SPECIAL PROCEDURES
UNITED NATIONS
HUMAN RIGHTS COUNCIL

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Mandate of the Special Rapporteur on the promotion and protection of human rights in the context of climate change

Annex II

To the report of the Special Rapporteur on the promotion and protection of human rights in the context of climate change, Elisa Morgera, titled 'Fossil Fuels' (A/HRC/59/42)

SPECIAL PROCEDURES
UNITED NATIONS
HUMAN RIGHTS COUNCIL

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Annex II - Further considerations on the human rights impacts of fossil fuels across the full life cycle and relevant international human rights standards

Burning of fossil fuels	Human Rights Standards
Fossil fuel burning is the main historical and current driver of greenhouse gas emissions and thus the primary cause of climate change: it has been responsible for 81–91% of the total anthropogenic CO_2 emissions.[1]	The burning of fossil fuel causes widespread, increasingly severe and compounded impacts of climate change on **all human rights** (including rights to life, self-determination, health, food, water, housing, education, work and cultural rights), their disproportionate impacts on individual and groups in vulnerable situations, and their multiplier effect on gender-based violence, human trafficking and slavery – which have been extensively documented by international human rights bodies (A/HRC/56/46).
When fossil fuels fail to burn completely, they emit black carbon (soot), which causes cardiovascular diseases, strokes, cancer, and acute respiratory infections, particularly in children.[2]	
Fossil fuel burning is the principal source of inorganic mercury in the sea, which eventually bioaccumulates in food webs and is particularly harmful to	**Right to a healthy environment** State obligations to respect, protect and fulfil human rights related to the ocean include: '(a) to prevent, control and

[1] Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (2021), p. 676; UNEP Production Gap Report 2023, p. 3; Pierre Friedlingstein et al, *Global Carbon Budget 2024* (2025) 17(3) Earth System Science Data; Global Climate & Health Alliance (GCHA), *Cradle to Grave: The Health Toll of Fossil Fuels and the Imperative for a Just Transition* (Berkeley, 2025), 51.

[2] Clean Air Fund, *Tackling Black Carbon*: How to Unlock Fast Climate and Clean Air Benefits (2025); Janssen et al, *Health Effects of Black Carbon* (2012) World Health Organisation, 96; Franco Suglia et al, 'Association of black carbon with cognition among children in a prospective birth cohort study' (2008) 167(3) American Journal of Epidemiology; Emerson, 'Risk of exposure to air pollution among British children with and without intellectual disabilities' (2019) 63(2) Journal of Intellectual Disability Research 161 - 167.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

fetal brain development, damaging motor skills, language and memory, among populations that consume seafood regularly.[3]	reduce harm to the marine environment; (b) to ensure access to information, public participation and access to justice in ocean governance; (c) to restore the marine environment; and (d) to cooperate meaningfully with other States' (A/HRC/58/59, para 68ff)
Fossil fuel burning is a significant source of nutrients leading to an increase in harmful algal blooms, including toxic algal events, which can lead to shellfish and fish becoming poisonous, causing paralysis and other illnesses in humans.[4]	**Right to health** (Art 12 ICESCR): '[T]he right to health embraces a wide range of socio-economic factors that promote conditions in which people can lead a healthy life, and extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment.' (CESCR General Comment No. 14 (2000), para 4)
Continued oil and gas expansion is targeting areas of high biodiversity importance, including in the ocean (A/HRC/58/59).	
Fossil fuel burning in power plants, industrial settings, and housing is a major contributor to air pollution, with immense and far-reaching impacts on the rights to life and health, particularly for women and children, damaging every organ in the body, as well as worsening and complicating pre-existing health conditions. Fossil fuel-related air pollution contributes to approximately over 8 million premature deaths annually worldwide, with the majority occurring in low- and middle-income countries.[5] Emissions from flaring are linked to USD 7.4 billion in health damages globally.[6]	'The right to health is closely related to and dependent upon the realization of other human rights, … including the **rights to food, housing, work, education, human dignity, life, non-discrimination, equality, the prohibition against torture, privacy, access to information, and the freedoms of association, assembly and movement**. These and other rights and freedoms address integral components of the right to health (CESCR General Comment No. 14 (2000), para 3).
Inorganic mercury, one of the 10 most poisonous substances to human health, in the sea. Such mercury is converted into MeHg by microbes in the aquatic environment, where it bioaccumulates in food webs. In humans, MeHg exposure occurs predominantly through the consumption of seafood. MeHg is a neurotoxin and is particularly harmful to fetal brain development. A large body of research has demonstrated a link between exposure to MeHg in the	

[3] World Ocean Assessment (WOA), Vol II p 42; GCHA (n1), 13, 15, & 46.
[4] WOA vol II, pp 82, 126; UN Environment Programme (UNEP), *What is Nitrogen Pollution?* (2025).
[5] https://hsph.harvard.edu/climate-health-c-change/news/fossil-fuel-air-pollution-responsible-for-1-in-5-deaths-worldwide/; Climate & Clean Air Coalition Secretariat, One million premature deaths linked to ozone air pollution (2017); Jonathan Buonocore & Srinivas Reka, 'Air Pollution and Health Impacts of Oil and Gas Production in the United States' (2023) 1(2) Environmental Research: Health; GCHA (n1), 70 & 71.
[6] Tran et al (2024), 'Air Quality and Health Impacts of Onshore Oil and Gas Flaring and Venting Activities Estimated Using Refined Satellite-Based Emissions' GeoHealth.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

womb and developmental neurotoxicity (e.g., deficits in fine motor skills, language and memory) among populations that consume seafood regularly." [7]	'States should […] refrain from unlawfully polluting air, water and soil, e.g. through industrial waste from State-owned facilities, …, and from limiting access to health services as a punitive measure, e.g. during armed conflicts in violation of international humanitarian law.' (CESCR General Comment No. 14 (2000), para 34)
Fossil fuel usage-related pollution substantially lowers IQ. In addition, studies show that human fertility is reduced: 1) the chances of an IVF live-birth are greatly reduced 2) sperm counts seem to be affected by pollution 3) foetal development shows all the signs of being vulnerable to impact and 4) growing cases of testicular cancer, premature puberty and congenital malformations have been suggested by scientists as originating in contact with fossil fuels[8]	'[P]rotecting the ability of individuals to exercise consent to having hazardous substances enter their bodies is indivisible, interdependent and interrelated to numerous human rights, including, among others, the **right to self-determination, human dignity and health, as well as freedom from discrimination**.' (A/HRC/30/40, para 27)
Production and distribution of fossil fuels	**Human Rights Standards**
Production and distribution of fossil fuels are the second largest source (35%) of methane emissions, which contribute significantly to global warming, especially in the short term.[9]	The **right to life** includes the right to a dignified life. The conditions that enable people to live a dignified life include clean air, safe water and nutritious food, among others (A/HRC/54/25)
Concentrations of fossil fuel and petrochemical operations cause elevated burdens and risks of cancer, reproductive, maternal, and newborn health harms, and respiratory ailments, disproportionately borne by racialized residents.[10]	**Right to water** (A/RES/64/292; A/HRC/RES/15/9; General Comment No. 15 (2002)) 'The human right to water entitles everyone to sufficient, safe,

[7] WOA Vol II p 42; Caserta, 'Heavy metals and placental fetal-maternal barrier: a mini-review on the major concerns' (2013) 17(16) European Review for Medical & Pharmaceutical Sciences; (2024); Agency for Toxic Substances and Disease Registry, *Mercury – ToxFAQs*.
[8] Hanke & Jurewicz, 'The Risk of Adverse Reproductive and Developmental Disorders due to Occupational Pesticide Exposure: an Overview of Current Epidemiological Evidence' (2004) 17(2) International Journal of Occupational Medicine and Environmental Health 223 – 243; Casey et al, 'Increase in Fertility following Coal and Oil Power Retirements in California' (2018) 17(44) Environmental Health; Badarch et al, 'Winter Air Pollution from Domestic Coal Fixed Heating in Ulaanbaatar, Mongolia, Is Strongly Associated with a Major Seasonal Cyclic Decrease in Successful Fecundity' (2021) 18(5) International Journal of Environmental Research & Public Health.
[9] *See* Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (2021), p. 102, Figure TS.20; International Energy Agency, Global Methane Tracker 2022: Methane and Climate Change (2022).
[10] Other evidence in Human Rights Watch, https://www.hrw.org/report/2024/01/25/were-dying-here/fight-life-louisiana-fossil-fuel-sacrifice-zone.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Light pollution from shale oil and gas drilling is associated with insufficient sleep and poor physical and mental health.[11]	acceptable, physically accessible and affordable water for personal and domestic uses under the principles of non-discrimination, participation and accountability, as stated by the Committee in general comment No. 15 (2002) and recognized in several international instruments.' (A/79/190, para 11)
Accumulated oil pollution from gas flares from oil and gas extraction leads to severe contamination of land and underground water, including dangerous concentrations of benzene in community drinking water. Destroyed soil fertility and fish populations have resulted to stunted growth of crops, loss of livelihoods, poor nutrition, and rise in poverty and hunger in the affected communities. Associated health impacts from the pollution include skin infections, respiratory illness, and higher rates of cancer.[12]	**Children's rights** (Convention on the Rights of the Child); Children's right to a healthy environment, children's rights to life, survival, development and health)
Site development causes noise pollution from drilling operations, water scarcity, water and air pollution affecting local communities' respiratory health,[13] as well as traditional farming and fishing activities.[14]	'Children have the **right to a clean, healthy and sustainable environment**. This right is implicit in the Convention and directly linked to, in particular, the rights to life, survival and development, under article 6, to the highest attainable standard of health, including taking into consideration the dangers and risks of environmental pollution, under article 24, to an adequate standard of living, under article 27, and to education, under article 28, including the development of respect for the natural environment, under article 29.
The exploration and site development phase also involves clearing vegetation resulting in soil erosion, habitat destruction, harm to wildlife and ecosystem services	
Children face health problems such as respiratory disease due to pollution from three primary refinery plants, while surrounding areas were also found to contain higher levels of heavy metals. A new study by the International Agency	The substantive elements of this right are profoundly important for children, given that they include clean air, a safe and stable climate, healthy ecosystems and biodiversity, safe and sufficient water, healthy and sustainable food and non-toxic environments.' (CRC/C/GC/26, paras 63-64)

[11] Boslett et al., 'Rural Light Pollution from Shale Gas Development and Associated Sleep and Subjective Well-Being', Resource Energy Econ (2021).
[12] GCHA (n1).
[13] GCHA (n1), 25; Willis et al, 'Natural Gas Development, Flaring Practices and Paediatric Asthma Hospitalizations in Texas' (2021) 49(6) International Journal of Epidemiology.
[14] Submission by Bakulu Ngabo; Morton Ninomiya, 'Indigenous Communities and the Mental Health Impacts of Land Dispossession related to Industrial Resource Development: A Systematic Review' (2023).

