-Macau, DR, 2019; Guatemala, DR, 2016)* • Lack of regular health checks for workers exposed to air pollution (Art. 11(1)) (Costa Rica, Obs, 2008), or lack of checks prior to hazardous assignments (Art. 11(1)) (*Ecuador, Obs, 2003)* • Lack of regulations requiring the provision of alternative employment or the maintenance of income for workers removed from hazardous occupations (Art. 11(3)). *(Hungary, Obs, 2012; Germany, DR, 2011; Malta, DR, 2013; Montenegro, DR, 2015; Tanzania, DR, 2015)*

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CONVENTION No. 162, ASBESTOS CONVENTION, 1986	
Number of comments	CEACR: 40 pending comments on the Convention, concerning 31 different States CAS: 4 cases (Croatia, 2011, 2008, 2006, 2003) Art. 24: 0 representations Art. 26: 0 complaints
Major recurrent issues raised by the supervisory bodies	• the need for the adoption of specific legislation on the prevention and control of, and protection of workers against, the specific health hazards due to occupational exposure to asbestos *(Bosnia and Herzegovina, DR, 2013; Bolivia, Obs, 2016; Cameroon, Obs, 2016; Guatemala, Obs, 2016; Kazakhstan, DR, 2016; Uruguay, DR, 2015)* • the need for periodic review of national law and regulations in the light of technical progress and advances in scientific knowledge (Art. 3(2)) *(Colombia, Obs, 2016; Uganda, DR, 2016; Spain, Obs, 2015; Uruguay, DR, 2015; Zimbabwe, Obs, 2015)* • the need for adequate labelling of products containing asbestos (Art. 14) (Colombia, Obs, 2016; Portugal, DR, 2016) • the need for adequate protective processes by employers or contractors during demolition work and the removal of asbestos (Art. 17) *(Australia, DR, 2014, Colombia, Obs, 2016, Ecuador, DR, 2016, Guatemala, Obs, 2016, Japan, Obs, 2016, Uganda, DR, 2016)* • the need to provide medical examination to workers after exposure to asbestos, including after the termination of employment, as well as the provision of compensation for workers diagnosed with occupational diseases caused by exposure to asbestos (Art. 21) *(Montenegro, DR, 2015; Sweden, DR, 2015; Croatia, Obs, 2014; Spain, Obs, 2015)* • insufficient information provided by governments on the application of the Convention in practice, including in relation to labour inspection activities, statistics on workers exposed to asbestos and on workers affected by occupational diseases caused by asbestos *(Bosnia and Herzegovina, DR, 2013; Cameroon, Obs, 2016; Ecuador, DR, 2016; Japan, Obs, 2016; Kazakhstan, DR, 2016; Netherlands, Obs, 2015; Russian Federation, DR, 2016; North Macedonia, DR, 2015; Uganda, DR, 2016; Serbia, DR, 2015; Zimbabwe, Obs, 2015)* • lack of due consideration given to technological progress and advances in scientific knowledge, including the latest recommendations of the IARC, according to which all forms of asbestos are classified as human carcinogens *(see e.g., Colombia, DR, 2016, and Zimbabwe, Obs, 2015).*
CONVENTION No. 136, BENZENE CONVENTION, 1971	
Number of comments	CEACR: 25 pending comments on the Convention, concerning 23 different States CAS: 4 cases (Ivory Coast, 1994; Morocco, 1993, 1988; Spain, 1992) Art. 24: 0 representations Art. 26: 0 complaints

Endnotes for annexes: see page 107

Major recurrent issues raised by the supervisory bodies	• the need to adopt specific safety measures in the national legislation relating to benzene, mainly the requirements on protective measures against the risk of exposure to liquid benzene (Art. (8)) *(Colombia, Obs, 2017; Guinea, Obs, 2014; CAS, Morocco, 1993)*, the full prohibition of the use of benzene as a solvent or diluent (Art. 4) *(Bolivia, Obs, 2019; Colombia, Obs, 2016; Zambia, Obs, 2016; Ivory Coast, Obs, 1994; CAS, Ivory Coast, 1994)*, the replacement of benzene with less harmful substances (Art. 2) *(Ivory Coast, Obs, 1994; CAS, Ivory Coast, 1994)*, the prescription of hygiene and technical measures to protect workers (Art. 5) *(Colombia, Obs, 2017)*, the constant measurement of benzene concentration in the air (Art. 6) *(Guinea, Obs, 2014; Kuwait, Obs, 2016)* and regular health checks of workers (Art. 9) *(Colombia, Obs, 2017)* and • the absence of statistics on the application of the Convention in practice *(Guyana, Obs, 2018; Bosnia, DR, 2012; Colombia, Obs, 2010; Chile, DR, 2006)*

Overview of the main comments of the ILO supervisory system on sectoral Conventions on chemicals of the ILO

This list cover Convention No. 184, Convention No. 176 and Convention No. 167

CONVENTION NO. 184 SAFETY AND HEALTH IN AGRICULTURE CONVENTION, 2001	
Number of comments	CEACR: • 16 pending comments on the Convention, concerning 15 different States • 2017 General Survey on Sectoral OSH Conventions
Major recurrent issues raised by the supervisory bodies	• Inability of governments to name an authority competent for the establishment of a system for the importation, classification, packaging and labelling of chemicals (Art. 12(1)(a)) *(Argentina, DR, 2012)* • The lack of regulations requiring providers of chemicals to inform the users, including workers, of the associated risks (Art. 12(b)) *(Ukraine, DR, 2016; Argentina, Obs, 2017; Moldova, DR, 2016)* • Failure to establish a suitable system for the collection, recycling and disposal of chemical waste, managed by the authorities (Art. 12(c)) *(Burkina Faso, DR, 2016; Portugal, DR, 2017; Moldova, DR, 2016)* • Failure to prescribe the implementation of preventative and protective measures against chemical hazards (Art. 13) *(Sao Tome and Principe, DR, 2016; Argentina, Obs, 2017; Ghana, DR, 2019)* • Legislation implementing Arts. 12, 13 and 14 only covering some of the relevant chemicals, e.g. pesticides, but not other relevant types of chemicals *(Burkina Faso, DR, 2013)*
CONVENTION NO. 167 SAFETY AND HEALTH IN CONSTRUCTION CONVENTION	
Number of comments	CEACR: • 30 pending comments on the Convention, concerning 27 different States • 2017 General Survey on Sectoral OSH Conventions
Major recurrent issues raised by the supervisory bodies	• Lack of regulations requiring the replacement of hazardous substances with less hazardous ones wherever possible *(Art. 28(2)(a)) (Lesotho, DR, 2010)* • Lack of regulations on safety measures relating to the disposal of hazardous chemicals and asbestos (Art. 28(4)) *(Malaysia, CEACR, General Survey 2017, para. 389)* • Lack of implementation of the principle that the mitigation of risks by providing personal protective equipment shall only be used when preventative safety measures are insufficient *(Art. 28(2)(c)) (Belarus, DR, 2012)* • Lack of compliance of employers with safety regulations on the handling of hazardous substances (Art. 28) *(Dominican Republic, CEACR, General Survey 2017, para. 389; China, DR, 2019 and 2013)* and on requirements for the provision of personal protective equipment (Art. 28(2)(c)) *(China, DR, 2019 and 2013)* • Failure to require the appointment of competent persons for the handling of explosives (Art. 27) *(Guatemala, DR, 2016; Lesotho, DR, 2006; Belarus, DR, 2017; China-Macau, DR, 2012; Italy, DR, 2012)*
CONVENTION NO. 176 SAFETY AND HEALTH IN MINES CONVENTION, 1995	
Number of comments	CEACR: • 29 pending comments on the Convention, concerning 26 different States. • 2017 General Survey on Sectoral OSH Conventions

