



# Safe Climate

A Report of  
the Special  
Rapporteur  
on  
Human Rights  
and the  
Environment



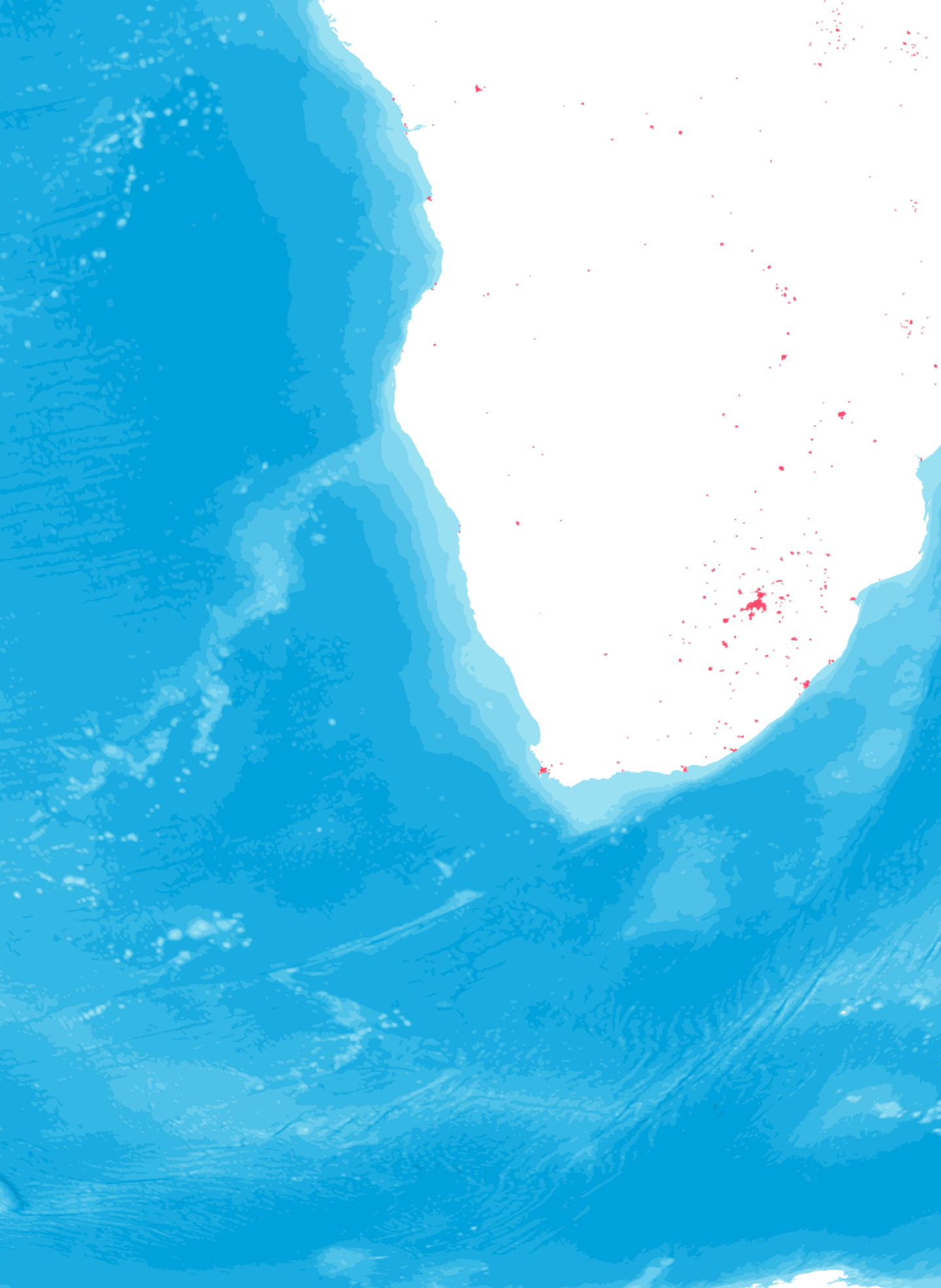
#### **Acknowledgements**

There is now global agreement that human rights norms apply to the full spectrum of environmental issues, including climate change. This report provides clarity regarding the substantive obligations relating to a range of elements that are essential to the enjoyment of a safe, clean, healthy and sustainable environment. It was developed by the United Nations Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, David R. Boyd. To prepare this report, the Special Rapporteur held consultations in Geneva with civil society on 6 March 2019, with Geneva Pledge States on 7 March 2019, with Small Island Development States on 8 March 2019, and with States, international organisations and other stakeholders on 21 June 2019. These consultations complemented a call for inputs on climate change and human rights circulated on 8 April 2019. The report is presented to the Third Committee on Social, Humanitarian and Cultural Issues of the UN General Assembly at its 74th session. The design of this version of the report was undertaken by Catalogtree with the sponsorship and guidance of the United Nations Environment Programme.

## Summary

In the present report, the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment discusses the urgent need for action to ensure a safe climate for humanity. He illustrates the devastating effects of the current global climate emergency on the enjoyment of human rights, and the crucial role for human rights in catalysing action to address climate change. After clarifying the obligations of States and the responsibilities of businesses, the Special Rapporteur makes practical recommendations with respect to addressing society's addiction to fossil fuels; accelerating other mitigation actions; enhancing adaptation to protect vulnerable people; ramping up climate finance; financing loss and damage; and empowering United Nations institutions. The Special Rapporteur concludes that a safe climate is a vital element of the right to a healthy environment and is absolutely essential to human life and well-being.

The Special Rapporteur is submitting the present report together with an annex on good practices related to ensuring a safe climate, available on the website of the Office of the United Nations High Commissioner for Human Rights. The good practices demonstrate that effective actions are available to simultaneously address climate change and protect human rights. Drawn from every continent and featuring more than 60 States and a wide range of actors, the good practices are intended to inspire ambitious action to address the global climate emergency.



## Contents

- 7 **I. The global climate emergency**
- 9 A. Overview of climate change impacts
- 12 B. Causes of the global climate crisis
- 13 C. Magnitude of the challenges ahead
  
- 17 **II. Effects of climate change on the enjoyment of human rights**
- 18 A. Right to life
- 19 B. Right to health
- 20 C. Right to food
- 21 D. Right to water and sanitation
- 22 E. Rights of the child
- 22 F. Right to a healthy environment
- 23 G. Vulnerable populations
  
- 25 **III. Human rights obligations relating to climate change**
- 28 A. State obligations
- 32 B. Business responsibilities
  
- 33 **IV. Conclusion and recommendations**
- 35 A. Addressing society's addiction to fossil fuels
- 36 B. Accelerating other mitigation actions
- 38 C. Adaptation to protect vulnerable people
- 39 D. Ramping up climate finance
- 40 E. Financing loss and damage
- 41 F. Empowering United Nations institutions
- 42 G. The last word



# I. The global

## climate emergency

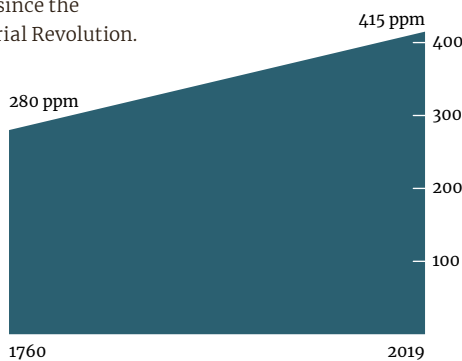
Global CO<sub>2</sub> emissions  
2012 (tons / year / gridcell)



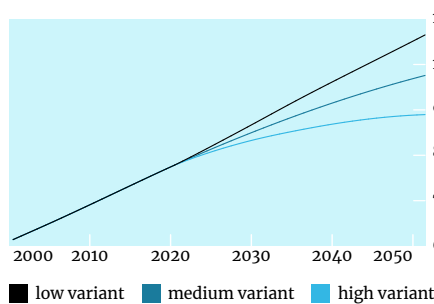
1

We are in the midst of an unprecedented environmental crisis. Human activities are causing pollution, extinction and climate change. Air pollution causes millions of premature deaths annually, including hundreds of thousands of children aged five and under. Wildlife populations are in free fall and one million species are at risk of extinction. The most pressing environmental risk is climate change, which not only exacerbates air pollution and biodiversity loss, but multiplies a broad range of risks, detailed below, leading to negative impacts on billions of people. A growing number of States, including Canada, France and the United Kingdom of Great Britain and Northern Ireland, have declared a global climate emergency.

**Fig. 1** Growth in atmospheric concentrations of CO<sub>2</sub> since the Industrial Revolution.



**Fig. 2** The world population is expected to exceed 9 billion by 2050.



1 IPCC, *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* (IPCC, 2018).

2

Human society developed during the Holocene, an 11,500-year-long interglacial period characterized by a relatively stable climate. The Holocene epoch enabled the emergence of agriculture, cities and civilization. However, human activities – burning fossil fuels (coal, oil and natural gas), deforestation and industrial agriculture – are changing the Earth’s climate, destabilizing the climate system. Atmospheric concentrations of carbon dioxide have risen by 50 per cent since the Industrial Revolution, from 280 parts per million to more than 415 parts per million see Fig. 1. The last time carbon dioxide levels were this high was during the Pliocene epoch 3 million years ago, meaning that our species, homo sapiens, has never experienced this situation.<sup>1</sup> To make matters worse, there is a risk that natural feedback mechanisms, such as the melting of Greenland and Antarctic ice sheets or methane released from melting permafrost, could trigger catastrophic runaway climate change.

3

We have entered a new geological epoch of great impacts, risks and uncertainty, referred to as the Anthropocene, in which human actions are transforming the Earth. With continued economic growth, high energy and resource consumption in wealthy nations, and the world population expected to exceed 9 billion by 2050 see Fig. 2, it is clear that the global climate crisis will worsen, with devastating implications for human rights, unless society changes direction.



**To meet the 1.5°C target, urgent and effective actions must be implemented immediately.**

**4**

In its latest report, the Intergovernmental Panel on Climate Change stated that “limiting global warming to 1.5°C would require rapid, far-reaching, and unprecedented changes in all aspects of society”.<sup>2</sup> To meet the 1.5°C target, urgent

and effective actions must be implemented immediately to reduce greenhouse gas emissions by 45 per cent by 2030, phase out unabated fossil fuel burning by the middle of the century, and reverse deforestation. To empower and protect vulnerable populations requires mobilizing at least \$100 billion in annual funding to assist low-income countries, and establishing a new fund, perhaps using an air travel levy, to support small island developing States and least developed countries in addressing loss and damage caused by climate change. Wealthy countries and other large emitters must lead these efforts and provide the majority of the requisite financing.

**5**

To prepare the present report, the Special Rapporteur held consultations in Geneva with civil society organizations on 6 March 2019, with States that have signed the Geneva Pledge for Human Rights in Climate Action on 7 March 2019, with small island developing States on 8 March 2019, and with other States, international organizations and stakeholders on 21 June 2019. These consultations complemented a call for inputs on climate change and human rights circulated on 8 April 2019. The Special Rapporteur is grateful to Colombia, Cuba, Germany, Greece, Honduras, Hungary, Kazakhstan, Mali, Mauritius, Mexico, Moldova, Monaco, Norway, Senegal, Slovenia, Sweden and Uruguay, as well as to civil society organizations and academics, for their helpful submissions.<sup>3</sup> The Special Rapporteur also met with children and young people from Bolivia (Plurinational State of), Canada, Colombia, El Salvador, Fiji and Peru, and heard their pleas for urgent action to address the global climate crisis.

