



General Assembly

Distr.: General
16 July 2024

Original: English

Seventy-ninth session

Item 71 (b) of the provisional agenda*

Promotion and protection of human rights: human rights questions, including alternative approaches for improving the effective enjoyment of human rights and fundamental freedoms

Implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes

Note by the Secretary-General

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, Marcos Orellana, in accordance with Human Rights Council resolution [54/10](#).

* [A/79/150](#).



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

Gender and hazardous substances

Summary

In the present thematic report to the General Assembly, submitted pursuant to Human Rights Council resolution [54/10](#), the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Marcos Orellana, elaborates on the State's duty to prevent hazardous substances and waste from generating or deepening gendered injustices, especially against women and girls, gender-diverse persons and poor men, and especially when they are from marginalized communities.

Because of weak State regulation, the generation and release of large amounts of hazardous chemicals, often originating from the petrochemical, extractive and agricultural industries, is causing serious adverse impacts on human rights. Resulting gender- and sex-related health harms from exposure to hazardous substances include infertility, miscarriage, stillbirth, premature birth or low birthweight, cancers and metabolic disorders across society, with grave implications for the rights to health, to family life, to physical and mental integrity and to a clean, healthy and sustainable environment.

Many women and girls are especially affected by toxic exposures for biological reasons but also because they do more caregiving work. Governments should better resource maternal and other reproductive health services using a reproductive justice framework and improve social and environmental determinants of health.

I. Introduction

1. A planetary chemical crisis of unprecedented proportions is inflicting harm to countless individuals and communities, causing and deepening injustices in who can live healthy lives, reproduce and have healthy newborns and who cannot. Over the past seven decades, as industry has exponentially increased its use and release of hazardous substances,¹ the prevalence of multiple chronic health conditions and deaths from chemical pollution has escalated globally.² At the same time, there is a troubling paucity of data, particularly broken down by sex and gender.

2. A human rights-based approach to confront the global toxic tide is indispensable. It calls for scrutinizing not only direct impacts on individuals but also inequities affecting persons and groups that suffer disproportionate impacts because of marginalization, persecution and colonization and, additionally or specifically, due to their sex or gender.

3. While “sex” refers to the different biological and physiological characteristics of female, male and intersex persons, such as chromosomes, hormones and reproductive organs, “gender” refers to the characteristics of women, men, girls and boys that are socially constructed. This includes norms, behaviours and roles associated with being a woman, man, girl or boy, as well as relationships with each other. As a social construct, gender varies from society to society, is better understood as a spectrum rather than a binary and can change over time.³

4. There is an alarming and growing body of science on how both legacy and modern chemicals are damaging people in gendered and sexed ways. Activists, public health officials and scientists have been ringing alarm bells about potential and known harms from hazardous substances, including those recently found in testes,⁴ sperm,⁵ newborns,⁶ placentas,⁷ blood⁸ and breast milk.⁹

5. Hazardous chemicals threaten human reproduction. The sexed and gendered process of creating and sustaining new humans is dependent on the right to a toxic-free environment, which is part of the right to a clean, healthy and sustainable environment. Chemicals are linked to male and female subfertility and infertility, miscarriage, stillbirth, adverse birth outcomes, neurological and multi-system impacts on children, cancer and disability.

6. Maternal exposures can harm the fetus and affect lifelong health of both the birthing person and offspring. Children have a higher metabolism, critical periods of rapid growth and development, immature immune and detoxification systems and a proportionately higher intake of air, water and food compared with their body weight. This makes them uniquely vulnerable to environmental exposures that can lead to long-lasting impacts on cognitive function, behaviour and overall health.

¹ United Nations Environment Programme (UNEP), *Global Chemicals Outlook II: From Legacies to Innovative Solutions* (2019).

² Submission, University of California San Francisco.

³ On global diversity of genders, see https://www.pbs.org/independentlens/content/two-spirits_map-html/; see also https://www.ohchr.org/sites/default/files/GenderIdentityReport_SOGI.pdf.

⁴ See <https://academic.oup.com/toxsci/advance-article-abstract/doi/10.1093/toxsci/kfae060/7673133>.

⁵ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9986484/> and <https://www.sciencedirect.com/science/article/abs/pii/S0048969724036696>.

⁶ See <https://obgyn.ucsf.edu/news/toxic-chemicals-pregnant-women-and-their-newborns>.

⁷ See <https://academic.oup.com/toxsci/article/199/1/81/7609801>.

⁸ See [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(23\)00106-7/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(23)00106-7/fulltext).

⁹ See <https://pubs.acs.org/doi/10.1021/acs.est.0c06978>.

7. Some hazardous chemicals also have transgenerational effects, raising sobering issues of intergenerational equity.¹⁰ Once a chemical enters the body, it increases the risk of the chemical also affecting future generations. Caregivers, mostly women, are expected to protect their pregnancy health and children, even when this is unrealistic or impossible. Harms accumulate in marginalized communities, worsening maternal and newborn health but also deepening unjust inequities between groups.

8. In the face of the growing gendered impacts of toxics, the right to information is key for society to take preventative actions. However, this right can only go so far. Information alone essentially shifts a heavy or even impossible burden to women, who are both celebrated and, in sexist ways, marginalized as caretakers. Only stronger national and international regulations can halt the flow of harmful chemicals into our environment and bodies.

9. Sex differences often create specific vulnerabilities to toxic exposures. For example, endocrine-disrupting chemicals, many sourced from petrochemicals, contribute to globally rising rates of painful but underdiagnosed diseases affecting female reproductive systems.¹¹ Endocrine-disrupting chemicals are also associated with higher rates of undescended testes in newborns and male urethra anomalies. Moreover, emotional devastation following infertility or stillbirth is ignored.¹²

10. The insidious ways in which industrial chemicals have entered, been stored in or altered human bodies concern bodily autonomy and integrity. The failure to address environmental violence from toxics is reminiscent of past and current failures of Governments to stop actors that attempt to control women's and girls' bodies.

11. Chemicals can no longer be a fringe issue in women's rights or sexual and reproductive health and rights. Feminists and other activists, including those of African descent, Indigenous activists and disability rights activists, among others, have provided paths forward for societies to end industrial damage and instead recentre reproductive justice, protection and care. Many important movements and institutions are needed to apply a rights-based approach to toxics and drive the deep shift from extraction and economic growth to valuing all bodies and environments equally, including if damaged by injustices. Far greater engagement from public health workers, providers and advocates working to improve maternal and newborn health, child health and sexual and reproductive health and rights is needed to end toxics undermining health goals.

12. The present report is informed by a broad consultative process in which the Special Rapporteur solicited and received input from Member States, international organizations, non-governmental organizations, Indigenous Peoples, national human rights institutions and academics.¹³ The Special Rapporteur also organized consultations in March 2023 and 2024 at the sessions of the Commission on the Status of Women, in February at the United Nations Environment Assembly, and three online consultations in April and May. The Special Rapporteur is grateful to those who shared their expertise, insights and perspectives in their written comments and at online meetings.

¹⁰ The principle of "intergenerational equity" holds that, to promote prosperity and quality of life for all, the needs of today's generations should be met without compromising the ability of future generations to meet their own needs. See Edith Brown Weiss, *In Fairness to Future Generations* (1989).

¹¹ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8835285/> and <https://www.frontiersin.org/journals/endocrinology/articles/10.3389/fendo.2023.1324993/full>.

¹² See <https://obgyn.onlinelibrary.wiley.com/doi/10.1111/1471-0528.17687>.

¹³ Submissions available at <https://www.ohchr.org/en/calls-for-input/2024/call-inputs-gender-and-toxics>.

II. Socioeconomic gendered intersections and vulnerabilities

A. Poverty, gender and toxic exposures

13. People living in poverty experience disproportionate harm from toxics. Industry and other sources of heavy pollution are often placed closer to poor communities, which are often exposed to multiple socioeconomic stressors that compound to degrade human health. Reliance on economic growth has failed miserably in addressing these challenges.¹⁴

14. Poverty is feminized.¹⁵ Gender oppression, whereby Governments and society treat women and girls as less worthy of education and an equal role in commerce, has created a yawning income and wealth gap. Globally, while 90 per cent of men at prime working age are in the labour force, only 63 per cent of women are,¹⁶ and countries lose \$160 trillion in wealth every year because of inequities in lifetime earnings between women and men.¹⁷

15. Despite some advancements, no country has achieved equality between men and women. Women and girls face discrimination in all spheres of their lives, frequently starting within their families and communities. The world is experiencing an escalating gender backlash, of extreme proportions in certain countries, including gender apartheid.¹⁸ So-called “anti-gender” government policies and movements that seek to return societies to patriarchal norms have also increasingly targeted LGBTQ+ people and gender minorities.¹⁹ In some countries, the same politicians have also rolled back environmental protections.

16. Poverty and patriarchy together often result in fewer girls and women having access to education. This limits girls’ and women’s knowledge and ability to protect themselves and advocate for safer working conditions.²⁰ These disadvantages may also have an impact on people who hold minority genders, or people who cannot or do not want to meet gendered expectations assigned to them.²¹

17. In a recent report of the United Nations Children’s Fund (UNICEF), it was noted that growing poverty was a major contributor to global undernutrition, micronutrient deficiencies and anaemia in adolescent girls and women.²² A person with low body-iron-stores absorbs lead, a neurotoxicant, and cadmium, a carcinogen that can devastate respiratory, kidney and other organs and systems, at far greater rates than someone with high iron stores.²³ Menstruation and pregnancy corrode iron stores. Moreover, patriarchies mean that men and boys in some places are regularly given better food and have better food security. An estimated 30 per cent of women around the world are anaemic.²⁴ This is a colossal public health failure. Iron supplementation

¹⁴ See [A/HRC/56/61](#).

¹⁵ See <https://press.un.org/en/2024/sgsm22152.doc.htm>.

¹⁶ See <https://www.unwomen.org/en/news-stories/press-release/2024/03/1-in-every-10-women-in-the-world-lives-in-extreme-poverty>.