Major recurrent issues raised by the supervisory bodies	• Lack of regulations requiring the training and information of workers on chemical risks (Art. 9(a)) *(Zambia, DR, 2013)* • Lack of regulations on the provision to workers of free protective equipment against chemicals (Art. 9(c)) *(USA, DR, 2010; Albania, DR, 2018)* • Lack of regulations on appropriate medical facilities and transportation for injured workers (Art. 9(d)) *(Albania, DR, 2018; Finland, DR, 2016; Brazil, DR, 2011)*

Annex 4

Overview of the synergies between ILO instruments and the BRS and Minamata Conventions

BASEL CONVENTION ON THE CONTROL OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES AND THEIR DISPOSAL	
Synergies with ILO Conventions	• Basel only overlaps with ILO Conventions concerned with hazardous waste • Overlap with Basel obligations on import and export of hazardous waste: • Overlap not substantial, ILO Conventions mostly focus on management of chemicals within States • Export of hazardous chemicals: Art. 19 of Convention No. 170 and Art. 22 of Convention No. 174 both require States exporting chemical substances whose use they prohibit to inform the importing country including the reasons for the prohibition. "Substances" in this regard can also include waste • Basel also contains such notification requirements (Arts. 6, 4(2)(f)(h) and (7)(b) and (c))), which are however much more extensive, since for example they also require a general system for the recording of waste movement • However Conventions Nos. 170 and 174 only refer to prohibition of the "use" of the substances, which does not cover the disposal of waste; they apply only to the export of waste which is further "used", e.g. recycled. • Overlap with Basel obligations on environmentally sound management of waste: • Greater overlap with ILO Conventions • Both Conventions Nos. 170 and 174 generally cover the disposal of hazardous chemicals (Art. 3(c) of Convention No. 174 and Art. 2(c)(v) of Convention No. 170). In addition Convention No. 162 covers the disposal of asbestos (Art. 17(2)(c)), Convention No. 167 covers the disposal of chemicals used in construction (Art. 28(4)), and Convention No. 184 covers the disposal of pesticides and other chemicals used in agriculture (Art. 12(c)). • The ILO Conventions are however much more detailed and specific as they contain a whole range of different obligations on concrete safety measures rather than the very short and general obligations of the Basel Convention (there exist however official implementation guidelines for the Basel Convention) • Approach of the ILO and the Basel Convention on waste differs: • The ILO takes an inclusive life-cycle approach to chemicals and waste, the concept of "waste" being not a stand-alone issue, but rather inherently interconnected to the life-cycle of production processes across all sectors • The Basel Convention mostly focuses on movement and disposal of waste, not its production
Strengths of Basel	High ratification rate (187), covering all relevant countries exporting and importing hazardous waste, except the USA. • The high rate can also be explained by the Convention's prohibition on importing or exporting any waste to or from any non-party. This mechanism creates a high incentive for every State involved in the movement of hazardous waste to become "part of the club". • Amendment mechanisms for the Convention and its Annexes, which allow for an evolution and adaptation of the Convention.

Limitations of Basel	**Overall problem is limited content of obligations:** • weak obligations on import/export of waste - main import/export obligation is "prior informed consent" procedure, which, by many commentators, has been considered as legitimizing the trade of hazardous waste rather than preventing it. - additional prohibition on exporting any waste which can be disposed of in the country of origin has also not been effective, as many countries use a "loophole" in Art. 4(9)(b) by declaring the waste as being used for recycling - amendment of Convention to include complete ban of export of hazardous waste from developed to developing countries ("Basel Ban") failed, even though it was established at regional level (see e.g. the Bamako Convention[i] or EU Regulation (EC) No 1013/2006 of 14 June 2006[j]) • list of hazardous waste in the Annex is conclusive and does not contain a "catch-all" clause for other chemicals. The Annex needs amendment in the event of newly-emerging hazards • the content of the provisions on the sound management of waste within member States is also quite limited, as provisions are kept broad and vague and also contain qualifiers (e.g. "to the extent possible"). - even though they have been complemented by detailed guidelines (see above), their impact has therefore been quite limited. i.e. these obligations have so far also only been marginally treated in the Convention's implementation reports.[k] **Basel's supervisory mechanism is not as elaborate as ILO's** • Basel has a reporting-based supervisory system which, however, is not as sophisticated as ILO's, as it only includes an expert committee, but not other complementary supervisory bodies such as the CAS. • Basel provides for a complaints system ("submissions"), but it only allows substantive submissions by either the non-compliant State and other State parties, but not non-government actors. Such State-to-State complaint mechanisms have however proved less effective as States tend to avoid blaming other States for non-compliance.[l]
ROTTERDAM CONVENTION ON THE PRIOR INFORMED CONSENT PROCEDURE FOR CERTAIN HAZARDOUS CHEMICALS AND PESTICIDES IN INTERNATIONAL TRADE	
Synergies with ILO Conventions	Rotterdam is exclusively concerned with the import and export of chemicals. It therefore has very little overlap with ILO Conventions. • As with Basel, however, there is an overlap with the obligation in Art. 19 of Convention No. 170 and Art. 22 of Convention No. 174 for States exporting chemicals, the use of which they prohibit, to inform the importing country. • Rotterdam also includes such notification requirements, which are however more far-reaching, as the notification must contain much more different information, and there are also additional requirements on the labelling and marking of the exported chemicals and also general requirements on information exchange about hazardous chemicals between parties.
Strengths of Rotterdam	High ratification rate (161), including almost all major chemical exporter and importers, except for the USA. • the high rate can also be explained by special mechanisms in the Convention, which incentivise ratification by giving benefits to ratifying countries (e.g. mechanism in Arts. 10 and 11, according to which parties can give notification of all chemicals which they do not wish to import, and are thereby ensured that the export of these chemicals to their country from all other parties is banned) Amendment procedures for Annex II, but also the other parts of the Convention, which allow quicker adaptation of the Convention's text to scientific or other developments.