<sup>2</sup> IPCC, Press release 2018/24/PR, “Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments” (October 2018). Available at [www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/](http://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/).

<sup>3</sup> Submissions are available at [www.ohchr.org/EN/Issues/Environment/SREnvironment/Pages/SafeClimate.aspx](http://www.ohchr.org/EN/Issues/Environment/SREnvironment/Pages/SafeClimate.aspx).

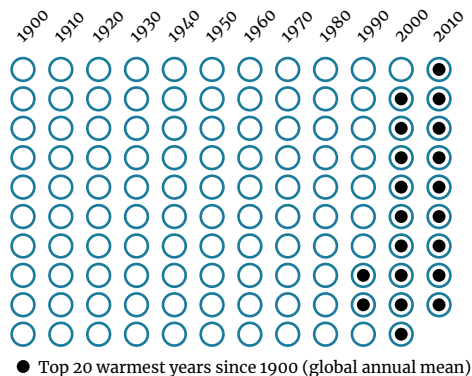
**Economic losses from natural disasters, exacerbated by climate change, were \$330 billion in 2017, making it the costliest year on record.**

### **A. Overview of climate change impacts**

**6**

Climate change is already having major impacts on human health, livelihoods and rights. One degree of warming has occurred at the global level, with some regions, such as the Arctic and high mountain areas, experiencing two or three times as much warming. Eighteen

**Fig. 3** Eighteen of the warmest years in recorded history occurred in the past 19 years.



of the warmest years in recorded history occurred in the past 19 years see Fig. 3. In 2018, the Intergovernmental Panel on Climate Change reported that humanity is already enduring increased frequency, intensity and duration of extreme weather events, melting of glaciers and ice sheets, rising sea levels, storm surges, saltwater intrusion, ocean acidification, changes in precipitation, flooding, heatwaves, droughts, wildfires, increased air pollution, desertification, water shortages, the destruction of ecosystems, biodiversity loss and the spread of water-borne and

vector-borne disease.<sup>4</sup> The number of extreme weather events has doubled since the early 1990s.<sup>5</sup> Between 2005 and 2015, over 700,000 people died, over 1.4 million were injured, 23 million lost their homes and over 1.5 billion were affected by natural disasters, at a total cost exceeding \$1.3 trillion.<sup>6</sup> Economic losses from natural disasters, exacerbated by climate change, were \$330 billion in 2017, making it the costliest year on record. Most of these losses were uninsured, including 99 per cent of losses in low-income countries.

7

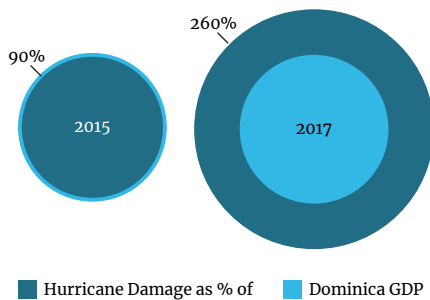
Climate change interacts with poverty, conflict, resource depletion and other factors to cause or exacerbate food insecurity, loss of livelihoods, infrastructure breakdown and loss of access to essential services including electricity, water, sanitation and health care. Poor people are disproportionately affected by climate impacts, which could push an additional 100 million people into extreme poverty by 2030.<sup>7</sup> Climate change is an increasingly important contributor to displacement and migration, both within nations and across international borders.<sup>8</sup> Record high temperatures, heatwaves and wildfires in 2018 afflicting wealthy countries – Australia, Canada, Sweden and the United States of America – demonstrated that no State is immune to the impacts of the global climate crisis.

8

Climate-related natural disasters are hitting low-income countries and small island developing States hard. Flooding in Pakistan in 2010 affected 20 million people, causing almost 2,000 deaths. The 2011 East Africa drought and the 2011–2012 Somalia famine were extreme climate-related events that, combined with other vulnerabilities, such as conflict and rising food prices, overwhelmed coping mechanisms, causing destitution, food insecurity and malnutrition.

<sup>4</sup> IPCC, *Global Warming of 1.5°C* (IPCC, 2018).  
<sup>5</sup> Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), United Nations Children’s Fund (UNICEF), World Food Programme (WFP) and World Health Organization (WHO), *The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition* (Rome, FAO, 2018).  
<sup>6</sup> Sendai Framework for Disaster Risk Reduction 2015–2030.  
<sup>7</sup> World Bank, *Shock Waves: Managing the Impacts of Climate Change on Poverty*, Climate Change and Development Series (Washington, D.C., World Bank, 2016).  
<sup>8</sup> IPCC, *Climate Change 2014: Synthesis Report* (IPCC, 2014) and IPCC, *Global Warming of 1.5°C* (IPCC, 2018).

**Fig. 4** Climate-related natural disasters are devastating low-income countries and small island developing States.



9

In 2015, Cyclone Pam displaced a quarter of the population of Vanuatu and inflicted \$590 million in damages, equivalent to 65 per cent of the country's gross domestic product (GDP). Fiji was blasted by Cyclone Winston in 2016, resulting in more than 40,000 homes being damaged or destroyed and \$1.4 billion in damages. In 2017, just two years after Hurricane Erika caused damage equivalent to 90 per cent of its GDP, Dominica was hit by Hurricane Maria,

which damaged 98 per cent of homes and resulted in losses equalling 260 per cent of the country's GDP *see Fig. 4*. Mozambique was hammered by two major cyclones just six weeks apart in 2019, causing extensive flooding, thousands of deaths and billions in damages. This list could go on and on.

10

Entire communities have been or are in the process of being relocated owing to rising sea levels, coastal erosion, storm surges, salinization and other climate impacts. These include the communities of Vunidogoloa, Fiji; Nuatambu, Nusa Hope and Taro, Solomon Islands; and Shishmaref, Kivalina, Newtok and Isle de Jean Charles, United States. Hundreds more face a similar fate. It is estimated that by 2050, 150 million people or more could be displaced by the impacts of climate change as a result of extreme weather, slow-onset events such as rising sea levels and desertification, relocation from high-risk areas (such as floodplains), and conflicts over scarce resources. Also by 2050, 4 million people, and around 70 per cent of Arctic infrastructure, will be threatened by thawing permafrost.<sup>9</sup> Over a longer time frame, entire States are at risk of becoming uninhabitable, including Kiribati, Maldives and Tuvalu.

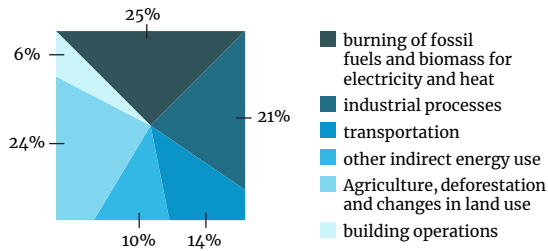
11

Climate change is also a major contributor to the declining diversity of life on Earth, with potentially devastating impacts on coral reefs, tropical forests and Arctic ecosystems. In the most comprehensive assessment of the state of nature ever undertaken, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services recently identified climate change as the third

It is estimated that by 2050, 150 million people or more could be displaced by the impacts of climate change as a result of extreme weather, slow-onset events such as rising sea levels and desertification, relocation from high-risk areas (such as floodplains), and conflicts over scarce resources.

<sup>9</sup> United Nations Environment Programme (UNEP), *Global Linkages: A graphic look at the changing Arctic* (UNEP, 2019).

**Fig. 5** Burning of fossil fuels and biomass, deforestation and industrial agriculture produces the bulk of GHG emissions.



most important risk factor contributing to the loss of biodiversity.<sup>10</sup>

## B. Causes of the global climate crisis

### 12

The human activities that have the largest impact on the Earth’s climate are the burning of fossil fuels and biomass, deforestation and industrial agriculture.

Seventy per cent of greenhouse gas emissions are produced by the burning of

fossil fuels and biomass for electricity and heat (25 per cent of the global total), industrial processes (21 per cent), transportation (14 per cent) and other indirect energy use (10 per cent) see Fig. 5.

Agriculture, deforestation and changes in land use cause 24 per cent of emissions, while building operations produce the remaining 6 per cent.

Key greenhouse gases include carbon dioxide (76 per cent of global greenhouse gas emissions), methane (16 per cent), nitrous oxide (6 per cent) and fluorinated gases such as chlorofluorocarbons and hydrofluorocarbons (2 per cent). Short-lived climate pollutants, including black carbon, methane and hydrofluorocarbons, have substantial short-term impacts on climate change, making it a priority to reduce these emissions.

Black carbon, for example, is produced by inefficient combustion in cookstoves and diesel engines. Black carbon deposits on Himalayan glaciers are accelerating melting, thereby threatening a vital water source for more than a billion people in South Asia.

### 13

The poorest half of the world’s population, 3.9 billion people, generate only 10 per cent of global emissions. Conversely, the richest 10 per cent produce half of global emissions. The wealthiest 1 per cent have a carbon footprint that is 2,000 times larger than that of the poorest 1 per cent.<sup>11</sup> Just 100 businesses (known as “carbon majors”) are responsible for 71 per cent of industrial greenhouse gas emissions since 1988.<sup>12</sup>

### 14

Three quarters of global emissions are produced by 20 States, namely (in diminishing order) China, the United States, India, Indonesia, the Russian Federation, Brazil, Japan, Canada, Germany, the Islamic Republic of Iran, Mexico, the Republic of Korea, Saudi Arabia, South Africa, Australia, the United Kingdom, Nigeria, Argentina, Zambia and Thailand.<sup>13</sup> Taking into account historical emissions, some nations are disproportionately responsible for the climate crisis. The United States has produced 25 per cent of global emissions since 1750, followed by China with 12 per cent and the

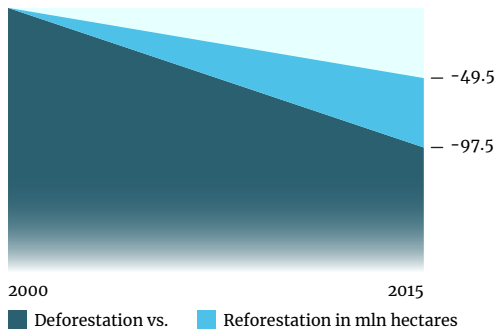
**10** Intergovernmental Science–Policy Platform for Biodiversity and Ecosystem Services, “Summary for policymakers of the global assessment report on biodiversity and ecosystem services”, document IPBES/7/10/Add.1.

**11** Oxfam, “Extreme Carbon Inequality: Why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first”, Oxfam Media Briefing (Oxfam, 2015).

**12** Richard Heede, “Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010”, *Climatic Change*, vol. 122, issue 1–2, pp. 229–241 (January 2014).

**13** Climate Watch, Global greenhouse gas emissions database. Available at [www.climatewatchdata.org/ghg-emissions?regions=TOP&source=34](http://www.climatewatchdata.org/ghg-emissions?regions=TOP&source=34).

**Fig. 6** Deforestation has resulted in an average loss of 6.5 million hectares of natural forests annually from 2000 to 2015.



United Kingdom with 5 per cent.<sup>14</sup> These facts have important ramifications for the human rights obligations of developed States, which must reduce emissions more rapidly and pay the lion's share of the costs to assist developing States.