¹⁷ See <https://www.worldbank.org/en/news/press-release/2018/05/30/globally-countries-lose-160-trillion-in-wealth-due-to-earnings-gaps-between-women-and-men>.

¹⁸ See <https://www.ohchr.org/en/documents/thematic-reports/ahrc5651-escalating-backlash-against-gender-equality-and-urgency>.

¹⁹ See <https://www.ohchr.org/en/special-procedures/ie-sexual-orientation-and-gender-identity>.

²⁰ Submission, children and youth major group to UNEP.

²¹ Submission, Citizen Outreach Coalition; see [A/74/181](#).

²² UNICEF, *Undernourished and Overlooked: A Global Nutrition Crisis in Adolescent Girls and Women*, UNICEF Child Nutrition Report Series (New York, 2023).

²³ United Nations Development Programme (UNDP), “Chemicals and gender”, February 2011, p. 4.

²⁴ UNICEF, *Undernourished and Overlooked*.

is a relatively straightforward pro-poor, pro-women and low-cost intervention.²⁵ In addition, bone lead stores are mobilized in pregnancy and lactation, which can be harmful to the fetus or baby.²⁶

18. Stress associated with poverty is a medical phenomenon with growing corrosive force in human well-being. Stress can make at least some pollutants more harmful.²⁷ Social stress is often higher in communities facing elevated levels of toxic waste or other pollutants.²⁸ Social stress, understood as physical and psychological strain from relationships and the social environment, is highly gendered.²⁹ It is also related to social status and being accepted by family and community. This is a major challenge for anyone who steps outside oppressive gendered roles or expectations or defies gendered power structures.

B. Place, gender and toxic exposure

19. Polluting industry, such as waste incinerators and petrochemical complexes, and landfills and informal waste recycling centres are often sited closer to the homes of low-income people, especially if they are also from a marginalized race, caste or other group. Gendered and sexed impacts are often underrecognized, even when environmental injustice facing a whole community is acknowledged.

20. Despite its high income, the United States of America has seen recent increases in rates of premature birth.³⁰ As with low birthweight, rates are twice as high for women of African descent,³¹ who face medical racism and other reproductive health disadvantages, than for white women.³²

21. Systemic racism has disproportionately sited heavy industry near low-income communities of African descent in Louisiana, including in the area known as “Cancer Alley”.³³ A study³⁴ found that more than 2,000 of the nearly 6,000 cases of low birthweight in Louisiana each year were attributable to toxic air pollution, along with over 3,500 of the nearly 7,000 cases of preterm birth. An additional estimated 1,200 cases of low birthweight and 1,700 cases of preterm birth were linked to the effects of social deprivation in very-low-income, Black neighbourhoods. As a result of these combined risks, neighbourhoods that were polluted, low-income and Black had an extremely high risk of adverse birth outcomes, with premature birth rates as high as 25 per cent and rates of low birthweight as high as 27 per cent, corresponding to between two and three times the United States average.

22. Homes are major sites of toxics exposures, and because of gendered expectations women spend more time in the home than men. Women and children disproportionately bear the greatest health burden from polluting fuels and technologies in homes, as

²⁵ See <https://www.figo.org/resources/figo-statements/iron-deficiency-and-anaemia-women-and-girls>.

²⁶ See <https://www.endocrine.org/-/media/endosociety/files/advocacy-and-outreach/important-documents/introduction-to-endocrine-disrupting-chemicals.pdf>.

²⁷ See <https://link.springer.com/article/10.1007/s40572-017-0165-9> and <https://pubmed.ncbi.nlm.nih.gov/31616048/>.

²⁸ See <https://www.atsjournals.org/doi/full/10.1164/rccm.201106-1139ED>.

²⁹ See <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2021.640454/full>.

³⁰ See <https://www.cdc.gov/nchs/data/vsrr/vsrr035.pdf>.

³¹ Ibid.

³² Kimberly A. Terrell, Gianna N. St. Julien and Maeve E. Wallace, “Toxic air pollution and concentrated social deprivation are associated with low birthweight and preterm birth in Louisiana”, *Environmental Research: Health*, vol. 2, No. 2 (2024).

³³ Submission, Human Rights Watch, and submission, Amnesty International. See also <https://news.un.org/en/story/2021/03/1086172>.

³⁴ Terrell, St. Julien and Wallace, “Toxic air pollution”.

they typically labour over household chores such as cooking and collecting firewood and spend more time exposed to harmful smoke from polluting stoves and fuels.³⁵

23. Groups that do not conform to heteronormative gender rules may be discriminated against, including with regard to access to quality housing, areas with less air pollution,³⁶ or green spaces, for example.³⁷

24. In 2021, exposure to air pollution, 70 per cent of it indoor air pollution, was linked to more than 700,000 deaths of children under 5 years old, making it the second leading risk factor for death globally for this age group, after malnutrition. Many of the deaths were caused by exposure of pregnant people in Africa and Asia.³⁸ Globally 34 per cent of preterm births in 2021 were linked to air pollution. Preterm survivors face lifelong health consequences, disabilities and developmental delays. The inequities linked to the impact of air pollution on child health are striking. The air pollution-linked death rate in children under the age of 5 in countries in East, West, Central and Southern Africa is 100 times higher than in their counterparts in high-income countries.³⁹

25. Much home-based work is unpaid caregiving work. Even with paid work, however, more women than men are home-based workers globally; women's share is 57 per cent compared with 43 per cent for men.⁴⁰ In communities in Mexico, women and their children live and work with lead in manufacturing home-based pottery. Insecurity related to narcotrafficking makes leaving homes or finding alternative sources of employment difficult for these women.

C. Work, gender and toxic exposure

26. Much about paid work, including power hierarchies and discrimination, is gendered. Around one in five workers experiences violence and harassment at work, but women are more likely to report sexual violence. Women who are migrants are twice as likely as non-migrant women to report sexual violence and harassment.⁴¹

27. Some 2 million people die each year from workplace-related illnesses and accidents, and 1.1 million of those deaths are caused by hazardous substances alone (around 2,900 a day).⁴² Countless other victims suffer from sometimes lifelong disease and disability. Chemical exposures can have specific health impacts depending on the worker's gender or sex.

28. In many countries with electronic manufacturing sectors, occupational safety often falls short, particularly with regard to specific vulnerabilities to female health, including reproductive health.⁴³ A single electronic product may include up to 1,000 chemicals, some of which were identified as carcinogens, mutagens or reproductive

³⁵ See <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>.

³⁶ See <https://www.sciencedirect.com/science/article/abs/pii/S027795361730521X>.

³⁷ Leo Goldsmith and Michelle L. Bell, "Queering environmental justice: unequal environmental health burden on the LGBTQ+ community", *American Journal of Public Health*, vol. 112, No. 1 (January 2022).

³⁸ See <https://www.unicef.org/press-releases/air-pollution-accounted-81-million-deaths-globally-2021-becoming-second-leading-risk>.

³⁹ Health Effects Institute, *State of Global Air 2024: Special Report* (Boston, 2024).

⁴⁰ See <https://www.ilo.org/media/388466/download>.

⁴¹ International Labour Organization, *Experiences of Violence and Harassment at Work: A Global First Survey* (Geneva, 2022).

⁴² See <https://www.who.int/news/item/17-09-2021-who-ilo-almost-2-million-people-die-from-work-related-causes-each-year> and <https://www.ilo.org/resource/news/ilo-welcomes-new-global-measures-addressing-workplace-hazardous-chemicals>.

⁴³ GoodElectronics submission.

toxics, with a significant portion unassessed for health impacts.⁴⁴ In the Republic of Korea, for example, patriarchal systems have resulted in many young female employees in the electronics sector, where they have received less information about toxic substances than more senior and male colleagues and are expected to not complain.⁴⁵ Grave concerns have arisen regarding leukaemia and lymphoma among semiconductor workers, especially young women.⁴⁶

29. In Indonesia, Kenya, Kyrgyzstan, Nigeria and Tunisia, for example, female workers in the waste management sector are heavily exposed to dioxins and furans emitted from burning waste. These substances have varied health impacts, including severe adverse impacts on hormone systems.⁴⁷ Some women have complained of extremely long and heavy menstrual bleeding.⁴⁸

30. A range of industrial chemicals can alter sperm shape and motility, sexual performance and male hormones.⁴⁹ Damaged sperm can result in infertility, miscarriage or birth defects. A study of male workers at a solid waste incinerator in Nigeria found that they had significantly lower levels of testosterone.⁵⁰

31. Workplaces are often designed for men. Personal protective equipment, for example, is often designed for men, making it ill-fitting and therefore less effective for women workers.⁵¹ In patriarchal systems, unionization can be harder for women, and unions can fail to address harms specifically faced by women or gender minorities.⁵²

32. Some forms of paid work are considered “women’s work”, such as those involving handling hazardous substances. Some of these chemicals have specific impacts on female reproductive systems.⁵³ Cleaning offices and houses is considered women’s work in many countries and is often the only work that low-income or migrant women can do.

33. Cleaning chemicals are often underregulated, even when their harm is known. The perfume chemical lilyal is a reproductive toxicant but is widely used in laundry products, air fresheners, multipurpose cleaners, glass cleaners and carpet deodorizers. Another fragrance chemical, lylal, is banned from cosmetic products in the European Union because it is a potent skin allergen. However, lylal is found in numerous

⁴⁴ See <https://doi.org/10.1002/0471125474.tox170> and submissions from GoodElectronics, SHARPS, Electronics Watch, International Campaign for Responsible Technology and Safe Jobs Healthy Families.

⁴⁵ SHARPS submission; see <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0123679>.

⁴⁶ See <https://doi.org/10.1179/1077352512Z.00000000019>.

⁴⁷ See <https://www.who.int/news-room/fact-sheets/detail/dioxins-and-their-effects-on-human-health>.

⁴⁸ See <https://www.wecf.org/brs-gender-and-chemicals/> and submission from Women Engage for a Common Future (WECF).