Limitations of Rotterdam	Content and strength of the obligations • the main obligation regarding the import/export of chemicals is only a prior informed consent procedure, which does not ban or restrict the use of certain very hazardous chemicals but merely ensures that States must consent to their import and are properly informed about their hazards. • unlike Basel, Rotterdam does not contain any substantive provisions on the management of chemicals. The Convention only applies to a conclusive list of chemicals and does not contain a "catch-all" clause for other hazardous chemicals. • Rotterdam needs amendment to cover new emerging hazards • the current Convention lacks a number of major hazardous chemicals, such as chrysolite asbestos, inclusion of which was refused 8 times.[m] • the Convention does not have a properly functioning supervisory system similar to the ILO Conventions.
STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS	
Synergies with ILO Conventions	• Stockholm only applies to POPs. ILO Conventions do not specifically address POPs; however they are covered by the general obligations in Conventions Nos. 170 and 155. In this respect, the overlap is large. • Stockholm mainly focuses on the prohibition or at least strong restriction on the use of POPs. - ILO Conventions relating to chemicals such as Convention No. 170 do not contain such prohibitions or restrictions of specific chemicals but generally prescribe the adoption of measures to prevent and mitigate risks relating to any chemical. - As many of the POPs in the Convention are very hazardous, it is likely that the exposure of workers to a large number of the chemicals covered by Stockholm would also be prohibited under the general obligation in Art. 12(a) of Convention No. 170 to prevent the exposure of workers to chemicals exceeding exposure limits.
Strengths of Stockholm	• High ratification rate (152), ratifying States include most major users and producers of chemicals, except for the USA • Obligations on covered POPs are quite strong (mostly require a complete ban or at least a very strong restriction of the covered substances) • Amendment procedure for the Convention, which allows for quicker adaptation of the Convention's text to new scientific findings.
Limitations of Stockholm	• The Convention has limited scope, as it only applies to POPs and to no other types of chemicals. • The Convention does not contain a general clause applying to all POPs but only covers the substances listed in its Annexes. In the event of the discovery of new POPs, the Convention therefore has to be amended. • The Convention lacks a properly functioning supervisory system similar to the ILO Conventions.

MINAMATA CONVENTION ON MERCURY	
Synergies with ILO Conventions	• Minamata is solely focused on mercury, there is therefore only overlap with ILO Conventions covering mercury. • There is no ILO Convention specifically addressed at mercury. Mercury is however covered by the general chemicals Conventions (Conventions Nos. 170, 174 and also 155), which cover all chemical risks. • Convention No. 176 on mining is also of specific importance for this issue, as it covers the important issue of use of mercury in mining. Convention No. 176 in this regard complements the Minamata Convention, as Minamata mostly focuses on mercury use in small scale and artisanal gold mining, while Convention No. 176 also covers the use of other hazardous chemicals in gold mining. • Next to mining, among the different obligations contained in Minamata, Art. 5 on manufacturing processes involving mercury has the most overlap with ILO Conventions. - While Minamata prohibits or severely restricts the use of mercury, ILO chemical Conventions such as Nos. 170 and 174 do not explicitly ban certain substances but contain more general provisions on measures to prevent chemical hazards. - however, it is likely that at least some of the work processes listed in the Minamata Convention are sufficiently hazardous also to require their ban under the obligation to prevent exposure of workers to chemicals beyond exposure limits in Art. 12 of Convention No. 170. • Mercury is also addressed in the ILO List of Occupational Diseases Recommendation, which includes occupational diseases caused by mercury or its toxic compounds.
Strengths of Minamata	• Relatively high ratification rate (112), which is lower than BRS but higher than the rate for ILO chemicals Conventions. Minamata was adopted quite recently, so it can be expected that the ratification rate will continue to grow. • Amendment procedure for the Convention, which allows for more rapid adaptation of the Convention's text to new scientific findings. • The obligations on the covered mercury-added products and manufacturing processes are quite strong, as they mostly require a complete ban or at least a very strong restriction.
Limitations of Minamata	• Limited scope, as it only applies to mercury and to no other types of chemical. • The Convention does not even apply to all mercury-added products and manufacturing processes using mercury. ILO Conventions can fill these gaps left by Minamata (e.g. Convention No. 176 also covers non-artisanal mining, which is not covered by Minamata). • As regards the supervisory system, it can at least be noted that, unlike Stockholm and Rotterdam, the Convention has a supervisory mechanism which has however not yet started operating. It remains to be seen how this mechanism develops over the coming years.

