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**Seventy-fourth session**

Item 72(b) of the provisional agenda[[1]](#footnote-2)\*

**Human rights questions, including alternative   
approaches for improving the effective enjoyment  
of human rights and fundamental freedoms**

Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes[[2]](#footnote-3)\*\*

Note by the Secretary-General

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| *Summary* |
| The Secretary-General has the honour to transmit to the General Assembly the report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Baskut Tuncak, submitted pursuant to Human Rights Council resolution 36/15.  In this thematic report to the General Assembly, the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes takes the opportunity to remind the international community of the State’s duty to prevent exposure to toxics. The Special Rapporteur discusses the legal basis of this duty, and highlights how exposure prevention is the exception, leading to existential threats to life and health, including reproduction. The report concludes with recommendations |
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I. Introduction

1. Nearly sixty years ago, Rachel Carson warned, “If we are going to live so intimately with these chemicals—eating and drinking them, taking them into the very marrow of our bones—we had better know something about their nature and their power.” While the dangers of exposure to toxic pollutants—whether synthetic chemicals used in workplaces or intentionally added to products, or wastes that contaminate food, air, soil and water—have been known for decades, the magnitude and impact of a rapidly toxifying world continues to grow faster than measures to prevent exposure.
2. Exposure to hazardous substances, including various pollutants that contaminate food, air and water, infringes on numerous human rights, including the rights to life, health and a life with dignity. Every State has binding human rights obligations that create a duty to take active measures to prevent the exposure of individuals and communities to toxic substances. This duty is essential to ensure every person enjoys not only the rights mentioned above, but also the rights to a healthy environment, safe and healthy work, safe water, clean air and adequate food and housing, among others.
3. Nonetheless, people and peoples are knowingly exposed to a multitude of hazardous substances that could be prevented. This toxic cocktail is conservatively calculated as the single largest source of premature death in the world, and it causes and contributes to a silent pandemic of diseases and disabilities. While this toxification of people and the planet grows, States, businesses and health experts are locked in years- or decades-long debates over when and to what extent exposures are acceptable. As they endlessly debate what should be considered clean, healthy or adequate, toxic exposure erodes, abuses, and violates the rights to air, water, food and safe workplaces, particularly of children and other susceptible groups. Relief and remedy, to the limited extend it materializes, is often insufficient and too late.
4. When viewed through the lens of children’s and reproductive health, the importance and gravity of preventing exposure to toxic substances sharpens further into focus. Declining fertility is only one of many concerning health trends linked to toxic exposure that persist because States have not prioritized exposure prevention.
5. In this report, the Special Rapporteur, Baskut Tuncak, takes the opportunity to remind the international community of the State’s duty to prevent exposure. He discusses progress made in the prevention of exposure to hazardous substances and wastes, as well as examples of recent challenges, such as pesticides, industrial chemicals, air pollution, plastic “waste” and contaminated drinking water. The report concludes with recommendations for various stakeholders.

II. The duty to prevent exposure

1. Every State has an obligation to prevent exposure to hazardous substances and wastes (toxics) under international human rights law.[[3]](#footnote-4) This obligation derives implicitly, but clearly, from any number of rights and duties enshrined within the global human rights framework, under which States are obligated to respect, protect and fulfil recognized human rights implicated by exposure to toxics. These includethe human rights to life, health, safe food and water, adequate housing, and safe and healthy working conditions.[[4]](#footnote-5) The duty to prevent exposure is further reinforced by the national and regional recognition of the right to a safe, clean, healthy and sustainable environment, including clean air. The existence of the State’s duty to prevent exposure is reinforced by bodily integrity, which helps to provide content to the extent to which every person should have the right to control what happens to their body.[[5]](#footnote-6) This section explores the duty to prevent exposure in the context of several rights and principles.
2. At the outset, it should be emphasized that the primary duty to prevent human rights violations rests with States, irrespective of the increasing recognition of the responsibilities of business enterprises and other non-State actors.[[6]](#footnote-7) States are legally bound to take reasonable steps to prevent human rights violations. This includes the obligation under international law to protect against human rights abuses by third parties, including private actors. States may violate their obligations under international human rights law when they fail to take appropriate steps to prevent, investigate, punish, redress and remedy private actors’ abuse. No State can meet its human rights obligations without preventing human exposure to pollution, toxic industrial chemicals, pesticides, wastes and other substances with intrinsic hazards.[[7]](#footnote-8) Independent of State efforts, and particularly where the State is unable or unwilling to exercise its duty, business enterprises have a responsibility to prevent exposure to hazardous substances resulting from their activities and/or business relationships.[[8]](#footnote-9) This responsibility is independent of whether or not adequate legislation is in place to protect human rights.

A. Protect human rights to life, health and a life with dignity

1. The toxification of our planet and bodies constitutes what is arguably one of the most underappreciated threats to the ability of present and future generations to enjoy their human rights to life, health and a life with dignity.
2. In 2015, pollution killed an estimated 9 million people, accounting for approximately 16% of all deaths worldwide, likely to be an underestimate given known information gaps.[[9]](#footnote-10) This is three times more than AIDS, malaria and tuberculosis combined and 15 times more than from wars and other forms of violence.[[10]](#footnote-11) Pollution, more specifically human exposure to it, is estimated to be the single largest source of premature death in the world today.[[11]](#footnote-12)
3. The human right to life concerns the entitlement of individuals to be free from acts and omissions that are intended or may be expected to cause their unnatural or premature death, as well as to enjoy a life with dignity.[[12]](#footnote-13) State are obligated to establish a legal framework as may be necessary to ensure the full enjoyment of the right to life by all individuals.[[13]](#footnote-14) States must adopt any appropriate laws or other measures in order to protect life from all reasonably foreseeable threats emanating from private persons and entities.[[14]](#footnote-15) Of considerable importance is that, States parties may be in violation of their obligations concerning the right to life “even if such threats and situations do not result in loss of life,”[[15]](#footnote-16) which highlights the interrelatedness of the right to life and bodily integrity (discussed below).
4. The rights to life and a life with dignity are inseparable from the right to the highest attainable standard of health, which requires the prevention of exposure. The “right to the prevention… of diseases” is a fundamental aspect of the right to health.[[16]](#footnote-17) Accordingly, the right to health requires the “prevention and reduction” of exposure to hazardous substances.[[17]](#footnote-18) The Committee on Economic, Social and Cultural Rights (CESCR) lists prevention before reduction, indicating that prevention is paramount to reducing exposure and that reduction is not an alternative to prevention. Exposure reduction is undertaken through exposure prevention, reducing overall exposure.
5. The UN Human Rights Committee recently recognized that pollution threatens the right to life and in particular the right to a life with dignity[[18]](#footnote-19). Consistent with this interpretation, a landmark 2019 decision by the Human Rights Committee found that Paraguay violated the right to life and a life with dignity of over 20 people who were exposed to toxic pesticides.[[19]](#footnote-20) The contamination was found to have caused the death of one person and poisoned 22 other inhabitants of a community. The finding reinforced that the State’s failure to prevent exposure can be a violation of the right to life and a life with dignity, even in absence of premature death.
6. Protection of the rights to life and a life with dignity requires that States ensure individuals and communities are protected from exposure to hazardous substances, such as pollution and toxic chemicals in products and occupational settings.[[20]](#footnote-21) Critically, the Human Rights Committee recognized that States may be in violation of the rights to life and a life with dignity when they take insufficient measures or otherwise fail to take measures to prevent chronic exposure to hazardous substances, whether from the environment, workplace, consumer products or other sources. Chronic exposure to hazardous substances can impinge on a person’s ability to live with dignity and decency, to fully develop their personality and physical capabilities, to live without humiliation and/or to participate in community with others.
7. The Human Rights Committee also found that toxic exposure can violate the right to private and family life (article 17). It noted that a violation may exist when pollution has a direct, serious impact on the right to private and family life and the home. Pollution and environmental degradation can affect the well-being of an individual.[[21]](#footnote-22) The decision of the Human Rights Committee is relevant to the interpretation of rights contained in the Convention on the Rights of the Child (CRC) and the ICESCR because it is based on the health impacts to individuals, including children, as well as the pollution of rivers from which they fish, the wells from which they drink, and the fruit trees, crops and livestock on which they feed.[[22]](#footnote-23)
8. Though the Human Rights Committee cites three banned pesticides, in the view of the Special Rapporteur, the decision - that States have a duty to prevent exposure to hazardous substances -should be considered to extend beyond pesticides. Furthermore, the decision should not be limited to hazardous substances banned under national or international law, as many hazardous substances are still neither banned nor restricted under either. The Special Rapporteur considers exposure of individuals and communities to various hazardous substances and wastes to be an infringement of the rights to life and dignity of victims and it should be considered a prima facie failure of the State’s duty to prevent exposure.
9. In the above proceeding under the ICCPR, the burden of proof did not lie solely with the alleged victims. Recalibration of the burden of proof toward those with greater access to information is a good practice, which the Special Rapporteur has emphasized in previous thematic reports.[[23]](#footnote-24) Placing the burden of proof on victims of exposure promotes impunity and denies access to justice. Victims rarely have equal access to information or the potential power of the State to compel the generation or production of information. In cases where decisions of violations depend on information available only to the State party or business implicated, the human rights treaty bodies and judicial bodies should consider the allegations to be well founded if the State party does not rebut them by providing satisfactory evidence and explanations.
10. The rights to life, health and a life with dignity, among others, require that States prevent exposure to toxic and otherwise hazardous substances and wastes. Every State must have in place comprehensive laws and effective enforcement mechanisms to prevent exposure to all forms of pollution, toxic chemicals and other hazardous substances that can be a reasonably foreseeable threat to the health, life and dignity of the individual, including exposures caused by private actors.