⁴⁹ International Labour Organization, *Exposure to Hazardous Chemicals at Work and Resulting Health Impacts: A Global Review* (Geneva, 2021).

⁵⁰ Patsiri Sriwieng, Pensri Watchalayann and Warawut Suadee, “Occupational health risk assessment of municipal solid waste incinerator workers”, *Science, Engineering and Health Studies*, vol. 16 (2022).

⁵¹ Submission, International Pollutants Elimination Network.

⁵² Submission, Solidarity Center and Asian Network for the Rights of Occupational and Environmental Victims. Submission, GoodElectronics. See also, for example, <https://www.ilo.org/resource/news/ilo-supports-development-women-trade-union-leaders-garment-industry>.

⁵³ Submission, Women’s Voices for the Earth, and joint submission, Alliance for Cancer Prevention, Women’s Environmental Network and From Pink to Prevention. See also Gian Carlo Di Renzo and others, “International Federation of Gynecology and Obstetrics opinion on reproductive health impacts of exposure to toxic environmental chemicals”, *International Journal of Gynaecology and Obstetrics*, vol. 131, No. 3 (December 2015).

cleaning products in the United States, for instance in laundry products and air fresheners.⁵⁴

34. Paid caretaking work is often seen as an extension of what women do “naturally”, or of work that they do for free,⁵⁵ so it is undervalued and sometimes hazardous. For example, nursing, which is dominated by women, can expose workers to chemicals used to treat patients, clean equipment or fix tissue specimens.⁵⁶

35. Chemicals are also prevalent in other female-dominated workplaces, such as hairdressers and nail salons, where workers are exposed daily to hazardous chemicals. Examples include methyl methacrylate, a dermal toxic and respiratory irritant, used in artificial nail products; toluene, a reproductive toxic that may adversely influence the nervous system; and dibutyl phthalate, a suspected endocrine disruptor. Nail salon workers have been found to have higher phthalate levels than the general population. Studies have shown a positive association between phthalate exposure levels and adverse reproductive outcomes such as preterm birth.⁵⁷

36. Where occupational protections based on gender or sex regarding toxics exist, these can exclude or discriminate against women or pregnant or breastfeeding people, who are sometimes banned from work to protect fetuses or babies. Discrimination based on pregnancy is a global women’s rights issue because many countries have no or poor protections to prevent the firing of women for being pregnant, or other forms of discrimination against women.⁵⁸ In 1981 DuPont’s response to studies showing birth defects in rats resulting from a PFAS (for per- and polyfluoroalkyl substances) chemical and a worker giving birth to a baby with a birth anomaly was to transfer women out of a factory, rather than to stop producing a toxic chemical now present in the blood of almost all people in the world.⁵⁹

37. Gendered expectations about men, often poor or marginalized men, are leveraged to make them perform dangerous work with hazardous substances without complaint. Machismo or a macho culture in parts of the extractive industry is used to undermine men’s legitimate worries about toxic pollution in their own or in others’ bodies and land. In the United States, for example, workers, mostly male, who clean up thousands of tons of hazardous wastes from fracking are exceptionally underprotected because waste from oil exploration and production is “exempt from regulation as hazardous waste”.⁶⁰

38. In Lahore, Pakistan, Christian men are reportedly used for deadly and degrading work in sewers, including diving into water filled with effluent and other waste to free blockages of trash. Local government policies, including advertising the jobs for

⁵⁴ Submission, Women’s Voices for the Earth. Lylal is also known as hydroxyisohexyl 3-cyclohexene carboxaldehyde, and lilyal is also known as butylphenyl methylpropional.

⁵⁵ World Health Organization (WHO), *Fair Share for Health and Care: Gender and the Undervaluation of Health and Care Work* (Geneva, 2024).

⁵⁶ See <https://www.nursingworld.org/practice-policy/work-environment/health-safety/hazardous-chemicals/> and <https://www.cdc.gov/niosh/topics/healthcare/chemical.html>.

⁵⁷ Submission from Women’s Voices for the Earth.

⁵⁸ On countries with no or poor pregnancy discrimination laws, see <https://blogs.worldbank.org/en/developmenttalk/38-countries-women-can-still-be-fired-being-pregnant>. See also principles 1, 2, 3 and 12 of the principles on the protection of workers from exposure to toxic substances, available at <https://www.ohchr.org/en/special-procedures/sr-toxics-and-human-rights/principles-protection-workers-exposure-toxic-substances>.

⁵⁹ See <https://www.ewg.org/news-insights/news/epa-chemical-safety-nominee-aided-dupont-teflon-scandal>.

⁶⁰ See <https://www.epa.gov/hw/special-wastes>; and Justin Nobel, *Petroleum-238: Big Oil’s Dangerous Secret and the Grassroots Fight to Stop It* (Hudson, New York, Karret Press, 2024).

“non-Muslims only”, deepen this discrimination, with deadly consequences for the workers.⁶¹

39. Patriarchal systems mean that women have less decision-making power and influence in highly toxic industries, such as the fossil fuel industry and chemical industries, which are male-dominated across industry hierarchies, even though harms along the whole cycle of fossil fuels often fall hardest on women, especially in marginalized communities.⁶²

40. Reproductive harms are usually not included in environmental assessments for new industry. Similarly, such assessments fail to examine how new pollution will add to cumulative health impacts for already marginalized communities, whose members may already have higher rates of premature births, for instance. However, Canada has required the assessment of foreseeable gender impacts for new mining or industry projects.⁶³

1. Gendered harms from industrial agriculture

41. Pesticides and chemical-based farming dramatically undermine women’s power regarding their roles as food producers, caretakers of biodiversity and seed keepers. Furthermore, in many countries the use of costly pesticides and commercial seeds has augmented women’s poverty.⁶⁴

42. There are many examples of women’s regenerative cultural work being curtailed by pollution and industrial pesticides. However, many women Indigenous activists, for example, continue to forge paths for reviving environmental care in a world deeply changed, perhaps for many generations or even permanently, by synthetic chemicals and other pollutants.⁶⁵

43. Although many industrially produced pesticides are known to be hazardous to human health and the environment, their use has increased exponentially.⁶⁶ For example, Argentina used 30 million litres of pesticides in 1993 but currently uses 500 million litres each year,⁶⁷ including 126 pesticides that the Food and Agriculture Organization of the United Nations considers highly hazardous. In Brazil, where a quarter of the world’s pesticides are used, 195 pesticides still in use are banned in the European Union.⁶⁸ Some countries, while banning the use of pesticides in their

⁶¹ Submission, International Dalit Solidarity Network and Center for Law and Justice.

⁶² Women’s Earth and Climate Action Network, *Gendered and Racial Impacts of the Fossil Fuel Industry in North America and Complicity Financial Institutions*, 3rd ed. (2023). See <https://www.iea.org/topics/energy-and-gender>. On average, there are 76 per cent fewer women than men working in the energy sector, a significant difference from the average 8 per cent gap seen in the total workforce, according to 2018 data from 29 countries (including 22 International Energy Agency members). See <https://www.sciencedirect.com/science/article/abs/pii/S2214790X21000277>.

⁶³ See <https://www.canada.ca/content/dam/iaac-acei/documents/research/Gender-Based-Analysis-Plus-Preparedness-Canadian-mining-sector.pdf>. Canada also considers sex- and gender-specific harms when deciding which pesticides are safe to use. Submission, International Pollutants Elimination Network. See also <https://www.canada.ca/en/health-canada/services/consumer-product-safety/reports-publications/pesticides-pest-management/fact-sheets-other-resources/sex-and-gender-based-considerations-in-the-scientific-risk-assessment-of-pesticides-in-canada.html>.

⁶⁴ See <https://panap.net/2022/03/women-pesticides-and-land-towards-gender-equality-and-sustainability/>.

⁶⁵ See <https://wela.org.au/gender-climate-report/>.

⁶⁶ Submission, Pesticide Action Network Latin America, Javier Souza Casadinho. See also Food and Agriculture Organization of the United Nations (FAO), *World Food and Agriculture: Statistical Yearbook 2023* (Rome, 2023): “[Global] pesticide use went up 62 per cent between 2000 and 2021, with the Americas accounting for half the use in 2021”.

⁶⁷ FAO, *World Food and Agriculture*, annex 4, table 13.

⁶⁸ Submission, Associação Brasileira de Saúde Coletiva.

territory due to health and environmental hazards and risks, still allow their production for export to other countries.

44. This discriminatory and exploitative practice involves the export of reproductive toxics. Atrazine, associated with premature birth and birth anomalies, has been prohibited for use within the European Union since 2004. Glyphosate, a probable carcinogen according to the World Health Organization (WHO),⁶⁹ has faced restrictions or bans in several countries. However, pesticides or chemicals containing the active ingredients of atrazine and glyphosate are still shipped to and used in many countries.⁷⁰

45. Women make up roughly 60 to 70 per cent of the agricultural labour force in developing countries where pesticides and pesticide handling are especially poorly regulated.⁷¹ In Zambia, for example, two thirds of the labour force is engaged in agriculture, and 78 per cent are women farmers and peasants. Women there play a significant role in pesticide application, often without any or adequate personal protective equipment, especially during activities such as weeding, harvesting, and washing pesticide-laden clothes.⁷²

46. In higher-income countries, women who do agricultural work are often poor and/or migrants; pesticides are one of many dimensions of marginalization and damage to their well-being. The European agriculture sector uses many seasonal and migrant women from Northern Africa, for example. Strawberries have some of the highest pesticide residues in the European Union, and women working with strawberries have also reported trafficking and sexual abuse.⁷³

47. Some of the most serious impacts of exposure to pesticides concern female reproductive health damage.⁷⁴ Exposures to hazardous pesticides during pregnancy can cause miscarriages, premature births, birth anomalies and low birthweight.⁷⁵ In one study in Argentina, women exposed to chlorpyrifos experienced miscarriage at 4.7 times the rate of other women.⁷⁶ Men also face reproductive damage from pesticides, for example reductions in sperm quality.⁷⁷ A recent Brazilian study found that pesticides generated a wide spectrum of reproductive health problems, such as male and female infertility, endocrine disruption, some types of cancer, germ cell mutations, damage to pregnancy and fetal development, effects on child development and puberty and transgenerational effects, among others.⁷⁸

48. Glyphosate is an example of how one toxic can cause multiple harms to reproductive health, including pregnancy, with implications for child health and children's future reproductive health. Exposure is associated with fertility disorders in women and an increase in the rate of spontaneous abortions and premature births, low birthweight, disabilities, infections or even death.⁷⁹

⁶⁹ The International Federation of Gynecology and Obstetrics has called for a global ban (see <https://www.figo.org/removal-glyphosate-global-usage>).