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

for Research on Cancer (IARC) highlights rising adenocarcinoma (a subtype of lung cancer) rates, linked to air pollution.[15]	
Exploitation and processing of fossil fuels	**Human Rights Standards**
Serious environmental and human rights impacts on communities living around exploitation and processing sites occur routinely due to land and water contamination, air pollution, and waste disposal. Communities living near fossil fuel activities and pipelines also face evictions and displacement without adequate compensation and sometimes without notice, health risks, violence, legal intimidation, economic instability, and the erosion of cultural practices.[16]	**Right to life:** 'Environmental degradation, climate change and unsustainable development constitute some of the most pressing and serious threats to the ability of present and future generations to enjoy the right to life. […] Implementation of the obligation to respect and ensure the right to life, and in particular life with dignity, depends, inter alia, on measures taken by States parties to preserve the environment and protect it against harm, pollution and climate change caused by public and private actors (General comment No. 36 (2018), para 62)
Communities living near fossil fuel activities also face evictions and displacement without adequate compensation and sometimes without notice, health risks, violence, legal intimidation, economic instability, and the erosion of cultural practices,[17] resulting in severe impacts on their rights to housing, food, culture, education, and standards of living. Access restrictions and environmental degradation from fossil fuel operations also terminate alternative livelihoods, for instance in adjacent grazing areas,[18] and cultural	**Indigenous Peoples' human rights**: 'Critical to the rights to culture, land and natural resources in cases of violations is the right to redress, including remediation, restitution and return of lands, territories and resources.' (A/77/183, para 64) **Right to food** (Art 11 ICESCR) 'The availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse

[15] Luo et al, 'Estimated Worldwide Variation and Trends in Incidence of Lung Cancer by Histological Subtype in 2022 and Over Time: a Population-Based Study' (2025) 13(4) The Lancet: Respiratory Medicine.
[16] GCHA (n1) p 13; Submissions by Jovial Bakulu Ngabo, Fatma Ndiaye, Climate Rights International, and YASunidos; Amnesty International, *Nigeria: Shell complicit in the arbitrary executions of Ogoni Nine as writ served in Dutch court* (29 June, 2017); Global Witness, Blood & Tears (9 August, 2019).
[17] GCHA (n1); Submissions by Jovial Bakulu Ngabo, Fatma Ndiaye, Climate Rights International, YASunidos, Bagaicha Social Centre, MENA Fem Movement for Economic, Development and Ecological Justice; Indonesian Center for Environmental Law; Dong et al, 'Climate Change Impacts on Coastal and Offshore Petroleum Infrastructure and the Associated Oil Spill Risk: A Review' (2022) 10(7) Journal of Marine Science & Engineering; World Health Organization, Chemical releases caused by natural hazard events and disasters: information for public health authorities (2018).
[18] Submission by Climate Rights International.

and spiritual practices, for instance destruction of graveyards or closing of sites to necessary for performing rituals.[19]	substances, and acceptable within a given culture' (CESCR General Comment No. 12 (1999), para 8) '[A]availability requires productive land or other natural resources without contamination.' (A/77/183, para 75)
"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" (A/79/163).[20]	'States [must] urgently […] take all appropriate measures to address foreseeable threats to human rights due to environmental pollution, which include, but are not limited to, the adoption of reasonable measures to protect people from foreseeable threats to their right to life and adequately controlling polluting activities.' (A/HRC/58/59, para 70)
Proximity to natural gas development, to coal fire power plants and to major roads are all associated with increased asthma exacerbations and hospitalizations in children.[21] Children attending a school near a refinery were found to have higher blood pressure and higher rates of prehypertension than those at schools that were farther from the refineries.[22] Children are made more vulnerable to poverty, domestic violence, and the breakdown of healthy family structures exacerbated by the stress of displacement and economic uncertainty related to fossil fuel production,	**Children's rights** (A/HRC/33/41): 'Environmental pollution is a major threat to children's health, as explicitly recognized in article 24(2)(c) of the Convention. However, in many countries, pollution is often overlooked and its impact underestimated. … Pollution associated with past and present industrial activities, including exposure to toxic substances and hazardous waste, presents more complex threats to health, often resulting in effects long after exposure. Climate change, biodiversity loss and the degradation of ecosystems are obstacles to the realization of **children's right to health**. These environmental factors often interact, exacerbating existing health disparities. For example, rising temperatures caused by climate change increase the risk of vector-borne and zoonotic diseases and concentrations of air pollutants that

[19] Submission by Climate Rights International
[20]Submission by University of California San Francisco. See https://www.akaction.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/.
[21] Khatri, Newman, Hammel, Dey, Van Laere, Ross, et al. Associations of Air Pollution and Paediatric Asthma in Cleveland, Ohio. Scientific World Journal. 2021;2021:8881390..
[22] Trasande, Urbina, Khoder, Alghamdi, Shabaj, Alam, et al. Polycyclic Aromatic Hydrocarbons, Brachial Artery Distensibility and Blood Pressure among Children Residing near an Oil Refinery. Environ Res. 2015 Jan;136:133–40.

becoming more susceptible to exploitation and human trafficking, including sexual exploitation.[23]	stunt brain and lung development and exacerbate respiratory conditions. Climate change, pollution and toxic substances all represent key drivers of the alarming loss in biodiversity and the degradation of ecosystems on which human health depends. Specific effects include reductions in microbial diversity, which is critical to the development of children's immune systems, and the increasing prevalence of autoimmune diseases, with long-term effects.' (CRC/C/GC/26, paras 38-39)
Pregnant women and newborns face increased risks of preterm birth, low birth weight, and lifelong health complications from fossil fuel-driven air pollution, toxic exposures, and extreme heat. In addition, increased salinity of freshwater sources in coastal areas due to rising sea levels has been linked to increased hypertension and preeclampsia, with a concomitant increase in miscarriage.[24] Infertility is associated with mental health conditions and can also be the source of stigma and societal rejection (A/79/163). Women in rural areas are disproportionately affected by the harmful effects of fracking, including exposure to hazardous and toxic chemicals, environmental pollution and the effects of climate change.[25] Health statistics in the Amazon region indicate that miscarriage rates 2.5 times higher, childhood leukemia rates three times higher in oil-rich areas, and a	**Right to a healthy environment:** '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…. Hazardous substances in wastes and products, often imperceptible, are a new insidious frontier of attacks on bodily autonomy' (A/79/163, paras 5 and 61) **Women's and girls' rights** 'Because of economic, social, cultural and physiological factors, women and girls are disproportionately vulnerable to the adverse health effects of toxic substances. Exposure to industrial

[23] GCHA (n1), 63 – 64; Man Camps: An Oil Industry Business that Affects Native American Women' (2022) Real Archaeology; Scott et al, 'Extracting Lessons on Gender in the Oil and Gas Sector' (2013) Report No.: 28, Extractive Industries for Development Series.
[24] GCHA (n1), 21.
25 CEDAW/C/GBR/CO/8 (CEDAW 2019); Aker et al., 'Proximity and Density of Unconventional Natural Gas Wells and Mental Illness and Substance Use among Pregnant Individuals: An Exploratory Study in Canada' (2022) 242 International Journal of Hygiene & Environmental Health; Casey et al, 'Unconventional Natural Gas Development and Adverse Birth Outcomes in Pennsylvania: The Potential Mediating Role of Antenatal Anxiety and Depression' (2019) Environmental Health; Gorski-Steiner, 'The Association of Unconventional Natural Gas Development with Diagnosis and Treatment of Internalizing Disorders among Adolescents in Pennsylvania using Electronic Health Records' (2022) Environmental Health.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

150% increase in cancer rates. Residents also suffer from dermatitis, skin fungi, respiratory issues, and digestive disorders. The absence of oncology centers in the region limits access to specialized treatment.[26]	chemicals, heavy metals, pesticides and other pollutants causes cardiovascular disease, respiratory illnesses, cancer and reproductive harms. …States must ensure the highest standard of health throughout the life cycle of women, in equality with men' (A/HRC/52/33, para 29and 74)
Coal mining and coal-fired power plants	**Human Rights Standards**
Both surface and underground, coal mining can contribute to habitat destruction, deforestation, soil erosion, acid mine drainage and pollution of aquifers and surface water which in turn increases the risk of flooding during extreme precipitation events. [27] Large industrial parks, including nickel industrial areas, account for coal use, leading to all-time high coal production in some countries.[28]	**Right to a healthy environment**: 'The closure of coal-fired power plants can contribute to dramatic improvements in air quality and reductions in mercury emissions, preventing premature deaths, reducing cases of respiratory illness, cardiovascular disease and cancer, and spurring progress in fulfilling the right to a healthy environment.' (A/HRC/49/53, para 83)
The separation of coal and oil after extraction from the ore, sands or silt, which themselves contain high levels of toxic metals, can require the use of harmful chemicals. The "tailings" are deposited into large ponds, from which toxic substances may leak into surrounding water and soil.[29]	**The right to a healthy environment**: '[T]he right to a nontoxic environment requires a focus on preventing exposure to pollution and toxic substances… From a human rights perspective, achieving a non-toxic environment is a legally binding obligation rather than a policy option…States should establish or strengthen legislation, regulations, standards and policies to prevent exposure to toxic substances, and develop action plans for preventing pollution, eliminating toxic substances and rehabilitating contaminated sites' (A/HRC/49/53, para 14, 47 and 50)

[26] Garnelo et al., 'Barriers to Access and Organization of Primary Health Care Services for Rural Riverside Populations in the Amazon' International Journal of Equity Health 19, 54 (2020).
[27] GCHA (n1), 60; Kramer et al, 'Extracted Forests: Unearthing the Role of Mining-related Deforestation as a Driver of Global Deforestation' (18 April 2023) Climate Diplomacy; Sribas Goswami, 'Impact of Coal Mining on Environment' (2015) 92(3) European Researcher.
[28] Submission by Climate Rights International.
[29] GCHA (n1), 45; Erikson, Wastewater from fracking: Growing disposal challenge or untapped resource? (17 November, 2019) 97(45) Chemical & Engineering News.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Clean-up workers are at risk of chronic respiratory, cardiovascular and dermal conditions.[30]	**Workers' rights to life and health**: 'Every State has an obligation to adopt measures to prevent occupational exposure to toxic substances. States are required to adopt positive measures to protect the right to life, including adopting any appropriate laws or other measures in order to protect individuals from acts or omissions that may cause their unnatural or premature death or prevent them from enjoying a life with dignity, including threats emanating from private persons and entities. … States are also required to take special measures of protection towards persons in vulnerable situations whose lives have been placed at particular risk because of specific threats, such as workers. Furthermore, States are obliged to adopt preventive measures to protect the right to health, including provisions for healthy working conditions. States also have a duty to improve all aspects of industrial hygiene under the right to health. This includes taking preventive measures in respect of occupational accidents and diseases and the prevention and reduction of the population's exposure to harmful substances such as radiation and harmful chemicals that directly or indirectly impact upon human health.' (A/HRC/42/41, para 29)
The list of toxins connected to coal operations pose a threat to children, elderly, and those with repertory illnesses. Proximity to coal-fired power plants and to major roads are all associated with increased asthma exacerbations and hospitalizations in children.[31]	**Children's human rights**: 'States should immediately take the following action: Improve air quality, by reducing both outdoor and household air pollution, to prevent child mortality, especially among children under 5 years of age; …Equitably phase out the use of coal, oil and natural gas, ensure a fair and just transition of energy sources and invest in renewable energy,