B. Respect and protect bodily integrity

1. The autonomy of the individual and various freedoms, including control of what happens to one’s own body, is fundamental to human rights law, particularly to the right to life with dignity,[[24]](#footnote-25) which is interrelated with bodily integrity (or physical integrity).[[25]](#footnote-26)
2. Bodily integrity underlies many of the prohibitions and freedoms found in human rights law. While not defined neither under the ICCPR nor the International Covenant on Economic, Social and Cultural Rights (ICESCR), bodily integrity is fundamental to the rights to security of the person, freedom from torture and cruel, inhuman and degrading treatment, privacy, the highest attainable standard of health and decent work, among others.[[26]](#footnote-27) Freedoms from scientific experimentation without consent and non-therapeutic medical interventions are grounded in bodily integrity.
3. Bodily integrity is also established in certain national laws and legal traditions. For example, “The common law action of battery developed out of the law’s recognition of an individual’s interest in personal autonomy and bodily integrity—that is, the right of a person to participate in and make decisions about his own body.”[[27]](#footnote-28) The European Court of Human Rights (ECtHR) has recognized that the physical integrity of the person is covered by their right to private life.[[28]](#footnote-29)
4. Human exposure to toxics clearly implicates bodily integrity. Poisoning another through high-level (acute) exposure to a hazardous substance is an unquestionable violation of bodily integrity. In addition, this right is also implicated by regular exposure to lower levels of toxic substances (chronic exposure) that may or may not cause or contribute to adverse health impacts, from cancer to impaired reproduction to reduced intelligence.
5. Our bodies carry a tremendous burden of toxic chemical exposure. Hundreds of toxic and otherwise hazardous substances are detected in human blood and urine, umbilical cords and placental tissue, and even in human cells themselves. Where infringements of bodily integrity have been deemed permissible by law, it is typically argued that there is an overriding public interest justification. Yet no legitimate public interest justification is offered for the vast majority of preventable exposures to hazardous substances today.
6. The Special Rapporteur has raised the implications and impacts of exposure for bodily integrity in several reports, including on the rights of the child and workers.[[29]](#footnote-30) In the context of childhood exposure, the phenomenon of children being born “pre-polluted” raises significant concerns regarding the adequacy of State efforts to protect the physical integrity of women of reproductive age.[[30]](#footnote-31) In the context of exposure to pollution and other hazardous substances, however, bodily integrity has much wider implications for the global population as a whole.
7. Bodily integrity is closely linked with the right to life. Individuals and communities who cannot, through the actions or inactions of a State or business enterprise, live a life in dignity because of exposure to toxic substances, thereby lack access to conditions that would ensure a dignified life.
8. The case law of the ECtHR has recognized the right to have one’s physical integrity protected from exposure to hazardous substances and wastes. Its decisions on the justiciability of claims have, however, emphasized personal exposure to a danger that is serious, specific and/or imminent to constitute a violation.[[31]](#footnote-32) Such a reading may be appropriate for a few substances with well-characterized hazards and potential for exposure, however for the vast majority of substances, neither hazards nor the likelihood of exposure is well-characterized for current and future generations. No evidence of risk does not mean no risk. Furthermore, imminent danger is highly problematic in the context of certain exposures to toxics where diseases may not manifest for years or decades, if at all, or may act in concert with other risk-factors contributing to an adverse health outcome. Narrow criteria, such as that of imminent danger, for the applicability of claims based on physical/bodily integrity regarding toxic exposure is neither just nor realistic given the current body of knowledge, and most importantly what is known to be unknown about the health impacts of exposure to hazardous substances over extended periods of time and sensitive periods of development. To this end, the ECtHR’s increasing recognition of the importance of the principle of precaution in respecting and protecting human rights is welcome.[[32]](#footnote-33) The precautionary principle should—and must in many countries where it already appears in existing law—be taken into account to ensure the right to bodily integrity, a position backed by WHO.[[33]](#footnote-34)
9. According to WHO: “Limitations in the ability to characterize causal relationships are occasionally misinterpreted as evidence of safety. Thus, the need for more accurate scientific information has sometimes been used as a justification for inaction. The combination of rigid policy structures requiring strong evidence of adverse impacts, social attitudes and interference by vested interests often result [sic] in policy-makers having to wait unreasonable lengths of time before they can commit themselves to preventive action. The past cases of lead, tobacco, asbestos and many other agents provide ample evidence of the high costs associated with waiting for convincing proof of harm. It is equally important that inadequate application of the precautionary principle should not prevent or preclude action producing important benefits for society.”[[34]](#footnote-35)
10. Physical integrity was also invoked in the case of hundreds of displaced Roma, Ashkali and Egyptian children poisoned by lead while they were housed by the UN in camps constructed on and near toxic wasteland during the conflict in Kosovo.[[35]](#footnote-36) The Human Rights Advisory Panel states that the United Nations “should have afforded special protection to the right to life and physical integrity of complainants as vulnerable persons, as a result of being displaced following the conflict in Kosovo and the destruction of their homes, and as members of a disadvantaged minority.”[[36]](#footnote-37)
11. The achievements of the global movement to ban tobacco smoking in public spaces is a remarkably successful example of prevention to protect the right to bodily integrity. In some instances, national efforts were driven, or at least reinforced, by arguments based on the individual’s human rights to physical integrity and health.[[37]](#footnote-38) The Pan-American Health Organization has emphasized the human right to life and physical integrity in its work to bring a rights-based approach to the hazards of tobacco use.[[38]](#footnote-39)
12. Despite a few cases that affirm the relevance of preventing and reducing toxic exposure to uphold the right to bodily integrity, there remains regrettably limited interpretation and application of this right in this context to date. A human rights-based approach to environmental and occupational health requires inclusion and robust consideration of bodily integrity. This is particularly salient for how so-called “acceptable” levels of exposure are established by regulators. Problematic consideration of economic factors in the establishment of exposure standards often result in unjustified, unnecessary and preventable exposures for workers and other vulnerable groups that disregard their human rights. With evidence mounting of health impacts at lower and lower levels of exposure[[39]](#footnote-40) and exposures to mixtures of different hazardous substances, a more robust interpretation and application of bodily integrity in the context of toxic exposures is urgently needed.
13. In the view of the Special Rapporteur, to respect and protect the right to bodily integrity as required under a human-rights based approach to hazardous substances and wastes, the individual should be able to choose what risks (i.e. exposures) they believe acceptable regarding their health, not the State or business enterprises. This demands much more transparency and greater realization of the right to information to prevent exposure—for both consumers and regulators (see below). It is the duty of the State and responsibility of businesses to respect and protect this aspect of personal autonomy through both their actions and inactions.[[40]](#footnote-41)
14. There is also a need for better recognition and application of rights grounded in bodily integrity that are implicated by exposure to toxic substances, such as freedoms from torture, cruel, inhuman and degrading treatment. Article 7 of ICCPR traditionally only focuses on any form of arrest, detention or imprisonment. However, just as torture and inhumane treatment are perpetrated by one person unto another, exposure to toxics is often the result of actions by one to another. Similar to other violations of human rights that implicate bodily integrity, diseases and disabilities that result from exposure to toxic substances are cruel, inhuman and degrading. They can include, for example, the excruciating pain of cancer and the suffocating torture of respiratory diseases.
15. This violence from exposure to toxics also extends beyond the seen and felt direct impacts of diseases and disabilities. Toxic industrial chemicals, pesticides, various pollutants, radiation and other hazardous substances inflict invisible violence through the mutation of DNA, damage to cellular structures and interference with the normal biochemical systems on which human life, health and development depend. In many different ways, these exposures violate sexual and reproductive rights, including the inability to carry pregnancies to term and infertility. They also disproportionately inflict cancers and other diseases upon some vulnerable groups, including children and people living in poverty.
16. Actions that are reasonably foreseeable to expose human beings to toxics, whether visible pollution discharged in waterways or invisible molecules from disintegrating household products, are also an affront to human dignity and bodily integrity. There is a need to move beyond narrow interpretations of infringements of freedoms from torture, cruel, inhuman and degrading treatment as, for example, relating only to situations where an individual is imprisoned or is otherwise impacted by the actions of a public official. Such a limited interpretation discounts a fundamental human freedom, control over one’s body. It deprives victims of justice and remedy. It denies them due recognition of the torturous conditions they suffer from such illnesses, resulting in an undignified life. And it inflicts the cruelty of implicit encouragement of the continuation of such exposures and future violations, as well as the degradation of having no control over what toxic substances enter their bodies.
17. In the case of Paraguay before the Human Rights Committee, the complainants alleged cruel, inhuman and degrading treatment due to their exposure to hazardous pesticides, implicitly arguing violations of their bodily integrity.[[41]](#footnote-42) Having found a violation of rights to life and a life with dignity (article 6) and private life (article 17), the Committee did not give an opinion on this question. While the claim of a violation of the right to freedom from cruel, inhuman or degrading treatment was unaddressed, in the view of the Special Rapporteur, the Committee’s finding of a violation of the right to private life in the context of physical and psychological impacts of exposure to hazardous substances makes such a claim well-founded.[[42]](#footnote-43)