Endnotes for annexes: see page 107

Annex 5

Overview of the synergies between ILO instruments and SAICM

Current Strategic Objectives and Targets as Deliberated at OEWG3

STRATEGIC OBJECTIVE A: [Measures are identified, implemented and enforced in order to prevent or, where not feasible, minimize harm from chemicals throughout their life-cycle [and waste]]	
Target A.1 Countries adopt, implement and enforce legal frameworks that address risk prevention and the reduction of adverse impacts from chemicals throughout their life-cycle and waste.	**Implementation and periodic review of a coherent policy on safety in the use of chemicals at work** (Convention No. 170, Art. 4; Convention No. 174, Art. 4; Convention No. 155, Art. 4-7; Convention No. 161, Art. 2; Convention No. 187, Art. 3; Convention No. 176, Art. 3 (mining); Convention No. 184, Art. 4(1), (2) (agriculture)) **Power of competent authority to prohibit and restrict dangerous chemicals** (Convention No. 170, Art. 5; Convention No. 155, Art. 11(b); Convention No. 148, Art. 12 (air pollution); Convention No. 139, Art. 1 (carcinogens); Convention No. 136, Art. 4 (Benzene); Convention No. 162, Arts. 11, 12 (asbestos)) **Prevention of chemical risks (risk assessment and risk elimination/minimization, incl. exposure limits, replacement of hazardous substances, prevention of leakage/emission, safe storage)** (Convention No. 170, Arts. 10-13; Convention No. 174 Art. 9(a)-(b), (g); Convention No. 155, Art. 16(1)-(2); Convention No. 161, Arts. 5-15; Convention No. 148, Arts. 8, 9, 11, 14 (air pollution); Convention No. 139, Arts. 2, 3, 5 (carcinogens); Convention No. 162, Arts. 3, 9, 15 (asbestos); Convention No. 136, Art. 6 (benzene); Convention No. 167, Art. 28(1)-(3) (construction); Convention No. 176, Art. 9(b)-(c) (mining); Convention No. 184, Art. 13 (agriculture)) **Protection of workers against adverse effects of chemicals exposure (protective equipment, emergency plans, first aid)** (Convention No. 170, Arts. 13(1)(f) and (2)(b)-(c); Convention No. 174, Arts. 9 (c), (d) and (e), 15, 16 (major hazard installations); Convention No. 155, Arts. 16(3), 18; Convention No. 161, Arts. 5(e) and (j); Convention No. 148, Art. 10 (air pollution); Convention No. 162, Arts. 6(3), 15(4) (asbestos); Convention No. 167, Arts. 28(2)(c), 31 (construction); Convention No. 176, Arts. 5(4)(a), 9(c) and(d) (mining)) **Environmentally sound disposal of waste containing hazardous substances** (Convention No. 170, Art. 14; Convention No. 174, Art. 3(c) (installations for disposal of hazardous chemicals); Convention No. 167, Art. 28(4) (chemicals in construction); Convention No. 184, Arts. 12(c), 13(d) (chemicals in agriculture); Convention No. 162, Art. 17(c) (asbestos waste)) **Appropriate inspection to ensure implementation** (Convention No. 174, Art. 18; Convention No. 155, Art. 9; Convention No. 187, Art. 4(2)(c); Convention No. 148, Art. 16 (air pollution); Convention No. 139, Art. 6(c) (carcinogens); Convention No. 162, Art. 5 (asbestos); Convention No. 136, Art. 14(c) (benzene); Convention No. 167, Art. 35(b) (construction); Convention No. 176, Art. 5(b) (mining); Convention No. 184, Art. 5 (agriculture))
Target A.2 Countries have sufficient capacity to address chemicals and waste issues nationally, including appropriate inter-agency coordination and stakeholder participation mechanisms, such as national action plans.	**Implementation and periodic review of a coherent policy on safety in the use of chemicals at work** (Convention No. 170, Art. 4; Convention No. 174, Art. 4; Convention No. 155, Arts. 4-7; Convention No. 161, Art. 2; Convention No. 187, Art. 3; Convention No. 176, Art. 3 (mining); Convention No. 184, Art. 4(1), (2) (agriculture)) **Tripartism and involvement of social partners at national level** (Convention No. 170, Arts. 3, 4; Convention No. 174, Arts. 4(1), 5(1), 6(1); Convention No. 155, Arts. 4(1), 8; Convention No. 161, Arts. 2, 4; Convention No. 187, Arts. 2(3), 3(3), 4(1), 5(1); Convention No. 148, Art. 5(1) (air pollution); Convention No. 139, Art. 6(a); Convention No. 162, Arts. 3(3), 4 (asbestos); Convention No. 136, Arts. 3(1), 9(2) (benzene); Convention No. 167, Arts. 1(2), 3(construction); Convention No. 176, Arts. 2(2), 3 (mining); Convention No. 184, Art. 8(4) (agriculture))

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Target A.3 Countries are implementing the chemicals and waste-related multilateral environmental agreements, as well as health, labour and other relevant Conventions, and voluntary mechanisms such as the GHS	**All ILO Chemicals Conventions are relevant chemicals (and waste) related multilateral agreements** **Convention No. 170 covers all aspects of the GHS** (classification (Art. 6), labelling (Art. 7), SDS (Art. 8), information and training of workers (Art. 15))
Target A.4 Stakeholders have incorporated the sound management of chemicals throughout their life-cycle and waste into their planning, policies and practices, thereby supporting the development and implementation of chemical management systems and other sector-appropriate mechanisms	**Implementation and periodic review of a coherent policy on safety in the use of chemicals at work** (Convention No. 170, Art. 4; Convention No. 174, Art. 4; Convention No. 155, Arts. 4-7; Convention No. 161, Art. 2; Convention No. 187, Art. 3; Convention No. 176, Art. 3 (mining); Convention No. 184, Arts. 4(1), (2) (agriculture)) **Power of competent authority to prohibit and restrict dangerous chemicals** (Convention No. 170, Art. 5; Convention No. 155, Art. 11(b); Convention No. 148, Art. 12 (air pollution); Convention No. 139, Art. 1 (carcinogens); Convention No. 136, Art. 4 (Benzene); Convention No. 162, Arts. 11, 12 (asbestos); Convention No. 184, Art. 12(a) (agriculture)) **Prevention of chemical risks (risk assessment and risk elimination/minimization, incl. exposure limits, replacement of hazardous substances, prevention of leakage/emission, safe storage)** (Convention No. 170, Arts. 10-13; Convention No. 174 Art. 9(a)-(b), (g); Convention No. 155, Art. 16(1)-(2); Convention No. 161, Arts. 5-15; Convention No. 148, Arts. 8, 9, 11, 14 (air pollution); Convention No. 139, Arts. 2, 3, 5 (carcinogens); Convention No. 162, Arts. 3, 9, 15 (asbestos); Convention No. 136, Art. 6 (benzene); Convention No. 167, Art. 28(1)-(3) (construction); Convention No. 176, Art. 9(b)-(c) (mining); Convention No. 184, Art. 13 (agriculture)) **Protection of workers against adverse effects of chemicals exposure (protective equipment, emergency plans, first aid)** (Convention No. 170, Arts. 13(1)(f) and (2)(b)-(c); Convention No. 174, Arts. 9 (c), (d) and (e), 15, 16 (major hazard installations); Convention No. 155, Arts. 16(3), 18; Convention No. 161, Art. 5(e) and (j); Convention No. 148, Art. 10 (air pollution); Convention No. 162, Arts. 6(3), 15(4) (asbestos); Convention No. 167, Arts. 28(2)(c), 31 (construction); Convention No. 176, Arts. 5(4)(a), 9(c) and(d) (mining))