[30] GCHA (n1), 33; Onyije et al, 'Cancer Incidence and Mortality among Petroleum Industry Workers and Residents Living in Oil Producing Communities: A Systematic Review and Meta-Analysis' (2021) 18(8) International Journal of Environmental Research & Public Health; Steinson Stenehjem et al, 'Aromatic Hydrocarbons and Risk of Skin Cancer by Anatomical Site in 25 000 Male Offshore Petroleum Workers' (2017) 60(8) American Journal of Industrial Medicine.
[31] GCHA (n1), 18; Khatri et al, 'Associations of Air Pollution and Paediatric Asthma in Cleveland, Ohio' (2021) Scientific World Journal; Komisarow & Pakhtigian, 'The Effect of Coal-Fired Power Plant Closures on Emergency Department Visits for Asthma-Related Conditions Among 0-to-5-Year-Old Children in Chicago, 2009-2017' (2021)

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

	energy storage and energy efficiency to address the climate crisis' (CRC/C/GC/26, para 65)
There has also been a sharp decline in livestock ownership with a special impact on minorities and impoverished castes who are often nomadic or semi nomadic and traditionally reliant on livestock-rearing and partially on rain-fed subsistence farming.[32]	**Peasants' rights**: 'Peasants and other people working in rural areas have the right to an adequate standard of living for themselves and their families, and to facilitated access to the means of production necessary to achieve them.... They also have the right to engage freely, individually and/or collectively, in association with others or as a community, in traditional ways of farming, fishing, livestock rearing and forestry' (UNDROP, art 16(1)). **Children's rights**: 'States have an obligation to effectively prevent, protect against and provide remedies for both direct and indirect environmental discrimination. …The impact of environmental harm has a discriminatory effect on certain groups of children, especially Indigenous children, children belonging to minority groups, children with disabilities and children living in disaster-prone or climate-vulnerable environments. (CRC/C/GC/26, para 14)
Fracking	**Human Rights Standards**

111(5) American Journal of Public Health; Newman et al, 'Traffic-related Air Pollution and Asthma Hospital Readmission in Children: a Longitudinal Cohort Study' (2014) 164(6) The Journal of Paediatrics.

[32] Submission by Alliance for Climate Justice and Clean Energy – Pakistan; Evans et al, *Coal Ash Primer* (2023) EarthJustice.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Fracking, which uses a mix of water (between 6 million to 60 million per event), chemicals and sand to break apart rock and release oil or gas, puts water security at risk and destabilizes deep-rock formations leading to earthquakes where there was previously no seismic activity.[33] It also leads to increased methane emissions.[34] Fracking uses chemicals associated with adverse health and can release materials in the drilling and extraction process that include carcinogens such as arsenic, lead, and even radioactive materials. Repeated exposure to silica can cause incurable silicosis, with the likelihood of exposure being elevated through failings and fractures in wells, and because 30-60% of the water used returns to the surface containing heavy metals. All of this means the fossil fuel industry is increasing the risks people face in connection with the environment and the right to health.[35] Oil sands mines occupy surface for open pit mining and tailings ponds. Tailings is acutely toxic wastewater and leak into groundwater and the surrounding environment. Birds are killed annually from landing on the ponds. The area of land destroyed is wildlife habitat, hunting grounds, camping sites, places of cultural and spiritual importance, and trails across Indigenous territory.[36]	'Protection from exposure to hazardous substances is fundamentally about the **rights to life, non-discrimination and bodily integrity,** and is dependent on the realization of everyone's right to information, meaningful participation and freedoms of association and assembly, as well as the right to an effective remedy, among others (A/HRC/36/41). The issue of exposure is also deeply interwoven with … **rights to health, safe food and water, adequate housing and safe and healthy working conditions, as well as a healthy environment**… the Committee on Economic, Social and Cultural Rights interprets the obligations and responsibilities of duty bearers as being to prevent and minimize exposure to hazardous substances and to respect the individual's right to bodily (physical) integrity.' (A/73/567 para 8-9) 'The effective enjoyment of the rights recognized in the United Nations Declaration on the **Rights of Indigenous Peoples** rests on respect for the right to live in a non-toxic environment.' 'Contamination with hazardous substances interferes with Indigenous Peoples' right to self-determination, by virtue of which they freely pursue their economic, social and cultural development. … States should recognize indigenous rights to land, including areas used by Indigenous Peoples for spiritual, medicinal or other traditional practices.' (A/77/183, paras 105 and 62)

[33] GCHA (n1), 27; submission by CIEL.
[34] Submission by AIDA
[35] Submission by Anglican Communion; Healy et al, 'The Water-Energy Nexus – An Earth Science Perspective' (10 April, 2015) US Geological Survey Circular 1407; Wollin et al, 'Critical Evaluation of Human Health Risks due to Hydraulic Fracturing in Natural Gas and Petroleum Production' (2020) 94(4) Archives of Toxicology; Gopinathan et al, 'Environmental Impact and Health Risk Assessment due to Coal Mining and Utilisation' (2023) 45(10) Environmental Geochemistry & Health.
[36] GCHA (n1), 66; Tenebaum, 'Oil Sands Development: a Health Risk Worth Taking?' (2009) 117(4) Environmental Health Perspectives; Edwards, 'Canada's Oil Sands Residents Complain of Health Effects' (26 April 2014) 383(9927) The Lancet.

Offshore oil and gas	**Human rights standards**
Offshore oil and gas exploration harms marine species and habitats that store carbon,[37] with negative impacts of the human rights to food, culture and livelihoods. oil spills threaten health and livelihoods; produced water and	**Right to a healthy environment: '**The ocean regulates the Earth's climate, filters air and water, recycles nutrients and mitigates the impact of natural disasters. It is the largest active carbon reservoir on the planet, storing about

[37] WOA I, P. 516; submissions by AIDA and Anglican Communion; Saadoun, 'Impact of Oil Spills on Marine Life' in Larramendy & Soloneski (eds.), *Emerging Pollutants in the Environment – Current and Future Implications* (InTech, 2015); Dong (n17).

drilling fluid discharges degrade water quality and ecosystem health; underwater noise pollution harms culturally and economically important species; and inadequate consultation and participation processes with interested communities. Much of this new production is moving into deeper waters which are more expensive and riskier to exploit.[38] In offshore oil and natural gas exploration, seismic surveys and the use of drilling fluids risk contaminate groundwater and marine ecosystems, negatively impacting on wildlife,[39] and subsistence activities, and tangible and intangible cultural heritage.[40] Offshore drilling also requires significant quantities of drilling fluids and "muds" for maintaining the drill bit and removing drill cuttings. These drilling fluids are often discharged into the marine environment at the seafloor near the well site, potentially causing the smothering of benthic (bottom-dwelling) organisms and triggering broader ecosystem impacts.[41] Like produced water, spent drilling fluids have been found to contain toxic heavy metals and	38,000 billion tons of carbon – over 28 times more than carbon stored by land vegetation and the atmosphere combined. The ocean has stored more than 90 per cent of the heat from human-caused climate change and one third of the world's carbon emissions. Protected and restored ocean ecosystems, such as mangroves and seagrasses, could help to store more than 1.4 billion tons of carbon emissions per year by 2050…States must promote sustainable ocean practices, …including by…halting of new offshore oil and gas projects unless there is comprehensive prior environmental and human rights impact assessment, consideration of energy alternatives and the advancement of an effective, just transition towards a net-zero emissions economy consistent with international commitments, while respecting human rights' (A/HRC/58/59, paras 32 and). **Right to food**: 'The expansion of offshore fossil fuel extraction affects everyone's right to food, as well as the human rights of small-scale fishers and fish workers… States should […] [r]eject the advancement of and suspend any offshore oil and gas projects that deprive affected small-scale fishers and fish workers of their enjoyment of fundamental human rights' (A/HRC/55/49, para 94)

[38] Submission by EarthJustice to the UN Special Rapporteur on the Human Right to a Healthy Environment: https://www.ohchr.org/en/calls-for-input/2024/call-input-overview-implementation-right-clean-healthy-and-sustainable
[39] GCHA (n1); Submissions by Climate Rights International and Jovial Bakulu Ngabo.
[40] *Minister of Mineral Resources and Energy and Others v Sustaining the Wild Coast NPC and Others* (58/2023; 71/2023; 351/2023) [2024] ZASCA 84; 2024 (5) SA 38 (SCA) (3 June 2024) §25.
[41] *See* Trannum et al., *Effects of Sedimentation from Water-Based Drill Cuttings and Natural Sediment on Benthic Macrofaunal Community Structure and Ecosystem Processes*, 383 Journal of Experimental Marine Biology and Ecology 111 (2010), https://doi.org/10.1016/j.jembe.2009.12.004 ("Offshore drilling activities discharge large amounts of drill cuttings … and cause increased sedimentation around oil and gas installations. These discharges may affect benthic fauna not only through sedimentation (burial), but also through changed grain size and particle shape, toxic effects and oxygen depletion").

carcinogenic components,[42] leading to both environmental and human health concerns.[43]	
Submerged oil structures, typically consisting of submarine pipelines and iron frameworks, tend to attract marine life. In some cases, they function as artificial reefs, and some oil companies explicitly convert them into such. Studies have shown that these artificial reefs facilitate the proliferation and spread of invasive species. Subsea production equipment exposed to hydrocarbons accumulates radioactive elements as a byproduct of oil extraction. Organisms attached to these structures are exposed to radiation, as it can penetrate the protective coatings of equipment containing radioactive elements. Over time, the corrosion of metal structures also leads to the release of heavy metals into the marine environment. [44] Offshore oil and gas operations regularly experience accidents, spilling oil that causes significant environmental harm and undermines livelihoods. While crude oil spills are especially harmful, spills of natural gas condensate also release oil and toxic compounds into the marine environment and pose similar threats to marine species. Additionally, natural gas resources often occur within the same formations as crude oil, creating the risk of crude oil spills even for operations targeting natural gas.[45] Each year, up to 800 million litres	States must implement measures to restore marine habitats and ecosystems. That duty stems from the protection of the **right to a clean, healthy and sustainable environment**, and also arises as a legal consequence of State responsibility for the breaching of that right and the obligation to prevent transboundary environmental harm. Accordingly, States must consider suitable means to restore, as far as possible, the situation existing prior to the occurrence of harm and thus return the environment to its prior condition. This may include identifying, analysing and addressing causes of ecosystem degradation, with the full and effective participation of Indigenous Peoples and other rights holders and the use of relevant traditional knowledge, to prevent or reduce activities that cause further degradation. In the context of marine pollution, reversing degraded ecosystems is necessary. In cases of transboundary environmental harm, compensation may be an appropriate form of reparation for damage if restitution is impossible. Compensation may be awarded for the impairment or loss of ecosystem services and may include payment for the restoration of the damaged environment. The Special Rapporteur underscores that States must also