**15**

Deforestation has declined since the 1990s but continues, with an average loss of 6.5 million hectares of natural forests annually from 2000 to 2015.<sup>15</sup> These losses were partially offset by an increase in planted forests, averaging 3.2 million hectares

annually from 2000 to 2015 see Fig. 6. The majority of ongoing deforestation is in tropical forests, which are important carbon sinks and also home to tremendous biodiversity.

**C. Magnitude of the challenges ahead**

**16**

Society is addicted to fossil fuels. Despite 27 years of commitments dating back to the United Nations Framework Convention on Climate Change, the world is neither headed in the right direction, nor addressing the crisis at an adequate pace. Since 1990, global energy consumption has increased by 57 per cent. The share of the world's total energy supply provided by fossil fuels has remained unchanged at 81 per cent.<sup>16</sup> Coal use is up 68 per cent, oil use is up 36 per cent and natural gas use is up 82 per cent. Even the fossil fuel share of electricity production has increased, from 62 per cent in 1992 to 65 per cent in 2016. Global greenhouse gas emissions are up 60 per cent since 1990. Wealthy people and large corporations are deeply invested in the status quo and use their immense economic and political power to resist the societal transformations needed to successfully address climate change.

**17**

Despite the Paris Agreement, energy-related carbon dioxide emissions rose in 2018 at the fastest rate since 2011, with the United States, China and India accounting for 85 per cent of the increase. Coal reversed its recent decline. Emissions from natural gas jumped 5 per cent. Deforestation in Brazil's Amazon rainforest increased 14 per cent in 2018.<sup>17</sup>

**18**

The International Monetary Fund estimated that fossil fuel subsidies in 2017 were \$5.2 trillion, with coal and oil accounting for 85 per cent of this total.<sup>18</sup> In 2018, global energy investment was \$1.8 trillion, but three times as much money was invested in fossil fuels

**14** Our World in Data, Cumulative Share of Global CO<sub>2</sub> Emissions. The long-run history: Cumulative CO<sub>2</sub>. <https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions#the-long-run-history-cumulative-co2>.

**15** UNEP, *Global Environment Outlook 6: Healthy Planet, Healthy People* (Nairobi, UNEP, 2019).

**16** International Energy Agency, *World Energy Balances* (International Energy Agency, 2018).

**17** Climate Action Tracker, "June 2019 update: Climate crisis demands more government action as emissions rise" (Climate Action Tracker, 2019).

**18** International Monetary Fund, "Global Fossil Fuel Subsidies Remain Large: An Update Based on Country-Level Estimates", IMF Working Paper, WP/19/89 (International Monetary Fund, 2019).

According to the International Energy Agency, there is “a growing mismatch between current trends and the paths to meeting the Paris Agreement and other sustainable development goals.”

compared to renewables.<sup>19</sup> The poorest countries, despite being home to 42 per cent of the world’s population and having the most pressing energy needs, received only 14 per cent of total energy investment. According to the International Energy Agency, there is “a growing mismatch between current trends and the paths to meeting the Paris Agreement and other sustainable development goals.”<sup>20</sup>

19

In response to the climate crisis, the Paris Agreement aims to hold the increase in global average temperatures to well

below 2°C, while striving to limit the increase to 1.5°C. Parties filed nationally determined contributions indicating the climate actions they plan to implement by 2030. Unfortunately, even if fully implemented by all States, the current nationally determined contributions would lead to a disastrous global temperature rise of 3°C above pre-industrial levels, violating the Paris Agreement.

20

In order to meet the Paris targets, only a limited volume of additional emissions can be allowed, known as the carbon budget. As of 2018, to have a likely chance (67 per cent) of limiting warming to 1.5°C, the remaining global budget is 580 gigatons of carbon dioxide. Annual emissions are roughly 50 gigatons, indicating that the entire budget will be exhausted by 2030 unless substantial emission reductions take place. The Intergovernmental Panel on Climate Change identified a 45 per cent reduction in carbon dioxide emissions by 2030 and net zero emissions by 2050 as necessary in order to limit warming to 1.5°C. To achieve the 2°C target requires a 25 per cent reduction in emissions by 2030 and net-zero emissions by 2070. The current level of ambition in reducing emissions must be tripled to achieve the 2°C target and quintupled to reach the 1.5°C goal.<sup>21</sup> Put simply, complying with the Paris Agreement requires dramatically accelerated climate action.

21

Net zero means that all greenhouse gas emissions will be offset by carbon dioxide removal, through afforestation, reforestation, land restoration, soil carbon sequestration, bioenergy with carbon capture and storage, and direct air carbon capture and storage. Implemented well, some carbon dioxide removal tools could provide co-benefits, such as healthier biodiversity, improved soil quality and local food security. Done poorly, carbon dioxide removal efforts could displace other land uses, causing adverse effects on food security, biodiversity and human rights.

19 International Energy Agency, *World Energy Investment 2019* (International Energy Agency, 2019).

20 International Energy Agency, *World Energy Investment 2019* (International Energy Agency, 2019).

21 UNEP, *Emissions Gap Report 2018* (Nairobi, UNEP, 2018).

22

Climate change is already, at warming of 1°C, having a negative impact on billions of people. According to the Intergovernmental Panel on Climate Change, “warming of 1.5°C is not considered ‘safe’ for most nations, communities, ecosystems and sectors and poses significant risks to natural and human systems as compared to the current warming of 1°C.”<sup>22</sup> As temperatures increase, so do the negative impacts. At 2°C, the Intergovernmental Panel on Climate Change forecasts that droughts and heat waves will be more frequent and twice as long, 100 million more people will face water insecurity, and the risks of an ice-free Arctic and glacier-free mountains will rise substantially. It will be easier and less expensive to ensure adaptive capacity and resilience at 1.5°C compared to 2°C or higher.

<sup>22</sup> IPCC, *Global Warming of 1.5°C* (IPCC, 2018).

<sup>23</sup> International Energy Agency, *World Energy Outlook 2012* (International Energy Agency, 2012).

<sup>24</sup> Christophe McGlade and Paul Ekins, “The geographical distribution of fossil fuels unused when limiting global warming to 2°C”, *Nature*, vol. 517 (January 2015).

23

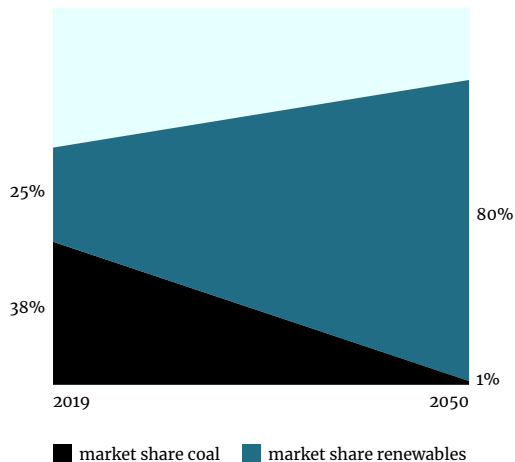
The Intergovernmental Panel on Climate Change has identified “rapid and far-reaching transitions” in energy, land use, urban areas, infrastructure and industrial systems, stating that these changes would be unprecedented in terms of scale and would require deep

emission reductions across all sectors. For example, to meet the objectives of the Paris Agreement, the electricity sector must be almost completely decarbonized by 2050. The market share of coal must fall from 38 per cent today to between 1 and 7 per cent by 2050, and even that small amount of coal must deploy carbon capture and storage see Fig. 7. The share of renewables would have to grow from 25 per cent today to 70–80 per cent by 2050.

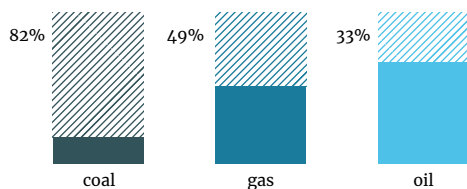
24

In 2012, the International Energy Agency estimated that two thirds of proven fossil fuel reserves must not be burned if we are to limit warming to 2°C.<sup>23</sup> A similar study published in 2015 concluded that 82 per cent of known coal reserves, 49 per cent of gas reserves and 33 per cent of oil reserves cannot be burned if we are to avoid dangerous climate change of more than 2°C see Fig. 8. The future greenhouse gas emissions contained in known reserves of fossil fuels are three times larger than the 2°C carbon budget.<sup>24</sup> The obvious conclusion is that further investments in new fossil fuel generating capacity

**Fig. 7** We must decarbonize by 2050 to meet Paris Agreement objectives i.e. the market share of coal must fall from 38% today to between 1 and 7% by 2050.



**Fig. 8** 82% of known coal reserves, 49% of gas reserves and 33% of oil reserves cannot be burned if we are to avoid dangerous climate change of more than 2°C.



**Fig. 9** Solar electricity generating capacity now exceeds 550 gigawatts globally, more than 500 times higher than in 2000.



**25** UNEP, *Emissions Gap Report 2018* (Nairobi, UNEP, 2018).

**26** Drew Shindell and others, “Quantified, localized health benefits of accelerated carbon dioxide emissions reductions”, *Nature Climate Change*, vol. 8, pp. 291–295 (March 2018), and Toon Vandyck and others, “Air quality co-benefits for human health and agriculture counterbalance costs to meet Paris Agreement pledges”, *Nature Communications*, vol. 9 (November 2018).

**27** International Energy Agency, *The Future of Cooling: Opportunities for energy-efficient air conditioning* (International Energy Agency, 2018).

**28** Global Commission on the Economy and Climate, *Unlocking the Inclusive Growth Story of the 21st Century: Accelerating Climate Action in Urgent Times* (Washington, D.C., Global Commission on the Economy and Climate, 2018).

**29** Available at [www.ohchr.org/EN/Issues/Environment/SREnvironment/Pages/Annualreports.aspx](http://www.ohchr.org/EN/Issues/Environment/SREnvironment/Pages/Annualreports.aspx).

or exploration for additional fossil fuel resources will either lock in a future that precludes achieving the required emission reductions or result in stranded assets.

## 25

There is some good news. Dramatic declines in the cost of renewable energy are accelerating the implementation of clean energy. Solar electricity costs have declined 75 per cent per watt since 2010. In many countries, wind and solar are now cheaper

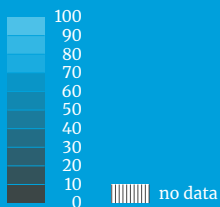
than fossil fuel electricity. Solar electricity generating capacity now exceeds 550 gigawatts globally, more than 500 times higher than in 2000 see Fig. 9. Total wind electricity generating capacity has soared from 17 gigawatts in 2000 to over 600 gigawatts today. Some 49 countries, responsible for 36 per cent of global emissions, have already seen their greenhouse gas emissions peak and begin declining.<sup>25</sup> Concurrently addressing climate change and air pollution, since the sources of these problems overlap, could prevent millions of premature deaths every year while securing trillions of dollars in benefits.<sup>26</sup> Eliminating hydrofluorocarbons, combined with increasing energy efficiency in air conditioners and other cooling products, would double the climate benefits and save \$2.9 trillion through 2050 by using less electricity.<sup>27</sup> The Global Commission on the Economy and Climate estimates that bold climate action and investment in climate-friendly infrastructure could generate \$26 trillion in benefits by 2030, compared with a business-as-usual scenario<sup>28</sup> (see the annex on good practices for additional information<sup>29</sup>).



