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**Promotion and protection of all human rights, civil,
political, economic, social and cultural rights,
including the right to development****Report of the Special Rapporteur on the implications for
human rights of the environmentally sound management and
disposal of hazardous substances and wastes*****Note by the Secretariat**

The Secretariat has the honour to transmit to the Human Rights Council the report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, prepared pursuant to Council resolution 36/15.

In accordance with the mandate, in the present report the Special Rapporteur examines the situation of workers implicated and affected by occupational exposure to toxic and otherwise hazardous substances worldwide. He proposes principles intended to help States, businesses and other key actors respect and protect workers from toxic occupational exposures and to provide remedies for violations of their rights.

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Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes

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I. Introduction

1. Everyone has the right to just and favourable conditions of work.¹ Every worker has a right to dignity, to be treated ethically, with respect and without being subjected to conditions of work that are dehumanizing or degrading. States have undertaken an ambitious goal under the Sustainable Development Goals: to ensure decent work for all by 2030.²

2. Despite clear obligations relating to the protection of workers' health, workers around the world find themselves in the midst of a public health crisis due to their exposures to hazardous substances at work. While the World Health Organization (WHO), the International Labour Organization (ILO) and others have called for action on this public health crisis for decades, the global problem of workers' exposure to hazardous substances remains poorly addressed.

3. It is estimated that one worker dies every 15 seconds from toxic exposures at work,³ while over 2,780,000 workers globally die from unsafe or unhealthy conditions of work each year.⁴ Occupational diseases account for 2.4 million (over 86 per cent) of total premature deaths.⁵ An "occupational disease" is any disease contracted primarily as a result of an exposure to risk factors arising from work activity, including chronic exposure to toxic industrial chemicals, pesticides or other agricultural chemicals, radiation and dust, among other hazards.⁶ Approximately 160 million cases of occupational disease are reported annually.⁷ Inaction by States and businesses on this global public health crisis is estimated to cost nearly 4 per cent of global gross domestic product, or virtually \$3 trillion.⁸

4. Cancers account for over 70 per cent of occupational diseases globally and are estimated to cause the deaths of at least 315,000 persons annually;⁹ 5.3–8.4 per cent of all cancers, and 17–29 per cent of deaths from lung cancer among men, are attributed to occupational exposure to toxic substances.¹⁰ Almost all such cancers can be prevented.¹¹ More than 200 different known factors, including toxic chemicals and radiation, have been identified to date as known or probable human carcinogens, and workers are exposed to many of these in the course of their jobs.¹²

5. Debilitating and fatal lung diseases, neurological disabilities and reproductive impairments such as infertility and inability to carry a pregnancy to term are among various other health impacts that plague workers exposed to toxic substances. Occupational exposures result in 12 per cent of deaths from chronic obstructive pulmonary disease and it

¹ Universal Declaration of Human Rights, art. 23.

² See ILO, "Decent work and the 2030 Agenda for Sustainable Development", 2 November 2017.

United Nations human rights mechanisms define "decent work" as "work that respects the fundamental rights of the human person as well as the rights of workers in terms of conditions of work safety and remuneration". Committee on Economic, Social and Cultural Rights, general comment No. 18 (2005) on the right to work.

³ Päivi Hämäläinen, Jukka Takala and Tan Boon Kiat, *Global Estimates of Occupational Injuries and Work-related Illnesses 2017* (Singapore, Workplace Safety and Health Institute).

⁴ Ibid.

⁵ Ibid.

⁶ WHO, "Occupational and work-related diseases" (n.d.).

⁷ International Trade Union Confederation, *Toxic Work: Stop Deadly Exposures Today!*, 13 April 2015.

⁸ Gerry Eijkemans, "The importance of workers' health to advance the United Nations Sustainable Development Agenda", *Occupational & Environmental Medicine*, vol. 75, Supp. 2 (April 2018); ILO, "Global action needed to tackle rising work-related injuries and diseases, ILO says", 7 September 2017.

⁹ ILO, *Promoting Decent Work in the Chemical Industry: Innovative Initiatives* (Geneva, 2013), p. 20.

¹⁰ Jukka Takala and others, "Eliminating occupational cancer in Europe and globally", OSHWiki, 30 May 2017.

¹¹ Ibid.

¹² WHO, International Agency for Research on Cancer, "IARC monographs on the evaluation of carcinogenic risks to humans", 29 June 2018. Available at <https://monographs.iarc.fr/agents-classified-by-the-iarc/>.

is estimated that an additional 29,000 deaths are due to the occupational diseases silicosis, asbestosis and pneumoconiosis.¹³

6. Due to differences in social roles, including occupational and household roles, women and men are exposed differently to toxic chemicals with respect to, among other things, the substances encountered and the degree of exposure. Biological differences between men and women, such as physiological and hormonal differences, create differing susceptibilities to the effects of exposure.¹⁴ For example, women are more likely to store higher levels of environmental pollutants in their adipose tissues than men. During pregnancy, lactation and menopause, women's bodies undergo changes that may increase their susceptibility to health impacts from toxic exposures.

7. Of particular concern is the exposure to toxic chemicals of workers who are women of reproductive age. Protecting only pregnant women from exposure is insufficient because a developing fetus can be harmed by exposures that preceded knowledge of the pregnancy. Adverse health effects, especially in expectant mothers and the fetus but also for the workforce at large, occur at extremely low levels of exposure. As evidence of adverse effects accumulates, "safe" levels of exposure are continually revised downward and children continue to be born with a host of adverse health outcomes due in particular to the exposure of their mothers to toxic chemicals during pregnancy (A/HRC/33/41).¹⁵

8. Official statistics are likely to underestimate the extent of the problem. For example, incidences of exposure are grossly underreported in some contexts and countries.¹⁶ As official incidence rates are based on reported data, an advanced country such as Finland may show a higher incidence of occupational disease than a country such as India, merely because of the former country's greater facility to diagnose and identify occupational exposure as the source of a disease. Furthermore, some countries have no legal definition or reference list of occupational diseases to facilitate reporting the incidence of diseases and deaths from specific causes. Major occupational diseases such as chronic obstructive pulmonary disease may not be well recognized and tend to be underdiagnosed.¹⁷ Moreover, and importantly, self-employed workers, subsistence farmers and workers in the informal economy are rarely captured in national statistics. The informal workforce comprises a large portion of the global workforce and accounts for the majority of workers in certain countries, the largest and most populous of which are in less-developed regions.¹⁸ As many countries have inadequate capacity to collect information on causes of death, information on the disease and death patterns must be estimated.

9. Virtually every sector is implicated in this public health crisis, including both public and private sectors and the world's most economically powerful industries. Many of these industries have — by their own design — vast and opaque supply chains, including links to the informal economy. Some of these business enterprises are not obviously implicated, for example a financial institution that trades gold mined using toxic mercury, resulting in severe impacts on informal workers and their children. A small selection of cases addressed by the mandate in recent years is provided in the annex to the present report.