[42] Antia et al., *Environmental and Public Health Effects of Spent Drilling Fluid: An Updated Systematic Review*, 7 Journal of Hazardous Materials Advances 100120 (2022), https://doi.org/10.1016/j.hazadv.2022.100120.
[43] *Id.*; Broni-Bediako & Amorin, *Effects of Drilling Fluid Exposure to Oil and Gas Workers Presented with major Areas of Exposure and Exposure Indicators*, 2 Research Journal of Applied Sciences, Engineering, and Technology 710 (2010), https://maxwellsci.com/print/rjaset/v2-710-719.pdf.
[44] Submission by Friends of the Earth Colombia.
[45] Submission by EarthJustice to the UN Special Rapporteur on the Human Right to a Healthy Environment (n 38), referring to: US Bureau of Ocean Energy Management (BOEM), Oil Spill Effects Literature Study of Spills of 500-20,000 Barrels of Crude Oil, Condensate, or Diesel (2021), https://espis.boem.gov/final%20reports/BOEM_2021-048.pdf (discussing the characteristics of crude oil and condensate spills); *How Natural Gas is Formed*, Union of Concerned Scientists (May 9, 2023),

of oil enters the marine environment from the extraction, transportation, and consumption of crude oil and the products refined from it.[46] Recent projections predict that global offshore gas production could increase 55% by 2050, faster than the expected growth in onshore production.[47] This new boom in offshore gas is centered in Africa, where the share of offshore production may rise from 28% (2022) to 73% (2050) and in Latin America, where the share is expected to rise from 35% (2022) to 49% (2050).[48]	ensure that recourse is available, in accordance with their legal systems, for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by anyone under their jurisdiction.' (A/HRC/58/59, paras 82-83)
There is a risk that the plugs used to seal underwater wells may begin to fail over time. In other parts of the world, methane leaks have been detected in previously plugged and abandoned wells. This results in a continuous source of methane emissions into the atmosphere, exacerbating global warming. The environment is being polluted, and their sources of livelihood are being directly affected. Artisanal fishers are disproportionately impacted because they spend more time in areas close to these oil projects, and a significant part of their diet consists of fish that may be exposed to these risks. Additionally, since submerged oil structures attract marine life, fishers feel pressured to fish near these sites despite the potential hazards.[49]	**Right to healthy environment**: 'The right to a clean, healthy and sustainable environment is essential for fisherfolk, as it protects their historical connection with coastal landscapes and seas, which are foundational to their identity and existence, including their livelihood, culture, education and even transportation. …Members of coastal communities and coastal Indigenous Peoples, especially in the Arctic and small island developing States, require particular protection, being among the first to experience the impacts of climate change, biodiversity loss and pollution'. (A/HRC/58/59, para 22) **Peasants' rights**: 'States shall take appropriate measures, in accordance with their relevant international obligations, to prevent the depletion and ensure the conservation and sustainable use of biodiversity in order to

https://www.ucsusa.org/resources/how-natural-gas-formed ("Conventional gas deposits are commonly found in association with oil reservoirs, with the gas either mixed with the oil or buoyantly floating on top").

[46] National Research Council, Oil in the Sea III: Inputs, Fates, and Effects 212 (2003); Petrochemical, Chemical, & Energy Industry News, *Philippines survivors forced from homes due to oil spills* (May, 2025).

[47] Gas Exporting Countries Forum, *Global Gas Outlook 2050*, 8th edition (March 2024) p. 96 https://www.gecf.org/_resources/files/pages/global-gas-outlook-2050/gecf-global-gas-outlook-20231.pdf.

[48] Submission by EarthJustice to UNSR Environment for the ocean report.

[49] Submission by Friends of the Earth Colombia; Paschaline Onyena & Sam, 'A Review of the Threat of Oil Exploitation to Mangrove Ecosystem: Insights from Niger Delta, Nigeria' (2020) 22 Global Ecology and Conservation.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

	promote and protect the full enjoyment of the rights of peasants and other people working in rural areas.' (UNDROP, Art. 20(1))
Pipeline construction and shipping routes	**Human rights standards**
Pipeline construction disrupts land use and marine habitats and often displace and negatively impact on Indigenous peoples' territories and livelihoods, inland and offshore, which also have severe mental health impacts.[50] Explosion hazards from pipeline leaks and accidents, as well as degraded air quality from emissions during transportation, impact on respiratory health, DNA damage and cardiovascular diseases. In addition, gas leaks, which are predominantly methane, have also been found to be accompanied by toxic co-pollutants.[51]	**Rights of Indigenous Peoples**: the duty of Governments to "take measures, in cooperation with the peoples concerned, to protect and preserve the environment of the territories they inhabit", articulated in article 7, must include measures to ensure no storage and disposal of hazardous substances without free, prior and informed consent… **Older persons** are particularly vulnerable to health challenges and suffer mental anguish from displacement caused by the contamination of the land. Challenges in passing on knowledge and understanding at the heart of Indigenous cultures, traditions and languages can further aggravate the feelings of despair and identity loss. A healthy environment is vital for the realization of the rights of older persons' (A/77/183, paras 112 and 88)

[50] GCHA (n1), 37; Garcia Sanchez, 'When Drills and Pipelines Cross Indigenous Lands in the Americas' (2021) 51 Seton Hall Law Review 1121.
[51] GCHA (n1), 38; Nguyen, Quintana, & Rowland, *Mitigating Methane – A Global Health Strategy Overview* (2023), Abt Associates on behalf of Global Climate & Health Alliance, 13.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Oil spills and methane leaks can severely impact the marine, freshwater, and land ecosystems. While crude oil spills are especially harmful, spills of natural gas condensate also release oil and toxic compounds into the marine environment and pose similar threats to marine species. Additionally, natural gas resources often occur within the same formations as crude oil, creating the risk of crude oil spills even for operations targeting natural gas. These impacts on wildlife have cascading ecological effects, affecting fisheries, recreation, tourism, and other important activities for coastal communities. [52] Concerns about seafood contamination can last even longer than fisheries closures, prolonging economic hardship for fishers and coastal communities.[53]	'Damage to ecosystems and declining biodiversity jeopardize the **right to life**… Ecosystems are the source of all water relied on by people. Where water is polluted, contaminated or overexploited, the right to adequate quantities of clean water is jeopardized. Sanitation systems worldwide rely on ecosystems as an essential element of wastewater treatment because ecosystems purify polluted water (A/75/161, para 37 and 47) **Right to a healthy environment:** 'States must prevent toxic exposure by eliminating pollution, terminating the use or release of hazardous substances, and rehabilitating contaminated communities.…[due to] concerns about the impacts of pollution and toxic substances upon the enjoyment of a **wide range of human rights, including the rights to life, health, water, food, housing, cultural rights and an adequate standard of living, the rights of the child and the rights of Indigenous Peoples**' (A/HRC/49/53, paras 86 and 47)

[52] Sandifer et al., *Human Health and Socioeconomic Effects of the Deepwater Horizon Oil Spill in the Gulf of Mexico,* 34 Oceanography 174, 181 (2021), https://doi.org/10.5670/oceanog.2021.125; Park & Lee, 'Marine Oil Spill Analyses based on Korea Coast Guard Big Data from 2017 to 2022 and Application of Data-driven Bayesian Network' (2024) 436 Journal of Cleaner Production; Ketkar & Babu, 'An Analysis of Oil Spills from Vessel Traffic Accidents' (1997) 44(10) Oceanographic Literature Review 1197.

[53] *See id.* at 174 ("Consumer concerns about the safety and marketability of seafood persisted well after data demonstrated very low risk"); Takeshita et al, 'A Review of the Toxicology of Oil in Vertebrates: what we have Learned following the Deepwater Horizon Oil Spill' (2021) 24(8) Journal of Toxicology and Environmental Health.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Offshore oil and gas operations pollute the marine environment daily through the release of toxic produced water and drilling fluids. These discharges gradually erode water quality and can cause long-term harm to marine ecosystems and the populations that depend on them. The offshore oil extraction process involves injecting water into reservoir rock.[54] This injected water mixes with hydrocarbons and flows back out of the well, turning into polluted "produced water."[55] The offshore oil and gas industry produces over 300 million cubic meters of produced water on an annual basis,[56] making it the industry's largest waste stream.[57] Produced water contains compounds that are even more toxic and harmful to the environment and human health than crude oil, including salts, inorganic ions, toxic organic compounds, metals, and naturally occurring radioactive materials.[58] In offshore drilling, produced water is typically discharged into the marine environment. After release, toxic compounds in produced water can be absorbed in the sediment, collect into "sheens" of oil on the ocean's surface, or spread throughout the water column.[59] Some toxic substances can bioaccumulate in marine animals that inhabit near discharges,[60] resulting in risks to human health when the animals are caught and consumed.	'Victims of human rights violations originating from harm to the marine environment must receive adequate, full and comprehensive reparation, which includes compensation, restitution, satisfaction, rehabilitation and guarantees of non-repetition. Regarding the latter, States should adopt the necessary policy and structural reforms to ensure that the rights of people and communities disproportionately affected by pollution of the marine environment are at the core of ocean governance.' (A/HRC/58/59, para 84) **Right to health**: 'The improvement of all aspects of environmental and industrial hygiene" (art. 12.2 (b)) comprises, inter alia, preventive measures in respect of occupational accidents and diseases; the requirement to ensure an adequate supply of safe and potable water and basic sanitation; the prevention and reduction of the population's exposure to harmful substances such as radiation and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health.' Furthermore, industrial hygiene refers to the minimization, so far as is reasonably practicable, of the causes of health hazards inherent in the working environment.' (CESCR General Comment No. 14 (2000), para 15)

[54] Kabyl et al., *A Risk-based Approach to Produced Water Management in Offshore Oil and Gas Operations*, 139 Process Safety and Environmental Protection 341 (2020), https://doi.org/10.1016/j.psep.2020.04.021.
[55] Ahmadun et al., *Review of Technologies for Oil and Gas Produced Water Treatment*, 170 Journal of Hazardous Materials 530 (2009), https://doi.org/10.1016/j.jhazmat.2009.05.044; Healy (n33); Wollin (n33).
[56] OSPAR Commission, *Produced Water Discharges from Offshore Oil and Gas Installations 2009-2019*, OSPAR'S Offshore Industry Committee: Fact Sheet 2022, OSPAR publication 906/2022, available at https://www.ospar.org/documents?v=48861.
[57] Neff, Lee & M. DeBlois, *Produced Water: Overview of Composition, Fates, and Effects*, *in* Produced Water (2011).
[58] Kabyl et al., *supra* note 36.
[59] OSPAR Commission, *Assessment of the Impacts of the Offshore Oil and Gas Industry on the Marine Environment*, OSPAR Quality Status Report 2023 (2022) at p. 30.
[60] Neff, Lee & M. DeBlois, *supra* note 39.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Storage of fossil fuels	Human rights standards
The storage of fossil fuels leads to air pollution, hazardous waste contamination, and soil and water pollution from leaks, as well as requiring large land areas that impact on land use and critical water supply sources. Health risks include a very high potential for personal injuries and property damages from fires and explosions if leaks occur, chemical exposure to contaminated water, and respiratory issues from toxic emissions released by storage facilities. The storage of fossil fuels also requires large land areas, thereby impacting on land use and critical water supply sources.[61]	**Right to food**: All these impacts negatively impact, among others, on the right to food, due to soil degradation and toxic contamination, violating the obligation to ensure that our food should be free from adverse substances, with potential intersectional impacts as women who accounts for most of small-scale farmers. (A/77/183, para 75) **Indigenous children's rights** (General Comment No. 11 (2009) 'States must prevent children's exposure to toxics including through water, food, air and other sources of exposure.' (A/77/183, para 114)
Fossil fuel production waste	**Human rights standards**

[61] GCHA (n1), 4.