# II. Effects of climate change



Proportion of national population using improved water supplies accessible on premises 2017 (in %)



## on the enjoyment of human rights

## Addressing climate change raises issues of justice and equity, both between and within nations and generations.

26

Climate change is having a major impact on a wide range of human rights today, and could have a cataclysmic impact in the future unless ambitious actions are undertaken immediately. Among the human rights being threatened and violated are the rights to life, health, food, water and sanitation, a healthy environment, an

adequate standard of living, housing, property, self-determination, development and culture. Addressing climate change raises issues of justice and equity, both between and within nations and generations. The main contributors to the problem have reaped immense economic benefits and thus have the greatest responsibility to solve the problem, pursuant to the principle of common but differentiated responsibilities. The adverse impacts of climate change disproportionately affect people living in poverty, whose contribution to the problem is minimal and who lack the resources to protect themselves or to adapt to the changes. The Special Rapporteur on extreme poverty and human rights recently warned about a future of climate apartheid, where the wealthy pay to shield themselves from the worst impacts of climate change while the poor suffer immensely.<sup>30</sup>

27

Approaching climate change from a human rights perspective highlights the principles of universality and non-discrimination, emphasizing that rights are guaranteed for all persons, including vulnerable groups. A rights-based approach could serve as a catalyst for accelerated action to achieve a healthy and sustainable future where all energy is provided by zero carbon sources, forests are flourishing, oceans are healthy and food is sustainably produced.

### A. Right to life

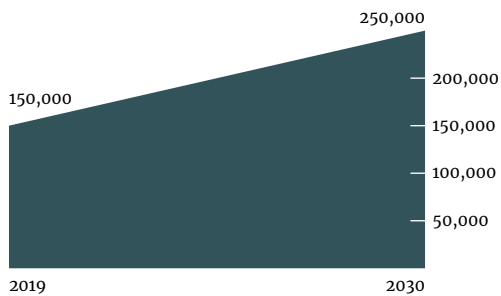
28

The right to life is universally recognized in human rights law. In 2018, the Human Rights Committee stated that “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.”<sup>31</sup> In order to uphold the right to life, States have an obligation to take effective measures to mitigate climate change, enhance the adaptive capacity of vulnerable populations and prevent foreseeable loss of life.

<sup>30</sup> A/HRC/41/39.

<sup>31</sup> General comment No. 36 (2018) on article 6 of the International Covenant on Civil and Political Rights, on the right to life.

**Fig. 10** Globally, at least 150,000 premature deaths annually have been linked to climate change.



yet available for the record-breaking heat waves experienced in India, Pakistan, Europe and Alaska in 2019. The World Health Organization (WHO) estimates that by 2030, some 250,000 climate-related deaths each year will be caused by heat stress, malaria, diarrhoea and malnutrition alone.<sup>33</sup> see Fig. 10 The Office of the United Nations High Commissioner for Human Rights concluded that, “at its most extreme, climate change kills”.<sup>34</sup>

## 29

Climate change has many direct and indirect effects on the full enjoyment of the right to life. Climate-related deaths are caused by extreme weather events, heat waves, floods, droughts, wildfires, water-borne and vector-borne diseases, malnutrition and air pollution. Globally, at least 150,000 premature deaths annually have been linked to climate change.<sup>32</sup> The heat wave that struck western Europe in 2003 caused approximately 70,000 premature deaths. Mortality data are not

**32** DARA and the Climate Vulnerable Forum, *Climate Vulnerability Monitor 2nd Edition: A Guide to the Cold Calculus of a Hot Planet* (DARA, 2012).

**33** WHO, *Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s* (WHO, 2014).

**34** A/HRC/32/23.

**35** IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability* (IPCC, 2014).

**Climate change also erodes many of the key social and environmental determinants of health, including access to adequate food and water, clean air, culture and livelihoods.**

## B. Right to health

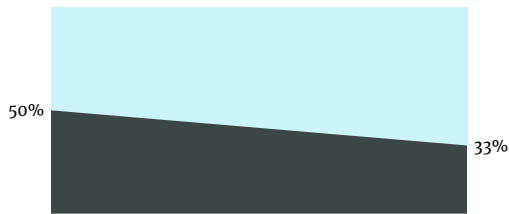
### 30

The Universal Declaration of Human Rights includes health as part of the right to an adequate standard of living. The International Covenant on Economic, Social and Cultural Rights enshrines the right to health and requires that State actions to fulfil that right “shall include those necessary for ... the improvement of all aspects of environmental and industrial hygiene.”

### 31

The adverse health impacts of climate change include not only premature deaths but also increased incidences of respiratory disease, cardiovascular disease, malnutrition, stunting, wasting, allergies, heat stroke, injuries, water-borne and vector-borne diseases and mental illness.<sup>35</sup> Dengue fever is the most rapidly spreading vector-borne disease, with a thirtyfold increase in global incidence that is largely attributable to climate change. Hundreds of millions of people are exposed to extreme weather events annually, resulting in injuries, illnesses and mental health impacts. Climate change also erodes many of the key social and environmental determinants of health, including access to adequate

**Fig. 11** In Côte d'Ivoire, the share of children taken to a health practitioner fell from 50 percent to around 33 percent in areas of extreme rainfall.



food and water, clean air, culture and livelihoods.<sup>36</sup> Health is also affected by climate-related displacement, migration and reduced access to health-care services see Fig. 11.

### 32

According to the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health, “the international community

has not confronted the health threats posed by global warming. The failure of the international community to take the health impact of global warming seriously will endanger the lives of millions of people across the world.”<sup>37</sup> The World Health Organization concluded that climate change already has negative effects on health and is undermining the right to health.<sup>38</sup> The Lancet Commission on Health and Climate Change warned that climate change is the biggest global health threat of the twenty-first century and could reverse five decades of progress in global health.<sup>39</sup>

## C. Right to food

### 33

The Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights include food as part of the right to an adequate standard of living, with the Covenant referring to the “fundamental right of everyone to be free from hunger”.

### 34

Food production, food security and the enjoyment of the right to food are affected by shifting precipitation patterns, higher temperatures, extreme weather events, changing sea ice conditions, droughts, floods, algal blooms and salinization. Changes in climate are already undermining the production of major crops, such as wheat, rice and maize. Without adaptation, or where adaptations fall short, this is expected to worsen as temperatures increase and become more extreme. In the oceans, temperature changes, bleaching of coral reefs and ocean acidification are affecting fisheries. Climate change also exacerbates drivers of food insecurity and malnutrition, such as conflict and poverty.

### 35

In 2016 and 2017, an encouraging decade-long trend towards lower levels of hunger and malnutrition reversed. According to the Food and Agriculture Organization of the United Nations,

<sup>36</sup> A/HRC/32/23.

<sup>37</sup> A/62/214.

<sup>38</sup> WHO, *COP 24 Special Report: Health and Climate Change* (WHO, 2018).

<sup>39</sup> N. Watts and others, “Health and climate change: policy responses to protect public health”, *Lancet*, vol. 386, issue 10006, pp. 1861–1914 (November 2015).

“climate variability and extremes are among the key drivers behind the recent uptick in global hunger and one of the leading causes of severe food crises. The cumulative effect of changes in climate is undermining all dimensions of food security – food availability, access, utilization and stability”.<sup>40</sup> The World Bank estimates that a 2°C increase in the average global temperature would put between 100 million and 400 million more people at risk of hunger and could result in over 3 million additional deaths from malnutrition each year.<sup>41</sup>

### 36

The negative impacts of climate change on food production and availability are unequally distributed both among and within States. States in sub-Saharan Africa and south Asia, where agriculture production, food systems and livelihoods are especially vulnerable to climate variability and extremes, face the greatest risk of food insecurity, malnutrition and violations of the right to food. Within countries, people living in mountain areas face high levels of food insecurity and are more vulnerable to climate change.<sup>42</sup>

## D. Right to water and sanitation

### 37

The human rights to water and sanitation were recognized in General Assembly resolution 64/292 and have been repeatedly affirmed.

### 38

Climate change is affecting precipitation patterns across the world, with some dry areas receiving less precipitation and wet areas receiving more frequent and intense precipitation. The four key elements of the rights to water and sanitation are threatened: availability, accessibility, acceptability and quality. The Intergovernmental Panel on Climate Change warned of particularly high vulnerability to water stress in small island developing States and parts of Africa, Asia and Latin America. Climate change has already contributed to a water crisis in the Plurinational State of Bolivia, where glaciers are receding and water rationing has been required in major cities. Indigenous pastoralists in Turkana County, Kenya, are struggling because climate change is negatively affecting water supplies, grazing opportunities and livestock herds, and increasing competition, conflict and insecurity.<sup>43</sup> Turkana women and girls bear the burden of longer walks to obtain potable water.

### 39

The right to sanitation may be threatened when water is increasingly scarce, and when floods, intense precipitation or other extreme weather events damage infrastructure or impair access. The rise in extreme weather events owing to climate change increases the risk of water-borne diseases, including typhoid fever and cholera.

<sup>40</sup> FAO, IFAD, UNICEF, WFP and WHO, *The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition* (Rome, FAO, 2018).

<sup>41</sup> World Bank, *World Development Report 2010: Development and Climate Change* (World Bank, 2010).

<sup>42</sup> FAO, *Mapping the vulnerability of mountain peoples to food insecurity* (FAO, 2015).

<sup>43</sup> Human Rights Watch, “There is no time left: climate change, environmental threats, and human rights in Turkana County, Kenya” (Human Rights Watch, 2015).

## E. Rights of the child

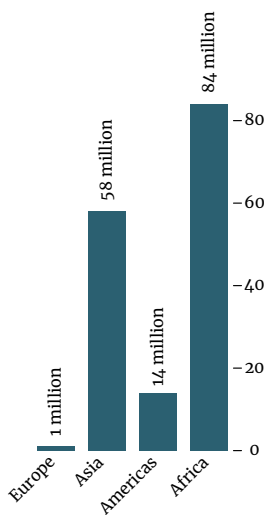
### 40

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”. Children and young people around the world are increasingly outspoken about the impacts of climate change on their rights and their future and the need for urgent action. In response to the call for inputs for the present report, one indigenous youth leader observed that “Earth is a giving planet ... Everything we ever needed to live, to survive, to enjoy the wonders of the world was provided by nature, yet we humans have become the most dangerous threat to life on Earth.”

### 41

Children are particularly vulnerable to health problems exacerbated by climate change, including vector-borne diseases, malnutrition, acute respiratory infections, diarrhoea and other water-borne illnesses.<sup>44</sup> Extreme weather events pose unique threats to the health and well-being of young bodies and minds. Globally, over 500 million children live in extremely high-risk flood zones; 160 million live in high or extremely high drought severity zones <sup>see Fig. 12;</sup> and 115 million are at high risk from tropical cyclones. By 2040, almost 600 million children will live in regions with extremely limited water resources. The United Nations Children’s Fund warns that “climate change will harm the poorest and most vulnerable children first, hardest and longest”.<sup>45</sup>

**Fig. 12** Number of children living in areas of high or extremely high drought severity by region.



### 42

The Committee on the Rights of the Child has implored States to address climate change, “as this is one of the biggest threats to children’s health and exacerbates health disparities”.<sup>46</sup> In its reporting procedure, the Committee has increasingly referred to climate change, urging States to consider the best interests of the child as a matter of primary consideration when designing, implementing and monitoring laws and policies related to climate change, taking into account the explicit reference to children’s rights and intergenerational equity in the Paris Agreement.