10. In his report the Special Rapporteur analyses the human rights of workers implicated and affected by their occupational exposure to toxic and otherwise hazardous substances (toxic substances),¹⁹ followed by a summary of current challenges facing workers in the

¹³ WHO, *Global Health Risks: Mortality and Burden of Disease Attributable to Selected Major Risks* (Geneva, 2009), p. 25.

¹⁴ United Nations Development Programme (UNDP), *Chemicals and Gender*, 2011.

¹⁵ See also WHO, *Summary of Principles for Evaluating Health Risks in Children Associated with Exposure to Chemicals* (Geneva, 2011).

¹⁶ ILO, "World Statistic: The enormous burden of poor working conditions" (n.d.).

¹⁷ Hämläinen, p. 17.

¹⁸ *Ibid.*, p. 7.

¹⁹ Consistent with the previous reports of the current mandate holder and those of his predecessors, hazardous substances and wastes are not defined strictly; they include, inter alia, toxic industrial chemicals and pesticides, pollutants, contaminants, explosive and radioactive substances, certain food additives and various forms of waste. For ease of reference the Special Rapporteur refers to hazardous

global economy. The Special Rapporteur concludes with proposed principles to respect and protect the rights of workers implicated by toxic occupational exposures and to ensure effective remedies for violations or abuses.

11. For the purpose of the report, the term “workers” includes not only directly employed workers but also informal workers, as well as contract workers, subcontractors, agency workers and all other persons performing work or work-related activities.

12. For over 20 years, United Nations human rights bodies have mandated a special rapporteur to monitor and report on the human rights implications of exposure to hazardous substances and toxic wastes in various industries worldwide, including in relation to workers.

13. The present report is part of an ongoing effort by the current mandate holder to improve the integration of human rights into occupational safety and health discussions at the national and international levels. The Special Rapporteur believes that the importance of the issue has been largely forgotten and deprioritized in relevant international forums, resulting in a lack of global progress in confronting the growing concern.

II. Human rights of workers and exposure to toxic substances

14. Workers’ rights are human rights, and human rights are workers’ rights. These rights are interrelated, indivisible and universal. They include civil, political, economic, social and cultural rights. No one can be deprived of these human rights because of the work they perform.

15. Workers are especially vulnerable to the violation and abuse of their human rights, not the least of which is from being subjected to exposure to toxic substances in the course of their work. The harms of chronic exposures are often invisible, and it may be years or even decades until adverse health impacts become manifest in workers or their children. Prevention of exposure to toxic substances is essential to protect human rights, including the rights of workers.

A. Right to safe and healthy working conditions

16. The right to just and favourable working conditions, enshrined in the Universal Declaration of Human Rights (art. 23) and again in the International Covenant on Economic, Social and Cultural Rights (art. 7), includes the right to safe and healthy working conditions. By separately stipulating the right of workers to safe and healthy working conditions, the Covenant recognizes and emphasizes the vulnerability of workers to violations and abuses of their rights. This vulnerability heightens the obligations of States and other parties to prevent institutionalized exploitation of workers due to hazardous work.

17. The right to safe and healthy work is a right in itself; however, it also encompasses many other interrelated and interdependent human rights of workers, including the rights described below.

18. Everyone, including workers in both formal and informal settings, has the inherent right to life²⁰ and the right to enjoy the highest attainable standard of physical and mental health.²¹ States have a clear obligation to adopt preventive measures to protect both the

substances and wastes as “toxics”, but the term as used in the report includes non-toxic but hazardous substances and wastes as well.

²⁰ International Covenant on Civil and Political Rights, art. 6.

²¹ International Covenant on Economic, Social and Cultural Rights, art. 12.

right to life²² and the right to health, including provisions for “healthy working conditions”.²³

19. The Committee on Economic, Social and Cultural Rights clarifies that States have a duty to improve all aspects of industrial hygiene. This includes “preventive measures in respect of occupational accidents and diseases ... [and] the prevention and reduction of the population’s exposure to harmful substances such as radiation and harmful chemicals ... that directly or indirectly impact upon human health”.²⁴

20. Everyone, including workers, has the right to physical integrity of their body.²⁵ This right encompasses the right of each human being to autonomy and self-determination over their own body, including over the entry of unwanted, toxic substances into their body, whether from occupational or other sources. Acute poisonings and other cases of extreme exposure to toxic substances present unquestionable violations of the right of workers to physical integrity, subjecting them to violent, cruel, inhuman and degrading forms of treatment. However, this right also extends to longer-term exposure to toxic substances, which can also give rise to violent, cruel, inhuman and degrading outcomes (A/HRC/22/53 and A/HRC/33/41).

21. Furthermore, workers have a right not to be subjected to scientific experimentation without their consent.²⁶ The exposure of workers to substances without sufficient information about whether they can cause cancer or harm a developing fetus when such information can be made available and accessible raises concerns that workers have been and continue to be subjected to a form of human experimentation. This right illustrates the importance of the right to information to enable the realization of the human rights of workers.

22. Under the rubric of the right to safe and healthy working conditions, the exposure of workers to toxic substances without their prior informed consent, with the real possibility of refusing to perform the hazardous activity, should be recognized as a violation and abuse of their rights. This is an essential part of the right of every worker to be protected from unsafe and unhealthy working conditions. The Special Rapporteur believes that every worker has an inherent right not to be exposed to toxic substances without their prior informed consent. In his view, this right is at the crux of the right to physical integrity, the right to information and the right not to be subjected to scientific experimentation without consent.

23. The ILO Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187) recognizes the right of workers to safe and healthy working conditions, although ILO does not include this right as a “fundamental right at work”. ILO implicitly recognizes the right of workers not to be exposed without their prior informed consent through recognition of the worker’s “right to remove themselves from danger resulting from the use of chemicals when they have reasonable justification to believe there is an imminent and serious risk to their safety or health”.²⁷ ILO has issued relevant recommendations to States, e.g. to put in place national policies, systems and programmes to prevent “occupational injuries, diseases and deaths ... for the protection of all workers, in particular, workers in high-risk sectors, and vulnerable workers such as those in the informal economy and migrant and young workers”.²⁸

²² Human Rights Committee, general comment No. 6 (1982) on the right to life.

²³ Committee on Economic, Social and Cultural Rights, general comment No. 14 (2000) on the highest attainable standard of health.

²⁴ *Ibid.*

²⁵ These fundamental rights also include respect for the physical and mental integrity of the worker in the exercise of his/her employment. Committee on Economic, Social and Cultural Rights, general comment No. 18.

²⁶ International Covenant on Civil and Political Rights, art. 7.

²⁷ Chemicals Convention, 1990 (No. 170), art. 18.

²⁸ Promotional Framework for Occupational Safety and Health Recommendation, 2006 (No. 197); see also the ILO Constitution.

B. Rights to information, participation and association

24. Everyone, including workers, has the inalienable rights to freedom of expression, assembly and association, including the freedom to join and form trade unions, and the right to information.²⁹

25. The right to information is the foundation for the realization of all workers' rights regarding toxic exposures. As mentioned above, the right to information is indivisible from the worker's right to not be exposed to toxic substances without their prior informed consent. Workers have the right to know, *inter alia*, the implications of exposure, the action being taken to prevent exposure and their rights in relation to such exposures.