⁷⁰ See <https://br.boell.org/sites/default/files/2023-12/atlas-do-agrotoxico-2023.pdf> (in Portuguese).

⁷¹ See <https://eu.boell.org/en/PesticideAtlas-gender>.

⁷² Submission, FIAN International Zambia.

⁷³ Submission, WECF.

⁷⁴ Submission, Center for Reproductive Rights. See <https://enveurope.springeropen.com/articles/10.1186/s12302-022-00638-8>.

⁷⁵ See <https://www.beyondpesticides.org/resources/pesticide-induced-diseases-database/birth-defects>.

⁷⁶ Submission, National University of Rosario.

⁷⁷ See <https://onlinelibrary.wiley.com/doi/10.1111/andr.13228>.

⁷⁸ See <https://abrasco.org.br/wp-content/uploads/2024/05/Saude-Reprodutiva-e-a-Nocividade-dos-Agrotoxicos-Abrasco-2024-1.pdf> (in Portuguese).

⁷⁹ Fundación Médicos Colegiados and others, "Perfil de salud reproductiva en comunidades expuestas a plaguicidas en la región agroindustrial de la Provincia de Santa Fe" (Reproductive health profile in communities exposed to pesticides in the agro-industrial region of the Province of Santa Fe), 2023.

49. Cases of Colombian women who claim harm resulting from glyphosate's reproductive toxicity have been presented to the inter-American human rights system.⁸⁰ Yaneth Valderrama was four months pregnant when she was sprayed with glyphosate, miscarried two days later, and died a few months later. Doris Alape went into labour early after drinking water that had been contaminated following a glyphosate fumigation. Other women in her community also suffered miscarriages.

2. Gendered harms from care work

50. Human and environmental well-being, and the global economy, is dependent on caregiving work, often unpaid or underpaid, greatly feminized and undervalued, invisible, unacknowledged and generally unregulated. The International Labour Organization has noted that unpaid domestic and caregiving work would equal a substantial portion of global gross domestic product if given an equivalent monetary value, exceeding 40 per cent in some countries.⁸¹ Women make up 67 per cent of the paid global care and health workforce, and 76 per cent of unpaid caregiving work is done by women.⁸² Caregiving work also directly exposes women and girls to toxics.

51. Caregiving work has been considered part of the “green” economy. Feminists and others have suggested that better resourcing of caregiving work could be part of a sustainable economic system that supports the right to a clean, healthy and sustainable environment.⁸³

52. Cultural constructs often impose responsibilities on women for protecting their fetuses, children and family members from toxics. While this appears part of a meaningful protective role, it involves major health risks. Harms from some toxics, such as lead and mercury, can have extreme and lifelong impacts on children. Young children, who are small and have thinner skin, are especially vulnerable for many reasons.⁸⁴ They are still developing, live closer to the ground, and often put their hands and objects in their mouths.

53. The idea that pregnant people, mothers or other carers can provide adequate protection for children or other dependants is deeply flawed. It suggests that walls can be established between people and their environments and ignores the ubiquitous presence of hazardous substances.⁸⁵ Filtering toxics away from loved bodies is urgent but also overwhelming and draining work, as harmful substances are everywhere and invisible.⁸⁶

54. Despite this, securing protection of oneself or those under one's care is often a privilege. For most people, a lack of resources, knowledge or power often means exposure to hazardous substances. Information about chemicals may be inaccessible, including because of gendered education barriers, disinformation tactics by certain industries, or inadequate labelling of products. All this underscores the vital need for government policies that advance the right to science, including application of precautionary measures in the face of scientific uncertainties and gaps in knowledge.⁸⁷

⁸⁰ Center for Reproductive Rights, “Salud reproductiva y glifosato en el contexto de conflicto armado” (Reproductive health and glyphosate in the context of armed conflict), 2020.

⁸¹ See <https://ilostat.ilo.org/topics/unpaid-work/measuring-unpaid-domestic-and-care-work/>.

⁸² WHO, *Fair Share for Health and Care*.

⁸³ See <https://www.unwomen.org/en/news-stories/explainer/2023/11/unpacking-the-care-society-caring-for-people-and-the-planet>.

⁸⁴ See A/HRC/33/41.

⁸⁵ See <https://catalystjournal.org/index.php/catalyst/article/view/32089/26035>.

⁸⁶ See, for example, https://ipen.org/sites/default/files/documents/chlorinated_paraffins_report-102023.pdf.

⁸⁷ See A/HRC/48/61.

55. Knowledge without the means to afford protection from exposure can create maternal helplessness, self-blame, guilt and anxiety. In a study of PFAS contamination in Italy, “mothers ... live with the inner anguish of their awareness that they had passed on PFAS to their children during pregnancy and breastfeeding”. Because of gendered expectations, mothers in the study were more invested than fathers in caring for offspring and experienced a greater psychological impact.⁸⁸

56. Advocacy by non-governmental organizations that targets poor government regulation at times also inadvertently places additional responsibility on mothers to buy products marketed as being safer.⁸⁹ This can exclude poorer carers from new “norms” of good parenting that require “precautionary consumerism”.⁹⁰ Expectations of what constitutes a “good mother” vary but can bring about misery in women’s lives.

57. In addition, spending limited resources may not be successful in reducing exposure to harm. “Regrettable substitutions”, whereby products advertise being free from one toxic but contain an equally or more dangerous alternative, are all too common.⁹¹ For example, bisphenol A, a partly regulated endocrine disruptor,⁹² has been replaced in some baby bottles with bisphenol S, which may be equally or even more harmful.⁹³

58. Women’s caregiving work may be increased if family members are disabled, fall sick or are otherwise negatively affected because of toxics, and especially when families get no or paltry support from government social protections. In one Norwegian study cohort, children whose mothers had high levels of phthalates in the urine while pregnant with them had three times the odds of being diagnosed with attention deficit hyperactivity disorder.⁹⁴ Another United States study has concluded that phthalates should be banned, given evidence of impact from exposure of pregnant people to their children’s risk of attention, learning and behavioural disorders.⁹⁵ Phthalates are endocrine disruptors also associated with changes to fertility, early puberty and risk of low birthweight, obesity, diabetes, impacts to the immune system, cardiovascular and respiratory problems, and some cancers.⁹⁶

59. In some Alaskan Indigenous cultures, crucial care work within women’s responsibilities extends to transmitting cultural practices inextricably linked to care of the natural environment. This work makes them vulnerable to absorbing environmental contaminants, which are increasingly affecting their health and livelihoods.⁹⁷ Alaska Native women aged 40 to 49 years are nearly twice as likely as white women of the same age range to die of breast cancer.⁹⁸

⁸⁸ Submission, Marialuisa Menegatto and Adriano Zamperini.

⁸⁹ See <https://www.journals.uchicago.edu/doi/full/10.1086/699340>.

⁹⁰ See <https://journals.sagepub.com/doi/abs/10.1177/0891243214529842>.

⁹¹ See <https://www.hsph.harvard.edu/news/hsph-in-the-news/harmful-chemicals-removed-from-products-often-replaced-with-something-as-bad-or-worse/>.

⁹² See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7846099/>.

⁹³ See https://www.washingtonpost.com/opinions/stop-playing-whack-a-mole-with-hazardous-chemicals/2016/12/15/9a357090-bb36-11e6-91ee-1adddfe36cbe_story.html.

⁹⁴ Stephanie M. Engel and others, “Prenatal phthalates, maternal thyroid function, and risk of attention-deficit hyperactivity disorder in the Norwegian mother and child cohort”, *Environmental Health Perspectives*, vol. 126, No. 5 (May 2018).

⁹⁵ Stephanie M. Engel and others, “Neurotoxicity of ortho-phthalates: recommendations for critical policy reforms to protect brain development in children”, *American Journal of Public Health*, vol. 111, No. 4 (April 2021).

⁹⁶ See <https://www.ewg.org/news-insights/news/2023/07/what-are-phthalates>.

⁹⁷ See https://www.un.org/esa/socdev/unpfii/documents/EGM12_carmen_waghiyi.pdf and United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women), “Statement: Indigenous women play a vital role in the preservation and transmission of traditional knowledge”, 8 August 2022. Submission, International Pollutants Elimination Network.

⁹⁸ See <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0122786>.

60. Women and girls globally spend 200 million hours a day collecting water. UNICEF describes this as a “colossal waste of time”⁹⁹ that creates a barrier to education and health care, including for example antenatal care.¹⁰⁰ If communities suspect toxics in a water source, women and girls may need to go farther to collect clean water.¹⁰¹ Carrying heavy water during pregnancy or postpartum has risks for both fetal and maternal health.¹⁰²

D. Bodily autonomy and toxics

61. Hazardous substances in wastes and products, often imperceptible, are a new insidious frontier of attacks on bodily autonomy. Women’s rights and gender equality movements have rejected efforts to control women’s bodies and reproduction. Movements that have sought to protect bodily autonomy with anti-ableist, anti-racist, decolonial and feminist goals have relevant expertise to support efforts towards the realization of the right to a clean, healthy and sustainable environment.

62. The reproductive justice movement, initiated by activists of African descent,¹⁰³ confronts poverty, racism and unsafe environments that infringe on reproductive rights.¹⁰⁴ Indigenous women have also denounced how environmental violence threatens culture, identity and choices about having children. Disability rights groups have valuable expertise in the impacts of toxics and how well-designed policies should simultaneously halt ongoing pollution and damage and ensure equal respect, non-discrimination, and long-term care for people and environments that have been affected.