## F. Right to a healthy environment

### 43

As noted in the Special Rapporteur’s previous reports, the right to a safe, clean, healthy and sustainable environment is recognized in law by at least 155 Member States.<sup>47</sup> The substantive elements of this right include a safe climate, clean air, clean water and adequate sanitation, healthy and sustainably produced food,

<sup>44</sup> A/HRC/35/13.

<sup>45</sup> UNICEF, *Unless we act now: The impact of climate change on children* (UNICEF, 2015).

<sup>46</sup> General comment No. 15 (2013) on the right of the child to the enjoyment of the highest attainable standard of health (art. 24).

<sup>47</sup> A/HRC/40/55.

non-toxic environments in which to live, work, study and play, and healthy biodiversity and ecosystems. These elements are informed by commitments made under international environmental treaties, such as the United Nations Framework Convention on Climate Change, wherein States pledged to “prevent dangerous anthropogenic interference with the climate system”, or in other words to maintain a safe climate.

**44**

The failure of States to take adequate steps to address climate change can constitute a violation of the right to a healthy environment, as the Supreme Court of Colombia and other courts have recently recognized.<sup>48</sup>

**48** Supreme Court of Colombia, *Demanda Generaciones Futuras v. Minambiente*, Decision of 5 April 2018, and Lahore High Court, *Leghari v. Federation of Pakistan*, W.P. No. 25501/201, Decision of 4 April 2015.

**49** IPCC, “Summary for policymakers”, *Climate Change 2014: Impacts, Adaptation, and Vulnerability* (IPCC, 2014).

**50** WHO, *Gender, climate change and health* (WHO, 2014).

**51** General recommendation No. 37 on gender-related dimensions of disaster risk reduction in the context of climate change and A/HRC/41/26.

**52** United Nations Development Programme (UNDP), *Gender Equality in National Climate Action: Planning for Gender-Responsive Nationally Determined Contributions* (UNDP, 2016).

**53** Center for International Environmental Law and Global Initiative for Economic, Social and Cultural Rights, *States’ Human Rights Obligations in the Context of Climate Change: 2019 Update* (Center for International Environmental Law and Global Initiative for Economic, Social and Cultural Rights, 2019).

## **G. Vulnerable populations**

**45**

The Intergovernmental Panel on Climate Change observed that “people who are socially, economically, culturally, politically, institutionally, or otherwise marginalized are especially vulnerable to climate change”.<sup>49</sup> This includes people or communities whose vulnerabilities are caused by poverty, gender, age, disability, geography and cultural or ethnic background. Although at risk, these people often have the potential to contribute to climate solutions when empowered to do so.

**46**

The worst impacts afflict those who have contributed least to the problem and who have the fewest resources to adapt to, or cope with, the impacts. For example, during droughts, women and children in low-income countries are often disproportionately affected because of their responsibilities for collecting water and firewood. On the other hand, male farmers face elevated risks of suicide during droughts. Understanding gender differences in vulnerability, roles and capacity is essential for designing fair and effective climate actions.<sup>50</sup>

**47**

In 2018, the Committee on the Elimination of Discrimination against Women recognized that climate change impacts, including disasters, have a disproportionate effect on women.<sup>51</sup> Women experience greater financial and resource constraints, lower levels of access to information, and less decision-making authority in their homes, communities and countries.<sup>52</sup> In its recommendations to States (concluding observations), the Committee has repeatedly urged States to take into account the greater vulnerability of women by adopting a human rights-based approach to all decisions related to adaptation, mitigation, disaster risk reduction and climate finance.<sup>53</sup> The Committee has made specific

recommendations regarding older women and rural women, two groups with particular vulnerabilities to climate change.<sup>54</sup> Women are also leaders and vital agents of change, maximizing use of their knowledge and resources to help families to adapt.<sup>55</sup>

**48**

Despite contributing little to the problem, roughly 400 million indigenous peoples around the world are especially vulnerable to climate change because of their close connection to nature and dependence on wildlife, plants and healthy ecosystems for food, medicine and cultural needs. On the other hand, indigenous people can make important contributions to solutions, through traditional knowledge, legal systems and cultures that have proven effective at conserving land, water, biodiversity and ecosystems, including forests.<sup>56</sup>

**49**

An example of climate change impacts on indigenous peoples is reductions in Arctic sea ice that affect wildlife distribution and complicate ice-based travel, undermining the ability of Inuit hunters to secure food. Indigenous peoples on Pacific islands are directly threatened with partial or total disappearance of their lands as a result of climate change. In addition, climate mitigation projects have jeopardized or violated indigenous rights, including the Barro Blanco hydropower project in Panama, the Water Towers Protection and Climate Change Mitigation and Adaptation Programme in Kenya and the Agua Zarca dam in Honduras.<sup>57</sup>

**50**

Persons with disabilities could also be disproportionately affected by climate change. The Committee on the Rights of Persons with Disabilities emphasized that States must ensure that the requirements of all persons with disabilities are taken into consideration when designing and implementing adaptation and disaster risk reduction measures.<sup>58</sup>

**51**

Small island developing States produce only 0.03 per cent of global greenhouse gas emissions, yet experience some of the most severe impacts of climate change. Nine of the ten worst climate-related disasters between 1998 and 2017, measured by losses as a percentage of GDP, involved storms that devastated small island developing States.<sup>59</sup>

**54** General recommendation No. 27 on older women and general recommendation No. 34 on the rights of rural women.

**55** WHO, *Gender, climate change and health* (WHO, 2014).

**56** Permanent Forum on Indigenous Issues, "Climate change and indigenous peoples" (Permanent Forum on Indigenous Issues, 2008).

**57** A/HRC/36/46.

**58** CRPD/C/SYC/CO/1.

**59** Centre for Research on the Epidemiology of Disasters and United Nations Office for Disaster Risk Reduction, *Economic Losses, Poverty and Disasters 1998–2017* (Centre for Research on the Epidemiology of Disasters and United Nations Office for Disaster Risk Reduction, 2018).



# III. Human rights obligations



Status of Ratification  
of 18 International  
Human Rights Treaties  
2019

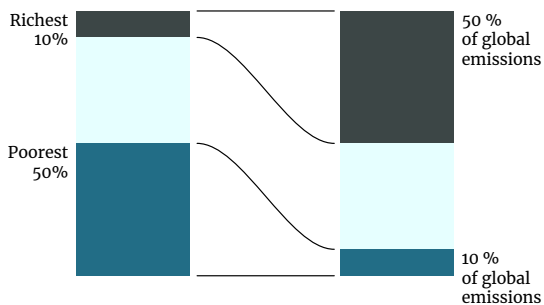


# relating to climate change

States committed themselves to ensuring a safe climate, which is vital to the enjoyment of a broad range of human rights.

States committed themselves to ensuring a safe climate, which is vital to the enjoyment of a broad range of human rights.

**Fig. 13** The poorest people in the world have the smallest carbon footprint; the richest half of the population produces the largest carbon footprint.



52

The purpose of the United Nations Framework Convention on Climate Change is to achieve “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (see article 2). In other words,

53

In 2010, in Cancún, Mexico, the Conference of the Parties to the United Nations Framework Convention on Climate Change adopted Decision 1/CP.16, in which they noted that the adverse effects of climate change have implications for the effective enjoyment of human rights, that the effects will be felt most acutely by those segments of the population that are already vulnerable see Fig. 13, and that States parties should, in all climate change-related actions, fully respect human rights.<sup>60</sup>

54

The Paris Agreement represents a breakthrough, in that it explicitly links human rights and climate change. In the Agreement, the parties acknowledged that they “should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity.” The Paris Agreement refined the concept of a safe climate as “well below” a 2°C increase in the average global temperature, and ideally limited to a 1.5°C increase.

55

The human rights obligations related to climate change have been explored by the Human Rights Council, the special procedures, the treaty bodies, Governments, the Inter-American Court of Human Rights<sup>61</sup> and many international agencies. The following summary of this work is intended to be illustrative rather than exhaustive. All of these experts have reached two common conclusions: first, climate change and its impacts threaten a broad range of human rights, and second, as a result, States and private actors have extensive human rights obligations and responsibilities.

<sup>60</sup> FCCC/CP/2010/7/Add.1.

<sup>61</sup> Inter-American Court of Human Rights, *Advisory Opinion OC-23/17 of 15 November 2017 requested by the Republic of Colombia*.

56

Early milestones were the 2005 Inuit petition to the Inter-American Commission on Human Rights asserting that greenhouse gas emissions from the United States were violating the human rights of the Inuit, and the Male' Declaration on the Human Dimension of Global Climate Change. Although the Inuit petition was ruled inadmissible, it was a catalyst for action, including a hearing on climate change held by the Inter-American Commission in 2006. The Male' Declaration, adopted by representatives of small island developing States in 2007, was the first intergovernmental statement explicitly recognizing that climate change has "clear and immediate implications for the full enjoyment of human rights".

57

Beginning in 2008, the Human Rights Council adopted a series of resolutions expressing concern that climate change poses an immediate and far-reaching threat to people and communities around the world, and that the effects will be felt most acutely by those who already live in vulnerable situations.<sup>62</sup> The resolutions resulted in a series of reports on climate change and human rights prepared by the Office of the United Nations High Commissioner for Human Rights, addressing general linkages,<sup>63</sup> health,<sup>64</sup> children's rights,<sup>65</sup> migration<sup>66</sup> and gender.<sup>67</sup>

58

The Special Rapporteur on the right to food,<sup>68</sup> the Special Rapporteur on adequate housing,<sup>69</sup> the Special Rapporteur on the human rights of migrants,<sup>70</sup> the Special Rapporteur on the rights of indigenous peoples,<sup>71</sup> the Special Rapporteur on extreme poverty and human rights,<sup>72</sup> the Special Rapporteur on the human rights of internally displaced persons,<sup>73</sup> the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment<sup>74</sup> and the Independent Expert on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment<sup>75</sup> have all warned that climate change threatens the full enjoyment of human rights and that climate actions must be developed and implemented in accordance with human rights laws and norms.

59

The special procedures mandate holders have also issued joint statements and reports on climate change and human rights.<sup>76</sup> In 2014, 27 special rapporteurs and independent experts issued a joint letter concluding that "there can no longer be any doubt that climate change interferes with the enjoyment of human rights recognised and protected by international law."<sup>77</sup> That same year, on Human Rights Day, all special procedures mandate holders issued a statement in which they noted that "Climate change is one of the greatest challenges of our generation with

<sup>62</sup> Human Rights Council resolutions 7/23, 10/4, 18/22, 26/27, 29/15, 32/33, 35/20 and 38/4.

<sup>63</sup> A/HRC/10/61.

<sup>64</sup> A/HRC/32/23.

<sup>65</sup> A/HRC/35/13.

<sup>66</sup> A/HRC/38/21.

<sup>67</sup> A/HRC/41/26.

<sup>68</sup> A/70/287.

<sup>69</sup> A/64/255.

<sup>70</sup> A/67/299.

<sup>71</sup> A/HRC/36/46.

<sup>72</sup> A/HRC/41/39.

<sup>73</sup> A/HRC/16/43 and A/66/285.