26. Public frameworks for collecting, measuring, monitoring, reporting and verifying information on hazards and exposure levels are necessary for evaluating and analysing health implications and accountability. Maintaining disaggregated, accurate and complete information is necessary to understand specific events and for accurate knowledge of the impact of particular actions on various workers as well as on other exposed groups including children, women of reproductive age, migrant workers and their families, older persons and persons with disabilities.

27. ILO recognizes several aspects of the worker's (and their representative's) right to know in its conventions, as well as of the duties of States and the responsibilities of employers' businesses, including chemical suppliers.³⁰ For example, concerned workers and their representatives have the right to "information on the identity of chemicals used at work, the hazardous properties of such chemicals, precautionary measures, education and training".³¹ However, while the Chemicals Convention calls for the classification of chemicals according to their potential health hazard (art. 6), it requires suppliers merely to assess the properties of these substances "on the basis of a search of available information" (art. 9 (3)), *i.e.*, the Convention does not require them to conduct tests to generate missing information relevant for such classification.

28. All health and safety information held by public bodies and business enterprises should be subject to disclosure, unless it falls within a narrow set of public-interest limitations such as the protection of privacy or public health (see A/HRC/30/40, paras. 38 and 101 (b)). It is never legitimate for States or businesses to refuse to disclose health and safety information on the grounds that it is confidential, particularly on the grounds that it would adversely affect profits or competitiveness (*ibid.*, para. 42). To this end, international agreements on toxic chemicals have repeatedly stipulated that health and safety information about toxic substances shall not be regarded as confidential.³²

29. Workers defending their right to safe and healthy work, among other rights, find strength in numbers. Strong protections for the right to organize, including the formation of unions, the right to freedom of association and the right to collective bargaining, have proven effective in strengthening protections for workers from exposure to toxic substances as well as other risks. For example, the strength of unions led to the phasing out of tobacco smoking from indoor spaces. ILO conventions provide for these rights, which it considers to be fundamental rights at work.

²⁹ Universal Declaration of Human Rights, art. 24; International Covenant on Civil and Political Rights, arts. 19, 22 and 25; International Convention on the Rights of All Migrant Workers and Members of Their Families, art. 26.

³⁰ Chemicals Convention, art. 18; Prevention of Major Industrial Accidents Convention, 1993 (No. 174), art. 20; Safety and Health in Mines Convention, 1995 (No. 176), art. 13 (1) (c); and Safety and Health in Agriculture Convention, 2001 (No. 184), art. 8 (1) (a).

³¹ Chemicals Convention, art. 18 (3).

³² Stockholm Convention on Persistent Organic Pollutants, art. 9; Minamata Convention on Mercury, art. 17. See also Dubai Declaration on International Chemicals Management.

C. Rights of workers at heightened risk

30. Workers, like all human beings, are born free and equal in their rights.³³ Often, it is persons living in situations that marginalize them and render them vulnerable to violations of their rights who are harmed by exposure to toxic substances. Yet everyone has the right to protection from discrimination and equal treatment before the law. No worker, or worker's child, should bear the burden of occupational disease or disability that can follow from discrimination on the grounds of age, income, race, religion, gender, country of origin, intelligence, political views or other distinction.

1. Rights of the child and women

31. Every child has the right to be free from the worst forms of child labour. Work where children use or are otherwise exposed to pesticides, toxic industrial chemicals, metals or other hazardous substances constitutes one of the worst forms of child labour (A/HRC/33/41). The Convention on the Rights of the Child recognizes the right of the child to be protected from performing any work that is likely to be hazardous or to be harmful to the child's health or physical development (art. 32). The Worst Forms of Child Labour Convention, 1999 (No. 182) identifies as the worst forms of child labour "work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children" (art. 3). Exposing children to toxic substances at work is indefensible.

32. Safeguarding reproductive health from hazardous working conditions is a core obligation of States in the elimination of discrimination against women in employment.³⁴ Women workers have a right to special protection during all periods that pose reproductive risks to them³⁵ as well as to their offspring, which requires protection from work that exposes them or their fetus to toxic chemicals.

33. At the same time, women should not be deprived of equal opportunities for employment or income. Of particular concern is that women workers are exposed to toxic substances at work before and during the earliest stages of pregnancy, even before they may know they are pregnant. This reality requires special care on the part of States and businesses to protect women's reproductive health by preventing their exposure to toxic substances without limiting employment in a discriminatory fashion. The best means of doing so is by eliminating toxic substances at work.

2. Rights of migrant workers and workers with disabilities

34. The prohibition against racial discrimination applies in all its forms. Race or ethnicity should likewise not be a prohibiting factor in the realization by workers of the right to safe and healthy working conditions.³⁶ Migrant workers, whether documented or undocumented, have a right to equality and to enjoy equal treatment to nationals regarding safety and health and other conditions of work.³⁷ Persons with disabilities have the right, on an equal basis with others, to safe and healthy working conditions and related human rights.³⁸

D. Right to an effective remedy

35. Accountability is a fundamental principle of human rights. States and other duty bearers must be answerable to workers, among other rights holders, for observing human rights obligations. The right to an effective remedy is inseparable from the right to information, as effective remedies for exposure to toxic substances depend on the

³³ Universal Declaration of Human Rights, art. 1.

³⁴ Convention on the Elimination of All Forms of Discrimination against Women, art. 11 (1) (f).

³⁵ *Ibid.*, art. 11 (2) (d).

³⁶ International Convention on the Elimination of All Forms of Racial Discrimination, art. 5 (d) (i).

³⁷ International Convention on the Rights of All Migrant Workers and Members of Their Families, art. 25 (1) (a).

³⁸ Convention on the Rights of Persons with Disabilities, art. 27.

availability and accessibility of certain information regarding such substances and working conditions (A/HRC/30/40).

36. All workers who are victims of infringement or violations of their rights have the right of access to an effective remedy.³⁹ Effective remedies for violations of workers' rights due to exposure to toxic substances include the right of victims to prompt restitution, compensation, rehabilitation, satisfaction and guarantees of non-repetition, as well as bringing to justice the perpetrators of rights violations.⁴⁰ The prevention of future exposures is common to many of the elements of an effective remedy in this regard.

37. Every rights holder is entitled to initiate proceedings for appropriate redress before a competent court or other adjudicator in accordance with the rules and procedures provided by law. States must ensure timely access to effective remedies to victims of violations occurring from exposure to hazardous chemicals (see E/CN.4/2006/42, para. 45). In various circumstances, States have shifted the burden of proof to the employer or other beneficiary of services.⁴¹ In other cases, judicial and non-judicial mechanisms have lessened the burden of proof on workers to help ensure access to remedies.⁴²

III. Challenges to the rights of workers affected by toxic exposures

A. Inadequate standards of protection

38. Laws and policies for occupational health are often not health protective. They continue to permit workers to be exposed to toxic substances at levels that are hundreds if not thousands of times higher than for non-workers in the same jurisdiction.⁴³ Risk assessments are often based on incomplete knowledge or false assumptions, resulting in misleading assurances of safety and widespread impacts on workers' health. Processes for improving standards of protection from exposure continue to be deliberately delayed for years if not decades, resulting in countless premature deaths.