C. Ensure equality and prevent discrimination

1. Human rights are anchored in universal values and principles such as equality, non-discrimination, the dignity of individual human beings, justice and accountability. Those most vulnerable, most marginalized and most susceptible to toxic exposures face disproportionate threats to life, health and bodily integrity.
2. Billions of people suffer the indignity and injustice of relentless exposure to toxics in the air, water and food upon which they depend. Those most affected are often the most vulnerable in a society, and their vulnerability is exploited by an often disingenuous narrative of necessity—including economic development, jobs and national sovereignty. Those whose rights are most violated by exposure to toxics are those living in poverty, minorities, migrants, workers, indigenous peoples and other vulnerable or susceptible groups, with highly gendered impacts.
3. Policies that directly or indirectly permit hazardous substance exposure perpetuate discrimination and exploitation. Toxic exposures discriminate against those who are genetically more susceptible to developing diseases and disabilities. People who are malnourished are more impacted by exposure to toxic pollution and chemicals, which can compound other challenges, especially those faced by people of low-income or living in poverty. Pollution often impacts persons living in poverty the most, be it in high-, middle- or low-income countries,[[43]](#footnote-44) and there is extensive research to demonstrate that people in lower-income communities are disproportionately subject to greater danger from toxic exposures. Whether from the perspective of gendered impacts or the vulnerability of different ages, the adverse impacts of exposures can be discriminatory. Those who have the least financial or political power are typically the least likely to be in a position to defend their human rights from the threat of exposure to toxics.
4. Every child has the right to be heard on matters affecting their rights, which must, therefore, include matters relating to their exposure to toxic substances.[[44]](#footnote-45) Over 200 hazardous substances have been detected in umbilical cords and placentas, including toxic constituents of consumer products, food packaging and air pollution.[[45]](#footnote-46) Children are not only exposed during sensitive developmental periods to a multitude of substances with known and unknown toxicity from a plethora of sources, but they are also exposed at higher levels than adults.[[46]](#footnote-47) The consequences of exposure to various hazardous substances are typically the worst for children. Millions of children are deprived their right to maximum development by exposure to hazardous substances before they can even begin to exercise their fundamental right to be heard, with parents effectively denied essential elements to “speak” on their behalf to prevent exposures.
5. The 1972 Stockholm Declaration of the United Nations Conference on the Human Environment states that “…policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.” While many States have banned or restricted the most toxic of substances, they continue to export these same substances to foreign countries, including those with far weaker governance structures to prevent exposure. These exporting countries should not assume the “prior informed consent” of the importing country exonerates them from participating in discrimination or exploitation. Importing governments may not share similar values, measures of anti-corruption or democratic ideals, let alone capacity to prevent exposure. Additionally, countries that export such restricted substances, typically wealthier nations, may later import products containing or composed of these highly hazardous substances, in which case workers and local communities in importing countries have been exposed in ways deemed unacceptable in the exporting country. To profit from these double standards is a form of exploitation, which the global community has only marginally addressed through global treaties and other instruments.
6. Prevention of exposure is required to prevent discrimination and to ensure that everyone can enjoy a healthy environment and safe and healthy working conditions. Unless prevention of exposure is required as the norm, the most vulnerable will continue to bear the brunt of toxic exposure in the production, consumption and disposal lifecycles of our economy. Discrimination is not limited by borders. The export of banned or restricted substances for use in importing countries that cannot or do not have adequate assurances that human rights will be respected, protected and fulfilled is exploitation and may violate the principle of non-discrimination.

D. Realize the right to information

1. The right to information is a gateway to all human rights implicated by exposure to toxics. To respect, protect and fulfil human rights affected by hazardous substances, the right to information requires that States, inter alia, generate, collect, assess, update and effectively communicate information, particularly to those disproportionately at risk of adverse impacts.[[47]](#footnote-48) In discharging their duty to conduct human rights due diligence, businesses are responsible for identifying and assessing the actual and potential impacts of hazardous substances and wastes, either through their own activities or as a result of their business relationships, and for communicating information to other businesses, governments and the public effectively.[[48]](#footnote-49)
2. Consent is critical for human autonomy and bodily integrity, and it depends upon the quality and quantity of information given. Perversely, consent, through the provision of information on health hazards to those exposed to toxics, may be used as a defense by perpetrators, shifting the burden on potential victims of abuse to understand the hazards and risks of exposure, and to defend their own human rights from infringements by exposure to hazardous substances. Given the breadth of chemical used in everyday products and the number of pollutants that may contaminate air, water, soil and food, it is unreasonable to expect individuals to determine what danger they are comfortable with and be able to regulate what enters their bodies.
3. That is why access to information alone is not a substitute for State action to prevent exposure. Even if fully informed, many people are unable to effectively use information for reasons such as: limited resources to ensure meaningful participation and access justice, corporate capture of governments and institutions, corruption, and economic insecurity and social pressures that prevent people from raising concerns. Vulnerable groups are often particularly unable to engage in highly technical and obscure debates regarding potential impacts, “safe” levels of exposure, or their right to “healthy” environment. Children, whose rights to life, health and maximum development are infringed upon during the most sensitive post-natal periods, are not able to effectively use information to exercise their rights. Therefore, States discharge their human rights obligations not when they provide access to information, but rather when they generate, or compel responsible third-parties to generate, information necessary to understand the hazards and risks of exposure and then use this information to execute their duty to prevent exposure.