Target A.5 Governments and industry ensure that workers are protected from the risks associated with chemicals and waste and that workers have the means to protect themselves	**Implementation and periodic review of a coherent policy on safety in the use of chemicals at work** (Convention No. 170, Art. 4; Convention No. 174, Art. 4; Convention No. 155, Arts. 4-7; Convention No. 161, Art. 2; Convention No. 187, Art. 3; Convention No. 176, Art. 3 (mining); Convention No. 184, Art. 4(1), (2) (agriculture)) **Power of competent authority to prohibit and restrict dangerous chemicals** (Convention No. 170, Art. 5; Convention No. 155, Art. 11(b); Convention No. 148, Art. 12 (air pollution); Convention No. 139, Art. 1 (carcinogens); Convention No. 136, Art. 4 (Benzene); Convention No. 162, Arts. 11, 12 (asbestos); Convention No. 184, Art. 12(a) (agriculture)) **Prevention of chemical risks (risk assessment and risk elimination/ minimization, incl. exposure limits, replacement of hazardous substances, prevention of leakage/ emission, safe storage)** (Convention No. 170, Arts. 10-13; Convention No. 174 Art. 9(a)-(b), (g); Convention No. 155, Art. 16(1)-(2); Convention No. 161, Arts. 5-15; Convention No. 148, Arts. 8, 9, 11, 14 (air pollution); Convention No. 139, Arts. 2, 3, 5 (carcinogens); Convention No. 162, Arts. 3, 9, 15 (asbestos); Convention No. 136, Art. 6 (benzene); Convention No. 167, Art. 28(1)-(3) (construction); Convention No. 176, Art. 9(b)-(c) (mining); Convention No. 184, Art. 13 (agriculture)) **Protection of workers against adverse effects of chemicals exposure (protective equipment, emergency plans, first aid)** (Convention No. 170, Art. 13(1)(f) and (2)(b)-(c); Convention No. 174, Arts. 9 (c), (d) and (e), 15, 16 (major hazard installations); Convention No. 155, Arts. 16(3), 18; Convention No. 161, Art. 5(e) and (j); Convention No. 148, Art. 10 (air pollution); Convention No. 162, Arts. 6(3), 15(4) (asbestos); Convention No. 167, Arts. 28(2)(c), 31 (construction); Convention No. 176, Arts. 5(4)(a), 9(c) and(d) (mining))
STRATEGIC OBJECTIVE B: Comprehensive and sufficient knowledge, data and information are generated, available and accessible to all to enable informed decisions and actions	
Target B.1 Comprehensive data and information for chemicals on the market are available and accessible, including information and data on properties, health and environmental effects, uses, hazard- and risk-assessment results and risk-management measures, monitoring results and regulatory status throughout their life-cycle	**Classification and appropriate labelling/marking of chemicals** (Convention No. 170, Arts. 6, 7, 9, 10 and 11; Convention No. 162, Art. 14 (asbestos); Convention No. 184, Art. 12(a) (agriculture)) **Promotion of research on chemical hazards** (Convention No. 155, Art. 12(c); Convention No. 187, Art. 4(3)(e); Convention No. 148, Art. 14 (air pollution)) **SDS for workers** (Convention No. 170, Art. 8, 10(1)) **Information and training of workers on chemical hazards** (Convention No. 170, Art. 15; Convention No. 174, Arts. 9(c), 20(d) and (e); Convention No. 155, Arts. 5(c), 14, 19(d); Convention No. 161, Art. 5(i); Convention No. 187, Art. 4(3)(c); Convention No. 148, Art. 7(2) (air pollution); Convention No. 139, Art. 4 (carcinogens); Convention No. 162, Art. 22(2) and (3) (asbestos); Convention No. 167, Art. 33 (construction); Convention No. 176, Art. 10(a) (mining); Convention No. 184, Art. 7(b) (agriculture))
Target B.2 All stakeholders, in particular industries and regulators, have and are using the most appropriate and standardized tools, guidelines and best practices for assessments and sound management, as well as for the prevention of harm, risk reduction, monitoring and enforcement	**Consideration of latest scientific knowledge when determining prohibited/restricted substances, exposure levels and other chemical safety measures** (Convention No. 155, Art. 12(c); Convention No. 139, Art. 1(3) (carcinogens), Convention No. 149, Art. 8(3) (air pollution); Convention No. 162, Art. 15(2) (asbestos)) **Periodic review of policies on chemicals** (Convention No. 170, Art. 4; Convention No. 174, Arts. 4, 11, 15; Convention No. 155, Arts. 4-7; Convention No. 161, Art. 2; Convention No. 187, Arts. 3, 5; Convention No. 176, Art. 3 (mining); Convention No. 184, Art. 4(1), (2) (agriculture))

Target B.3 Information and standardized methods are available and used to understand the impacts of chemicals and waste for improved burden of-disease and cost-of-inaction estimates, to inform the advancement of chemical safety measures and to measure progress towards reducing those impacts	**Promotion of research on chemical hazards** (Convention No. 155, Art. 12(c); Convention No. 187, Art. 4(3)(e); Convention No. 148, Art. 14 (air pollution)) **Consideration of latest scientific knowledge when determining prohibited/restricted substances, exposure levels and other chemical safety measures** (Convention No. 155, Art. 12(c); Convention No. 139, Art. 1(3) (carcinogens), Convention No. 149, Art. 8(3) (air pollution); Convention No. 162, Art. 15(2) (asbestos)) **Periodic review of policies on chemicals** (Convention No. 170, Art. 4; Convention No. 174, Arts. 4, 11, 15; Convention No. 155, Arts. 4-7; Convention No. 161, Art. 2; Convention No. 187, Arts. 3, 5; Convention No. 176, Art. 3 (mining); Convention No. 184, Art. 4(1), (2) (agriculture))
Target B.4 Educational, training and public awareness programmes on chemical safety and sustainability have been developed and implemented, including for vulnerable populations, along with worker safety curricula and programmes at all levels	**SDS for workers** (Convention No. 170, Art. 8, 10(1)) **Information and training of workers on chemical hazards** (Convention No. 170, Art. 15; Convention No. 174, Arts. 9(c), 20(d) and (e); Convention No. 155, Arts. 5(c), 14, 19(d); Convention No. 161, Art. 5(i); Convention No. 187, Art. 4(3)(c); Convention No. 148, Art. 7(2) (air pollution); Convention No. 139, Art. 4 (carcinogens); Convention No. 162, Art. 22(2) and (3) (asbestos); Convention No. 167, Art. 33 (construction); Convention No. 176, Art. 10(a) (mining); Convention No. 184, Art. 7(b) (agriculture))
Target B.5 Countries and stakeholders are implementing training on environmentally sound and safer alternatives, as well as on substitutions and the use of safer alternatives, such as agroecology	**Substitution of hazardous substances by less harmful ones** (Convention No. 170, Art. 13(1)(a) and (b); Convention No. 174, Art. 9(b); Convention No. 161, Art. 5(c); Convention No. 155, Art. 5(a); Convention No. 139, Art. 2(1) (carcinogens); Convention No. 162, Art. 10(a) (asbestos); Convention No. 136, Art. 2(1) (benzene); Convention No. 167, Art. 28(2)(a) (construction); There is no explicit mentioning of substitution in Convention No. 184 on agriculture, however this would be covered under "preventative measures for the use of chemicals" in Art. 13 and "risk minimization" in Art. 14
STRATEGIC OBJECTIVE C: Issues of concern [that warrant [global] [and] [joint] action] are identified, prioritized and addressed	
Target C.1 Programmes of work including timelines are established, adopted and implemented for identified issues	Implementation and periodic review of a coherent policy on safety in the use of chemicals at work (Convention No. 170, Art. 4; Convention No. 174, Art. 4; Convention No. 155, Arts. 4-7; Convention No. 161, Art. 2; Convention No. 187, Art. 3; Convention No. 176, Art. 3 (mining); Convention No. 184, Art. 4(1), (2) (agriculture)) *(According to Art. 7 of Convention No. 155, a national policy must include the periodic review of the safety and health situations in working environments, to identify major problems and to develop priorities of action)*
Target C.2 Information on the properties and risk management of chemicals across the supply chain and the chemical contents of products is available to all to enable informed decisions	**Classification and appropriate labelling/marking of chemicals** (Convention No. 170, Arts. 6, 7, 9, 10 and 11; Convention No. 162, Art. 14 (asbestos); Convention No. 184, Art. 12(a) (agriculture)) **Promotion of research on chemical hazards** (Convention No. 155, Art. 12(c); Convention No. 187, Art. 4(3)(e); Convention No. 148, Art. 14 (air pollution)) **SDS for workers** (Convention No. 170, Art. 8, 10(1)) **Information and training of workers on chemical hazards** (Convention No. 170, Art. 15; Convention No. 174, Arts. 9(c), 20(d) and (e); Convention No. 155, Arts. 5(c), 14, 19(d); Convention No. 161, Art. 5(i); Convention No. 187, Art. 4(3)(c); Convention No. 148, Art. 7(2) (air pollution); Convention No. 139, Art. 4 (carcinogens); Convention No. 162, Art. 22(2) and (3) (asbestos); Convention No. 167, Art. 33 (construction); Convention No. 176, Art. 10(a) (mining); Convention No. 184, Art. 7(b) (agriculture))