B. Limited progress in preventing exposure

39. The most effective means to prevent exposure of workers to toxic substances is to eliminate them from the workplace. This is reflected in the good practice known as the hierarchy of hazard controls, or "inherently safer design", encouraged by ILO and national bodies concerned with occupational safety and health.⁴⁴ In descending order of effectiveness in terms of preventing exposure, elimination is followed by risk mitigation options such as substitution with less hazardous substances and materials, engineering controls, administrative controls and the use of personal protective equipment.

³⁹ International Covenant on Civil and Political Rights, art. 2 (3) (a); Committee on Economic, Social and Cultural Rights, general comment No. 3 (1990) on the nature of States parties' obligations; Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework.

⁴⁰ Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law, paras. 11 and 15–23; Human Rights Committee, general comment No. 31 (2004) on the nature of the general legal obligation imposed on States parties to the Covenant, para. 16; and Convention on the Rights of the Child, art. 39.

⁴¹ "Presumptive legislation for firefighter cancer", First Responder Center, 2017.

⁴² Junius C. McElveen Jr., "Establishing proof of exposure", Lexology, 2012.

⁴³ Ted Smith and Chad Raphael, "Health and safety policies for electronics workers", in *The Routledge Companion to Labor and Media*, Richard Maxwell, ed. (Routledge, 2015), pp. 78–89 (citing Amanda Hawes).

⁴⁴ National Institute for Occupational Safety and Health, "Hierarchy of controls", Centers for Disease Control and Prevention, 11 May 2018.

40. Although examples of its application exist, the practice is of very limited application. Requiring the adoption of the hierarchy of controls as an international standard would level the playing field by harmonizing upwards. However, business actors continue to stifle global progress by insisting that applying the hierarchy will reduce competitiveness. Workers continue to be exposed to toxic substances, including toxic industrial chemicals and highly hazardous pesticides, when demonstrably less dangerous alternatives exist. Another egregious example of an industry that continues to externalize impacts on poor workers and communities in developing countries by failing to apply the hierarchy is the shipping industry and its practice of shipbreaking.

41. Business enterprises can develop and adopt alternatives that reduce harm to human health and the environmental impact of their operations and business relationships. Some have done so. However, many enterprises have outsourced and/or buried the problem of toxic exposure further down their global supply chains, enabling them to continue business as usual instead of adopting measures to respect workers' rights affected by toxic work, despite increasing expectations that business enterprises should prevent exposure to toxics as part of their human rights due diligence.

C. Monitoring and enforcement gaps

42. To ensure they are not turning a blind eye to the exploitation of workers, States must monitor working conditions, including routine monitoring of exposures, and enforce laws for the protection of workers' rights. However, the vast majority of States do not adequately perform their duties related to monitoring, oversight, protection or redress for workers whose rights are abused by their exposure to toxic substances in their jurisdiction. The systematic decline in funding for institutions responsible for monitoring⁴⁵ presents significant and enormous difficulties for States in monitoring the large number of workplaces in their jurisdiction and challenges persist in relation to the collection of statistical information, particularly with respect to the informal sector. In most countries, recording and notification of occupational accidents and, in particular, diseases is poorly done, not harmonized and significantly underreported.

D. Exploitation of those most at risk

43. Multiple factors such as social status, education, age, gender, country of origin, ethnicity or disability can exacerbate the risks in the exposure to toxics. Prevention and response to exposure must take into account these specific vulnerabilities to be effective.

44. Those most at risk of exposure are those who are most vulnerable to exploitation: the poor, children and women, migrant workers, people with disabilities and older persons. They are often prone to abuse of a myriad of human rights, they are forced to make the abhorrent choice between their health and income and their plight is invisible to most consumers and policymakers with the power to enable a just transition.

1. Poverty

45. Poverty is common among most workers whose rights are abused by their exposure to toxic chemicals. The disparity of exposure between low- and high-income workers is visible both within and between countries.

46. Very often low-income workers have lower educational levels that drive them to accept occupations that expose them to toxic chemicals, limit their access to information and knowledge and prevent them from being able to defend their rights. The impacts of occupational exposure of low-income workers to toxic substances are more likely to be attributed to other, non-work exposures that are higher in poorer communities such as air,

⁴⁵ ILO, *Report of the Committee of Experts on the Application of Conventions and Recommendations*, Report III (Part 1B), containing the General Survey on certain occupational safety and health instruments (Geneva, 2017), para. 436.

water and food contamination, or to lifestyle choices such as unhealthy diets and tobacco and other harmful substance use.

47. The economic insecurity of workers who are typically exposed to toxic substances is often exploited. The fear of job losses is often used to dissuade workers, regulators and politicians from improving protection of workers from exposure to toxic substances.

2. Women workers

48. Women comprise a significant proportion of workers in certain occupations and sectors, such as manufacturing and agriculture, as well as services and informal work, that carry a higher risk of toxic exposures (see, e.g., A/HRC/36/41). Gender-specific impacts are reported. Increasing evidence points to an association between breast cancer and occupational exposures to various pesticides, industrial chemicals and metals.⁴⁶ There are multiple examples of increased risk of miscarriages in the manufacture of electronics.⁴⁷ Women of reproductive age are often tasked with the use of toxic heavy metals such as mercury in artisanal gold mining, placing both themselves and future children at grave risk of health impacts.

3. Child labour

49. Children continue to be engaged in one of the worst forms of child labour where they use or are exposed to toxic substances at work. For various reasons, children are far more likely to be exposed to toxic substances and are more sensitive to such exposures than adults, and thus far more likely to suffer occupational diseases as a result.⁴⁸

50. An estimated 73 million children work in mines, agricultural fields and factories, where most are likely to be exposed to various toxic substances.⁴⁹ About 60 per cent of child labourers work in agriculture, including where pesticides are used.⁵⁰ Children are also known to work with mercury in artisanal and small-scale gold mines in up to 70 countries globally, with some developing symptoms consistent with mercury poisoning.⁵¹ Hazardous exposure of children is present at various stages of a consumer product's lifecycle. In electronics, tens of thousands of children mine a toxic ingredient of batteries (cobalt) at the front end of the lifecycle⁵² and also work at the tail end, where they are exposed to various toxic substances by recovering electronic waste.

4. Migrant and temporary workers

51. Migrant workers experience a substantial risk of occupational safety and health hazards for a number of reasons, including lack of training, language barriers, discrimination and restrictions on changing employers.⁵³ Many migrant workers have jobs that are dirty, dangerous and demanding, and consequently face high risks of work-related accidents and disease. Irregular or undocumented migrant workers are at extreme risk of exploitation by employers who seek to reap the benefits of unfair competition. Clandestine movements, trafficking in persons and modern slavery can coincide with the exposure of migrant workers to toxic substances.

⁴⁶ Concetta Fenga, "Occupational exposure and risk of breast cancer", Biomedical Reports, 21 January 2016.

⁴⁷ R.H. Gray and others, *Final Report: The Johns Hopkins University Retrospective and Prospective Studies of Reproductive Health Among IBM Employees in Semiconductor Manufacturing* (Baltimore, Johns Hopkins University, 1993).