E. Realize the right of access to justice and an effective remedy

1. WHO estimates over 12 million people die each year from an unhealthy environment, a widely acknowledged underestimation given information gaps on hazards and exposures.[[49]](#footnote-50) Denied a multitude of human rights, a minuscule number of these victims—arguably none given what is lost—receive any semblance of effective remedy. The inability to secure justice, even by victims of the most egregious and clear cases of malicious conduct adds insult to injury. The need to establish a causal linkage between exposure to toxics and health impacts fosters impunity, making it nearly impossible for many victims to obtain justice and remedy for chronic exposure to a cocktail of toxic substances, whether they are exposed while still in the womb or later in their lifetimes. Most people do not even know they are victims.
2. The impacts of exposure, particularly during sensitive periods of development, are often irreversible, debilitating and deadly. No less significant than the physical impacts are impacts on mental health, including the emotional trauma for people exposed to toxic substances, and for their families. The Special Rapporteur recalls the testimonies of several family members during one of his official country visits who blamed themselves for buying toxic consumer products that killed or injured their parents or children,[[50]](#footnote-51) as well as the numerous victims and their families who confided that no amount of compensation or healthcare will come close to replacing what they lost.
3. The right to an effective remedy for violations requires non-repetition, or “indirect prevention.”[[51]](#footnote-52) To be a truly effective remedy, non-repetition requires preventing exposure at both individual and population levels. Eliminating the production, use and emission of hazardous substances, in parallel with a transition to a circular economy, is required to ensure the abuse is not repeated. In addition, both remediation of contamination and efforts to prevent further contamination should be applied. Without remediation of existing contamination, there is a grave risk of ongoing human rights violations. Without prevention of further contamination, the technical and financial challenge of clean-up, particularly for low- and middle-income countries, will continue to grow. Prevention of exposure is the only truly effective remedy in the context of toxic substances.
4. Without exposure prevention, States are condoning impunity for violent and often preventable harms wrought by toxic chemicals, pollution and other hazardous substances. Although legal liability is a strong deterrent for preventing the use and release of toxic substances, a “damage and sue” model of protection, one that favors self-regulation in combination with the threat of legal liability, is not a human rights-based approach. Mechanisms to access justice and remedy for victims exposed to hazardous substances are incomplete without strong regulatory regimes to protect life and health from exposure to toxics.
5. States must end the cycle of death, disease and disability caused by business entities that contribute to toxic exposures, and must adopt and implement policies for a non-toxic environment to ensure an effective remedy. The impunity for toxic exposure-related death and disease must end. Ending impunity with compensation and apologies will never be sufficient. As part of the right to an effective remedy, States must prioritize the establishment and maintenance of measures to prevent exposures. This includes measures to eliminate and reduce the use of toxic substances and the emission of toxic pollution, and to remediate contaminated sites. Measures must be taken to prevent extraterritorial exposures, including by ending the manufacture and export of toxic chemicals that are restricted from use domestically.

III. Exposure prevention in practice

1. Since Rachel Carson’s warning about the risks of toxic substances in 1962, certain States have taken positive steps towards preventing individual and community exposures to hazardous substances and wastes.[[52]](#footnote-53) States have enacted laws to reduce emissions of harmful pollutants, restricted certain toxic chemicals in consumer products, developed regulatory and enforcement agencies, generated fundamental information about pollutant releases, human exposures and intrinsic health hazards of substances, assessed impacts and taken many other fundamental steps toward preventing exposure.[[53]](#footnote-54)
2. While these welcome efforts have helped, they have been ultimately insufficient to prevent exposure at large to protect life, health and human dignity, and they have only marginally addressed the injustice and discrimination related to exposure to toxics. The health trend evidence shows that such exposure is a major contributor to a globally rising incidence of diseases, disabilities and altered development.
3. A nationwide study of the United States reported a nearly 50% increase in childhood cancers since 1975.[[54]](#footnote-55) Breast cancer rates have significantly increased since the second world war.[[55]](#footnote-56) Asthma has been increasing since the early 1980s across all ages, sexes and racial groups.[[56]](#footnote-57) Type 2 diabetes and puberty is being observed at increasingly young ages. Lower intelligence observed in children exposed to certain toxics. Throughout this period, there has been exponential growth in chemical production and use. An international study of adverse health impacts showed that environmental exposures arising from toxic substances in the environment and consumer products, rather than genetics, are the most important factors in observed impacts.[[57]](#footnote-58)
4. Studies continue to demonstrate the potential fertility and human reproduction impacts of an increasingly toxic planet and population since the first studies 25 years ago showed male sperm quality had declined appreciably during periods of increasing exposure to hazardous substances in the environment.[[58]](#footnote-59) A 2017 analysis of the metadata in one of the most definitive analyses to date on declining sperm quality[[59]](#footnote-60) revealed a “significant overall decline” in sperm concentrations and total sperm counts, with 52% - 59% declines between 1973 and 2011 in certain countries. While many of the men were found to have sperm counts above the level considered fertile, the authors noted that there was no indication the decline was stopping or “leveling off,” strongly suggesting that an increasing number of couples will struggle with fertility. In addition to the existential threat of declining sperm quantity and quality, there are profound questions of inequality and discrimination in terms of who may be able to have children in the future.

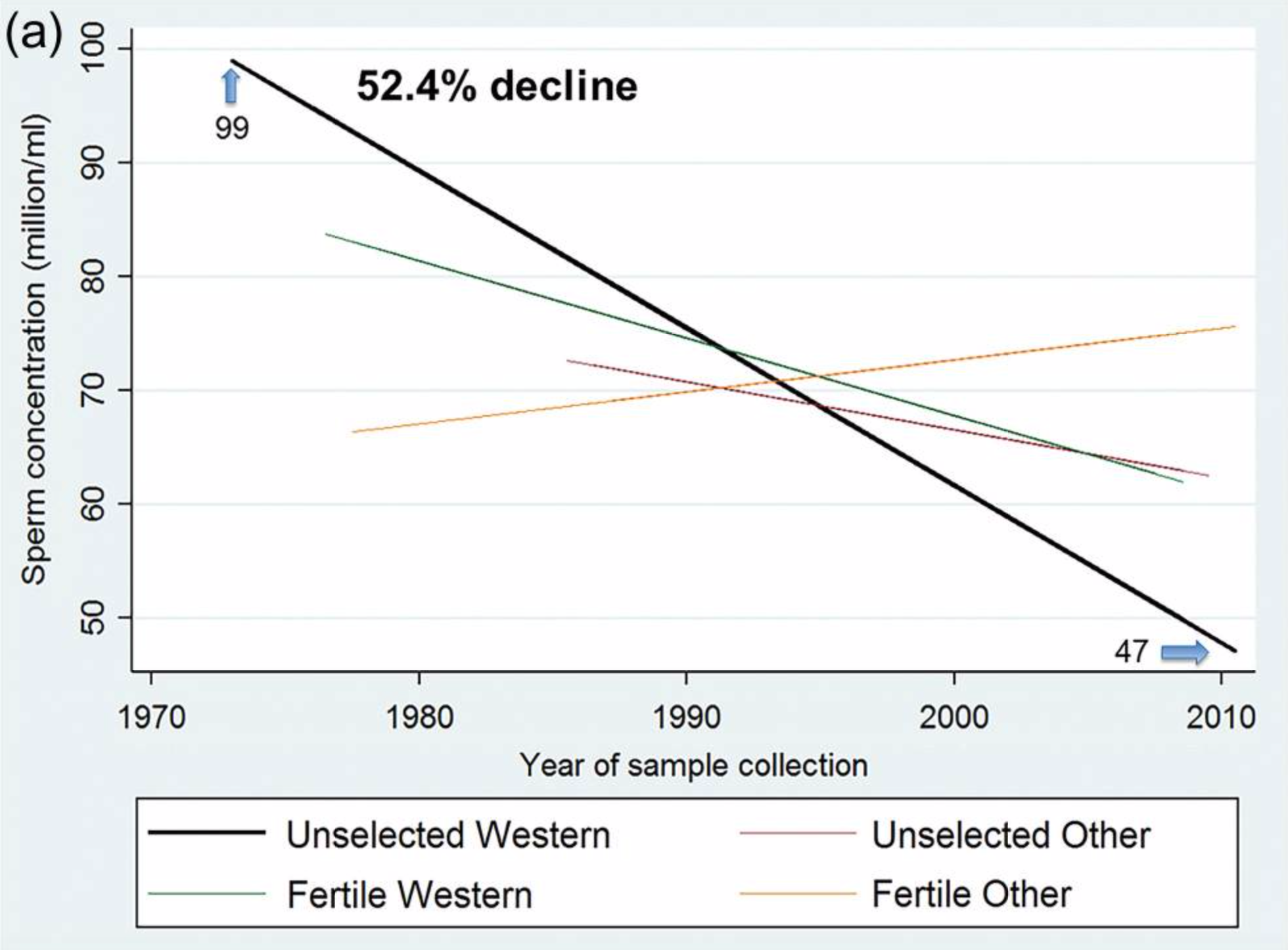
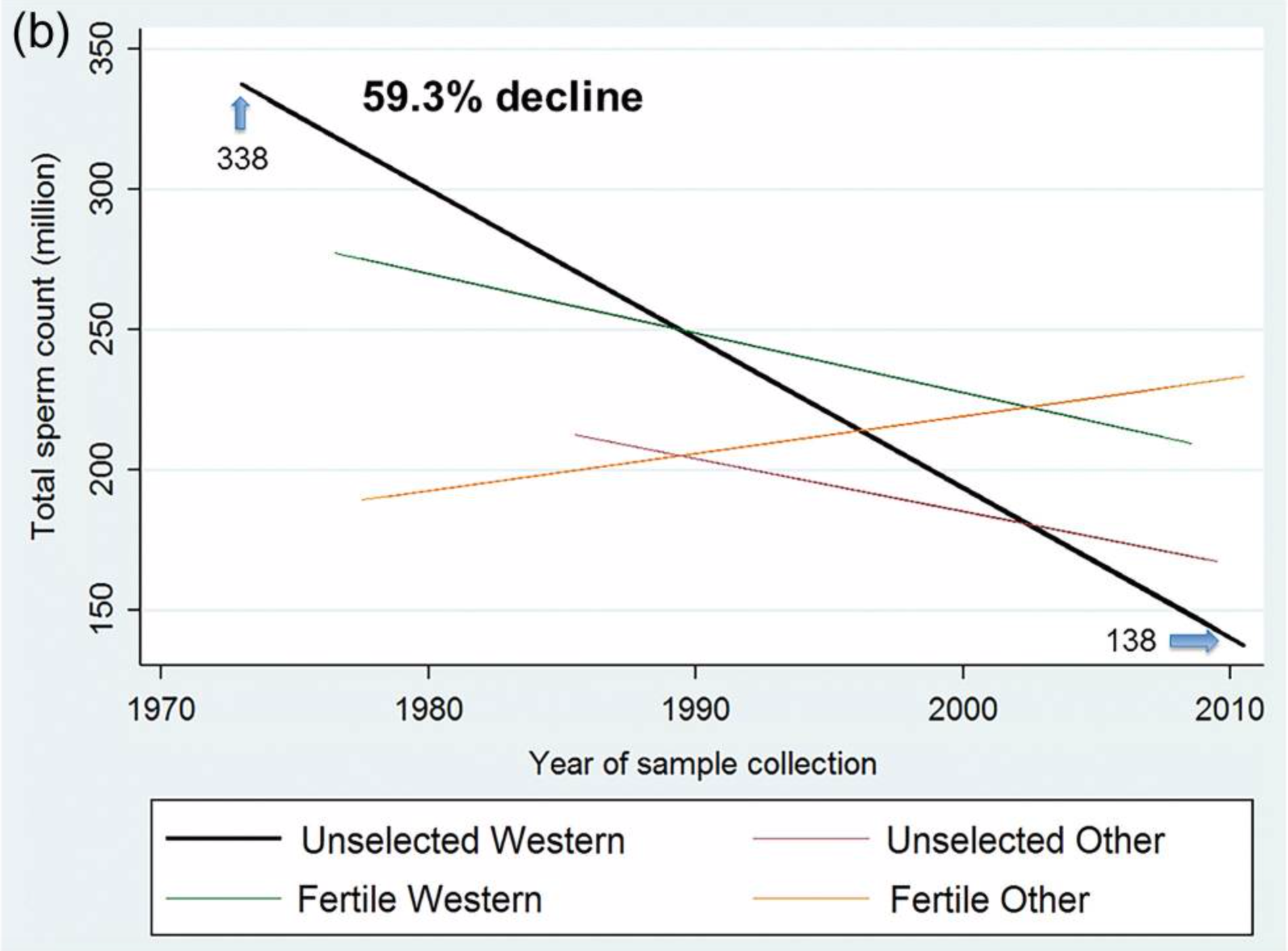
 