1. Toxics and the right to health of women and gender-diverse persons

63. Conventional public health systems are not designed to help people to protect their physical, mental and spiritual health from the adverse effects of hazardous substances. Social and environmental determinants of health are largely marginalized in systems that prioritize allopathic medicine. Overburdened providers are often unaware of the impacts of toxics exposure on health and do not have time to learn about patients’ toxic exposures. All this is despite the fact that environmental risks cause about one quarter of all deaths and disease burden worldwide.¹⁰⁵

64. Women spend 25 per cent more time in “poor health” than men.¹⁰⁶ Women are more likely to be in pain.¹⁰⁷ Women and girls face a wide range of hurdles in obtaining access to care.¹⁰⁸ In 2020, only 1 per cent of health-care research and innovation was invested in female-specific conditions beyond oncology.¹⁰⁹ Women’s hormonal, cardiovascular, reproductive and mental health needs are different from men’s, but

⁹⁹ See <https://www.unicef.org/press-releases/unicef-collecting-water-often-colossal-waste-time-women-and-girls>.

¹⁰⁰ See <https://www.news-medical.net/news/20190904/Water-fetching-associated-with-poor-health-outcomes-for-women-and-children.aspx>.

¹⁰¹ See <https://www.unwomen.org/sites/default/files/2023-07/from-commodity-to-common-good-a-feminist-agenda-to-tackle-the-worlds-water-crisis-en.pdf>.

¹⁰² See <https://iaap-journals.onlinelibrary.wiley.com/doi/full/10.1111/aphw.12325>.

¹⁰³ See <https://www.sistersong.net/reproductive-justice>.

¹⁰⁴ See <https://www.unfpa.org/publications/all-rights-all-people-acting-now>.

¹⁰⁵ See <https://www.who.int/data/gho/data/themes/public-health-and-environment>.

¹⁰⁶ See <https://initiatives.weforum.org/global-alliance-for-womens-health/home>.

¹⁰⁷ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9198107/>.

¹⁰⁸ See https://www.who.int/health-topics/gender#tab=tab_1.

¹⁰⁹ See <https://www.mckinsey.com/industries/healthcare/our-insights/unlocking-opportunities-in-womens-healthcare>.

health standards are largely androcentric;¹¹⁰ what is considered “normal” is cis male.¹¹¹

65. Data regarding toxics’ impacts on human health often lack disaggregation by sex, even when harms are dramatic and widespread.¹¹² For example, the Pesticide Action Network has noted that, while 385 million of the world’s farmers and farmworkers suffer unintentional acute pesticide poisoning every year, the proportion that are women is unknown.¹¹³

66. A spiral of exclusion and discrimination results in trans and gender-diverse people having less access to quality health care, which includes respectful care. Health care can be a source of abuse and trauma for gender-diverse and trans people.¹¹⁴

67. Almost no evidence is available on how toxics affect health outcomes for gender minorities. In low- and middle-income countries, and poor communities in wealthier countries, access barriers to health care result in exposure risks to trans women, for example those associated with the injectable use of dangerous industrial liquid silicone to modify physical traits.¹¹⁵

68. Women are less likely to be believed by health providers and are more likely to have their pain dismissed.¹¹⁶ This includes women who suffer from contested illnesses caused or aggravated by toxics. By and large, health providers are undereducated on environmental health,¹¹⁷ including toxics that can act in insidious ways over generations or years after exposure, making diagnosis harder.

69. In the case of multiple chemical sensitivity, for example, in Canada women encounter gender-specific stigma in health-care systems in the form of scepticism and a greater likelihood that they will be referred to a mental health professional instead of appropriate treatment. Because of medical sexism, while more women report sensitivity to common chemicals associated with multiple chemical sensitivity, men are more likely to receive a diagnosis.¹¹⁸

70. Endometriosis is a chronic gynaecological condition characterized by a diverse and complex range of symptoms including chronic pelvic pain, painful sex, heavy bleeding and infertility that affects millions of women worldwide. Rates are skyrocketing, and some studies suggest that environmental toxics, such as dioxins, may play a role.¹¹⁹ Persons affected must cope with not only extreme pain but also

¹¹⁰ Submission by Mexico.

¹¹¹ See <https://theconversation.com/why-are-males-still-the-default-subjects-in-medical-research-167545>.

¹¹² See <https://www.who.int/publications/i/item/gender-equality-work-and-health-a-review-of-the-evidence>.

¹¹³ UN-Women, document EGM/ENV/EP.16. On the lack of sex-disaggregated data in the electronics industry, see submission, Solidarity Center and Asian Network for the Rights of Occupational and Environmental Victims.

¹¹⁴ See <https://www.ohchr.org/en/special-procedures/ie-sexual-orientation-and-gender-identity/struggle-trans-and-gender-diverse-persons>.

¹¹⁵ See Ricardo Araújo da Silva and others, “Factors associated with the use of industrial liquid silicone among travesti and transgender women in Salvador, Northeast Brazil”, *Venereology*, vol. 1, No. 3 (2022); and https://www.sophe.org/wp-content/uploads/2017/01/transgender_policy_approved_letterhead.pdf.

¹¹⁶ See <https://www.sciencedirect.com/science/article/abs/pii/S0277953602005208>.

¹¹⁷ See, for example, <https://www.sciencedirect.com/science/article/pii/S0013935123013865>. The United States is an example.

¹¹⁸ Submission, Environmental Health Association Canada and Environmental Health Association Quebec.

¹¹⁹ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8582818/> and <https://obgyn.onlinelibrary.wiley.com/doi/10.1111/1471-0528.17687>.

disbelief from providers and a long diagnosis time. This is in part because, in androcentric medicine and societally, women are expected to suffer from pain, especially in the pelvic area, a site of “normal” female pain in menstruation and birth.¹²⁰

71. Polycystic ovary syndrome is a leading cause of infertility where endocrine-disrupting chemicals may play a “major role”, including transgenerationally. This affects 8 to 13 per cent of reproductive-aged women, but up to 70 per cent of cases remain undiagnosed.¹²¹

72. Uterine fibroids are another female disease sharply on the rise,¹²² characterized by mystery as to its origins, uncertainty, and pain for women. Studies have found causal links with phthalates found in everyday consumer items such as food packaging.¹²³

2. Toxics, menstruation and female genitalia

73. Women’s health, especially reproductive health, is negatively affected because of stigma and shame attached to female genitalia, menstruation and, more broadly, femaleness or womanhood. Female genitalia are especially vulnerable to toxics because the skin in the vagina and the vulva is especially absorbent.¹²⁴

74. Menstruation is often taboo, made secret and a source of embarrassment. The right to menstruate with dignity includes affordable access to menstrual products free of harmful chemicals. It also encompasses the right to know the ingredients used in such products.¹²⁵

75. Industry has perpetuated negative ideas about menstrual odour and then added harmful chemical fragrances into menstrual products.¹²⁶ Vaginal douching, a “solution” to a made-up problem, that of ubiquitous vaginal odour or dirtiness, has many harms, including through exposures to chemicals inside some douches.¹²⁷ In some places, douching is associated with higher levels of phthalates in women’s bodies.¹²⁸

76. Stigma and silence have enabled companies to continue to use unsafe toxics in menstrual products.¹²⁹ One group, for example, found toxic volatile organic

¹²⁰ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8517707/>. WHO has noted, for example that “in many countries, the general public and most front-line health-care providers are not aware that distressing and life-altering pelvic pain is not normal, leading to a normalization and stigmatization of symptoms and significant diagnostic delay” (see <https://www.who.int/news-room/fact-sheets/detail/endometriosis>).

¹²¹ See <https://www.who.int/news-room/fact-sheets/detail/polycystic-ovary-syndrome>.

¹²² See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9676237/>.

¹²³ See <https://www.sciencedaily.com/releases/2022/11/221114190606.htm>.

¹²⁴ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3948026/>.

¹²⁵ Submission, Women’s Voices for the Earth. See https://womensvoices.org/wp-content/uploads/2022/05/label_report_period_products_ENGLISH_final.pdf.

¹²⁶ Women’s Environmental Network, “Additives in period products, a chemical solution for a social problem?”, 9 January 2024.

¹²⁷ See <https://publichealth.gwu.edu/vaginal-douches-may-expose-women-harmful-phthalate-chemicals>.

¹²⁸ Francesca Branch and others, “Vaginal douching and racial/ethnic disparities in phthalates exposures among reproductive-aged women: National Health and Nutrition Examination Survey 2001–2004”, *Environmental Health*, vol. 14 (2015).

¹²⁹ Submission, Alliance for Cancer Prevention.

compounds, phthalates, and other chemicals of concern in period products.¹³⁰ A recent study also found lead and arsenic, which are known carcinogens, in tampons.¹³¹ Another group of researchers estimated that an average of 9.4 billion nanoplastic fibres were released per tampon, amounting to 86 trillion fibres over a lifetime's use.¹³² Governments have largely failed to make sure that people who menstruate can easily find out what is in their menstrual products.¹³³ Newer period products such as period pants, which are reusable and could thus help to reduce waste, may also contain PFAS.¹³⁴

E. Beauty, advertising and toxics

77. Social and professional status for women may depend on looking and smelling more attractive, professional, younger or older, in keeping with social norms. Women, including trans women, and girls use more beauty products such as make-up and fragrances than men. Beauty products contribute to self-expression, but knowledge of potential health harms is low,¹³⁵ and individual caution is overwhelmed by aggressive marketing that plays on stereotypes of gender and beauty, preying on insecurities that benefit patriarchal and racist power structures.¹³⁶ Weak labelling of beauty products, and mislabelling, is all too common. For example, organizations from eight Asian countries tested 362 personal care products for triclosan, parabens and other endocrine-disrupting chemicals, and they found that many products were not fully or correctly labelled and that some contained high levels of chemicals of concern.¹³⁷

78. Exposures to some chemicals in these products are known to be harmful, and sometimes especially so for female biology and pregnancy health. For example, some hair straighteners still contain formaldehyde, a carcinogen.¹³⁸ A large study of hair relaxers, used mostly by people of African descent, found increased risk of uterine cancer.¹³⁹

79. There is no safe level of mercury, and dermal absorption can cause skin, nervous system and kidney damage. A recent study in Trinidad and Tobago examined 19 over-the-counter skin-lightening creams and found that 16 contained mercury, 6 of them

¹³⁰ Ibid. and submission, Women's Voices for the Earth. See also Chong-Jing Gao and others, "Feminine hygiene products: a neglected source of phthalate exposure in women", *Environmental Science and Technology*, vol. 54, No. 2 (21 January 2020); Chong-Jing Gao and Kurunthachalam Kannan, "Phthalates, bisphenols, parabens, and triclocarban in feminine hygiene products from the United States and their implications for human exposure", *Environment International*, vol. 136 (March 2020); and Zhenwu Tang and others, "Occurrence and distribution of phthalates in sanitary napkins from six countries: implications for women's health", *Environmental Science and Technology*, vol. 53, No. 23 (3 December 2019).