STRATEGIC OBJECTIVE D: Benefits to human health and the environment are maximized and risks are prevented or, where not feasible, minimized through safer alternatives, innovative and sustainable solutions and forward thinking	
Target D.1 Companies adopt corporate policies and practices that promote resource efficiency and that incorporate the development, production and use of sustainable and safer alternatives, including new technologies and non-chemical alternatives	**Substitution of hazardous substances by less harmful ones** (Convention No. 170, Art. 13(1)(a) and (b); Convention No. 174, Art. 9(b); Convention No. 161, Art. 5(c); Convention No. 155, Art. 5(a); Convention No. 139, Art. 2(1) (carcinogens); Convention No. 162, Art. 10(a) (asbestos); Convention No. 136, Art. 2(1) (benzene); Convention No. 167, Art. 28(2)(a) (construction)) **Consideration of latest scientific knowledge when determining prohibited/restricted substances, exposure levels and other chemical safety measures** (Convention No. 155, Art. 12(c); Convention No. 139, Art. 1(3) (carcinogens), Convention No. 149, Art. 8(3) (air pollution); Convention No. 162, Art. 15(2) (asbestos))
Target D.2 Governments implement policies that promote innovation to facilitate the recycling and reuse of products, the adoption of sustainable and safe alternatives, including new technologies and non-chemical alternatives (e.g., the prioritized licensing of reduced-risk alternatives, assessment frameworks, labelling schemes and purchasing policies)	**Substitution of hazardous substances by less harmful ones** (Convention No. 170, Art. 13(1)(a) and (b); Convention No. 174, Art. 9(b); Convention No. 161, Art. 5(c); Convention No. 155, Art. 5(a); Convention No. 139, Art. 2(1) (carcinogens); Convention No. 162, Art. 10(a) (asbestos); Convention No. 136, Art. 2(1) (benzene); Convention No. 167, 28(2)(a) (construction)) **Suitable system for the recycling of chemical waste** (Convention No. 184, Art. 12(c) (agriculture))
Target D.3 Companies, including from the investment sector, incorporate strategies and policies to support the sound management of chemicals and waste in their investment approaches and business models and apply internationally-recognized reporting standards where relevant	**Notification requirements for employers** (Convention No. 174, Art. 8 (notification of major hazard installations), Arts. 13 and 14 (notification of major accidents); Convention No. 155, Art. 11(c) (notification of occupational accidents and diseases); Convention No. 148, Art. 12 (notification of use of air pollutants); Convention No. 162, Arts. 13, 21(5) (notification of use of asbestos and of asbestos related diseases); Convention No. 167, Art. 34 (notification of accidents and diseases in construction); Convention No. 176, Art. 5(2)(c) (notification of serious accidents in mines))
Target D.4 Companies apply sustainable production principles and life-cycle management in the design of chemicals, materials and products, taking reduced-risk, design-for-recycling and non-chemical solutions and processes into account	**Substitution of hazardous substances by less harmful ones** (Convention No. 170, Art. 13(1)(a) and (b); Convention No. 174, Art. 9(b); Convention No. 161, Art. 5(c); Convention No. 155, Art. 5(a); Convention No. 139, Art. 2(1) (carcinogens); Convention No. 162, Art. 10(a) (asbestos); Convention No. 136, Art. 2(1) (benzene); Convention No. 167, 28(2)(a) (construction)) **Suitable system for the recycling of chemical waste** (Convention No. 184, Art. 12(c) (agriculture))

Target D.5 Industry associations promote change towards sustainability and the safe management of waste and of chemicals and consumer products throughout their life-cycles, including in sharing information and building the capacity of small and medium-sized enterprises to reduce risks	There are no provisions in ILO instruments addressing obligations of employers' organisations with regard to promoting the safe use of chemicals, including in SMEs.
STRATEGIC OBJECTIVE E TARGETS: [The importance of the sound management of chemicals and waste as an essential element in achieving sustainable development is recognized by all[; adequate financial and non-financial resources are [identified and] mobilized; actions are accelerated; and necessary [transparent and accountable] partnerships are established to foster cooperation among stakeholders].	
Target E.1 The highest levels of stakeholder organizations, including government, industry, civil society and international organizations in all relevant sectors, formally recognize the importance of and commit to action on the sound management of chemicals and waste, and recognize its relevance to sustainable development	**Implementation and periodic review of a coherent policy on safety in the use of chemicals at work** (Convention No. 170, Art. 4; Convention No. 174, Art. 4; Convention No. 155, Arts. 4-7; Convention No. 161, Art. 2; Convention No. 187, Art. 3; Convention No. 176, Art. 3 (mining); Convention No. 184, Art. 4(1), (2) (agriculture)) **Tripartism and involvement of social partners at the national level** (Convention No. 170, Arts. 3, 4; Convention No. 174, Arts. 4(1), 5(1), 6(1); Convention No. 155, Arts. 4(1), 8; Convention No. 161, Arts. 2, 4; Convention No. 187, Arts. 2(3), 3(3), 4(1), 5(1); Convention No. 148, Art. 5(1) (air pollution); Convention No. 139, Art. 6(a); Convention No. 162, Arts. 3(3), 4 (asbestos); Convention No. 136, Arts. 3(1), 9(2) (benzene); Convention No. 167, Arts. 1(2), 3(construction); Convention No. 176, Arts. 2(2), 3 (mining); Convention No. 184, Art. 8(4) (agriculture))
Target E.2 Policies and processes for the management of chemicals and waste are integrated into national and regional development strategies	ILO instruments do not address the connection between OSH policies and economic development policies.
Target E.3 Inter- and intra-sectoral partnerships, networks and collaborative mechanisms are established to mobilize resources, to share information, experiences and lessons learned, and to promote coordinated action at the regional and international levels	**Implementation and periodic review of a coherent policy on safety in the use of chemicals at work** (Convention No. 170, Art. 4; Convention No. 174, Art. 4; Convention No. 155, Arts. 4-7; Convention No. 161, Art. 2; Convention No. 187, Art. 3; Convention No. 176, Art. 3 (mining); Convention No. 184, Art. 4(1), (2) (agriculture)) *(The national policy requirements for all general chemical instruments, i.e. Conventions Nos. 170, 174, 155, 161 and 187, require ratifying States to implement a general national policy on chemical safety at work, which encompasses all risks in all sectors and all occupations, in the whole national territory)*