Fossil fuel-related waste, including coal ash, leads to significant air, water and soil pollution and consequent health harms, and it often contains toxic substances such as heavy metals and volatile organic compounds increasing the risk of reproductive disorders and cancers.[62] 'workers, mostly male, who clean up thousands of tons of hazardous wastes from fracking are exceptionally under-protected because waste from oil exploration and production is exempt from regulation as hazardous waste' (A/79/163, para 37) Emissions from **flaring** are under-reported, while oil and gas flaring around the world is linked to USD 7.4 billion in health damages.[63] A World Bank study found a strong positive association between gas flaring and the incidence of respiratory diseases and fever among children younger than five years.[64]	**Right to safe and healthy working conditions** (Art 7 ICESCR): 'Decent work requires States to respect and protect the right of workers to physical integrity, which is infringed by toxic exposures…Prevention of exposure requires deliberate action by States. States must do everything in their power to protect all workers in their territory and/or jurisdiction from occupational exposures to toxic substances. States must take appropriate steps to prevent, investigate, punish and provide redress for cases of occupational exposures to toxic and otherwise hazardous substances through effective policies, legislation, regulation and enforcement, as well as adjudication.' (A/HRC/42/41, paras 30-32) '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.' (A/79/163, para 5) The Convention on the **Rights of the Child**, in describing the right to health, explicitly requires that States act in the best interests of the child and consider "the dangers and risks of environmental pollution". (A/74/161, paras 40

[62] Global Climate and Health Alliance, 'Cradle to Grave: The Health Toll of Fossil Fuels and the Imperative for a Just Transition' (2nd edn) (2025), p 45.
[63] Tran, 2024; Global Climate and Health Alliance, 'Cradle to Grave: The Health Toll of Fossil Fuels and the Imperative for a Just Transition' (2nd edn) (2025), p 87.
[64] World Bank, The Impact of Gas Flaring on Child Health in Nigeria (Policy Research Working Paper, 2022), at https://documents1.worldbank.org/curated/en/099237508302236581/pdf/IDU0af7dd3f1075cb04fed0a71e0b3a08fb54368.pdf

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Decommissioning and site reclamation	Human Rights Standards
After dismantling and removing fossil fuel extraction, processing, and storage infrastructure, residual pollutants remaining in the soil and water for generations, which hinder vegetation growth, impact local ecosystems and agriculture, harm aquatic life and make water unsafe for human consumption for several years after the facility is closed.[65] Exposure to certain toxic substances found around these sites, such as benzene and heavy metals, can increase the risk of developing cancer, cognitive impairments, and other neurological issues among surrounding communities.[66]	'[E]xpanding and linking both [**the right to water and the right to food**] to the well-being of aquatic ecosystems is deemed necessary. It is thus pertinent to incorporate sustainability as a key element of the right to water.' (A/79/190, para 14) 'Violations of the **right to health** can occur through the omission or failure of States to take necessary measures arising from legal obligations. Violations through acts of omission include the failure to take appropriate steps towards the full realization of everyone's right to the enjoyment of the highest attainable standard of physical and mental health, the failure to have a national policy on occupational safety and health as well as occupational health services, and the failure to enforce relevant laws.' (CESCR General Comment No. 14, para. 49)
Sacrifice zones	**Human Rights Standards**
Fossil fuel-related sacrifice zones are associated with health impacts such as higher rates of asthma, bronchitis, lung cancer, heart disease, and other respiratory and cardiovascular conditions due to chronic pollution exposure; mental health and cognitive development, exacerbating educational and social challenges; higher rates of adverse birth outcomes, such as preterm births, low birth weight, and developmental disabilities linked to	**Right to healthy environment**: 'today, a sacrifice zone can be understood to be a place where residents suffer devastating physical and mental health consequences and human rights violations as a result of living in pollution hotspots and heavily contaminated areas…. Sacrifice zones represent the worst imaginable dereliction of a State's obligation to respect, protect and

[65] GCHA (n1), 49; Zhang et al, 'Assessment of Heavy Metal(Oid) Pollution and Related Health Risks in Agricultural Soils surrounding a Coal Gangue Dump from an Abandoned Coal Mine in Chongqing, Southwest China' (2024) 14 Scientific Reports 18667; DiGiulio et al, 'Chemical Characterization of Natural Gas Leaking from Abandoned Oil and Gas Wells in Western Pennsylvania' (2023) 19(8) ACS Omega 19443 – 19454; Townsend-Small & Hoschouer, 'Direct Measurements from Shut-in and Other Abandoned Wells in the Permian Basin of Texas Indicate Some Wells are a Major Source of Methane Emissions and Produced Water' (2021) 16(5) Environmental Research Letters.

[66] GCHA (n1), 49; Onyije (n28); Clark et al, 'Unconventional Oil and Gas Development Exposure and Risk of Childhood Acute Lymphoblastic Leukemia: A Case–Control Study in Pennsylvania, 2009–2017' (2022) 130(8) Environmental Health Perspectives; Bahadar et al, 'Current Understandings and Perspectives on Non-cancer Health Effects of Benzene: A Global Concern' (2014) 276(2) Toxicology & Applied Pharmacology 83 – 94.

environmental exposures; and chronic stress from constant exposure to environmental hazards and socioeconomic challenges, which further exacerbate health problems. Additionally, higher poverty and lower levels of health literacy and awareness about pollution risks can hinder protective behaviours and advocacy for cleaner environments in sacrifice zones.[67]	fulfil the right to a clean, healthy and sustainable environment.' (A/HRC/49/53, para 46) **Racial discrimination**: Climate change is driving the proliferation of sacrifice zones, which in many places are, in effect, racial sacrifice zones.' (A/77/549, paras 18-19) …'the prohibition of racial discrimination has been recognized as part of customary international law, imposing immediate and absolute obligations from which no derogation is permitted, even in a state of emergency' '[It] requires States to take action to combat intentional or purposeful racial discrimination, as well as to combat de facto or unintentional racial discrimination (A/HRC/41/54, para 45 and 47)
Accidents	**Human Rights Standards**
Fossil fuel-related accidents remain "among the most significant and environmentally damaging disasters worldwide": they are very challenging to clean up, travel hundreds of kilometres and last for years in the sediment and marine environment.[68] Oil and toxic spills remain among the most significant and environmentally damaging disasters worldwide, and arise from deliberate discharges, negligence or accidental leaks. Oil spills cause marine environment degradation, harming fishing and leisure activities for thousands of people, as well as causing animal deaths, water shortages, and diseases [69] (see A/HRC/51/35/Add.1). As with marine life, coastal communities are also	**Right to health:** 'Healthy coral reefs are the first line of protection for millions living in coastal areas, acting as barriers against erosion and flooding from storms. They are an increasingly important source of medicines, which are vital for the right to health. (A/HRC/58/59, para 27) **Right to a healthy environment**: 'The ocean is fast approaching the brink of collapse in its ability to regulate ocean balance and sustain marine biodiversity. The interconnected crises of climate change, biodiversity loss and pollution are intensifying pressure on a distressed ocean, further jeopardizing the **rights of Indigenous Peoples, fisher communities, peasants, women, children, people with pre-existing health conditions,**

[67] GCHA (n1), 27.
[68] Submissions by Oxfam Peru; Geneva Human Rights Platform; Friends of the Earth Colombia.
[69] Submission by the Government of Brazil; US Environmental Protection Agency, *Murphy Oil USA Refinery Spill Chalmette & Meraux, LA* (2006).

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

directly affected by, and at significant risk from, oil and toxic spills from ships.[70] Environmental investigations or remediation of these disaster paid for by the company rarely happened.[71]	**older persons, persons with disabilities and those facing marginalization**'(A/HRC/58/59, para 34)
Expansion of fossil fuel production and plastics pollution	**Human rights standards**

[70] Submissions by Franciscans International, the Anglican Communion and the Centre for Energy, Ecology and Development to the UN Special Rapporteur on the Human Right to a Healthy Environment: https://www.ohchr.org/en/calls-for-input/2024/call-input-overview-implementation-right-clean-healthy-and-sustainable.
[71] Submission by Emily Mitchell to the UN Special Rapporteur on the Human Right to a Healthy Environment: https://www.ohchr.org/en/calls-for-input/2024/call-input-overview-implementation-right-clean-healthy-and-sustainable; GCHA (n1), 51.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

8.3 million metric tonnes of virgin plastic have been produced since mass production began in the 1950s,[72] and global production of plastic waste is set to triple by 2060.[73] Many of the largest and most hazardous chemicals – including heavy metals, flame retardants and fluorinated compounds– are directly associated with plastic production. The petrochemical industry encompasses also the production of plastic additives (the chemical contents of plastic products often not being labelled at all).[74]

Two-thirds of plastic products are designed for short-term use and quickly become waste, ending up in the ocean and eventually entering the human food chain.[75] Only around 9% of the plastics produced is currently being recycled, the remaining being incinerated (12%) or disposed in the environment or in landfills (79%). Plastic recycling is not a viable solution to solve the global plastic pollution crisis, because "Toxics additives and micro-plastics contained in…oceans…cannot be eliminated by recycling, landfilling or incineration"; and "Existing plastic recycling practices pose health threats from volatile organic compounds and they concentrate toxic additives in plastics, generating new hazardous products" (A/79/163).