¹³¹ See <https://www.sciencedirect.com/science/article/pii/S0160412024004355#s0050>.

¹³² See <https://www.s.mdx.ac.uk/news/2022/01/nanoplastic-fibres-billions-tampons-leonardo-pantoja-munoz>.

¹³³ Submission, Women's Voices for the Earth.

¹³⁴ See <https://www.mamavation.com/health/period-underwear-contaminated-pfas-chemicals.html> and Q. Marcelis and others, "Development and application of a novel method to assess exposure levels of sensitizing and irritating substances leaching from menstrual hygiene products", *Emerging Contaminants*, vol. 7 (2021).

¹³⁵ See <https://www.asbestos.com/featured-stories/makeup-toxicity-survey/>.

¹³⁶ Submission, International Pollutants Elimination Network.

¹³⁷ Ibid. See <https://www.youtube.com/watch?v=W0BpfW4JKTc&feature=youtu.be>.

¹³⁸ Submission, Women's Voices for the Earth. While many other countries around the world have removed these products from shelves, formaldehyde in these and other hair products continues to be sold in the United States, with health impacts that disproportionately affect Black women.

¹³⁹ See <https://www.bumc.bu.edu/camed/2023/10/11/first-large-study-of-hair-relaxers-among-black-women-finds-increased-risk-of-uterine-cancer/>.

beyond the limits established by the signatories of the Minamata Convention on Mercury and 3 at extremely hazardous levels.¹⁴⁰ The “pigmentocracy” in the country, like elsewhere, drives the use of skin-lightening creams, especially in women. In India, skin-lightening products are frequently marketed using advertisements that perpetuate harmful beauty standards, suggesting that fairer skin is more desirable. As a result, women, particularly those from marginalized communities, may feel pressure to use these products despite the health risks, such as skin damage, organ toxicity and reproductive harm.

80. In addition to advertising, companies selectively fund studies that support their interests or manipulate data to downplay the risks associated with their products. This misleads the public and policymakers, obstructing the advancement of safer alternatives and perpetuating the use of hazardous substances.¹⁴¹ Women’s rights groups have demanded toxic-free or better regulation of toxics in beauty products with some success.¹⁴²

III. Endocrine-disrupting chemicals

81. Humans have additional vulnerability to toxics during important “windows of exposure”, that is, critical periods of growth or change. However, vulnerabilities are also sex-specific, including because chemicals’ impact on human bodies is different depending on whether they have male or female reproductive organs, hormones and associated systems.

82. Toxic exposures can interfere with endocrine functions, reduce male and female fertility, and compromise fetal viability, among other adverse effects. Therefore, unequal distribution of toxics and of vulnerabilities to toxics causes significant inequities regarding the abilities of individuals and communities to reproduce.

83. Pregnancy is an especially susceptible period, not least because of potential harms to the next generation. Maternal exposures to toxics are associated with premature birth and low birthweight, as well as birth anomalies and neurological impacts, which increase the numbers of children with disabilities. The full impacts of adverse birth outcomes may be invisible until a child is older. Moreover, toxics interlock with social and economic disadvantages at the community level. Thus, already marginalized communities are less likely to have healthy babies, children and, in the case of exposure to some toxics, even grandchildren. Endocrine-disrupting chemicals can also act on fetal germ cells that create eggs and sperm, making it more likely that the pregnant person’s grandchildren will have endocrine or neurological disorders.¹⁴³

84. Disability rights activists note that policies should simultaneously remediate and regulate toxics and support health, justice and other needs of persons with disabilities. Disability rights activists with deep experience of toxics’ impacts recommend that societies embrace neurological and other diversities as part of living on an environmentally damaged planet and actively reject seeing toxic-related disability as a “waste”.¹⁴⁴

¹⁴⁰ Terry Mohammed and others, “Evaluation of mercury in skin lightening creams commonly used in Trinidad and Tobago and their associated health risk”, *The European Research Journal*, vol. 10, No. 3 (May 2024). See also <https://www.who.int/news/item/14-02-2023-countries-unite-to-remove-mercury-from-hazardous-skin-lightening-products>.

¹⁴¹ Submission, children and youth major group to UNEP. Submission, International Pollutants Elimination Network.

¹⁴² Submission, Women’s Voices for the Earth, and submission, International Pollutants Elimination Network. See https://ipen.org/sites/default/files/documents/gender-case-studies-v1_6w-en.pdf.

¹⁴³ See https://ipen.org/sites/default/files/documents/edc_guide_2020_v1_6ew-en.pdf.

¹⁴⁴ See <https://www.orionmagazine.org/article/age-of-disability/>.

85. Hormone-sensitive endocrine systems in human bodies participate in every aspect of health and are extraordinarily vulnerable to endocrine-disrupting chemicals.¹⁴⁵ A sizeable proportion of hazardous chemicals are known, suspected or potential endocrine-disrupting chemicals, from flame retardants, heavy metals, persistent organic pollutants,¹⁴⁶ phthalates, and pesticides, such as the widely used herbicide atrazine.¹⁴⁷ Many scientists and medical societies have documented how endocrine-disrupting chemicals contribute to increases in rates of some diseases such as cancers¹⁴⁸ and diminish our collective intelligence¹⁴⁹ and ability to reproduce.¹⁵⁰ Numerous studies have found body burdens in different countries.¹⁵¹

86. Endocrine-disrupting chemicals can cause effects at extremely low concentrations and can, counter-intuitively, create bigger effects in humans at lower concentrations than higher ones because of the complex ways in which hormones work. Available science suggests that they have no safe threshold level.¹⁵²

87. Endocrine-disrupting chemicals are deeply problematic for reproductive health. Studies show that they contribute to increased rates of early puberty, female and male infertility, polycystic ovary syndrome, uterine fibroids, endometriosis, miscarriage, shortened lactation and breast cancer in women, and higher rates of testicular and prostate cancer in men.¹⁵³ Women may be particularly susceptible to these effects due to the chemicals' influence on metabolism and metabolic disorders such as diabetes, for example, and because many such chemicals are absorbed into fat cells, of which women generally have more.

88. In some high-income countries, reporting on health outcomes from endocrine-disrupting chemicals has increased awareness about chemicals, especially about phthalates, parabens and other chemicals in personal beauty products, cleaning products and household products. However, use of endocrine-disrupting chemicals is far more widespread.

89. The petrochemical industry is the origin for many, from precursors for personal care products and pesticides to plastics¹⁵⁴ and plastic additives (the chemical contents of plastic products often not being labelled at all)¹⁵⁵ and chemicals in air pollution, for instance. These harms provide additional incentives, together with climate

¹⁴⁵ Submission, International Pollutants Elimination Network. See <https://www.endocrine.org/topics/edc/what-edcs-are/common-edcs/reproduction> and <https://ipen.org/documents/endocrine-disrupting-chemicals-threats-human-health>; see also <https://www.unep.org/topics/chemicals-and-pollution-action/pollution-and-health/endocrine-disrupting-chemicals>.

¹⁴⁶ See <https://pubmed.ncbi.nlm.nih.gov/30110273/>.

¹⁴⁷ See <https://www.unep.org/resources/publication/state-science-endocrine-disrupting-chemicals-ipcp-2012>.

¹⁴⁸ See <https://www.endocrine.org/topics/edc/what-edcs-are/common-edcs/cancer>.

¹⁴⁹ See <https://www.endocrine.org/topics/edc/what-edcs-are/common-edcs/neurological>.

¹⁵⁰ Submission, University of California San Francisco. See <https://www.aktion.org/wp-content/uploads/Health-Effects-of-Fossil-Fuel%E2%80%93Derived-Endocrine-Disruptors-1.pdf>. See also <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8835285/>. This study found that “the body burden of environmental contaminants ... likely contributes to previously observed racial disparities in women’s health conditions such as breast cancer, endometriosis, polycystic ovarian syndrome, uterine fibroids, and premature birth”.

¹⁵¹ International Pollutants Elimination Network submission and report on endocrine-disrupting chemicals.

¹⁵² International Pollutants Elimination Network, University of California San Francisco and other submissions.

¹⁵³ See <https://prhe.ucsf.edu/sites/g/files/tkssra341/f/Hormone%20Disruptors.pdf>.

¹⁵⁴ See <https://stoppoisonplastic.org/blog/portfolio/plastics-edcs-health/>.