Figure 1: Decline in sperm concentration (a) and total sperm count (b). Source: Levine et al (2017) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6455044/figure/dmx022F3

1. The 2017 study was not designed to identify the causes of the decline in sperm count. However, the authors express a clear concern that exposure to a multitude of hazardous substances are contributing to the decline, and “research on the causes of this continuing decline is urgently needed.” Accordingly, they call for prevention. However, thus far prevention of exposure has been the exception, not the norm.
2. The toxification of the planet is rising to what should be considered another existential crisis, one that, like climate change, warrants urgent global attention. Yet, despite the intensity of this threat, political will to effectively prevent and reduce overall exposure to hazardous substances has dramatically declined from already insufficient levels.
3. In recent years, environmental and occupational health protections have been deregulated, undermined or stalled in many jurisdictions, often for reasons of corruption, corporate capture and disingenuous arguments of economic growth or scientific uncertainty. Risk-based procedures have been turned into mechanisms for delaying action. Cost-benefit analyses are used to justify preventable deaths and diseases. Governments have reduced funding for national, regional and global institutions to monitor and advise on the health impacts of toxic exposures, and regulators promoting stronger protections have been replaced with individuals with close corporate ties. The critical role of science has been compromised, inherent uncertainties abused, international trade and investment agreements used to prevent protections and the public misinformed with deliberate and uncontested misinformation campaigns. Climate change ”efforts” are unabashedly used to excuse under-resourcing efforts to prevent exposure. Where some States have taken measures to prevent exposure, they have continued to manufacture and export the very same banned substances to countries where the likelihood of exposure is far greater.
4. In the view of the Special Rapporteur, the vast majority of world leaders are failing on an unprecedented scale in their duty to protect human rights by failing to prevent exposure to toxics. World leaders pledged in 2002, 2006, 2012 and 2015 to achieve the “sound management of chemicals” by 2020, without defining of what this means, without a serious plan and without any meaningful progress to date. There is no indication that what comes after 2020 will have the necessary ambition. These world leaders, despite knowing full well that preventing exposure is fundamental to the enjoyment of human rights, continue to permit businesses to poison the public and exploit the most vulnerable. And they fail to hold corporate actors to account for their crimes. Below are some recent examples of deficiencies by States regarding their respective duties and responsibilities to prevent exposure to hazardous substances, as well as efforts by other actors to fill the protection gap.

A. Consumer products

1. Certain sectors have demonstrated welcome ambition and leadership in preventing exposure to hazardous substances in their products and production processes, including in the activities of their suppliers. For example, the Clean Electronics Production Network[[60]](#footnote-61) has a working goal of moving “towards zero exposure of workers to toxic chemicals in the electronics manufacturing process.”[[61]](#footnote-62) Retailers have also been moving beyond regulatory compliance by actively phasing out a number of unquestionably hazardous substances from consumer products to prevent exposure, such as in cosmetics, household cleaners, furniture, clothing and more.[[62]](#footnote-63)
2. Everyday consumer products continue to be a major source of toxic exposures. For example, the mandate has followed the case of a large number of people in the Republic of Korea who were exposed to toxic chemicals through the sale of humidifier sterilizers that had been promoted for consumer “health” and “safety.” These products contained several hazardous substances that were not assessed for health hazards by the chemical or consumer product companies, including a pharmaceutical company. The chemical products are now acknowledged to have killed and injured numerous young children including newborns, pregnant women, new mothers, and older persons who inhaled the toxic product released from humidifiers.
3. As many as 4 million people were exposed to the toxic humidifier disinfectants at home until the product was withdrawn in 2011.[[63]](#footnote-64) According to the South Korean Government, 490,000 to 560,000 persons suffered damage to their health.[[64]](#footnote-65) According to available information, only 6,277 people applied to be recognized as victims of a toxic consumer product, and thus only those 6,277 people are eligible for remedy. At least 1,357 cases concern individuals who allegedly died as a result of exposure to the humidifier sterilizer’s toxic chemical constituents.[[65]](#footnote-66)
4. The companies involved clearly failed to exercise their responsibility to undertake human rights due diligence concerning the toxic chemical ingredients of the humidifier sterilizers. Instead, they violated child rights in the production, marketing, sale and usage of their highly toxic products. Prosecutors have charged 21 persons with negligent homicide. According to information received in April 2019, 18 of those charged have been found guilty, 2 not guilty, and the case for one person was pending decision by the Supreme Court.
5. Of particular concern is the limited accountability of the chemical companies involved. In 2018 three companies, SK Chemical, Aekyung Industrial and Emart, were fined a total of USD 125,000 for the failure to label the hazardous chemical ingredients correctly. Considering that a total of 1,357 cases of death have been registered in course of four rounds of investigation, the fine amounts to approximately USD 92 for each death potentially caused by the chemicals in question.