Some plastic products contain carcinogenic chemicals such as styrene and benzene, which are highly toxic if ingested and can lead to damage of the nervous system and lungs as well as to reproductive abnormalities. Plastic pollution also causes a significant amount of economic damage. Plastic debris in the Asia-Pacific region alone costs its tourism, fishing and shipping. Similarly, removing plastic waste from coasts and beaches costs countries in Europe about €630 million per year. Studies estimate that plastics cost at least $15 billion dollars in damage to the world's ecosystems yearly (A/78/169).

Children's rights: 'Children exposed to hazardous substances in the plastics cycle suffer a violation of their rights to life, health and physical integrity, as well as their right to a toxic -free environment, among others.' (A/76/207, para 41)

'A healthy ocean is a fundamental part of healthy biodiversity and ecosystems, one of the substantive elements of the **right to a healthy environment**. The ocean also is vital to all other substantive elements of that right, including a safe climate, healthy and sustainable food and water, a non-toxic environment and clean air.' (A/HRC/58/59, para 11)

'51. Plastic pollution disproportionately affects coastal fishing communities, remote and island communities and marginalized urban populations, worsening poverty and threatening livelihoods. Informal waste pickers, including women and children, play an important yet often overlooked role in managing plastic waste. They are on the front lines of waste collection and recycling but are vulnerable due to unsafe working conditions, exploitation and negative health impacts. (A/HRC/58/59, para 51)

Right to information; **rights to freedom of expression and effective remedy** (General Comment No. 34 on freedoms of opinion and expression)'Access to environmental information enables people to understand how environmental harms caused by plastics undermine their human rights. It also enables meaningful participation in decision-making on plastics policy and supports the exercise of other human rights, including the rights to freedom of expression and effective remedy.' (A/76/207, para 80)

'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-

[72] Geyer et al (n 3); GCHA (n1), 48
[73] OECD, *Global Plastics Outlook: Policy Scenarios to 2060* (2022); Karali et al, 'Climate Impact Plastic Production' (2024) Lawrence Berkeley National Laboratory
[74] A/79/163 para 89; International Energy Agency, *World Energy Investment 2023* (May 2024
[75] UNEP, 'Microplastics: The long legacy left behind by plastic pollution' (23 April 2023) <behind-plastic-pollution>

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

	determination and to the **right to physical and mental integrity**.' (A/79/163, para 111) 'The **right to science** requires that States align policies on toxics with the best available scientific evidence…. In the specific context of toxic substances, the right to science provides humanity with the tools to confront the severe toxification of the planet and its people. The implications for human rights, including the rights to life with dignity, non-discrimination, health, adequate food and housing, clean air and safe water, a healthy environment and safe and healthy work, are immense' (A/HRC/48/61, para 67 and 98)

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

the death of marine organisms by ingestion or entanglement, the pollution of the seabed associated with toxic substances added to plastics, the destruction of coral reefs and biomagnification across the food chain into human populations. Plastic bags can also block or clog waterways, worsening natural disasters and providing breeding grounds for organisms that carry vector-borne diseases.	Marine plastic pollution that affects fisheries and litters coastlines deprives coastal communities of income sources from fishing and tourism. Those negative impacts of plastics compromise the **right to food and nutrition, to work, to a healthy environment and to culture.** The hazardous substances carried by or leached from such plastics also interfere with the enjoyment of the **rights to life and health**.' (A/76/207, para 68) 'Plastic pollution in the ocean poses significant threats to marine ecosystems, economies and human health and exacerbates climate change. Approximately 14 million tons of plastic enter the ocean annually, constituting 80 per cent of all marine debris, an amount projected to triple by 2040. Marine species often ingest or become entangled in plastic debris, leading to severe injuries and fatalities.' (A/HRC/58/59, para 50)
Microplastics, which can be up to five millimetres in diameter, enter the ocean through various pathways, including the breakdown of larger plastic debris, runoff from household plumbing, and leaks from manufacturing sites.[76] Microplastics enter the human body through food, water, air and skin contact. They have been detected in human organs, including the brain, kidneys, and liver, and even in the placenta of newborn babies.[77] Chemicals in microplastics are linked to serious health risks, especially for women. Understanding the health effects of microplastics remains a major scientific challenge due to their diverse sizes, shapes and chemical compositions, each of which could affect cells and tissues differently.[78]	**Right to a healthy environment:** The presence of microplastic pollution undermines the environmental conditions necessary for sustainable living and hinders progress towards the achievement of the Sustainable Development Goals, particularly Goal 14 (life below water) and Goal 6 (clean water and sanitation). Developing nations with inadequate waste management infrastructure are disproportionately burdened. (A/HRC/58/59, para 52)

[76] Ibid.
[77] Ibid; UN Environment Programme, *Chemicals in Plastic – Summary and Key Findings* (2023).
[78] Kozlov, 'Your Brain is full of Microplastics: are They Harming you?' Nature (11 February 2025); Wagner et al, 'State of the Science on Plastic Chemicals – Identifying and Addressing Chemicals and Polymers of Concern' (2024) PlastChem.

Scientific evidence shows that plastics are implicated in all planetary boundaries, and exacerbate impacts via interactions between functional Earth systems, including indirect effects on climate change through changing albedo, altering carbon sinks, or changing carbon cycles of marine and terrestrial environments.[79] Plastic pollution significantly contributes to climate change: "Using a life cycle analysis, in 2015 greenhouse gas emissions from plastics were 1.7 gigatonnes of CO_2 equivalent (GtCO2e), and are projected to increase to… 15% of the global carbon budget."[80] Plastic pollution undermines the capacity of the ocean to regulate the climate: ocean plastics undermine the marine ecosystem services that can support climate change mitigation. Plastics can alter the global carbon cycling through effects on plankton and primary production in marine systems (notably, mangroves, seagrasses, corals and salt marshes that sequester carbon).[81]	The International Tribunal for the Law of the Sea, in its Advisory Opinion No. 31 (2024) clarified that States have strict due diligence mitigation obligations also in the context of the conservation of marine biodiversity and ecosystem restoration, which promote the resilience of living marine resources while enhancing carbon sequestration (A/HRC/56/46, para 13) OHCHR and the International Labour Organization articulated that just transition requires: …shifting of economic models to those that promote the well-being of people and the planet, gender equality and the reduction of inequalities; … reduced consumption and production driving excessive energy and resource demands, pollution and negative impacts on human health; and access to effective remedies for those who experience human rights violations or abuses.[82]
Emissions, releases and leakages occur across the plastics life cycle, starting with extraction and production, to production, shipping and trade, use, waste (mis)management and contamination of the entire planet, including human bodies. The impact of plastic waste is perhaps most felt among waste workers, who are directly handling plastics. Contamination of persistent organic pollutants (POPs) directly linked to plastics in dust, chicken eggs, and the blood of waste	States must adopt science-based standards for pollution and toxic substances, based on international guidance from organizations including WHO, the Food and Agriculture Organization of the United Nations (FAO) and UNEP. Once these standards are in place, the principle of non-regression means the State cannot ignore them or establish levels that are less protective without adequate justification, which would compromise its obligation to ensure the

[79] GCHA (n1), 19-20.
[80] UNEP (2021) From Pollution to Solution – A Global Assessment of Marine Litter and Plastic Pollution. Synthesis.
[81] Ibid; Balbus et al, 'Implications of Global Climate Change for the Assessment and Management of Human Health Risks of Chemicals in the Natural Environment' (2013) 32(1) Environmental Toxicology & Chemicals 62 – 78.
[82] See https://www.ohchr.org/sites/default/files/documents/issues/climatechange/information-materials/v4-key-messages-just-transition-human.pdf.

workers. The study shows that the open burning of plastics continues to cause significant health and environmental impacts, penetrating the blood and bodies of people. While they are the frontline in the fight against plastic pollution, waste pickers face the most acute risk. In this way, toxic chemicals used in the production of plastics early in its life cycle continue to impact people down the supply chain.[83]	progressive development of the **rights to health and the environment**.' (A/HRC/49/53, para 58) **Right to a safe work environment:** 'Exposure to hazardous chemicals added to plastics undermines the right to a safe work environment. Moreover, the lack of information on risks and harms impairs the right to an effective remedy, as does the burden of proving harm and causation. Statutes of limitations that do not account for the latency periods of hazardous substance exposure can also result in denial of justice and a fair trial.' (A/76/207, para 35)
The plastic waste trade is a form of trade that feeds human rights violations and contributes to the exploitation of illegal migrant labor. Plastic waste trade contributes significantly to air pollution and greenhouse gas emissions. This is particularly through open dumping fires and intentional factory fires. Plastic trades contribute to significant levels of aquatic microplastic pollution through recycling facilities.[84]	'The prohibition against racial discrimination applies in all its forms. Race or ethnicity should likewise not be a prohibiting factor in the realization by workers of the right to safe and healthy working conditions. Migrant workers, whether documented or undocumented, have a right to equality and to enjoy equal treatment to nationals regarding safety and health and other conditions of work. Persons with disabilities have the right, on an equal basis with others, to safe and healthy working conditions and related human rights.' (A/HRC/39/48, para 34)
Plastic-aggravated flooding occurs when plastic pollution clogs drainage systems and waterways, intensifying flooding. Mismanaged plastic waste obstructs drainage, causing floodwaters to rise more rapidly and recede more slowly, as the water cannot drain properly. This not only creates safety hazards but also exacerbates severe outbreaks of cholera and other diarrheal diseases, particularly when combined with inadequate sanitation services. In this way,	'Accountability and the **right to an effective remedy** are essential elements of a human rights-based approach to plastics. All too often, people suffer harm from the extraction of fossil fuels for plastics production, hazardous emissions released in plastics manufacturing, toxic additives that leach from plastics during use or the release of hazardous substances in incineration or open burning. …Businesses, especially companies that produce plastics or market plastic products, have particular responsibilities in regard to the risks

[83] GHCA (n1), 48; UNEP (n75).
[84] Gündoğdu, S. (2024). Plastic Waste Trade: A New Colonialist Means of Pollution Transfer. Springer Nature Switzerland. https://link.springer.com/book/10.1007/978-3-031-51358-9; EIA (2024). Dirty Deals – Part Two Evidencing illegalities in the global plastic waste trade. https://eia-international.org/report/dirty-deals-part-two/; Suzuki et al (2022). Mechanical Recycling of Plastic Waste as a Point Source of Microplastic Pollution. Environmental Pollution, 303, 119114; HRW (2022). "It's As If They're Poisoning Us" The Health Impacts of Plastic Recycling in Turkey. https://www.hrw.org/report/2022/09/21/its-if-theyre-poisoning-us/health-impacts-plastic-recycling-turkey

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

plastic and the fossil fuel-based economy inhibits the right to a clean, healthy and sustainable environment for people living in poverty.[85]	and harms caused along all the stages of the plastics cycle… A significant challenge to accountability and access to remedies is the global dimension of the plastics industry, along the various stages of the plastics cycle. That calls for a global liability and compensation mechanisms for pollution from plastics. It also reinforces the need for implementation of the extraterritorial obligations of States to secure an effective remedy for human rights abuses by businesses.' (A/76/207, paras 87 and 89)
Agro-chemicals	**Human rights standards**