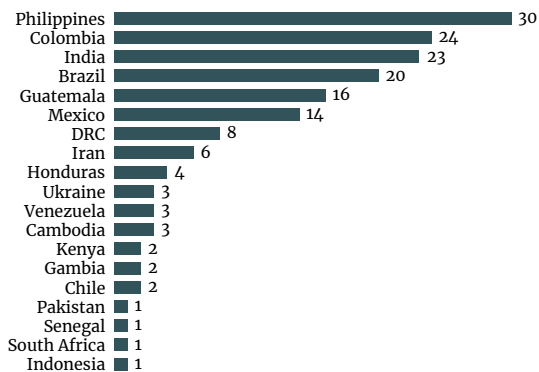
<sup>74</sup> A/HRC/31/52.

<sup>75</sup> A/HRC/25/53.

<sup>76</sup> Office of the United Nations High Commissioner for Human Rights, *The Effects of Climate Change on the Full Enjoyment of Human Rights* (Office of the United Nations High Commissioner for Human Rights, 2015).

<sup>77</sup> Office of the United Nations High Commissioner for Human Rights, "A new climate change agreement must include human rights protections for all", 17 October 2014. Available at [www.ohchr.org/Documents/HRBodies/SP/SP\\_To\\_UNFCCC.pdf](http://www.ohchr.org/Documents/HRBodies/SP/SP_To_UNFCCC.pdf).

**Fig. 14** Deaths of environmental and land rights defenders by country.



consequences that transform life on earth and adversely impact the livelihood of many people. It poses great risks and threats to the environment, human health, accessibility and inclusion, access to water, sanitation and food, security *see Fig. 14*, and economic and social development. These impacts of climate change interfere with the effective enjoyment of human rights. In particular, climate change has a disproportionate effect on many disadvantaged, marginalized, excluded and vulnerable individuals and groups,

including those whose ways of life are inextricably linked to the environment.”<sup>78</sup>

### 60

The United Nations Environment Assembly adopted a resolution in 2018 in which it noted that women “are often disproportionately affected by the impact of climate change”, but recognized “the active and meaningful role of women as key agents of change in developing innovative solutions to climate change”.<sup>79</sup>

### 61

The treaty bodies, created to monitor the implementation of the key United Nations human rights treaties, have made valuable recommendations that emphasize the relevance of human rights obligations to climate change. The number of references to climate change in the concluding observations of treaty bodies increased from just 1 in 2008 to more than 30 in 2018.<sup>80</sup> The Committee on the Elimination of Discrimination Against Women has demonstrated leadership in this area, making climate-related recommendations to three quarters of the States it reviewed.

## A. State obligations

### 62

States have obligations to protect human rights from environmental harm and obligations to fulfil their international commitments.<sup>81</sup> The foreseeable and potentially catastrophic adverse effects of climate change on the enjoyment of a wide range of human rights give rise to extensive duties of States to take immediate actions to prevent those harms. To comply with their international human rights obligations, States should apply a rights-based approach to all aspects of climate change and climate action. Applying a rights-based approach clarifies the obligations of States and businesses; catalyses ambitious action; highlights the plight of the poorest and most vulnerable;

<sup>78</sup> Statement of the special procedures mandate holders on the occasion of Human Rights Day. Available at [www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=15393&LangID=E](http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=15393&LangID=E).

<sup>79</sup> UNEP/EA.4/Res.17.

<sup>80</sup> Center for International Environmental Law and Global Initiative for Economic, Social and Cultural Rights, *States’ Human Rights Obligations in the Context of Climate Change: 2019 Update* (Center for International Environmental Law and Global Initiative for Economic, Social and Cultural Rights, 2019).

<sup>81</sup> A/HRC/25/53.

and empowers people to become involved in designing and implementing solutions.

63

The framework principles on human rights and the environment clarify three categories of State obligations: procedural, substantive, and special obligations towards those in vulnerable situations.<sup>82</sup> The framework principles can be operationalized in the context of climate change in order to respect, protect and fulfil human rights.

64

Pursuant to international human rights law, States have procedural obligations to:

(a)

Provide the public with accessible, affordable and understandable information regarding the causes and consequences of the global climate crisis, including incorporating climate change into the educational curriculum at all levels;

(b)

Ensure an inclusive, equitable and gender-based approach to public participation in all climate-related actions, with a particular emphasis on empowering the most affected populations, namely women, children, young people, indigenous peoples and local communities, persons living in poverty, persons with disabilities, older persons, migrants, displaced people, and other potentially at-risk communities;

(c)

Enable affordable and timely access to justice and effective remedies for all, to hold States and businesses accountable for fulfilling their climate change obligations;

(d)

Assess the potential climate change and human rights impacts of all plans, policies and proposals, including both upstream and downstream effects (i.e. both production- and consumption-related emissions);

(e)

Integrate gender equality into all climate actions, enabling women to play leadership roles;

<sup>82</sup> A/HRC/37/59, see annex.

(f)

Respect the rights of indigenous peoples in all climate actions, particularly their right to free, prior and informed consent;

(g)

Provide strong protection for environmental and human rights defenders working on all climate-related issues, from land use to fossil fuels. States must vigilantly protect defenders from harassment, intimidation and violence.<sup>83</sup>

65

With respect to substantive obligations, States must not violate the right to a safe climate through their own actions; must protect that right from being violated by third parties, especially businesses; and must establish, implement and enforce laws, policies and programmes to fulfil that right.<sup>84</sup> States also must avoid discrimination and retrogressive measures. These principles govern all climate actions, including obligations related to mitigation, adaptation, finance, and loss and damage.

66

Human rights obligations are reinforced by international environmental law, as States are obliged to ensure that polluting activities within their jurisdiction or control do not cause serious harm to the environment or peoples of other States or to areas beyond the limits of national jurisdiction.<sup>85</sup> Given the foreseeability of increasing climate impacts, this well-established “no harm” rule of customary international law is being violated as a result of greenhouse gas emissions, which, regardless of where they are emitted, are contributing, cumulatively, to adverse effects in other States, including small island developing States. The Urgenda case in the Netherlands is an important precedent, as the Court relied on international human rights law to hold the Government of the Netherlands accountable for fulfilling commitments the Government itself says are necessary to prevent dangerous climate change.<sup>86</sup>

67

The Committee on Economic, Social and Cultural Rights has begun recommending that States stop some oil and gas developments. For example, the Committee recommended that Argentina reconsider plans for the large-scale exploitation of shale oil and gas because those plans ran “counter to the State party’s commitments under the Paris Agreement and would have a negative impact on global warming and on the enjoyment of economic and social rights by the world’s population and future generations”.<sup>87</sup> The Committee expressed similar concerns about gas extraction in the Netherlands.

<sup>83</sup> Declaration on the Right and Responsibility of Individuals, Groups and Organs of Society to Promote and Protect Universally Recognized Human Rights and Fundamental Freedoms (A/RES/53/144) and Human Rights Council resolution 40/11 on recognizing the contribution of environmental human rights defenders to the enjoyment of human rights, environmental protection and sustainable development (A/HRC/RES/40/11).

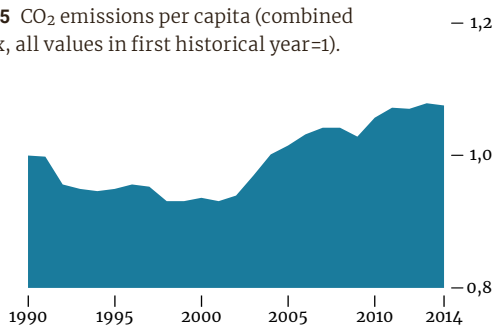
<sup>84</sup> Committee on Economic, Social and Cultural Rights, general comment No. 3 on the nature of States parties’ obligations (E/1991/23).

<sup>85</sup> *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, I.C.J. Reports 2010, p. 14.

<sup>86</sup> Hague Court of Appeal, *Urgenda Foundation v. Netherlands*, Case No. 200.178.245/01, Decision, 9 October 2018.

<sup>87</sup> E/C.12/ARG/CO/4.

**Fig. 15** CO<sub>2</sub> emissions per capita (combined index, all values in first historical year=1).



**68**

States have an obligation to cooperate to achieve a low-carbon *see Fig. 15*, climate resilient and sustainable future, which means sharing information; the transfer of zero-carbon, low-carbon and high-efficiency technologies from wealthy to less wealthy States; building capacity; increasing spending on research and development related to the clean energy transition;

honouring international commitments; and ensuring fair, legal and durable solutions for migrants and displaced persons. Wealthy States must contribute their fair share towards the costs of mitigation and adaptation in low-income countries, in accordance with the principle of common but differentiated responsibilities. Climate finance to low-income countries should be composed of grants, not loans. It violates basic principles of justice to force poor countries to pay for the costs of responding to climate change when wealthy countries caused the problem.

**69**

Climate actions, including under new mechanisms being negotiated pursuant to article 6 of the Paris Agreement, must be designed and implemented to avoid threatening or violating human rights. In the past, policies supporting biofuel production contributed to spikes in food prices, riots, and a major increase in the total number of people suffering from hunger.<sup>88</sup> Forest preservation policies raise similar concerns about the impact on rights, as such policies may limit access to lands used for hunting, fishing, gathering, cultivation and other important cultural activities. Integrating actions to achieve climate targets and the Sustainable Development Goals, in cooperation with affected communities, will ensure that these types of adverse outcomes are avoided.

**70**

In 2018, the Committee on Economic, Social and Cultural Rights warned States that “a failure to prevent foreseeable human rights harm caused by climate change, or a failure to mobilize the

maximum available resources in an effort to do so, could constitute a breach of this obligation”.<sup>89</sup> States must, therefore, dedicate the maximum available financial and material resources to shift to renewable energy *see Fig. 16*, clean transport and agroecological farming; halt and reverse deforestation and soil deterioration; and increase adaptive capacity, especially in vulnerable and marginalized communities.

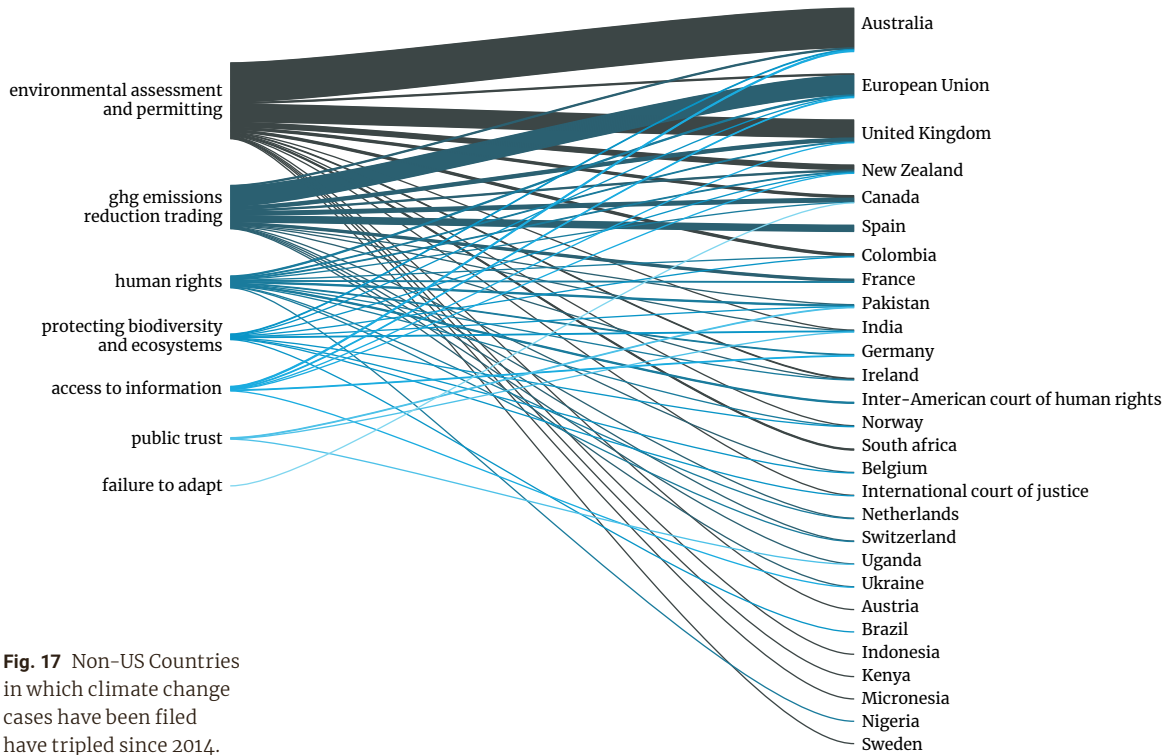
**88** High Level Panel of Experts on Food Security and Nutrition, *Biofuels and food security* (Rome, FAO, 2013).