¹⁵⁵ Submission, University of California San Francisco. See also <https://catalystjournal.org/index.php/catalyst/article/view/32089/26035>.

considerations, for ending fossil fuel use. Gendered and other toxic hazards are associated with some climate change solutions.¹⁵⁶

IV. Vulnerabilities in biological life stages and toxic exposures

A. Child health

90. Children's rights to life, health, physical integrity and a healthy environment are especially at risk because they lack power and agency to protect themselves when they are biologically at extreme risk.¹⁵⁷ Babies have been found to have harmful chemicals in their blood at birth, because pregnant people have been exposed. The unsettling rise in child neurodevelopmental disorders in some countries, including racial and ethnic inequities,¹⁵⁸ is linked by experts in part with increases in releases of hazardous chemicals and the failure to remediate legacy toxics.¹⁵⁹

91. Early life exposure to lead, mercury, polychlorinated biphenyls, polybromide diphenyl ethers, organophosphate pesticides, and phthalates has been associated with lowered IQ and educational attainment in children. There is no known safe level of lead without harmful effects.¹⁶⁰

92. Studies suggest that boys and girls may be affected differently. For example, boys may be more vulnerable to general and non-verbal intellectual impacts from some neurotoxic exposures such as lead.¹⁶¹ In addition, lead-affected boys are more likely to exhibit aggression,¹⁶² which might be additionally difficult to manage because of confusing gendered messaging about whether male aggression is acceptable in many societies. Autism, linked with toxic environmental exposures, is more likely to affect male than female children.¹⁶³

93. Exposures can be gendered for children, because of gendered expectations and sex differences: boys and girls may play with different toys, play different sports and engage in different cultural activities.¹⁶⁴ A study by the Government of Germany found significantly higher levels of PFAS chemicals in teenage boys than girls.¹⁶⁵

94. Epidemiologists have linked lead and other toxics with attention deficit hyperactivity disorder,¹⁶⁶ a common mental health condition affecting children that includes inattention and hyperactive impulsivity but can have different symptoms for boys and for girls.

¹⁵⁶ See [A/HRC/54/25](#).

¹⁵⁷ Submission, Child Rights International Network.

¹⁵⁸ See <https://ehp.niehs.nih.gov/doi/10.1289/EHP11750>.

¹⁵⁹ See <https://projecttendr.com/chemicals-and-pollutants/>.

¹⁶⁰ See <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>.

¹⁶¹ See <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-023-01029-z>.

¹⁶² See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10234437/>.

¹⁶³ Heather E. Volk and others, "Considering toxic chemicals in the etiology of autism", *Pediatrics*, vol. 149, No. 1 (January 2022).

¹⁶⁴ WECF International submission. See also <https://www.wecf.org/de/wp-content/uploads/2018/10/PFAS-Studie-Duffek-et-al-German-HBM-data-July-2020.pdf>.

¹⁶⁵ See <https://www.wecf.org/de/wp-content/uploads/2018/10/PFAS-Studie-Duffek-et-al-German-HBM-data-July-2020.pdf>.

¹⁶⁶ See <https://link.springer.com/article/10.1007/s11121-023-01601-6>.

B. Puberty

95. Puberty is a threshold period with cultural and often gendered meaning for individuals and their communities. New sets of gendered responsibilities and roles emerge. Individuals who reject gendered expectations face additional challenges.

96. The age of puberty is shifting globally. Early onset of female puberty, indicated by breast development, decreased by a mean of almost three months per decade from 1977 to 2013.¹⁶⁷ This trend continues, and exposure to increasing amounts of endocrine-disrupting chemicals has been suggested by experts as an important factor.¹⁶⁸ Early onset of puberty in girls is linked to breast cancer later in life.¹⁶⁹ It can also have adverse social implications, increasing the probability of child marriage and teenage pregnancy.¹⁷⁰

C. Reproductive age

97. Fertility in both men and women is adversely affected by chemical interference. Sperm counts have more than halved in the past 40 years, and scientists attribute this decline in part to exposure to synthetic chemicals.¹⁷¹ Female infertility is also increasing, especially in younger women. Evidence also suggests that the risk of miscarriage has been rising among women of all ages. Again, scientists believe that synthetic chemicals may play a role in these outcomes.¹⁷²

98. Being able to conceive can be extremely important to individuals. Infertility is associated with mental health conditions and can also be the source of stigma and even societal rejection.¹⁷³ In the wake of the Bhopal gas disaster in 1984, for example, rates of infertility and adverse birth outcomes such as premature birth increased, and exposed women were sometimes unable to marry because other community members were concerned about difficulties with childbearing.¹⁷⁴

99. Exposure to carcinogens, including in pesticides and air pollution, for example, can lead to sex-specific cancers such as breast and ovarian cancer. In Ecuador, gas flaring and recurring oil spills in the Amazon contribute to high rates of cancer in some areas, especially breast and cervical cancer, which are more than double the national average and the highest in the continent.¹⁷⁵ Increases in rates of breast cancer across the globe are a cause for major concern. Recent studies suggest that hundreds

¹⁶⁷ Not every country in the world was included in the multi-country study. See Camilla Eckert-Lind and others, “Worldwide secular trends in age at pubertal onset assessed by breast development among girls: a systematic review and meta-analysis”, *JAMA Pediatrics*, vol. 174, No. 4 (April 2020).

¹⁶⁸ Ibid. and <https://www.sciencedirect.com/science/article/abs/pii/S0269749124002471>.

¹⁶⁹ See <https://www.sciencedirect.com/science/article/abs/pii/S1538544219300409>.

¹⁷⁰ Children and youth major group to UNEP submission.

¹⁷¹ See <https://www.theguardian.com/news/audio/2021/may/03/why-have-sperm-counts-more-than-halved-in-the-past-40-years-podcast>.

¹⁷² Shanna H. Swan, *Count Down: How Our Modern World Is Threatening Sperm Counts, Altering Male and Female Reproductive Development, and Imperiling the Future of the Human Race* (New York, Scribner, 2020). Lauren M. Rossen, Katherine A. Ahrens and Amy M. Branum, “Trends in risk of pregnancy loss among US women, 1990–2011”, *Paediatric and Perinatal Epidemiology*, vol. 32, No. 1 (January 2018).

¹⁷³ A/77/183, paras. 85 and 86.

¹⁷⁴ Amnesty International, *Clouds of Injustice: Bhopal Disaster 20 Years On* (London, 2004), pp. 20–22. Submission, International Campaign for Justice in Bhopal.

¹⁷⁵ Clínica Ambiental and Unión de Afectados y Afectadas por Texaco, “La huella del cáncer en la Amazonía ecuatoriana” (The imprint of cancer on the Ecuadorian Amazon), *Bulletin*, Nos. 1 and 2 (January 2022 and January 2023).

of chemicals found in industrialized countries increase breast cancer incidence.¹⁷⁶ Breast cancer is also associated with lead exposure, such as in a study conducted in Nigeria.¹⁷⁷

D. Pregnancy

100. Pregnancy presents a period of unusually high vulnerability to exposure to many hazardous substances. Pregnant bodies are undergoing significant physical, metabolic and hormonal changes, and systems are under significant new pressures.¹⁷⁸ In studies, lead¹⁷⁹ and other chemicals¹⁸⁰ have been associated with maternal hypertension.

101. The fetus undergoes dramatic and precisely timed changes. Many damaging substances cross the placenta and affect fetal growth and development. Pregnancy exposures can have a major impact on the lifelong health of the newborn, not only in the form of congenital anomalies but also in higher rates of preterm birth and neurological impacts, which may be seen only later in development. For example, mercury released into rivers by small-scale gold miners in the Amazon countries of Bolivia (Plurinational State of), Brazil, Colombia, Ecuador, Peru and Venezuela (Bolivarian Republic of) is highly persistent, contaminates the rivers that provide sources of food and spiritual sustenance of many Indigenous Peoples, and crosses the placenta of pregnant people. This causes irreversible adverse impacts on newborns and widespread environmental injustices.¹⁸¹

102. A study of the Bhopal disaster in September 1987 included 865 women who lived within 1 km of the plant and who were pregnant at the time of the gas leak. Almost 44 per cent of the pregnancies did not result in live births, three to four times higher than the normal miscarriage rates in Bhopal at the time. In addition, of the 486 live births, 14.2 per cent of the babies died in their first 30 days, compared with a normal newborn death rate of around 3 per cent in the two years preceding the tragedy.¹⁸²

103. Based on data from more than 20,000 Nigerian mothers, one study concluded that the neonatal mortality rate more than doubles if the mother lived near an oil spill prior to conception.¹⁸³

104. Pregnancy exposure to heavy metals such as lead can cause preterm birth and devastating neurological impacts for the child.¹⁸⁴ Pregnancy and lactation can also, especially in malnourished mothers, increase movement from lead stored in bones into the blood. In the United States, a government-funded study found that nearly

¹⁷⁶ Submission, International Pollutants Elimination Network. See also <https://ehp.niehs.nih.gov/doi/10.1289/ehp13233>, <https://silentspring.org/news/more-900-chemicals-many-found-consumer-products-and-environment-display-breast-cancer-causing>, and Janet M. Gray and others, “State of the evidence 2017: an update on the connection between breast cancer and the environment”, *Environmental Health*, vol. 16 (2017).

¹⁷⁷ Olusegun I. Alatise and Gerhard N. Schrauzer, “Lead exposure: a contributing cause of the current breast cancer epidemic in Nigerian women”, *Biological Trace Element Research*, vol. 136, No. 2 (August 2010).

¹⁷⁸ See <https://prheucs.f.blog/2019/06/25/dont-put-pregnancy-in-a-corner-its-about-more-than-fetal-health/>.

¹⁷⁹ See <https://ehp.niehs.nih.gov/doi/10.1289/EHP10825>.

¹⁸⁰ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9348856/> and <https://www.sciencedirect.com/science/article/abs/pii/S0013935123016420>.

¹⁸¹ See A/HRC/51/35.

¹⁸² Submission, International Campaign for Justice in Bhopal and Bhopal Medical Appeal.

¹⁸³ See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6431154/>.

¹⁸⁴ See https://www.unicef.org/media/123161/file/Childhood_Lead_Exposure_Key_Messages_2022.pdf.