[85] Submission by Tearfund; GCHA (n1), 49.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Synthetic nitrogen fertiliser and most pesticides are driving fossil fuel expansion while other sectors started to decarbonize.[86] Making ammonia, the basis for synthetic nitrogen fertilisers, requires fossil gas or coal as feedstocks, as well as a large amount of energy to produce the high temperatures and pressures needed for the reaction process. Ammonia produces more greenhouse gases than the production of any other industrial chemical, including making steel or cement. However, less than 40% of the emissions related to synthetic nitrogen fertilisers comes from the production stage. Around 60% comes for their use. This is primarily because microbes in the soil break down nitrogen fertilisers to produce nitrous oxide (N2O) – a climate "superpollutant" nearly 300 times as powerful as CO2. Globally, the synthetic nitrogen fertiliser supply chain represents 10.6% of agricultural emissions and 2.1% of global GHG emissions - more than commercial aviation. In addition, agro-chemicals cause soil acidification, inland and coastal water eutrophication (over-enrichment with nutrients, resulting, e.g., in algae growth), biodiversity loss, and impacts on regional air quality,[87] with well-documented human right impacts.[88]

In Southeast Asia, the proliferation of inorganic fertilizers has been linked to the demise of small-scale swidden agriculture, surface water pollution, eutrophication, and contamination of groundwater, all of which pose tremendous hazards to the health of the local population.[89]

Industrial waste from petrochemical facilities caused extensive contamination of heavy metals, rendered soil acidic, caused sickness among locals, and destroyed acres of farmlands integral to the livelihoods of locals.[90]

Right to healthy environment: 'The right to a healthy environment may require immediate protections, as when physical integrity is assaulted by exposure to toxics. Furthermore, progressive realization of the right requires strengthening institutions, norms, policies and measures, such as when Governments support agroecological practices and markets.' (A/77/183, para 80)

Right to food: 'Without or with minimal use of toxic chemicals, it is possible to produce healthier, nutrient-rich food, with higher yields in the longer term, without polluting and exhausting environmental resources. The solution requires a holistic approach to the right to adequate food … coupled with a transition towards sustainable agricultural practices that take into account the challenges of resource scarcity and climate change.' (A/73/567, para 24; A/HRC/34/48, para 7)

'Exposure to pesticides can have severe impacts on the enjoyment of human rights, in particular the right to adequate food, as well as the **right to health**. The right to food obligates States to implement protective measures and food safety requirements to ensure that food is safe, free from pesticides and qualitatively adequate. Furthermore, human rights standards require States to protect vulnerable groups, such as farm workers and agricultural communities, children and pregnant women from the impacts of pesticides.' (A/HRC/34/48, para 5)

Peasant rights: 'Peasants and other people working in rural areas have the right not to use or to be exposed to hazardous substances or toxic chemicals, including agrochemicals or agricultural or industrial pollutants.… (Art 14 UNDROP)

[86] Global Climate and Health Alliance, 'Cradle to Grave: The Health Toll of Fossil Fuels and the Imperative for a Just Transition' (2nd edn) (2025), p 55.
[87] Ibid.
[88] Baskut and Hilal's joint report
[89] Bruun, T. B., De Neergaard, A., Lawrence, D., & Ziegler, A. D. (2009). Environmental consequences of the demise in swidden cultivation in Southeast Asia: carbon storage and soil quality. *Human Ecology*, *37*, 375-388.
[90] EARTH (2023) 'Citizens Against Pollution: Stories and Lessons Learned from 6 Communities Affected by Industrial Pollution in Thailand', https://earththailand.org/en/document/905/

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

	Rights of Indigenous Peoples: 'Toxic agrochemicals have had particularly negative impacts on the human rights of Indigenous Peoples.' (A/77/183, para 68)

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Economic inequities	Human rights standards
Fossil fuels are the primary driver of climate change, which is set to push 122 million more people into extreme poverty by 2030.[91] One notable issue is the phenomenon of 'Dutch disease.' In many resource-rich countries, an over-reliance on fossil fuels can lead to currency appreciation, which in turn makes other industries—such as manufacturing and agriculture—less competitive on the global stage. This economic imbalance can create a long-term structural vulnerability. Moreover, this dependency often results in what is known as economic entanglement and a 'lock-in' effect, where nations become so reliant on volatile fossil fuel revenues that diversifying the economy becomes exceedingly difficult, thus hindering the energy transition.[92] The fossil fuel industry often benefits a small elite (company executives, investors, and sometimes national governments). By contrast, local communities that host these industries frequently bear the brunt of environmental degradation, health problems, and social disruption caused by fossil fuel activities, with little compensation and investment in return. Economic inequality is further exacerbated by the displacement of communities, inadequate compensation of workers and loss of traditional livelihoods due to fossil fuel projects. The disruption of social and cultural ties	'Continued large-scale global poverty is incompatible with the **human right to an adequate standard of living**, and the **right to life** alongside the **right to live in dignity**. The failure to take the necessary steps to eliminate it is a political choice and one that leaves firmly in place discriminatory practices based on gender, status, race and religion, designed to privilege certain groups over others.' (A/HRC/44/40, para 58) 'Children born into poverty are denied the **right to equal opportunities**, and high levels of inequality result in low social mobility.' (A/76/177, para 43) **Right to adequate housing**: 'An adequate house must contain certain facilities essential for health, security, comfort and nutrition. All beneficiaries of the right to adequate housing should have sustainable access to …energy for cooking, heating and lighting" (General comment No. 4: The right to adequate housing (art. 11(1) of the Covenant), 1991). 'States have heightened duties regarding the protection of workers at elevated social or physiological risks, including **informal workers**. States should apply higher protection standards for groups of workers that are especially vulnerable to exploitation by exposure. Multiple factors (see principle 1) further exacerbate the general vulnerability of workers regarding exposure to toxics. Prevention and responses to situations of exposure must take into account social status, education level, age, gender, national origin, ethnicity,

[91] IPCC, 'Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change' (Cambridge University Press; Hallegatte et al, *Shockwaves: Managing the Impacts of Climate Change on Poverty* (2016) World Bank Group: Climate Change and Development Series.

[92] Submission by University of Eastern Finland, Center for Climate Change, Energy and Environmental Law; GCHA (n1), 57; Bems et al, 'Economic Consequences of Large Extraction Declines: Lessons for the Green Transition' (2023) International Monetary Fund; Ghalayini, 'The Interaction between Oil Price and Economic Growth' (2011) 13(13) Review of Middle East Economics and Finance 127 – 141.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

can have long-lasting effects on community cohesion, identity and well-being, including in terms of social determinants of health.[93] The disparity in economic benefits can lead to social tensions and a sense of injustice among local populations. While a few individuals or entities accrue significant wealth, much of the population may experience declining living standards, higher energy costs, reduced access to clean air and water, and compromised health outcomes. This economic inequality can also hinder efforts to transition to more sustainable and equitable economic models, as those benefiting from the status quo may resist changes that threaten their financial interests.[94] Impacts are often disproportionately distributed over formal workers (who may be more likely to receive compensation packages), contract and informal workers (who typically do not receive compensation packages), and people who do unpaid care work (mainly women).	disability and other compounding vulnerabilities of workers to be effective. Special measures must be taken for the protection of workers in high-risk sectors …. National policies and programmes to promote safe and healthy working conditions should aim not only at the formal sector but also at the informal economy, bearing in mind that those working in the informal sector are usually not captured in statistics on the impacts of hazardous substances on workers.' (A/HRC/42/41, para 33)
Discrimination	**Human rights standards**
There are clear patterns of discrimination against Indigenous Peoples, peasants and Afro-descendants in the fossil fuel life-cycle,[95] with increased land conflicts and forced displacement having profound and far-reaching impacts on their livelihoods, food insecurity and malnutrition, economic instability and poverty, mental health (profound sense of loss and disconnection from cultural roots often results in higher rates of depression, anxiety, and suicide; erosion	**Rights of Indigenous Peoples** (General Recommendation No. 23 (1997)) 'The overwhelming and disproportionate impact of toxics on Indigenous Peoples infringes on recognized collective and individual rights, including the rights of indigenous peoples to culture, land and natural resources, free, prior and informed consent, food, water, a healthy environment, life, health

[93] GHCA (n1); Generation Investment Management, Fossil Fuels, the Economy and Instability: Why the world's dependence on fossil fuels hurts the economy and creates instability (2022); Cho, 'Impact of income inequality on carbon – intensive extractivism' (2023) 11(2) General & Applied Economics.
[94] GHCA (m1), 57; Kelly, 'How Fossil Fuels Drive Inflation and Make Life Less Affordable for Canadians – The Bottom Line: Unpacking the Future of Canada's Oil & Gas' (17 July 2024) International Institute for Sustainable Development.
[95] S*tate of the World's Indigenous Peoples*. United Nations, 200; submissions by Geneva Interfaith Forum on Climate Change, Environment and Human Rights (GIF), Oxfam Peru, Geledés et al, Geneva Human Rights Platform, International Institute for Sustainable Development (IISD).

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

of a sense of identity and belonging, compounding the psychological distress. Impacts on cultural rights such as loss of cultural heritage and traditional knowledge that are closely tied to the land (sacred sites, cultural practices) that diminishes the communities' identity and disrupts the transmission of cultural values and practices to future generations.[96]	and personal integrity, among others. These violations are widespread and systematic and must stop now.' (A/77/183, para 6) **Cultural rights:** 'Culture is closely connected to ecosystems, especially for indigenous peoples, rural and "traditional" populations. Both cultures and the environment are often place-based. "Culture influences our understanding of the environment and our relationship with it on a deep level. Concern for the welfare of future generations is already explicitly environmental; it should also be cultural."' (A/75/298, para 18
Indigenous Peoples in the Arctic are particularly vulnerable to black carbon pollution, which affects Arctic natural resources that are essential for their spiritual, physical and other sustenance, due to increased temperatures, melting snow and permafrost, shrinking glaciers, longer dry seasons, an increase in forest fires and severe climate extremes, threaten their health and food security. The failure to effectively regulate black carbon emissions may infringe on their cultural rights, their right to self-determination, their right to the means of subsistence, their right to property and their right to a clean, healthy and sustainable environment, among others (A/78/169).	**Rights of Indigenous Peoples**: 'To satisfy the expansion of a global economy addicted to fossil fuels and resource extraction, States and businesses step into remote regions searching for metals, minerals and hydrocarbons, leaving a legacy of pollution and dumping of hazardous substances. Exposure to such toxics imposes a heavy toll on the physical integrity and other rights of indigenous peoples.' (A/77/183, para 51)
Children are made more vulnerable to poverty, domestic violence, and the breakdown of healthy family structures exacerbated by the stress of displacement and economic uncertainty related to fossil fuel production, becoming more susceptible to exploitation and human trafficking, including sexual exploitation (A/78/169).	**Children's rights**: 'The obligations of States under article 6 of the Convention also apply to structural and long-term challenges arising from environmental conditions that may lead to direct threats to the right to life and require taking appropriate measures to tackle those conditions, for example, the sustainable use of resources needed for covering basic needs and the protection of healthy ecosystems and biodiversity. Special measures of protection are needed to prevent and reduce child mortality from