SAICM "Overarching Policy Framework"

RISK REDUCTION	
Minimizing risks to the health of workers and the environment throughout the life-cycle of chemicals (14(a))	ILO chemicals instruments such as Conventions Nos. 170 and 174 mirror this objective. Both of these instruments aim at reducing the risks of hazardous chemicals for workers and the environment. The objective of an overall "risk management strategy" is embodied in Art. 4 of Convention No. 170 and Art. 4 of Convention No. 174, which both require the implementation and periodic review of a national policy on chemical safety at work. The policy must advance, at all relevant levels, the right of workers to a safe and healthy working environment and promote principles such as assessing risks or hazards, combating risks or hazards at source and developing a national preventative safety and health culture.
Implementing effective risk management strategies aimed at risk reduction and elimination, including detailed safety information on chemicals (14(c))	The objective for detailed safety information on chemicals in Section 14(c) of SAICM is specifically advanced by Convention No. 170, which contains extensive requirements on the classification and labelling of chemicals, on SDS and on the training and information of workers about hazards.
Giving priority consideration to the application of preventative measures (section 14(f))	The primacy of prevention over protection is embodied in both Conventions Nos. 170 and 174. Convention No. 174 in its title already refers to the prevention of major accidents and contains numerous obligations directed at this goal. Convention No. 170 also contains many preventative provisions (e.g. Art. 10 on risk identification, Art. 12 on exposure reduction or Art. 15 on information and training). A main provision in this regard is also Art. 13 on operational control, which explicitly states that employers must first take all steps to eliminate or minimize a chemical risk for workers and can only revert to protective measures (such as the provision of protective equipment) if prevention measures are insufficient.
Ensuring that existing, new and emerging issues of global concern are sufficiently addressed (section 14(g))	Regarding this aim, Conventions Nos. 170 and 174 are especially helpful as both of them, unlike the BRS and Minamata Conventions, contain general provisions addressing all hazardous chemicals, not just a list of specific ones. The provisions of the ILO instruments are therefore much more flexible and can easily accommodate any new chemical risks which emerge, while the other Conventions first have to be amended to cover such new risks.
KNOWLEDGE AND INFORMATION	
Ensuring that knowledge and information on chemicals are sufficient and that such information is available to all stakeholders and disseminated in appropriate language (Section 15(a) and (b)); need to promote the GHS (15(h))	This aim is well reflected in ILO chemicals instruments, especially Convention No. 170, the core obligations of which cover all of the elements of the GHS, i.e. the classification, labelling and SDS as well as the training and education of workers. Convention No. 170 can also be seen as a precursor of the GHS and the ILO also has been one of the main initiators of the GHS and is constantly promoting its implementation.
GOVERNANCE	
Establishing comprehensive national and international mechanisms that are multi-sectoral and ensure accountability (Section 16(a))	This aim corresponds to the approach of ILO instruments such as Conventions Nos. 170 and 174, which are both multi-sectoral and prescribe the establishment of national policies on chemical hazards, which must include the establishment of appropriate national mechanisms to address chemical risks at all levels and ensure accountability. ILO instruments also provide for a robust international system which ensures accountability of ratifying States, by inter alia subjecting them to the supervision of the ILO supervisory system.

Provision of guidance to stakeholders and the promotion of relevant codes of conduct (Section 16(c) and (e))	The ILO has pursued a number of activities in this regard and has inter alia developed and published a number of relevant codes of conduct on many different aspects of chemical safety at work.
Promotion of the active participation of civil society and workers in regulatory and other decision-making processes (Section 16(g))	As tripartism is one of the core principles of the ILO, this objective is also well reflected in ILO instruments, which all require the active involvement of workers and employers in decision-making processes, whether at national level or at factory level (e.g. Arts. 4, 18 of Convention No. 170 and Arts. 4, 5, 6 and 20 of Convention No. 174).
CAPACITY BUILDING	
(Section 17)	The objective of "capacity building" is also reflected in ILO instruments such as Conventions Nos. 170 and 174 but also most other ILO chemicals instruments, which contain obligations on the constant improvement of chemical safety measures and the driving of innovations in this regard, as well as to inform and educate about such measures.
ILLEGAL INTERNATIONAL TRAFFIC	
(Section 18)	This objective is not reflected in ILO instruments.

SAICM Emerging Policy Issues (EPIs)