⁴⁸ ILO, *Towards the Urgent Elimination of Hazardous Child Labour* (Geneva, 2018), p. 36.

⁴⁹ *Ibid.*, p. vi.

⁵⁰ ILO, "Hazardous work of children and regulation of hazardous chemicals", 2011.

⁵¹ Human Rights Watch, "Danger, keep out! Children's exposure to toxic substances", 28 April 2016.

⁵² Amnesty International, *"This is what we die for": Human Rights Abuses in the Democratic Republic of the Congo Power the Global Trade in Cobalt*, 2016.

⁵³ Kawon Lee, Connor McGuinness and Tsuyoshi Karaskami, *Research on Occupational Safety and Health for Migrant Workers in Five Asia and the Pacific Countries: Australia, Republic of Korea, Malaysia, Singapore and Thailand* (Bangkok, ILO, 2011), p. 20.

52. Temporary, including seasonal, workers often do not enjoy the same safety and health protection as that accorded to permanent or resident workers. Temporary workers are at greatly increased risk of occupational injury and illness. They may begin work at a new workplace many times a year and as new workers have generally less information about the hazards they face. Employers often have less commitment to providing education or making investments to protect temporary workers.⁵⁴ Government guidance and inspection on safety and health may be limited.

5. Workers with disabilities

53. A worker with a disability may face additional risks or may be more susceptible to the consequences of exposure to toxic substances. Workers with disabilities tend to be employed in low-skilled jobs, on non-standard contracts such as part-time work or on temporary contracts.

6. Older workers

54. Older persons also face exposure to toxic substances at work. In general, ageing is associated with a decline in cognitive functions, health and recuperative ability, including decreased aerobic capacity, lower heat tolerance, reduced muscular strength and a decline in visual and hearing acuity. Any risks to which ageing workers are exposed because of their occupation will be superimposed on their existing health problems or will amplify the natural deterioration of their sensory and physical capacities. Regrettably, impacts of occupational exposure on the health of older workers are often attributed entirely to ageing, not to the exposure itself.

E. Informal economy

55. National policies and programmes to promote safe and healthy working conditions should aim not only at the formal but also at the informal economy. In many developing countries, the number of those formally employed is small compared to those who work in the informal sector. Those working in the informal sector are usually not captured in statistics regarding the impacts of hazardous substances on workers.⁵⁵

F. Deliberate efforts to delay or obstruct protection from exposure to toxic substances

56. For economic gain, business enterprises have sought to delay the adoption of protective laws and regulations through targeted campaigns to distort science⁵⁶ and to exploit the financial insecurity of workers through the threat of job losses. These campaigns have in essence sought to undermine the rights of workers by threatening job losses and competitive disadvantages that exploit and capitalize on the economic fear of workers. Workers continue to fear pay cuts or termination if they refuse or remove themselves from work that exposes them to toxic substances.

57. Furthermore, business enterprises continue to distort evidence of intrinsic hazards, harmful exposure and other risk factors for various types of toxic chemicals (e.g. carcinogens). Business enterprises and their agents have engaged in targeted marketing campaigns to manufacture doubt and uncertainty regarding results of scientific studies that illustrate the risks and impacts upon the health of workers.

58. Efforts by business enterprises to hinder adoption of health-protective laws, exposure standards and improved practices illustrate the contempt of certain business

⁵⁴ United States Department of Labor, *Adding Inequality to Injury: The Costs of Failing to Protect Workers on the Job* (2015).

⁵⁵ Hämäläinen, p. 7.

⁵⁶ David Michaels, ed., *Doubt Is Their Product: How Industry's Assault on Science Threatens Your Health* (Oxford, Oxford University Press, 2008).

enterprises for their responsibility to prevent workers' exposure to toxics. It goes beyond disrespect, seeking to perpetuate the exploitation of inequalities within and between societies.

G. Opaque supply chains and transfer of hazardous work

59. While recognizing the societal benefits that can accompany the international transfer of beneficial technologies, the transfer of toxic work from countries with more advanced systems to countries with lower standards of worker protection continues to be a major problem. For example, chemical-intensive manufacturing and processing activities once largely located in the highly industrialized countries are now steadily expanding into developing countries and countries with economies in transition through the globalization of supply chains.⁵⁷

60. The international transfer of dangerous and dirty work, whether extraction of natural resources, use of toxic chemicals and pesticides or disposal of hazardous wastes without appropriate measures to protect workers against exposures to toxic substances, has left workers and their communities at considerable risk of grave impacts on their human rights.⁵⁸ The lack of transparency throughout supply chains adds fuel to the problem and obstructs efforts by various stakeholders to improve occupational health.

H. Disconnected efforts on occupational and environmental health

61. A toxic workplace generally leads to a toxic environment. For example, air pollutants affect the health of workers directly exposed but also the health of their children and broader communities. Workers engaged in highly toxic livelihoods such as artisanal mining, waste disposal and a range of manufacturing (such as textiles) and agricultural activities often work very close to their homes and communities, sometimes accompanied or helped by their children. However, potential synergies that could result from stronger linkages between labour and environmental health are frequently unrealized.

I. Failures to realize the right to information

62. Information gaps create a fundamental impediment to respecting, protecting and fulfilling several human rights that are otherwise abused or violated by the exposure of workers to toxic chemicals (see A/HRC/30/40, paras. 22 and 24–25).⁵⁹

63. At the most fundamental level, comprehensive information regarding the intrinsic health hazards of the vast majority of industrial chemicals continues to be absent, including their ability to cause cancer, to be mutagenic or to be toxic for reproduction (A/HRC/30/40). Further, the form and content of information communicated to workers regarding health risks remain a considerable challenge. The absence of or inappropriately communicated information is tantamount to deception and deception of workers is a category of exploitation, which can constitute forced or compulsory labour.⁶⁰

64. Although risk assessments have helped to identify and restrict the use of substances that pose risks to workers, there are limitations, including the difficulty of predicting workers' exposure levels; the fact that the health hazards are known for a minority of substances and the lack of information about the hazards of tens of thousands of substances; and that little is known about the impacts of exposures to combined hazardous substances,

⁵⁷ United Nations Environment Programme, *Global Chemicals Outlook: Towards Sound Management of Chemicals* (2013).

⁵⁸ Ibid.

⁵⁹ See also Human Rights Committee, general comment No. 34 (2011) on the freedoms of opinion and expression, para. 18.

⁶⁰ See, for example, the Modern Slavery Act 2015 of the United Kingdom of Great Britain and Northern Ireland.

intermediate substances in production processes and the products of the decay of substances over time under different conditions.

65. A persistent challenge to realizing the right to information in the context of toxic chemicals are claims of confidentiality or secrecy. Illegitimate claims of confidential business information or trade secrecy regarding toxic substances and possible exposures can deprive workers of their human rights, including to safe and healthy working conditions and access to remedies. Illegitimate claims of confidentiality and secrecy involving health and safety information can mask problems and thereby stifle innovative research on products and processes to improve occupational health, while promoting a sense of impunity that can become contagious among business enterprises that continue to exploit and abuse workers by exposing them to toxic substances, and justify deriving benefits from doing so.