**89** Committee on Economic, Social, and Cultural Rights, “Climate change and the International Covenant on Economic, Social, and Cultural Rights”, 8 October 2018. Available at [www.ohchr.org/en/NewsEvents/Pages/DisplayNews.aspx?NewsID=23691&LangID=E](http://www.ohchr.org/en/NewsEvents/Pages/DisplayNews.aspx?NewsID=23691&LangID=E).

**Fig. 16** Total wind electricity generating capacity has soared from 17 gigawatts in 2000 to over 600 gigawatts today.



IV. Conclusion and recommendations



**Fig. 17** Non-US Countries in which climate change cases have been filed have tripled since 2014.

As a first step, corporations should comply with the Guiding Principles on Business and Human Rights as they pertain to human rights and climate change.

**B. Business responsibilities**

71

Businesses must adopt human rights policies, conduct human rights due diligence, remedy human rights violations for which they are directly responsible, and work to influence other actors to respect human rights where relationships of leverage exist. As a first step, corporations should comply with the Guiding Principles on Business and Human Rights as they pertain to human rights and climate change.

72

The five main responsibilities of businesses specifically related to climate change are to reduce greenhouse gas emissions from their own activities and their subsidiaries; reduce greenhouse gas emissions from their products and services; minimize greenhouse gas emissions from their suppliers; publicly disclose their emissions, climate vulnerability and the risk of stranded assets; and ensure that people affected by business-related human rights violations have access to effective remedies.<sup>90</sup> In addition, businesses should support, rather than oppose, public policies intended to effectively address climate change.

<sup>90</sup> Expert Group on Climate Obligations of Enterprises, *Principles on Climate Obligations of Enterprises: Legal Perspectives for Global Challenges* (Expert Group on Climate Obligations of Enterprises, 2018).



# IV. Conclusion



Right to a healthy environment 2019

- Constitutional Incorporation (114 countries)
- Recognition in Environmental Legislation (103)
- no agreement

and



Regional agreements or arrangements on the right to a healthy environment 2019

- African Charter (53 countries)
- Aarhus Convention (49)
- San Salvador Protocol (16)
- Escazú Agreement / Latin American and the Caribbean (16)
- Arab Charter (13)
- Association of Southeast Asian Nations\* (10)
- no agreement

# recommendations

\* Human Rights Declaration adopted by the ten States in the Association of Southeast Asian Nations in 2012 incorporates the “right to a safe, clean and sustainable environment” as an element of the right to an adequate standard of living (para. 28 (f)) but is not legally binding

73

Climate change is already harming billions of people, violating human rights, exacerbating inequality and perpetuating injustice. Parties to the Paris Agreement are not on track to meet their commitments. Instead of falling, global emissions are rising. Instead of phasing out fossil fuels, States provide subsidies and banks offer financing, both measured in trillions of dollars annually. New coal-fired power plants are still being built. Instead of reforestation, deforestation continues. Funding has fallen short of the promised \$100 billion per year. Between 2015 and 2018, the Green Climate Fund received only \$10.3 billion in total pledges and the United States refuses to pay \$2 billion that it committed.<sup>91</sup>

**There is an immense gap between what is needed to seriously tackle the global climate emergency and what is being done.**

74

A failure to fulfil international climate change commitments is a prima facie violation of the State's obligations to protect the human rights of its citizens. As global average temperatures rise, even more people's rights will be violated, and the spectre of catastrophic runaway climate chaos increases. There is an immense

gap between what is needed to seriously tackle the global climate emergency and what is being done.

75

A dramatic change of direction is needed. To comply with their human rights obligations, developed States and other large emitters must reduce their emissions at a rate consistent with their international commitments. To meet the Paris target of limiting warming to 1.5°C, States must submit ambitious nationally

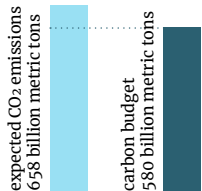
**All States should prepare rights-based deep decarbonization plans intended to achieve net zero carbon emissions by 2050, in accordance with article 4, paragraph 19, of the Paris Agreement.**

determined contributions by 2020 that will put the world on track to reducing greenhouse gas emissions by at least 45 per cent by 2030 (as calculated by the Intergovernmental Panel on Climate Change). All States should prepare rights-based deep decarbonization plans intended to achieve net zero carbon emissions by 2050, in accordance with article 4, paragraph 19, of the Paris Agreement. Four main categories of actions must be taken: addressing society's addiction to fossil fuels; accelerating other mitigation actions;

protecting vulnerable people from climate impacts; and providing unprecedented levels of financial support to least developed countries and small island developing States.

<sup>91</sup> See [www.greenclimate.fund/how-we-work/resource-mobilization](http://www.greenclimate.fund/how-we-work/resource-mobilization).

**Fig. 18** The continued use of existing fossil fuel infrastructure for its expected lifespan would generate emissions that exceed the available carbon budget to reduce warming to 1.5°C.



## A. Addressing society's addiction to fossil fuels

76

Fossil fuel burning accounts for more than 70 per cent of global greenhouse gas emissions. Even the continued use of existing fossil fuel infrastructure for its expected lifespan would generate emissions (658 billion metric tons of carbon dioxide) that exhaust the available carbon budget (580 billion tons) for limiting warming to 1.5°C.<sup>92</sup> see Fig. 18 Clearly, emissions from fossil fuels need to be reduced, beginning immediately.

77

To address society's addiction to fossil fuels, all States should:

(a)

Immediately terminate all fossil fuel subsidies, except for clean cookstove programmes;

(b)

Stop building new coal-fired power plants unless equipped with carbon capture and storage technology, and require existing coal-fired power plants to be retrofitted with carbon capture and storage technology or be closed by 2030 in high-income nations (already committed to by 30 nations), by 2040 in upper middle-income nations, and by 2050 elsewhere;

(c)

Enact laws that phase in zero-carbon transportation, including zero-emission vehicle mandates and low-carbon fuel standards, and laws that phase out the sale of new diesel and gasoline passenger vehicles;

(d)

Limit fossil fuel businesses and their industry associations from influencing climate, energy and environmental policies, in light of their responsibility for the majority of emissions and their well-known efforts to subvert and deny scientific

evidence of climate change. This is a key element of the WHO Framework Convention on Tobacco Control, which limits the involvement of tobacco companies in health policy.

<sup>92</sup> D. Tong and others, "Committed emissions from existing energy infrastructure jeopardize 1.5°C climate target", *Nature* (July 2019).

78

Developed States should demonstrate leadership by:

(a)

Prohibiting further exploration for additional fossil fuels, since not all existing reserves can be burned while still meeting the commitments of the Paris Agreement;

(b)

Requiring all new natural gas power plants to use carbon capture and storage technology and requiring existing gas plants to be retrofitted with carbon capture and storage technology;

(c)

Rejecting any other expansion of fossil fuel infrastructure;

(d)

Prohibiting the expansion of the most polluting and environmentally destructive types of fossil fuel extraction, including oil and gas produced from hydraulic fracturing (fracking), oil sands, the Arctic or ultra-deepwater.

79

International financial institutions and banks should eliminate financing for fossil fuel projects, with the exception of clean cookstove programmes.

## **B. Accelerating other mitigation actions**

80

States should also consider the following mitigation priorities:

(a)

Triple investment in renewables, electricity storage and energy efficiency to roughly \$2 trillion per year in the short term, increasing to \$3 trillion by 2050;<sup>93</sup>

(b)

Accelerate actions to reduce short-lived climate pollutants (methane, black carbon, ground-level ozone and hydrofluorocarbons), including through the ratification and implementation of the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer; the expansion of programmes to

<sup>93</sup> Dolf Gielen and others, "The role of renewable energy in the global energy transformation", *Energy Strategy Reviews*, vol. 24, pp. 38–50 (January 2019).

replace polluting cookstoves and fuels with clean technologies; and binding regulations to address methane emissions from the oil and gas industry, agriculture and waste;<sup>94</sup>

(c)

Commit to ending deforestation by 2020 and immediately commencing a trillion tree reforestation and afforestation programme;<sup>95</sup>

(d)

Phase out the production and use of harmful single-use plastics by 2025, as plastic production generates high volumes of greenhouse gas emissions;<sup>96</sup>

(e)

Take stronger steps to reduce emissions from aviation and shipping;

(f)

Reconsider policies and programmes that subsidize and support biofuels, in light of their negative impact on food security and uncertain impact on emission reduction;

(g)

Promote healthy plant-based diets that are less land-, resource- and greenhouse gas emission-intensive;

(h)

Take action to substantially reduce food waste.

<sup>94</sup> V. Ramanathan and others, *Well Under 2 Degrees Celsius: Fast Action Policies to Protect People and the Planet from Extreme Climate Change* (2017). Available at [www.igsd.org/wp-content/uploads/2017/09/Well-Under-2-Degrees-Celsius-Report-2017.pdf](http://www.igsd.org/wp-content/uploads/2017/09/Well-Under-2-Degrees-Celsius-Report-2017.pdf).

<sup>95</sup> Jean-Francois Bastin and others, "The global tree restoration potential," *Science*, vol. 365, issue 6448, pp. 76–79 (July 2019).

<sup>96</sup> Jiajia Zheng and Sangwon Suh, "Strategies to reduce the global carbon footprint of plastics", *Nature Climate Change*, vol. 9, pp. 374–378 (May 2019).

<sup>97</sup> Nathan Lobel and Matteo Fermeiglia, "Investment Protection and Unburnable Carbon: Competing Commitments in International Investment and Climate Governance", *Diritto del Commercio Internazionale* (June 2019).

## 81

Corporations have used Investor-State dispute settlement mechanisms in investment treaties to file lawsuits seeking compensation for lost profits when climate policies are strengthened, creating regulatory chill. States should withdraw consent to arbitration or negotiate a carve-out for climate actions as a safeguard to protect against these types of lawsuits.<sup>97</sup>

## 82

States that have substantial fossil fuel industries should incorporate strategies for a just transition, including social and economic impact assessments as well as policies and programmes for skills development, retraining and adult education.