57,000 cases of preterm birth a year may be attributable to phthalate exposure.¹⁸⁵ Male and female fetuses may have different vulnerabilities to some exposures, for example in the case of PFAS.¹⁸⁶

105. Miscarriage or stillbirth can be a source of shame, self-blame and stigma as well as, at times, extreme loss that is not fully acknowledged, and women often do not receive appropriate care.¹⁸⁷

106. Bonding, breastfeeding and the overall well-being of the parent-newborn dyad can be undermined if the baby is born preterm or with low birthweight. Emerging science suggests that maternal depression, a major health problem globally, may be associated with some chemical exposures.¹⁸⁸

E. Breastfeeding

107. Some toxic chemicals, such as flame retardants, are known to pass into breast milk.¹⁸⁹ Intakes of dioxins and polychlorinated biphenyls can be up to 100 times higher in the infant than in the breastfeeding parent (relative to body weight).¹⁹⁰ Two studies have found links between PFAS and shorter duration of breastfeeding.¹⁹¹ Despite findings of chemicals in breast milk, the benefits of breastfeeding nevertheless outweigh the risks, and UNICEF and WHO policies promote exclusive breastfeeding in the first six months of life.

F. Female menopause

108. Exposures to heavy metals and other toxics such as some PFAS have been associated with early female menopause,¹⁹² a transition with important gendered, cultural and health implications.

V. Conclusions and recommendations

109. Government failure to regulate the products, processes and waste of industry is resulting in the toxification of our bodies and planet, with already serious and growing adverse implications for the entire life course and reproductive rights. Because of their gender or their sex, people are more or specifically at risk from or further burdened by exposure to hazardous substances. As a result of the global crisis of chemical pollution, some individuals and communities have a lesser chance of reproducing and having a healthy newborn.

¹⁸⁵ See <https://factor.niehs.nih.gov/2024/4/papers/dert#a3>.

¹⁸⁶ See <https://www.newscientist.com/article/dn7440-gender-bending-chemicals-found-to-feminise-boys/>, <https://www.nature.com/articles/d41591-024-00011-7> and <https://www.sciencedirect.com/science/article/pii/S0892036223000314>.

¹⁸⁷ See <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.

¹⁸⁸ See <https://www.sciencedirect.com/science/article/abs/pii/S0006295221004512>.

¹⁸⁹ See <https://pubmed.ncbi.nlm.nih.gov/37315884/>. See also <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2569122/>.

¹⁹⁰ UNDP, “Chemicals and gender”, p. 11.

¹⁹¹ See <https://www.sciencedirect.com/science/article/pii/S0013935121015073> and <https://www.sciencedirect.com/science/article/abs/pii/S1438463924000403>.

¹⁹² See <https://pubmed.ncbi.nlm.nih.gov/38271266/>; see also International Pollutants Elimination Network, *Women, Chemicals and the SDGs: Gender Review Mapping with a Focus on Women and Chemicals – Impact of Emerging Policy Issues and the Relevance for the Sustainable Development Goals*, p. 81.

110. Both male and especially female reproductive health is highly sensitive to and adversely affected by toxics, including overwhelming quantities and numerous variations of endocrine-disrupting chemicals found in a huge range of products. Many of these chemicals derive from the petrochemical industry. These and other toxics are implicated in cancers in reproductive organs, infertility or reduced fertility, maternal diseases, preterm birth, low birthweight, miscarriage and stillbirth, and birth anomalies. Harm not only reaches through the pregnant person to the child and across the child's life course but can also reach across generations, undermining the health of grandchildren before their parent has even been born.

111. Chemicals move into bodies without the individual's knowledge or permission, and they profoundly change how people function and feel. Hazardous chemicals present a new threat to bodily autonomy and self-determination and to the right to physical and mental integrity.

112. Female pain, whether emotional or physical, is often disregarded, especially if the victim is from a group that is discriminated against or marginalized. Addressing toxics would reduce human pain, including uterine pain from reproductive diseases, and despair and shame following miscarriage and stillbirth.

113. Preventing toxic exposures brings an opportunity to improve maternal and newborn health outcomes and protect lifelong health for the next generation. Because marginalized women and girls, and gender minorities, are especially exposed to and additionally vulnerable to toxics, banning and controlling hazardous substances is necessary to confront inequities in maternal and newborn health outcomes between more privileged and marginalized communities.

114. While improving knowledge about toxics is important for informed participation in policymaking, only stronger national and international regulation can address the full range of adverse gendered implications of exposures to hazardous substances. Relying on pregnant people, parents and other caretakers, usually underpaid or unpaid women, to prevent harms and manage impacts is untenable.

115. Applying a reproductive justice approach to toxics would prioritize the communities most affected, acknowledge multiple and interconnecting pressures on their reproductive health and rights, address systemic problems such as the dominance of the petrochemical industry, and centre the rights of the pregnant person, for example, to respectful and quality care and a healthy environment.

116. Scientists and communities have raised alarms about hazardous chemicals for decades, including gendered or sexed harms. As evidence of harms grows, it is important that other coalitions and forces join them, including public health officials, providers, advocates and others who seek improved reproductive health and rights, maternal and newborn health and child health.

117. The feminist, gender liberation and disability rights movements are crucial actors. They have long rejected the efforts of Governments and others to control others' bodies and minds, whether women, girls, gender minorities or people who seek to break with gendered stereotypes or other restrictive conceptions of what is "normal". Patriarchal policies are deepening toxic threats to human life and the environments on which we depend.

118. **The Special Rapporteur recommends that States:**

(a) **Adjust the evaluation and regulation of toxicity to consider cumulative impacts of exposures, modifiers such as discrimination and other social stressors, and low-exposure harms of some chemicals such as heavy metals and endocrine disruptors, which mean that there may not be any safe level;**

(b) Actively consult with women and gender minorities and, where appropriate, children of all genders, from the communities most affected in regulatory decisions. These consultations should include persons with disabilities and caretaking workers who have valuable information and lived experience about the impacts of toxics on health and socioeconomic well-being;

(c) Ensure that the long-term health and financial impacts of preterm birth, low birthweight and other adverse birth outcomes are included in assessments of the danger posed by an industry, facility or chemical, together with health and well-being costs of other reproductive health impacts such as subfertility or infertility, for example;

(d) Ban harmful chemicals rather than just removing pregnant or breastfeeding people from hazardous worksites, and ensure that buffer zones are appropriately sized and applied to protect against pesticide spray drift;

(e) Stop the production and export of chemicals banned or restricted from use in the exporting State;

(f) End practices whereby industry headquartered in one country puts in danger human health, including reproductive health, in another country while benefiting from lesser protections for workers, communities and the environment;

(g) Ensure that free, prior and informed consent processes include information about reproductive health and other potential sexed or gendered impacts of any chemicals involved;

(h) Include in the assessment of the damage from the petrochemical industry the impacts of the industry's endocrine-disrupting chemicals;

(i) Improve information, including about reducing exposures and about gendered or sexed harms from toxics, and communicate it more effectively by:

(i) Increasing awareness about sexed and gendered harms from toxics and providing community-specific, accessible information and actionable advice on exposures, including on stigmatized issues such as menstrual care, including to pregnant people and caregivers of young children;

(ii) Elaborating policies for the correct labelling of products and standards for their correct advertising;

(iii) Ensuring that health workers, including providers and public health workers, and community-based workers are provided with education about toxic harms to human health and time and resources to be able to communicate information and actionable advice in a timely and accessible manner;

(iv) Recognizing the unique vulnerability of the pregnant person, newborn and child and ensuring a reproductive justice approach that centres pregnant people's needs and rights, including to a healthy pregnancy and breastfeeding resulting in a healthy newborn; and ensuring that policy and practices reflect the rights and needs of the pregnant person and parent and do not focus on children's health in isolation;

(v) Building capacities for communities to monitor their own air, soil and water and support the involvement of maternal and newborn health providers and other actors in such efforts;

- (vi) **Conducting country assessments to study how toxics are changing sexual and reproductive health, including equity between groups, and the ensuing health of newborns, children and future generations;**
- (vii) **Ensuring that all research funded by Governments and international organizations on toxics provides sex-disaggregated and age-disaggregated results and, where possible, involves and provides benefits to the communities most affected;**
- (viii) **Funding research on the impact of toxics on gender-diverse persons, in close collaboration with activists and organizations led by gender minorities;**
- (ix) **Funding research on non-reproductive health impacts from hazardous substances on female, male and intersex people;**
- (x) **Funding research, including by community-based organizations, to better understand and communicate gendered cultural impacts from hazardous substances and implementing ways for these considerations to influence policymaking;**
- (xi) **Funding research to better understand how caregiving work, disability and toxics interrelate and what improved social supports are needed;**
- (j) **Improve support for communities, including persons with disabilities and caregivers, by:**
 - (i) **Ensuring that health-care workers, including from the communities most affected, are adequately resourced to provide care for people harmed by toxics, including across the life course and in ways that are culturally appropriate and empowering;**
 - (ii) **Supporting health workers from affected communities seeking to develop expertise in toxic exposures;**
 - (iii) **Paying women and others for caregiving work and providing women and others with better options for the care requirements in their lives;**
 - (iv) **Acknowledging the gendered mental health, cultural and spiritual consequences of toxics and providing resources to address them;**
 - (v) **Enabling individuals and groups to more easily obtain access to judicial proceedings and reparations for violations of reproductive health, including measures to facilitate the production of evidence, such as the dynamic burden of proof;**
- (k) **Establish or strengthen, and implement, international agreements and arrangements, including introducing effective language on gender in the ongoing treaty negotiations on:**
 - (i) **Plastic pollution, including in the marine environment;**
 - (ii) **Business and human rights;**
 - (iii) **Pandemic prevention, preparedness and response.**

119. The Special Rapporteur recommends that international organizations working in maternal and child health or sexual and reproductive health and rights:

(a) **Recognize and communicate the importance of the right to a clean, healthy and sustainable environment as a core component of reproductive health and rights;**

(b) **Leverage resources to improve government policies, practices and laws regarding toxics, especially regarding reproductive and other gendered harms;**

(c) **Use a reproductive justice approach that includes addressing all barriers to sexual and reproductive rights, including environmental ones, and removing multiple, interconnected and compounding forms of discrimination.**