66. It is of great importance that health-related information be collected, processed and used in a well-controlled system that protects the privacy of workers and ensures that health surveillance is not utilized for discriminatory purposes or used in any other manner prejudicial to their interests.⁶¹ But it is of equal importance that workers have access to their own medical records.

J. Limited implementation of International Labour Organization instruments

67. Concerns exist that relevant ILO standards for the protection of the human rights of workers are not adequately implemented and others are outdated. An independent assessment commissioned by ILO of its own organizational challenges attributed this to, inter alia, limited or non-existent collaboration of units and limited financial resources devoted to occupational safety and health-related activities.⁶²

68. The low levels of ratifications of ILO instruments on occupational safety and health may be another factor, although they may in some cases be useful models for national standards. Yet another may be the regrettable exclusion of the right to safe and healthy work as a “fundamental right at work” by the ILO Governing Body.

K. Restrained freedom of association

69. Challenges persist in realizing what ILO does consider to be fundamental rights at work, namely the rights to freedom of association, to organize and to collective bargaining. Certain categories of workers are denied the right of association in some countries.⁶³ Workers’ and employers’ organizations are illegally suspended or interfered with, and in some extreme cases trade unionists are arrested or killed (A/71/385).⁶⁴ The inability to exercise these rights, together with restraints on freedom of expression, hinder the ability of workers to defend their rights from abuses linked to toxic exposures, individually and collectively.

L. Inaccessible remedies, justice and accountability

70. Studies suggest that only the smallest fraction of workers harmed by exposure to hazardous substances are able to access remedies.⁶⁵ Major obstacles to accountability

⁶¹ ILO, *Technical and Ethical Guidelines for Workers’ Health Surveillance*, Occupational Safety and Health Series No. 72 (Geneva, 1998).

⁶² ILO, *Independent Evaluation of the ILO’s Strategy on Occupational Safety and Health Conditions at Work* (2013), pp. 46–47.

⁶³ See ILO, *International Labour Standards on Freedom of Association*.

⁶⁴ *Ibid.*

⁶⁵ Andrew Watterson and Rory O’Neill, “Double trouble on relative risk for occupational diseases”, *Hazards Magazine*, March 2015.

include the unreasonably high burden of proof, the long latency periods for consequences to manifest in some cases and the difficulty in establishing causation; substantial information gaps with respect to the identification of hazards, measurement of exposure and specification of the epidemiological impacts; possible exposure to a multitude of different substances in various occupational settings and over a working lifetime; and the provisions of contractual relationships between suppliers and purchasers which can shift responsibility up or down a supply chain.

71. The types of information required and the responsibility for proving the cause of harms suffered are often common denominators in cases where workers struggle to access effective remedies. Workers often lack the necessary knowledge and resources to enable them to establish the necessary elements for accessing remedies. First, it is not uncommon for them not to know to which substances they were exposed. Second, substances to which they were exposed may not have been studied for their ability to cause disease or disability in humans; adequate information, and even a minimal amount of health and safety data, is lacking for tens of thousands of potentially hazardous industrial chemicals. Third, when allegations of exposure to hazardous substances are made, “objective evidence of the extent of, or even the existence of, exposure, is almost never available”,⁶⁶ although it should be the responsibility of the employer to track and maintain such data, and the failure to do so is used to justify the unacceptable denial of remedies to sick and impaired workers. Finally, workers often move between employers and industries, which can subject them to diverse hazardous exposures. The personal behaviour of workers, such as tobacco or alcohol use, may be invoked to further complicate the determination of causation.

IV. Conclusions and recommendations

72. **The exposure of workers to toxic substances can and should be considered a form of exploitation and is a global challenge, with countries of all levels of development playing a role in the problem. States, business actors and international organizations can eliminate or minimize exposures and must do so with urgency.**

73. **The Special Rapporteur offers 15 principles to help States, business enterprises and other stakeholders protect, respect and fulfil the human rights of workers that have been infringed by their occupational exposures to toxic and otherwise hazardous substances. They are grounded in international human rights law and build upon the Guiding Principles on Business and Human Rights, ILO instruments and international agreements on toxic chemicals and wastes, among others.⁶⁷ These principles are the outgrowth of cases brought to the attention of the mandate since its inception in 1995.**

74. **In his view, if implemented, these principles will help strengthen the coherence between human rights and occupational health and safety standards regarding the exposure of workers to toxic substances. They are not intended to be definitive, but mark the beginning of a process to clarify the duties and responsibilities of all parties.**

75. **In the coming months, the Special Rapporteur will gather input from States and other stakeholders regarding how these principles are reflected in their laws, policies and procedures, as relevant, on occupational exposure. He plans to present a more elaborated set of principles to the Human Rights Council at a future session of that will provide a framework for implementation by States, business enterprises and other actors. The Special Rapporteur encourages ILO and WHO to continue their efforts and for ILO in particular to seek to reflect these principles in its efforts to review and revise its conventions and standards on occupational safety and health.**

⁶⁶ McElveen, “Establishing proof of exposure”.

⁶⁷ For example, recommendations adopted by the International Conference on Chemicals Management (SAIGM/ICCM.3/15) and recommendations of an international workshop on hazardous substances in the lifecycle of electrical and electronic products held in Vienna in 2011 (SAIGM/OEWG.1/11).

A. Principles on duties and responsibilities to prevent exposure

76. States have a duty and business enterprises a responsibility to respect, protect and fulfil the rights of workers; consumers, the military, investors and others also have responsibilities that must be considered.

Principle 1 — States have a duty to protect the human rights of all workers through the prevention of exposure to toxic substances.

77. States must do everything in their power to protect all workers from occupational exposures to toxic substances in their territory and/or jurisdiction. This duty exists regardless of whether the employer is a business enterprise or the State. This requires taking appropriate steps to prevent, investigate, punish and provide redress for cases of occupational exposures to toxic and otherwise hazardous substances through effective policies, legislation, regulation and enforcement, as well as adjudication.⁶⁸

78. Human rights are universal. Everyone has the same right to safe and healthy work, regardless of income, age, gender, ethnicity, race, religion or other class or status. States have heightened duties regarding the protection of workers at elevated social or physiological risks, including informal workers in global supply chains. Migrants, minorities and persons with disabilities have the right to equal standards of protection. Children and pregnant women should never use or otherwise be exposed to toxic substances at work. Special measures must be taken for the protection of workers in high-risk sectors such as mining, agriculture, construction, energy, the military, manufacturing and waste disposal, among others, from exposure to toxic substances.

Principle 2 — Business enterprises have a responsibility to prevent occupational exposures to toxic substances.