B. “Forever” chemicals

1. Nicknamed “forever” chemicals, the class of over 3,000 highly fluorinated chemicals (referred to as PFCs or PFASs) do not decompose in the environment and instead persist, where they can remain forever. Humans are exposed to highly fluorinated chemicals through contaminated food, drinking water and air. 98 percent of people in one country were found to have these chemicals in their bodies.[[66]](#footnote-67) The most studied of these substances (PFOA) has been linked to decreased fertility, kidney and testicular cancer, thyroid problems, among other impacts. These exposures derive from a wide range of uses, such as carpets, clothing, non-stick cookware, cosmetics, cleaners, food packaging, protective coatings and sealants, furnishings, firefighting foams, paints and papers, and as well as in industrial applications. Some of these uses may be considered essential and justified for legitimate public interest benefits, but most are not.
2. Highly fluorinated substances are transported around the globe through the environment and global supply chains, resulting in global exposures. While most of the data on exposure comes from North America and Europe, it is likely that there are elevated levels of exposure in Asia and elsewhere related to manufacturing and military facilities that are undisclosed and underreported.
3. The ongoing production and use of these forever chemicals illustrates several problems with States’ current approach to prevent exposure. The time required to assess and then impose restrictions on each individual substance in this class of concern would take regulators several decades, at least. While the use of some substances in the class was recently reduced in many countries, they have been replaced by alternatives suspected of presenting similar health risks. These points make it highly unlikely that States will be able to prevent exposure to this class of chemicals of unquestionable concern without a class-based approach to prevention, which is generally not the case. The companies and regulators most responsible for the manufacture and use of this class of chemicals knew about the health concerns for decades and continued to manufacture and use the toxic chemicals. In addition, the decision on what is a “safe” levels of exposure is often political. For example, the US Environmental Protection Agency states that approximately 6 million people are exposed to “unsafe” levels of these “forever” substances.[[67]](#footnote-68) However, if safety levels were established at a level that would protect the most vulnerable populations, the number of affected population would be approximately 100 million.[[68]](#footnote-69)
4. Finally, while the entire class of substances is of global concern due to either their persistence or their use in global supply chains, or both, only a few of these substances are covered by the narrow criteria of existing treaties. A mechanism similar to the Montreal Protocol could help to phase-out and eliminate these forever chemicals from non-essential uses globally and thereby prevent exposure.

C. Pesticides

1. Herbicides, fungicides, rodenticides and other chemicals used in food and agricultural production to kill living organisms (collectively here “pesticides”), are generally subject to greater evidence requirements regarding health and environmental hazards compared to “industrial” chemicals. However, these heightened requirements have not dispelled concerns over the ongoing use of pesticides and their related exposures.
2. Legitimate questions and concerns surround the decision-making processes for risk assessment and management. A clear example of this is glyphosate, the world’s most widely used pesticide and active ingredient of “Roundup,” which is sold to consumers as a general use herbicide and to farmers for producing genetically modified organisms (GMOs). Juries in the United States have repeatedly and consistently found companies liable to victims of glyphosate exposure, including having found the companies acted with “malice.” Recent reports uncover unethical efforts by companies to ensure the pesticide remains on the market, including by sponsoring academic research to unjustly tilt the weight of evidence, lobbying to eliminate the WHO’s independent risk assessment body (IARC) that labeled the pesticide a possible carcinogen in 2015 and “ghost writing” sections of risk assessments by regulators. There have been concerns regarding conflicts of interest in regulatory decision-making processes as well.
3. Whether or not glyphosate causes cancer, what the legal trials and public debate illustrate is the public’s vast and quickly eroding confidence in the risk assessments made by decision makers. Studies have found evidence of glyphosate exposure by children during critical periods of development. Doctors and other health experts have called for a precautionary ban on its further use.[[69]](#footnote-70)
4. The case of chlorpyrifos, represents a case where the evidence of harm to human health, particularly that of developing children has been clear for some time. Yet regulators have generally been slow to react to the clear evidence of neurological impacts and unable to set a “safe” level of exposure in air, food or water. The risks are particularly grave for children in critical periods of development, farm workers and agricultural communities. The Special Rapporteur is of the view that the ongoing use of chlorpyrifos and the failure to act on years of evidence is a violation of numerous internationally recognized human rights, including those enshrined in the CRC, the ICCPR, and the ICESCR, among others. The European Food Safety Authority recently concluded that “there is no safe exposure level” and recommended that the EU not reauthorize chlorpyrifos for use in 2020.[[70]](#footnote-71) The Special Rapporteur welcomes the positive preventive steps taken by various jurisdictions such as the US state of California and some European countries.
5. The Special Rapporteur on the Right to Food has further debunked the “myth” that pesticides are necessary to feed the world, and that their adverse impacts on health and biodiversity are somehow a cost that must be borne by modern society. She states, “Reliance on hazardous pesticides is a short-term solution that undermines the rights to adequate food and health for present and future generations.”[[71]](#footnote-72)
6. In spite of the current and possible future bans on the use of chlorpyrifos to protect health, it is of grave concern that some of these same jurisdictions permit the manufacture of chlorpyrifos for use outside their borders, including countries with weaker, less transparent or essentially non-existent regulatory systems to protect human rights from toxic pesticides. States continue to export banned pesticides, industrial chemicals and chemical mixtures to countries known to have poor records on human rights and environmental protections. This contrasts with European efforts to ban the export of chemicals and devices used in human rights violations, such as the export of chemicals used in the death penalty and torture devices.

D. Plastics

1. The entire lifecycle of plastic production, use and disposal results in adverse impacts on multiple human rights, which can constitute violations and abuses by involved States and businesses. Solving the disastrous situation of toxic plastic waste alone will not solve the problem; plastic pollutes from extraction through disposal. The extraction of natural gas and other feedstocks, the toxic emissions from plastic production facilities, the leachates of toxic chemicals additives in plastics, the exposure of microplastics in water and other media, and “disposal” of waste through incineration, unsound recycling and other means all result in exposure to a myriad of substances because of plastic.[[72]](#footnote-73) Some of these substances have clearly hazardous properties, particularly for young children and the unborn, while many others have inadequate information upon which to determine hazard and risk.
2. Of particular concern are microplastics. As noted by the WHO, “We urgently need to know more about the health impact of microplastics because they are everywhere—including in our drinking-water.”[[73]](#footnote-74) Recent studies have unsurprisingly found microplastics in every person tested. Emerging proposals to restrict microplastic pollution through prevention are positive steps in respecting and protecting human rights.[[74]](#footnote-75)

E. Air pollution

1. A multitude of human rights depend on clean air. As stated by the Parliamentary Assembly of the Council of Europe, clean air is a human right.[[75]](#footnote-76) Air pollution is not simply a problem of particulate matter (PM). It is also a major source of exposure to multiple types of hazardous substances, including heavy metals, pesticides and industrial chemicals. Recent research has demonstrated air pollution affects every organ of the body, with impacts on childhood development and human reproduction, including fertility.[[76]](#footnote-77)
2. As with the right to safe water, the question of an acceptable level of cleanliness is of utmost importance for realizing the human right to clean air. In the case of occupational exposures, “permissible exposure levels” continue to be above standards deemed health protective.[[77]](#footnote-78) The WHO has established guidelines for various air pollutants but most States have not adopted these health protective standards. For example, applying the EU’s target values, 6% of the urban EU population were exposed at levels of concern in 2016. However, applying stricter WHO guidelines reveals 74% of the same population is exposed to concentrations exceeding what the WHO considers “clean.”[[78]](#footnote-79)

F. Heavy metals

1. While many new needs for prevention are emerging, or re-emerging, one that continues to gravely impact people and violate human rights is one of the most unquestionably toxic substances: lead. Hundreds of thousands of people suffer diseases or experience disabilities from lead poisoning everywhere, demonstrating the abysmal level of commitment and determination to prevent exposure by some politicians.
2. In the United States, lead has repeatedly poisoned low-income communities of color. For example, water contamination crises have moved from city to city, from Washington DC, to Flint, to Baltimore, to Chicago, to Newark, among others. From Zambia to Peru, the recalcitrance of States to ensure businesses remediate some worst lead contamination on Earth has caused generation after generation to face life with additional hurdles for learning, education and development. These are only a few of the many cases of lead and other heavy-metal contamination that are poisoning communities globally with exposures that could have been and still remain to be prevented.
3. As is often the case, with time and more information, exposure levels that are considered safe are being adjusted lower and lower. What is considered a “safe” level of lead exposure has been reduced significantly over the past decades. Research suggests that exposures levels that are considered of concern today, are in fact too high and insufficient to prevent impacts on developing children. Currently it is not possible to determine a “safe” level of exposure to lead, among others. As more information and evidence come to light, this will probably the case for more substances. This is why prevention of exposure must be the priority.