[96] GHCA (n1); Kirmayer et al (eds.), *The Mental Health of Indigenous Peoples* (2001) Culture & Mental Health Research Unit Report No. 10; Albrecht, 'Solastalgia: The Distress caused by Environmental Change' (2007) Australasian Psychiatry; Cultural Dispossession Experienced by Aboriginal and Torres Strait Islander Peoples (2020) The Bugmy Bar Book.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

	environmental conditions and for groups in vulnerable situations.' (CRC/C/GC/26, paras 20-21)
Climate disinformation and obstruction	**Human rights standards**
For over six decades, fossil fuel companies have maintained a systematic public disinformation campaign through greenwashing, astroturfing (industry-sponsored campaigns meant to look like they are community-based grassroots campaigns), funding politicians and organizations who diffuse climate-related conspiracy theories or unreliable evidence casting doubt on well-established climate science.[97]	**Right to healthy environment**: 'Access to data and actionable knowledge allows the public to understand the extent of environmental harm, identify potentially responsible parties, and seek appropriate remedies. This knowledge, coupled with the appropriate scientific and technical expertise, can prompt local communities to meaningfully participate in the defence of their human right to a clean, healthy and sustainable environment, and seek redress.' (A/HRC/57/52 para 17)

[97] GCHA (n1); US Senate Committee on the Budget, *New Joint Bicameral Staff Report Reveals Big Oil's Campaign of Climate Denial, Disinformation, and Doublespeak* (30 April, 2024); Lamb et al, 'Discources of Climate Decay' (2020) 3 Global Sustainability; Martinez et al, 'These Fossil Fuel Industry Tactics Are Fuelling Democratic Backsliding' (3 December, 2023) Center for American Progress.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Fossil fuel industries are strategically employing geographically nuanced, misleading narratives to prevent policy action and generate public support for the prolonged role of fossil gas in the buildings sector. [98] Early industry tactic of outright denial of anthropogenic climate change has since evolved into "discourses of climate delay" by promoting non-transformative "solutions" to climate change, re-directs responsibility for greenhouse gas emissions, suggests carbon-saving technological breakthroughs, and "encourages" costly individual actions.[99]	**right to science**: it entails an obligation for States to "protect the democratic debate from distortion by powerful financial groups enjoying advantageous access to influential media, to protect the formation of public opinion from undue commercial influence" (A/69/286) and 'to guard against the dissemination of false or misleading scientific information (A/HRC/48/61, para 87) 'Governments should support scientific inquiry that create public benefits, including by producing and disseminating scientific knowledge on non-toxic methods and substances. In this regard, given that resources for scientific inquiry are limited, especially in developing countries, international cooperation is of critical importance.' (A/HRC/48/61, para 10) **Right to information:** 'better access to information can enable the exercise of economic, social and cultural rights, including the right to the highest attainable standard of physical and mental health, the right to food, the right to safe drinking water and sanitation, and the right to a healthy environment….Information is a precondition for the realization of several civil and political rights. …information gaps create a fundamental impediment to realizing the right to free, active and meaningful public participation by individuals and communities to decide what risks they are willing to accept..' (A/HRC/30/40, paras 23-24)

[98] InfluenceMap, 'The Global Campaign Against Building Electrification: An Analysis of How Oil and Gas, and Utilities Industries Advocate to Prolong Fossil Gas Use in Buildings' February 2025.
[99] Lamb (n95).

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Fossil fuel companies have also contributed to: counterfeiting science on climate change; harassing and intimidating climate scientists; manufacturing doubts about climate science; buy credibility for fossil fuel-influenced research though affiliation with universities; and manipulating science for government officials.[100] Concerns about the objectivity of corporate-funded research are long-standing. *Science's* 2001 editorial focused on fossil fuel-funded research on the role of natural gas, 75-90% of which is methane that is at least 28 times more potent a greenhouse gas than carbon dioxide and is responsible for about 30% of the increase in global temperatures since pre-industrial times.[101] Faculty, students, journalists, and civil- society organizations have documented hundreds of fossil fuel–university relationships, despite universities' widespread lack of transparency on funding ties, amounts, and contract details. Research has also linked these relationships to out- comes biased toward the fossil fuel industry, with implications for universities, litigation, and policymaking. [102] [103] Hiltner et al, Fossil fuel industry influence in higher education: A review and a research agenda (2023) WIREs Climate Change	**Right to science:** 'Accessibility to scientific information about toxics, in a form that is understandable and actionable, strengthens the agency of individuals, communities and civil society to exercise the right to take part in the conduct of public affairs, as recognized in article 25 of the International Covenant on Civil and Political Rights (1966). Engagement of the public in decision-making related to hazardous substances engenders public trust in the decision-making process and its outcomes. On the other hand, failure to enable public scrutiny and participation in decision-making related to hazardous substances, and failure to align government policies with the best available scientific evidence, are incompatible with the right to science. When the right to science is compromised, individuals and communities may be exposed to hazardous substances.' (A/HRC/48/61, paras 42-43) The right to science implies the availability and accessibility of accurate scientific information to the general public and specific stakeholders. The right to science also requires that governments correct scientific disinformation. In addition, the right to science implies an enabling environment where scientific freedoms may be realized and where governments foster needed scientific research on toxic substances that endanger human health and the environment.' (A/HRC/48/61, paras 105-106)

[100] 2017 paper on playbook

[101]

[102] Hiltner et al, Fossil fuel industry influence in higher education: A review and a research agenda WIREs Clim Change. 2024;15:e904.

[103]

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

Business responsibility	Human rights standards
The Carbon Majors database shows that the cumulative emissions associated with the sale of the associations' members fossil fuel products have grown significantly. Between 1950 and 2022, the greenhouse gas (GHG) emissions from all the companies that hold a membership with at least one of the industry groups to be 350 billion tonnes, of which 320 billion tonnes were from CO_2 emissions. This equates to approximately 18% of the world's total cumulative CO_2 emissions from fossil fuels and industry in 2022. [104]	**Business responsibility to respect human rights in the context of climate change**: 'The responsibilities of business enterprises under the Guiding Principles to respect human rights and not to cause, contribute to or be directly linked to human rights impacts arising from business activities, include the responsibility to act in regard to actual and potential impacts related to climate change. To fulfil these responsibilities, business enterprises should take measures, such as …to identify, prevent, mitigate and account for adverse human rights and environmental impacts, and do so throughout all their operations; …Take urgent remedial action, including ceasing any climate change-related human rights impacts that they cause or contribute to (UN Working Group on Business and Human Rights, Information Note on Climate Change, 2023)
Lobbyists were working for fossil fuel companies simultaneously lobbying on behalf of cities, universities, tech companies, and environmental groups. Through collusion with government officials, corruption and other forms of influence, fossil fuel companies have thus been able to severely limit regulations and enforcement of protective measures for workers, communities and the environment, such as rigged bidding processes for oil and gas leases that allow companies to lease public land at artificially low prices, while also undermining the development or reform of new or existing frameworks.[105]	**Business responsibility to respect the right to science:** 'Businesses that produce and sell harmful substances engage in multiple tactics to manufacture doubt about the harmfulness of their products. Numerous examples exist of companies denying or distorting facts and realities, diverting attention to spread confusion, demanding ever more research to avoid or delay controls or attacking or harassing scientists who speak out. Some companies fund front groups and/or mercenary scientists to pose as independent think tanks or experts to push company propaganda. These business tactics are a direct attack on the right to science and are incompatible with the human rights responsibilities of business. `(A/HRC/48/61, para 105)

[104] InfluenceMap, How the Oil Industry Has Sustained Market Dominance Through Policy Influence a Historical Analysis of the Oil and Gas Playbook Against Renewables and Electric Vehicles July 2024

[105] GCHA (n1), 68 – 69; Roberts et al. (eds.), *Global Assessment of Climate Obstruction* (forthcoming); Koening & Murphy, *Federal probe of bid-rigging goes beyond Chesapeake ex-CEO* (4 March, 2016) The Seattle Times; Sharon Kelly, *Oil and Gas Leases on Federal Lands in Question as Lawmakers Eye Shale Collusion Allegations* (11 July, 2024) DeSmog.

PALAIS DES NATIONS • 1211 GENEVA 10, SWITZERLAND
www.ohchr.org • Tel: +41 22 917 9000 • Fax: +41 22 917 9008 • E-mail: ohchr-registry@un.org

A new scientific framework enables the direct attribution of climate-related economic damages from extreme heat to the emissions of Carbon Majors. Such framework may help in meeting legal thresholds for causality by linking emissions from specific companies to climate-related harms. This can have profound implications for climate litigation, reinforcing the argument that fossil fuel companies can be held liable for damages caused by their emissions.[106] A growing number of climate litigation targets corporate actors and argues that corporate actors have a duty to reduce emissions and address the impacts of climate change. Some of this litigation is explicitly framed in terms of corporate duties under human rights law. In these lawsuits, applicants typically argue that under human rights law, corporations must mitigate and address the impacts of climate change, with some focusing on the corporate duty to disclose emissions and related risks.[107]	**State obligations and business responsibility on access to remedy**: 'The obligations and responsibilities of States and business enterprises under the Guiding Principles includes the obligation and responsibility to act to provide effective access to remedy in regard to human rights and environmental impacts related to climate change. To fulfil these obligations and responsibilities, States and business enterprises should take measures such as the following: 1. Provide for effective access to remedies for rightsholders in relation to all climate change- related impacts on human rights and the environment; 2. Develop appropriate and effective remediation for human rights impacts of climate change, including for past climate change impacts and for the protection of the rights of future generations; 3. Ensure that all forms of access to remedies are responsive to multiple vulnerabilities, intersectional discriminations and marginalization experienced by individuals and communities such as children, women, Indigenous Peoples, and persons with disabilities; and, 4. Work together to enable a strong culture of accountability at the national, regional and international levels, for causing or contributing to climate change. (UN Working Group on Business and Human Rights, Information Note on Climate Change, 2023)

[106] Callahan & Mankin, 'Carbon Majors and the Scientific Case for Climate Liability' Nature 640, 893-901 (2025).
[107] Submission by University of Eastern Finland, Center for Climate Change, Energy and Environmental Law; *Appeal Ruling Grants Shell Temporary Reprieve but Reaffirms Obligation to Limit Carbon Emissions* (12 November, 2024) Center for International Environmental Law.