79. Business enterprises have a responsibility, as part of the due diligence expected of them, to “prevent [and] mitigate” impacts on human rights, including workers’ rights, due to exposures to toxic substances.⁶⁹ These enterprises include employers, purchasers of products and suppliers of toxic substances, among others. In the case of occupational exposures, the “impacts” that business enterprises are responsible for include exposure to toxic substances and adverse health impacts. This responsibility calls for the continuous improvement of working conditions and extends to human rights impacts to which they are linked through their business relationships and supply chains, both at home and abroad, and throughout their products’ lifecycles.⁷⁰

80. Prevention of human rights abuse is principal and a prelude to mitigation in due diligence procedures.⁷¹ To prevent impacts on workers’ rights, business enterprises have a responsibility, first and foremost, to prevent exposure through the elimination of toxic substances from their products and production processes to the maximum extent possible. If hazards cannot be eliminated, business enterprises should rigorously and systematically apply the hierarchy of hazard controls to prevent exposure, with personal protective equipment the last resort. To the extent that exposure cannot be avoided after applying the hierarchy, business enterprises must mitigate the impacts of exposure on health.

Principle 3 — Hazard elimination is paramount in preventing occupational exposures.

81. States should include the hierarchy of hazard controls in legislation to prevent to the extent possible exposure of workers to toxic substances. States should ensure

⁶⁸ Guiding Principles on Business and Human Rights, principles 1, 4 and 15.

⁶⁹ *Ibid.*, principle 15.

⁷⁰ See, for example, Global Sustainability Standards Board, Global Reporting Initiative, *GRI 403: Occupational Health and Safety 2018*.

⁷¹ Guiding Principles on Business and Human Rights.

that these laws and policies are precautionary in practice because of the high level of scientific uncertainty that often prevails. As part of their occupational safety and health legislation, States should compel business enterprises to eliminate hazards wherever possible and apply the hierarchy where the hazard cannot be eliminated.

Principle 4 — Workers have the right not to be exposed to toxic substances without their prior informed consent.

82. The right to safe and healthy work encompasses the right of workers not to be exposed to toxic substances without their prior informed consent. Workers have the right to remove themselves from situations where they are exposed to toxic chemicals and other hazardous substances that they have a reasonable justification to believe present a danger.

83. States should respect, protect and fulfil the right of workers not to be exposed without their prior informed consent. States should clearly reflect this right in their laws, investigating and punishing any alleged violations as warranted and ratifying ILO conventions. States should include the failure of business enterprises to abide by the above principle in their definitions of forced labour, modern slavery and/or exploitation.

84. Employers have a responsibility to fully inform and obtain the consent of workers prior to exposing them to toxic substances. Employers should respect this principle and right irrespective of the State's willingness to enact necessary laws. Employers should be able to demonstrate that they have informed all employees, subcontractors and suppliers of this right and that mechanisms or procedures to remove themselves from unsafe or unhealthy conditions of work are in place. The absence of such mechanisms or procedures should not present an obstacle to the exercise of this right.

Principle 5 — Duties and responsibilities to prevent the exposure of workers to toxic substances extend beyond borders.

85. The transboundary transfer of hazardous work to countries with lower levels of protection should be considered a form of exploitation if reasonable measures are not taken to protect workers.

86. States are obliged to take reasonable measures to prevent workers' exposure to toxic substances that occur outside their territories and that give rise to infringements of applicable rights due to the activities of business entities over which they can exercise control and that are reasonably foreseeable.⁷² States should require such business entities to act with due diligence to identify and prevent abuses by foreign subsidiaries, suppliers and other business partners.

87. Business enterprises are responsible for the consequences of exposures of workers to hazardous substances that they cause, contribute to or to which they are linked.⁷³ Businesses have responsibilities throughout the lifecycle of their products, from extraction to final disposal, up and down their supply chains. They have a responsibility to ensure that they and their suppliers, both at home and abroad, adopt good practices such as the hierarchy of hazard controls to prevent exposure to toxic substances through their products' lifecycles, their operations and their services.

Principle 6 — States must prevent third parties from distorting scientific evidence or manipulating processes to perpetuate exposure.

88. States must prevent, through legislation or other measures, the deliberate distortion of scientific evidence or manipulation of processes by business enterprises

⁷² Committee on Economic, Social and Cultural Rights, general comment No. 24 (2017) on State obligations under the International Covenant on Economic, Social and Cultural Rights in the context of business activities, paras. 30–32.

⁷³ Guiding Principles on Business and Human Rights, principle 13.

and other third parties to the detriment of workers' health and safety. The protection of public health is a legitimate exception to freedom of expression. Criminal sanctions should be available for such misconduct by business enterprises and other actors.

Principle 7 — Protecting workers from exposure to toxic substances protects their families, their communities and the environment.

89. Protecting workers from toxic exposures has broader benefits for society. States should recognize the mutually reinforcing nature of protecting workers from occupational exposures to toxic substances and the protection of the environment. Laws and policies to protect human health from hazardous substances should take into account both occupational and environmental exposures, among other factors. States should ensure effective cooperation between authorities with responsibility for labour, public health and the environment.

B. Principles regarding information, participation and assembly

90. The rights to information, participation and freedom of expression and association, as well as the rights to unionize and collective bargaining, enable the prevention of violations and abuses of human rights arising from toxic exposures of workers. Furthermore, the full realization of the right to information is necessary to realize the right of workers to an effective remedy for the adverse impacts of such exposures.

Principle 8 — Every worker has the right to know, including to know their rights.

91. Every worker has the right to know current information about their actual and potential exposures to toxic and otherwise hazardous substances. Occupational health and safety information must be available and accessible to workers in a form that effectively serves their needs, bearing in mind their skills and circumstances, and communicated through training and other means (A/HRC/30/40). States, employers and business enterprises must efficiently communicate health and safety information, including the results of medical examinations, to workers, trade unions and other workers' representatives.

92. States are duty-bound to generate, collect, assess and update information on hazards and risks encountered by workers, as well as epidemiological evidence of occupational diseases and disabilities (*ibid.*).

93. Business enterprises are responsible for identifying and assessing the actual and potential exposure by workers to hazardous substances in their supply chains and resulting from their own activities (*ibid.*). This includes information on the types of hazardous substances in occupational settings, the intrinsic hazards of such substances and exposure-related data. Chemical suppliers have heightened responsibilities to identify and assess and to communicate information for the protection of workers to workers, employers, other business enterprises and States.⁷⁴

94. As well as the right to information about occupational health risks, workers also have the right to be informed of all their rights and the relevant duties and responsibilities of States and business enterprises regarding these rights, and how they can exercise and defend their rights when they are abused or violated.

Principle 9 — Health and safety information about toxic substances must never be confidential.

95. States have a duty to ensure that claims that information about toxic substances are confidential business information or trade secrets are legitimate (*ibid.*). While confidentiality of personal medical histories must be ensured, they must not be used to

⁷⁴ ILO Chemicals Convention.

obscure health problems arising in the workplace. States should ensure that criminal sanctions are applicable to businesses and other actors that fail to disclose health and safety information. Employers and suppliers of chemical substances should clearly state in their policies that they will not keep such information secret.

Principle 10 — The right to safe and healthy work is inseparable from freedom of association, the right to organize and the right to collective bargaining.