IV. Conclusions

1. **Under the shadow of the existential threats of climate change and biodiversity collapse lies another, insidious extinction crisis: the toxification of our planet and our bodies. The proliferation of toxic substances poses a global threat to individuals, communities, and human rights.**
2. **States—not business—have the primary duty to protect people and peoples within their territory or jurisdiction from exposure to pollution and other hazardous substances. The only way to effectively protect against exposure is to prevent exposure. However, most States are not only failing to prevent exposure, they are also failing to acknowledge and understand the catastrophic impacts of their inaction on people both within and outside their jurisdictions. Instead, States are taking regressive steps, going in precisely the wrong direction at a moment when increased, not diminished, ambition is critically needed. Personal autonomy has steadily eroded over decades of industrialization and chemical intensification, to such an extent that even the few people who have information about their exposures have ability to act on it. Few States have had the courage to acknowledge, accept or act on their duty to prevent exposure at the level required to respect, protect and fulfill human rights in the context of toxic exposure.**
3. **Despite an overwhelming recognition by States under national and regional laws that a “healthy” environment is a right, today it is treated as a privilege. Individuals and communities are exposed to a multitude of hazardous substances, the potential adverse effects of which remain unassessed, especially for their combined exposure effect with different substances and for exposure during critical periods of childhood development. This incessant exposure has left most victims suffering diseases or disabilities caused by or related to toxics exposure. They are unable to prove what should be an unquestionable infringement of any number of human rights, while the perpetrators allow further exposures with impunity.**
4. **Simply affixing the prefix “safe” or “healthy” or “clean” or “adequate” will not realize the human rights to water, food, housing or an environment and workplace more generally, unless prevention of exposure to hazardous substances is the norm, rather than the exception. There is a danger that the human rights to safe water, clean air, a healthy environment and safe and healthy work, among others, will be a false promise and never truly realized without concerted efforts to make exposure prevention an urgent priority. This requires ending the delay game of risk assessments and cost-benefit analyses that justify exposure. States have a duty to prevent exposure to hazardous substances. This is a fundamental obligation of governments and required of all States.**

V. Recommendations

1. **States must:**

(a) **Elevate considerably the priority given to efforts to prevent exposure at national, regional and international levels;**

(b) **Adopt laws and policies consistent with their duty under international human rights law to prevent exposure to hazardous substances, protect the most vulnerable and susceptible and prevent discrimination;**

(c) **Prohibit the export of chemicals or production processes that are prohibited from use domestically;**

(d) **Prevent the import of chemicals or production processes that are prohibited in the country from which they are exported;**

(e) **Ensure a strong public interest justification exists for any exposure that can only be reduced—not prevented, as well as incentives for the development of safer alternatives to further reduce exposure;**

(f) **Ensure health and safety information is never confidential. For exposures that are inevitable, the maximum information must be provided to exposed populations, irrespective of cost or benefit;**

(g) **Establish and reinforce mechanisms to ensure that the private sector alerts of and reports on actual or potential exposures, whether pollutant releases or chemicals in products;**

(h) **Include the duty to prevent exposure to hazardous substances in international instruments on environmental and occupational rights, and others as relevant;**

(i) **Ensure liability schemes are sufficient to compel business entities to employ considerable precaution to prevent exposure to hazardous substances as a result of their activities and those to which they are linked.**

1. **States should:**

(a) **Compel businesses, in particular chemical manufacturers, to conduct human rights due diligence for exposures to toxic substances in their activities and those to which they are linked;**

(b) **Evaluate risk-assessment procedures and cost-benefit analyses in full cooperation with National Human Rights Institutions, independent scientists, medical experts, and civil society;**

(c) **Recognize that the human right to a healthy environment is the human right to a non-toxic environment;**

(d) **Actively protect the integrity of science and governance from corruption and conflicts of interest;**

(e) **Cooperate in the generation of and access to information about intrinsic hazards of and exposures to substances;**

(f) **Invest in capacity and technology to better prevent, detect and address toxic exposure-related issues, in particular impacts on children’s and reproductive health in low and middle-income countries, as well as the development of safer alternatives;**

(g) **Accelerate the transition to a circular economy that effectively and equitable designs out negative externalities, including toxic exposures.**

1. **International bodies should:**

(a) **Reevaluate interpretations of Article 7 of ICCPR to discuss the links between exposure to toxics, health impacts and the torturous conditions that persons suffering from related illnesses endure, resulting in an undignified life, coupled with the cruelty of implicit encouragement of the continuation of such exposures, and the degrading situation of having no control over what hazardous substances enter the body;**

(b) **Enhance or expand efforts on human rights and the environment on the subject of human exposure to hazardous substances;**

(c) **The UN General Assembly should recognize the duty of States to prevent exposure to toxic substances in future related resolutions, for example pertaining the sound management of chemicals and the right to a healthy environment;**

(d) **Regional human rights bodies should accelerate action by focusing more strategically on protecting the human rights to bodily integrity in the context of environmental exposures.**