Lead in paint	The topic of lead in paint was one of the first OSH issues discussed by the ILO which, as early as 1923, adopted Convention No. 13 which prohibits the use of white lead in the internal painting of buildings. The Convention still has 63 ratifications and is therefore quite relevant with regard to the achievement of the SAICM aim to completely abolish the use of lead in paint around the world. Unfortunately, however, the Convention only covers white lead and not other forms of lead used in paint (e.g. chrome yellow or red lead) and it also only prohibits white lead paint inside buildings, not on the outside of buildings. For this reason Convention No. 13 has recently been reviewed by the ILO SRM TWG, which, while not classifying the Convention as up-to-date, also did not classify it is outdated, given its high ratification rate and therefore continuing relevance. All forms of hazardous lead paint which are not covered by Convention No. 13 are however still covered as occupational risks under Convention No. 170 and also general OSH instruments such as Convention No. 155. As lead paint is extremely hazardous, it is quite likely that its exposure to workers would have to be prohibited under the exposure requirements of Art. 12(a) of Convention No. 170. (Unfortunately, so far the CEACR has not referred to lead in its comments on Convention No. 170.)
Pesticides	This EPI concerns the abolition of the use of lead in paint; it also concerns reduction of the use of highly hazardous pesticides and their replacement with less harmful substances. In this regard special reference can be made to ILO instruments on OSH in agriculture, especially Convention No. 184 which contains a number of obligations related to pesticides. The main provision in this regard is Art. 13 which prescribes the adoption of regulations requiring that agricultural undertakings must establish preventative and protective measures for the handling of chemicals such as pesticides. This obligation is further specified by the ILO Code of Practice on Safety and Health in Agriculture (see above). This code contains a large number of guidelines on pesticide handling and inter alia lists relevant pesticides in relation to their hazard levels, including a list of pesticides which are highly or extremely hazardous (see para. 10.2.2.1.2). It also contains guidelines on the handling of hazardous pesticides and limiting the exposure of workers to them (para 10.3.1.4) and recommends, as the preferable solution, the substitution of hazardous pesticides by less-harmful products (paras. 10.3.2 and 10.3.1.4). In its comments on Convention No. 184, the CEACR has also referred to the issue of the use of toxic pesticides and has urged States to improve the protection of agricultural workers against them (e.g. Kyrgyzstan, DR, 2019 related to workers in tobacco fields).
Chemicals in products	This EPI concerns the management and tracking of harmful chemicals in products. There does not exist an ILO instrument specifically addressing this issue. As a general chemical risk, however, chemicals in products fall under the general obligations on chemical safety in Convention No. 170 (see Arts. 1(1) and 2(a) and (b)). In this regard Convention No. 170 mainly protects workers against excessive exposure to hazardous chemicals in the products they produce (Art. 12). As mentioned, however, Convention No. 170 also contains several provisions protecting the general public and thus also the consumers of such products. In this regard Convention No. 170 requires labelling of all products containing hazardous chemicals (Art. 7) and also protects the public and the environment against the unsound disposal of products containing hazardous chemicals (Art. 14). (However, so far the issue of chemicals in products has not been addressed by comments of the CEACR on Convention No. 170 or other ILO chemicals instruments.)

Electrical and electronic products	This EPI concerns the minimization of risks relating to hazardous substances within the life-cycle of electrical and electronic products and especially the minimization of the risks of e waste. There exists no ILO instrument specifically addressing these hazards; however, as regards the issue of chemicals in products, the general obligations of Convention No. 170 also apply and provide for protection against occupational risks, labelling and the sound disposal of the electrical and electronic products. (The issue of chemical hazards relating to electronics has so far also not been addressed in CEACR comments on Convention No. 170 and other ILO chemicals instruments.)
Nanomaterials, endocrine-disrupting chemicals, environmentally persistent pharmaceutical pollutants and perfluorinated chemicals	Other EPIs address risks related to a number of specific hazardous substances, i.e. nanomaterials, endocrine-disrupting chemicals, environmentally-persistent pharmaceutical pollutants and perfluorinated chemicals. These hazards are all also covered by Convention No. 170. (CEACR comments on chemical instruments unfortunately at present do not specifically refer to any of those substances or groups of substances.) This does not mean, however, that the ILO has not addressed these risks at all. (There exist for example a number of policy papers (co-)produced by the ILO on most of those risks.[n])

Endnotes for annexes: see page 107

Endnotes for annexes

a The case on Colombia e.g. concerned informal workers in agricultural enterprises.

b In the case in question, employers misused laws on the protection of business secrets to limit the information they provided on SDS.

c In the case concerning Germany, the law required a period of 40 years to keep records on workers carrying out activities with hazardous substances. However the law did not prescribe any minimum time for the keeping of records on risk assessments. In the cases concerning Sweden and Finland, the CEACR noted that there were no laws to prescribe any minimum periods for the keeping of records (except for records on carcinogens in the case of Sweden).

d In the case of Saudi Arabia, the government provided legislation covering the oil, petrochemical, chemical manufacturing, electricity, water, gas, mining, metal manufacturing, civil explosives, industrial services, communication and port industries. It did not, however, indicate if there existed other industries with major hazard installations in the country and if there also existed laws covering such other industries.

e In the case on Zimbabwe, the government only provided regulations covering factories but no other types of installation.

f In the case of Brazil, the failure was due to a lack of consensus between the government and social partners on the way in which the Article should be implemented.

g In the case of Brazil, the implementation failed due to a lack of tripartite consensus on the implementation. In the case of Colombia, the reasons were not clear for the CEACR.

h See the previous footnote. In the Saudi Arabia case, the reasons for the implementation failure were also unclear.

i A treaty among African countries prohibiting the import of hazardous waste, see https://www.unenvironment.org/explore-topics/environmental-rights-and-governance/what-we-do/meeting-international-environmental

j The regulation bans all export of hazardous waste for all EU member States, see https://ec.europa.eu/environment/waste/shipments/.

k See http://www.basel.int/Implementation/LegalMatters/Compliance/GeneralIssuesActivities/Activities201819/tabid/6122/Default.aspx.

l This can e.g. be seen by the fact that to date there only have been 4 self-submissions and no party-party submissions, see under the link http://www.basel.int/Implementation/LegalMatters/Compliance/SpecificSubmissionsActivities/Currentsubmissions/tabid/2310/Default.aspx.

m Owing to this lack, ILO Convention No. 162 and Recommendation No. 172 are among the few international instruments specifically concerned with asbestos. The Rotterdam Convention only covers some forms of asbestos, but not the most used form, "chrysotile asbestos" (the Basel Convention only covers waste containing asbestos dust or fibres (Annex I, Y36)). Convention No. 162 and Recommendation No. 172 do however not require a complete ban of asbestos and only regulates its use (while still requiring a reduction of the use of asbestos as much as possible). It can therefore be viewed as not completely up to date and it should be made sure that the existence of Convention No. 162 and Recommendation No. 172 do not justify the continuing use of asbestos around the world. (In this regard it must however also be noted that there have been cases in which the implementation of Convention No. 162 led to a complete ban of the use of asbestos. An important case is Canada, where, based on comments of trade unions, the CEACR found that due to Canada's technological advancement as well as the new research indicating no safe exposure limit for asbestos, a total prohibition of asbestos according to Art. 10(b) had become technologically possible and therefore also "necessary to protect workers' health" in the sense of the Article. Following these comments, an asbestos ban was adopted in Canada.

n E.g. the background paper redacted for the development of an ILO policy framework for hazardous substances, which extensively deals with nanomaterials, see https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/meetingdocument/wcms_160746.pdf; a "Nanosafety and Ethics Strategic Plan (2012-2016)" of Thailand, whose development the ILO supported or an IPCS paper on endocrine disruption co-prepared by the ILO, see https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3620733/.

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SAFETY + HEALTH FOR ALL

ISBN 978-92-2-031384-8