96. Freedom of association and the effective recognition of the right to collective bargaining are fundamental labour rights, applying to all people in all States regardless of the level of economic development.⁷⁵ Without freedom of association, including to form unions, and the right to collective bargaining workers stand little chance of defending their right to safe and healthy work and other human rights. For human rights obligations to be met and the objective of sustainable development achieved, rights holders must be involved and participation by workers throughout the system should be upheld.⁷⁶

97. States are obliged to protect, promote, respect and fulfil the rights to freedom of association, to organize and to collective bargaining through effective legislation, regulation and policies. They must ensure that everyone can exercise the right to freedom of association in the workplace without discrimination.⁷⁷

98. Businesses should meet their obligations to respect the rights of workers to freedom of association, to organize and to collective bargaining. States should fulfil their role in preventing or halting violations of these rights by businesses and other parties.

Principle 11 — Workers, representatives of workers, whistle-blowers and rights defenders must all be protected from reprisal and the threat of reprisal.

99. Empowering rights holders, particularly those most at risk, to defend their rights helps States meet their obligations under human rights law and upholds the principle of accountability and the rights to information and an effective remedy, among others.

100. For workers to enjoy their right to safe and healthy work, workers or their representatives must be able to raise their concerns with employers, their co-workers and government agencies without fear of retaliation. Workers, whistle-blowers and human rights defenders must be free from intimidation, threats and other reprisals for exercising their rights and defending the rights of those who are, or may be, victims of occupational exposures to toxic and otherwise hazardous substances.

101. The threat of loss of employment or income should never be used to gain an advantage when trying to reach an agreement on protecting the rights of workers to safe and healthy work. This includes threats by employers to move jobs abroad.

102. States should have in place national protection programmes for defenders of labour rights and initiate appropriate disciplinary, civil and criminal proceedings against perpetrators of reprisals, intimidation or threats of reprisals against defenders. States should commission independent periodic reviews of national protection programmes to enhance effectiveness in protecting defenders of labour rights, in consultation with workers, whistle-blowers and defenders, as well as trade unions and civil society organizations that represent them.

⁷⁵ ILO Declaration on Fundamental Principles and Rights at Work (1998).

⁷⁶ ILO Safety and Health Convention.

⁷⁷ For example, on the grounds of type of work or employment, nature of the workplace, enterprise or sector, or immigration or other status.

C. Principles regarding effective remedies

103. Ensuring access to justice and effective remedies can motivate business enterprises to develop and adopt safer practices that engage their responsibility, ranging from substituting less hazardous alternatives to adopting engineering controls to reduce exposure. On the other hand, the impunity of certain business enterprises and other beneficiaries whose acts or omissions lead to the exposure of workers to toxic substances is an impediment to improving the situation of countless workers around the world. The pervasive inaccessibility of effective remedies to workers who are victims of toxic exposures serves as a barrier to the transition to safer, healthier work for millions of workers around the world.

Principle 12 — Governments should criminalize allowing workers to be exposed to substances that are known or should be known to be hazardous.

104. Criminal sanctions should be available to help ensure accountability for human rights obligations and to fight impunity.

105. States should ensure that national legislation provides for criminal liability of employers and other responsible individuals and entities for exposing workers to substances that are or should be known to be hazardous. States should investigate and prosecute such cases, ensuring that heads of business enterprises bear responsibility along with other actors knowingly or negligently involved.

Principle 13 — Workers, their families and their communities must have immediate access to an appropriate and effective remedy, which should be available from the time of exposure.

106. Workers exposed to toxics are harmed and their rights are abused or violated at the time of exposure, not only when a disease or disability manifests itself in a worker or in a worker's child. The latency of diseases and disabilities after exposure, which can be years or even decades, can make access to an effective remedy impossible for many workers and their families.

107. An appropriate and effective remedy includes prompt reparation for harms suffered, health care, compensation, guarantees of non-repetition and adequate training for rehabilitation, reinsertion and reasonable accommodation.⁷⁸ An effective remedy also includes bringing to justice those responsible for exposure to toxic substances.

108. States have the primary duty to realize the worker's right to an appropriate and effective remedy, including under their laws. States have an obligation to automatically investigate the possible existence of widespread violations after a minimum threshold is reached and to engage in international cooperation in doing so. This should be separate from any investigations or actions undertaken by the victim to pursue an effective remedy. States should ensure the cessation of conditions that give rise to occupational exposures, including changes in relevant laws and practices, prohibitions on the production and use of certain classes of substances and the dissemination of information to prevent recurrence (see A/HRC/33/41, para. 40). Penalties imposed should be significant enough to induce and motivate business enterprises and other actors to take precautionary measures to prevent workers' exposure to toxic substances and to act as a deterrent to ensure non-recurrence.

109. Business enterprises that cause, contribute to or are linked to occupational exposures to toxic substances have a responsibility to establish robust processes to enable workers to have timely access to an appropriate and effective remedy.

⁷⁸ ILO, *Promoting Diversity and Inclusion Through Workplace Adjustments: A Practical Guide* (Geneva, 2016).

Principle 14 — Workers or their families should not bear the burden of proving the cause of their illness or disability to access an effective remedy.

110. Placing the burden of proof on those harmed by toxic substances at work can be an enormous and often insurmountable challenge. States should ensure that when there is information that a worker may have been exposed to toxic substances at work and where such exposure has been demonstrated to cause harm in similar situations, the burden should shift to the employer to prove no harm.⁷⁹ This may be particularly appropriate where the facts and events relevant to resolving a claim lie wholly or in part within the exclusive control of the employer or other third party.

111. Information that a worker may have been exposed to toxic substances need not be in the form of exposure levels or identification of the precise chemical; it can also include information that occupational diseases are known to have occurred in a particular type of work or industry. The employer or other beneficiaries of services should be allowed to try to rebut the presumption of responsibility, but the burden should be on the employer.

112. A major challenge for workers in supply chains is that the business enterprise may not have sufficient resources to provide an adequate and effective remedy to harmed workers. States must ensure that beneficiaries of services are also responsible for the provision of remedies. Indeed, States have developed legislation to address circumstances where an enterprise provides or enables another to acquire benefits of any kind from worker exploitation, which can include exposure to toxic substances.⁸⁰

Principle 15 — States should assert jurisdiction for cross-border cases of workers harmed by occupational exposure.

113. Victims of abuse of their rights by transnational business enterprises face specific obstacles in accessing effective remedies for occupational exposure to toxic substances. Challenges include proving damages and establishing causal links, as well as the financial costs of access to remedy in most jurisdictions and the lack of independence of certain judicial systems. States have the duty to take the necessary steps to address these challenges to prevent a denial of justice and ensure the right to effective remedy for victims of occupational exposure to toxic substances.⁸¹

114. States should ensure that their laws provide for jurisdiction over workers' exposures to toxic substances that occur abroad. Home States should assert jurisdiction for such corporate abuse, including criminal sanctions where appropriate. Effective accountability and access to remedy in transboundary cases require international cooperation, including measures for prevention and the disclosure of information.

⁷⁹ If the employer does not exist or cannot otherwise provide an effective remedy to the worker, alternative recourse should be available.

⁸⁰ See, for example, the United Kingdom Modern Slavery Act 2015, Part 1, sect. 3 (5).

⁸¹ Committee on Economic, Social and Cultural Rights, general comment No. 24.