1. \* A/74/50 [↑](#footnote-ref-2)
2. \*\* The present report was submitted after the deadline in order to reflect the most recent developments. [↑](#footnote-ref-3)
3. 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 substances and wastes as “toxics”, and thus the term “toxics” (or “toxic substances”) as used in the report includes non-toxic but hazardous substances and wastes as well. [↑](#footnote-ref-4)
4. In September 2019, the Human Rights Council recognized “the duty of States to prevent unsafe occupational exposure to hazardous substances and the corresponding responsibility of businesses” (A/HRC/42/L.27). [↑](#footnote-ref-5)
5. See A/HRC/39/48. [↑](#footnote-ref-6)
6. A/HRC/RES/24/16, para. 2. [↑](#footnote-ref-7)
7. Every country has recognized either the right to life or the right to the highest attainable standard of health under international human rights law, with most having recognized both. [↑](#footnote-ref-8)
8. Under the UN Guiding Principles on Business and Human Rights, “Where a business enterprise causes or may cause an adverse human rights impact, it should take the necessary steps to cease or prevent the impact.” [↑](#footnote-ref-9)
9. The Lancet <https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(17)32345-0.pdf>. [↑](#footnote-ref-10)
10. Ibid. [↑](#footnote-ref-11)
11. Ibid. [↑](#footnote-ref-12)
12. General comment No. 36 (2018) on article 6 of ICCPR, on the right to life, para 3. [↑](#footnote-ref-13)
13. Ibid. para 18. [↑](#footnote-ref-14)
14. Ibid. para 18. [↑](#footnote-ref-15)
15. Ibid. para 7. [↑](#footnote-ref-16)
16. CESCR, General comment No. 14 (2000) on the right to the highest attainable standard of health, para. 16. [↑](#footnote-ref-17)
17. Ibid., para. 15 [↑](#footnote-ref-18)
18. General comment No. 36 (2018) on article 6 of ICCPR, on the right to life. [↑](#footnote-ref-19)
19. CCPR/C/126/D/2751/2016 Views adopted by the Committee under article 5, paragraph 4, of the Optional Protocol in respect of communication No. 2751/2016, para 7.3 and 7.5 [↑](#footnote-ref-20)
20. Ibid. [↑](#footnote-ref-21)
21. Supra note 22 at paras 7.3, 7.5 and para 7.8. See also *López Ostra v. Spain* (application no. 16798/90). [↑](#footnote-ref-22)
22. Ibid. para 7.3 and 7.5, 7.5 and 7.6. [↑](#footnote-ref-23)
23. Thematic reports of the Special Rapporteur can be consulted here [https://www.ohchr.org/EN/Issues/Environment/ToxicWastes/Pages/Annual.aspx](https://www.ohchr.org/EN/Issues/Environment/SRToxicsandhumanrights/Pages/Annual.aspx) . [↑](#footnote-ref-24)
24. General comment No. 36 (2018) on article 6 of ICCPR, on the right to life, para 9. [↑](#footnote-ref-25)
25. Physical integrity is often used interchangeably with bodily integrity, as it is here. This report uses the term bodily integrity for consistency with the most recent general comment on the right to life. [↑](#footnote-ref-26)
26. See e.g. Rodriguez v. Attorney General of Canada [1994] 2 LRC 136 (majority opinion by Sopinka J at pp 177-178) See also General comment No. 18 (2005) on the right to work, para 7. [↑](#footnote-ref-27)
27. See *People v. Medina*, 705 P 2d 961 (1985). [↑](#footnote-ref-28)
28. E.g. In *Pretty v. United Kingdom* (Application no. 2346/02), ECtHR said “Article 8 protects the physical, moral and psychological integrity of the individual, including rights over the individual's own body” (para. 18). [↑](#footnote-ref-29)
29. Thematic reports of the Special Rapporteur - A/HRC/39/48 and Corr.1, A/HRC/33/41, A/73/567; [https://www.ohchr.org/EN/Issues/Environment/ToxicWastes/Pages/Annual.aspx](https://www.ohchr.org/EN/Issues/Environment/SRToxicsandhumanrights/Pages/Annual.aspx). [↑](#footnote-ref-30)
30. A/HRC/33/41. [↑](#footnote-ref-31)
31. See e.g. *Balmer-Schafroth and Others v. Switzerland.* [↑](#footnote-ref-32)
32. See e.g. *Tatar v Romania* (Application no. 67021/01), paras 69, 120. [↑](#footnote-ref-33)
33. See <http://www.euro.who.int/__data/assets/pdf_file/0003/91173/E83079.pdf>. [↑](#footnote-ref-34)
34. Ibid. [↑](#footnote-ref-35)
35. More information is available at [https://www.ohchr.org/EN/Issues/Environment/ToxicWastes/Pages/LeadContaminationKosovo.aspx](https://www.ohchr.org/EN/Issues/Environment/SRToxicsandhumanrights/Pages/LeadContaminationKosovo.aspx). [↑](#footnote-ref-36)
36. HRAP, para 222 <http://www.unmikonline.org/hrap/Eng/Cases%20Eng/26-08%20NM%20etal%20Opinion%20FINAL%2026feb16.pdf>. [↑](#footnote-ref-37)
37. See for example the case by an employee against PTT Post (Netherlands) to enforce a completely smoke-free environment, where the court found in favor of the employee. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1117988/>. [↑](#footnote-ref-38)
38. <https://www.who.int/hhr/activities/tool%20box%2010069_Smoker.pdf>. [↑](#footnote-ref-39)
39. See e.g. Bruce Lanphear, Low-level toxicity of chemicals: No acceptable levels? (2017). [↑](#footnote-ref-40)
40. In the draft principles proposed by the first UN Special Rapporteur on human rights and the environment, Ms. Fatma Zohra Ksentini, the freedom from pollution was proposed. E/CN.4/Sub.2/1994/9 (6 July 1994). [↑](#footnote-ref-41)
41. CCPR/C/126/D/2751/2016 Views adopted by the Committee under article 5, paragraph 4, of the Optional Protocol in respect of communication No. 2751/2016. [↑](#footnote-ref-42)
42. For similar reasons, a claim that the victim’s bodily integrity was violated is also well founded, in the view of the Special Rapporteur. [↑](#footnote-ref-43)
43. For example, in one of the world’s wealthiest countries, 70% of coal combustion waste is reportedly dumped in low income communities, containing toxic substances linked to cancer, reproductive problems and developmental disorders. A/HRC/38/33/Add.1, para 68. [↑](#footnote-ref-44)
44. A/HRC/33/41. [↑](#footnote-ref-45)
45. Ibid. [↑](#footnote-ref-46)
46. Ibid. [↑](#footnote-ref-47)
47. A/HRC/30/40 para 99. [↑](#footnote-ref-48)
48. Ibid. para 100. [↑](#footnote-ref-49)
49. <https://www.who.int/gho/phe/en/>. [↑](#footnote-ref-50)
50. A/HRC/33/41/Add.1. [↑](#footnote-ref-51)
51. A/HRC/30/20. [↑](#footnote-ref-52)
52. A good example of this is Sweden’s national objective of a non-toxic environment. A/73/567, para. 12. [↑](#footnote-ref-53)
53. A/HRC/36/41 of 2017. [↑](#footnote-ref-54)
54. SEER Cancer Statistics Review 1975-2015 <https://seer.cancer.gov/archive/csr/1975_2015/results_merged/sect_29_childhood_cancer_iccc.pdf>. [↑](#footnote-ref-55)
55. Gray et al. Environmental Health (2017) 16:94 [DOI 10.1186/s12940-017-0287-4](https://link.springer.com/epdf/10.1186/s12940-017-0287-4?author_access_token=b6-UxW35nZ85R-dnhIRXzW_BpE1tBhCbnbw3BuzI2RMO51MaJAxGmjssQSVrSF7G39IenXemj0_NRA7Vc23PJASBuIJJE4jZOyOuXI5k5hRP7Y97HMfU-Xaxg62hpT_c0b8qNNEDvsnf9NN3bT0ruw%3D%3D). [↑](#footnote-ref-56)
56. https://www.aafa.org/asthma-facts/. [↑](#footnote-ref-57)
57. Niels E. Skakkebaek et al., Male Reproductive Disorders and Fertility Trends: Influences of Environment and Genetic Susceptibility, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4698396/>. [↑](#footnote-ref-58)
58. Elisabeth Carlsen et al. [BMJ](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1883354/). 1992 Sep 12 doi: [10.1136/bmj.305.6854.609](https://dx.doi.org/10.1136%2Fbmj.305.6854.609). [↑](#footnote-ref-59)
59. Levine et al (2017) Hum Reprod Update. 2017 Nov; 23(6): 646–659. doi: [10.1093/humupd/dmx022](https://dx.doi.org/10.1093%2Fhumupd%2Fdmx022). [↑](#footnote-ref-60)
60. CEPN members include Apple, Dell, Responsible Business Alliance (RBA), US EPA, Fairphone, Flex; HP, Inc., International Campaign for Responsible Technology (ICRT), Intel Corporation, among others. <http://www.centerforsustainabilitysolutions.org/clean-electronics#cepn-about>. [↑](#footnote-ref-61)
61. [https://static1.squarespace.com/static/558b1fe4e4b00725460da07a/t/  
    5d388ff55d66900001048d8f/1563987957855/CEPN+Poster+for+Print.pdf](https://static1.squarespace.com/static/558b1fe4e4b00725460da07a/t/5d388ff55d66900001048d8f/1563987957855/CEPN+Poster+for+Print.pdf). [↑](#footnote-ref-62)
62. <https://retailerreportcard.com/2018/10/key-findings-2018/#finding1>. [↑](#footnote-ref-63)
63. <http://library.me.go.kr/search/DetailView.ax?cid=5638910> Ministry of Environment of the Republic of Korea, “Establishing disease identification and standards criteria to expand the range of health hazards caused by the humidifier sterilizer” (2017, NIER-SP2016-429). [↑](#footnote-ref-64)
64. Ibid. [↑](#footnote-ref-65)
65. The Government completed investigations of 5,572 out of 6,277 applications by March 2019 and has been providing medical, nursing and living expenses for 798 victims with severe lung injury, foetal damage or asthma. The Government has been also providing medical expenses for 2,010 victims who suffer from interstitial lung disease, pneumonia or bronchiectasis. <https://spcommreports.in.ohchr.org/TMResultsBase/DownLoadFile?gId=34617>. [↑](#footnote-ref-66)
66. <https://pfascentral.org/pfas-basics/>. [↑](#footnote-ref-67)
67. https://www.nrdc.org/experts/erik-d-olson/broken-safe-drinking-water-act-wont-fix-pfas-crisis. [↑](#footnote-ref-68)
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69. https://www.figo.org/statement-glyphosate-removal. [↑](#footnote-ref-70)
70. <https://www.efsa.europa.eu/en/press/news/chlorpyrifos-assessment-identifies-human-health-effects>. [↑](#footnote-ref-71)
71. A/HRC/34/48 para 2 <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G17/017/85/PDF/G1701785.pdf?OpenElement>. [↑](#footnote-ref-72)
72. Plastic & Health, <https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>. [↑](#footnote-ref-73)
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74. <https://www.theguardian.com/environment/2019/jan/30/eu-european-union-proposes-microplastics-ban-plastic-pollution>. [↑](#footnote-ref-75)
75. PACE Resolution 2286 (2019) <http://assembly.coe.int/nw/xml/XRef/Xref-DocDetails-en.asp?FileID=27716&lang=en>. See also A/HRC/40/55. [↑](#footnote-ref-76)
76. <https://journal.chestnet.org/article/S0012-3692(18)32723-5/fulltext#sec7>. [↑](#footnote-ref-77)
77. A/HRC/39/48. [↑](#footnote-ref-78)
78. <https://www.eea.europa.eu/highlights/air-pollution-still-too-high>. [↑](#footnote-ref-79)