**83**

Some proposed geoengineering strategies to mitigate climate change involve the large-scale manipulation of natural systems through measures such as fertilizing the oceans with iron, installing mirrors in outer space to reflect solar radiation, or shooting aerosols into the atmosphere (imitating the effects of large volcanic eruptions). These untested technological approaches could have massive impacts on human rights, severely disrupting ocean and terrestrial ecosystems, interfering with food production and harming biodiversity. These types of geoengineering strategies should not be used until their implications are much better understood.

**C. Adaptation to protect vulnerable people**

**84**

The goals of adaptation are to prevent and reduce vulnerability, strengthen resilience, minimize harm and capitalize on new opportunities. The annual costs of adaptation could range from \$140 billion to \$300 billion by 2030, and from \$280 billion to \$500 billion by 2050.<sup>98</sup>

**85**

The implementation of adaptation measures needs to be accelerated dramatically. A rights-based approach should be applied in order to tackle the root causes of vulnerability, such as poverty, inequality, discrimination and marginalization, and not merely the symptoms of climate change impacts. Developing States should pursue climate-resilient, low-carbon development, integrating adaptation and disaster risk reduction measures, with financial and technical assistance from developed States. Priority should be given to the most vulnerable and marginalized communities.

**86**

To accelerate the implementation of effective adaptation actions, States should:

**(a)**

Develop adaptation actions through inclusive, participatory processes, informed by the knowledge, aspirations and specific contexts of affected countries, communities and individuals;

**(b)**

Implement national adaptation plans and/or national adaptation programmes of action that address both extreme weather disasters and slow-onset events by building or upgrading infrastructure (such as water, sanitation, health and education facilities) to be climate resilient; developing disaster

<sup>98</sup> UNEP, *The Adaptation Gap Report 2018* (Nairobi, UNEP, 2018).

risk reduction and management strategies, early warning systems and emergency response plans; and providing disaster relief and humanitarian assistance in emergencies, consistent with the Sendai Framework for Disaster Risk Reduction 2015–2030;

(c)

Provide social protection mechanisms to reduce vulnerability to climate-related disasters and stresses, enabling people to become more resilient;

(d)

Prioritize nature-based adaptation actions, because protecting and restoring ecosystems can reduce vulnerability, buffering the impacts of extreme weather disasters and slow-onset events, and enhance ecosystem services, including fresh water, clean air, fertile soil, pest control and pollination;

(e)

Accelerate and scale up actions to strengthen the resilience and adaptive capacity of food systems and people’s livelihoods in response to climate variability and extremes;

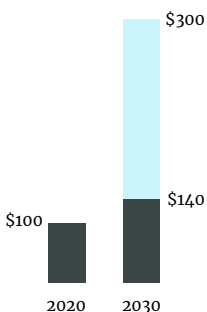
(f)

Ensure that adaptation actions do not reduce the vulnerability of one group at the expense of other people, future generations or the environment.

#### D. Ramping up climate finance

87

**Fig. 19** Funding needs to be ramped up by 2025 to meet the full costs of adaptation, estimated to be \$140–\$300 billion per year by 2030.



Wealthy States must fulfil their commitment to mobilize at least \$100 billion annually by 2020 to finance the urgent mitigation and adaptation needs of developing States, with priority given to the least developed countries and small island developing States. Adaptation has been chronically underfunded compared to mitigation. Funding needs to be ramped up by 2025 to meet the full costs of adaptation, estimated to be \$140–\$300 billion per year by 2030 see Fig. 19.

88

Steps should be taken by climate funds to strengthen and harmonize social, environmental and human rights safeguards when financing projects. All climate funds should require project-specific gender action plans and consistency with the Sustainable Development Goals as prerequisites for project approval.

89

Climate funds, including the Green Climate Fund, need to simplify their procedures and reach out to least developed countries and small island developing States, so that these States are able to access the funds required for mitigation and adaptation.

90

To address fossil fuel subsidies, internalize the health and environmental costs of burning fossil fuels, and implement the polluter pays principle, States should establish a global carbon tax with a floor price per ton for developing States and a higher floor price for developed States. The tax, covering as many emission sources as possible, should gradually increase every year. The incremental revenue generated by the higher price in developed countries could be used to finance mitigation and adaptation efforts in developing countries.

### **E. Financing loss and damage**

91

Twenty-eight years after the Alliance of Small Island States first proposed a mechanism to address loss and damage, it is time for action. States should agree on a common definition of the concept, including economic costs (such as damages to crops, buildings and infrastructure) and non-economic losses (such as loss of life, livelihoods, territory, culture, habitats or species). States must establish one or more new financing mechanisms that generate revenue to fund payments for loss and damage suffered by vulnerable developing countries, such as small island developing States, because of climate change.

92

Financing for loss and damage could be provided through an air travel levy, a levy on fuels used by the aviation and shipping industries, or a climate damages levy on the revenues of fossil fuel companies. A basic global air travel levy would raise \$40–\$100 billion annually (at \$10–\$25 per person per flight, given that current passenger levels exceed 4 billion per year). Air travel causes significant, largely unregulated emissions, and is used primarily by relatively wealthy people. A progressive air travel levy could impose higher payments on business- and first-class tickets,

**States must establish one or more new financing mechanisms that generate revenue to fund payments for loss and damage suffered by vulnerable developing countries, such as small island developing States, because of climate change.**



as well as on longer flights. Nine States, including Cameroon, Chile, France and the Republic of Korea, have already adopted an air-ticket solidarity levy, with the proceeds going towards Unitaid, a global health initiative.

#### **F. Empowering United Nations institutions**

93

The United Nations human rights mechanisms, including the treaty bodies, the Universal Periodic Review and the special procedures mandate holders, should be more proactive in promoting a safe climate and protecting human rights from climate impacts. They should:

(a)

Integrate climate change into their work through reporting, monitoring and fully implementing the existing recommendations of the treaty bodies, the Universal Periodic Review, the special procedures mandate holders and the Office of the United Nations High Commissioner for Human Rights, as well as the recommendations contained in the present report;

(b)

Consistently report on the extent to which States are fulfilling their human rights obligations relating to climate change;

(c)

Encourage businesses to respect their human rights responsibilities relating to climate change;

(d)

Encourage States to make technical assistance and resources available to countries that lack expertise or resources, such as least developed countries and small island developing States, so that these countries can prioritize and address climate change issues.

94

The United Nations Framework Convention on Climate Change has established focal points on gender and indigenous peoples. It would be useful to add another focal point on human rights to ensure a rights-based approach to negotiating, implementing and monitoring actions pursuant to the Paris Agreement.

## G. The last word

Meeting the Paris Agreement target of 1.5°C could save millions of lives every year, providing trillions of dollars in health and environmental benefits.

95

Effective climate actions will propel progress towards achieving multiple Sustainable Development Goals, including reduced air pollution, clean energy for all, improved health, decreased inequality and poverty, and enhanced infrastructure. Meeting the Paris Agreement target of 1.5°C could save millions of lives every year, providing trillions of dollars in health and environmental benefits. Replacing fossil fuels with renewable energy, energy storage and energy efficiency would create unprecedented economic opportunities.

96

A safe climate is a vital element of the right to a healthy environment and is absolutely essential to human life and well-being. In today's global climate emergency, meeting the obligations to respect, protect and fulfil human rights could help to spur the transformative changes that are so urgently required. To successfully address the daunting challenge of climate change demands heroic action. The world has many grassroots climate heroes, but needs more political and corporate leaders to rise to the challenge. In the words of Swedish teenager Greta Thunberg, who inspired millions of children to participate in school strikes for climate action, "I want you to act as if our house is on fire. Because it is."

### Sources (graphics)

**Fig. 1** IPCC, Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (IPCC, 2018).

**Fig. 2** United Nations Department of Economic and Social Affairs, World Population Prospects: The 2017 Revision (UN, 2017). Available at <https://population.un.org/wpp/>.

**Fig. 3** NASA, Global Climate Change: Vital Signs of the Planet (NASA, 2018). Available at <https://climate.nasa.gov/vital-signs/global-temperature/>

**Fig. 4** World Bank, Climate Change and Natural Disasters in Small Island Developing States (World Bank, 2018). Available at <https://www.worldbank.org/content/dam/Worldbank/Climate%20change%20and%20natural%20disasters.pdf>

**Fig. 5** NASA, Global Climate Change: Vital Signs of the Planet (NASA, 2018). Available at <https://climate.nasa.gov/vital-signs/global-temperature/>

**Fig. 6** Our World in Data, Cumulative Share of Global CO<sub>2</sub> Emissions. The long-run history: Cumulative CO<sub>2</sub>. <https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions#the-long-run-history-cumulative-co2>.

**Fig. 7** IPCC, Summary for Policymakers of the Special Report on Global Warming of 1.5°C. Available at <https://www.ipcc.ch/sr15/chapter/spm/>

**Fig. 8** Christopher McGlade and Paul Ekins, The geographical distribution of fossil fuels unused when limiting global warming to 2 °C, International Journal of Science, 2015.

**Fig. 9** UNEP, Emissions Gap Report 2018 (Nairobi, UNEP, 2018).

**Fig. 10** General comment No. 36 (2018) on article 6 of the International Covenant on Civil and Political Rights, on the right to life.

**Fig. 11** World Bank, Shock Waves: Managing the Impacts of Climate Change on Poverty, 2016. Available at <https://openknowledge.worldbank.org/bitstream/handle/10986/22787/9781464806735.pdf?sequence=13&isAllowed=y>

**Fig. 12** UNICEF, Unless we act now: The impact of climate change on children (UNICEF, 2015).

**Fig. 13** Oxfam, “Extreme Carbon Inequality: Why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first”, Oxfam Media Briefing (Oxfam, 2015).

**Fig. 14** Global Witness, Enemies of the State? (Global Witness, 2019)

**Fig. 15** Climate Action Tracker, “June 2019 update: Climate crisis demands more government action as emissions rise” (Climate Action Tracker, 2019).

**Fig. 16** UNEP, Emissions Gap Report 2018 (Nairobi, UNEP, 2018).

**Fig. 17** Climate Change Litigation Database. Available at <http://climatecasechart.com>

**Fig. 18** D. Tong and others, “Committed emissions from existing energy infrastructure jeopardize 1.5°C climate target”, Nature (July 2019).

**Fig. 19** UNEP, Adaptation Finance Gap Report (UNEP, 2016)

### Sources (maps)

**Cover** Urban Areas (Natural Earth, 2019).

**Chapter 1** EDGAR - Emissions Database for Global Atmospheric Research. Available at [https://edgar.jrc.ec.europa.eu/gallery.php?release=v432&substance=CO2\\_excl\\_short-cycle\\_org\\_C&sector=TOTALS](https://edgar.jrc.ec.europa.eu/gallery.php?release=v432&substance=CO2_excl_short-cycle_org_C&sector=TOTALS)

**Chapter 2** WHO and UNICEF, Progress on household drinking water, sanitation and hygiene 2000–2017 (WHO–UNICEF, 2019).

**Chapter 3** OHCHR, UN Treaty Body Database. Available at [https://tbinternet.ohchr.org/\\_layouts/15/TreatyBodyExternal/Treaty.aspx](https://tbinternet.ohchr.org/_layouts/15/TreatyBodyExternal/Treaty.aspx)

**Chapter 4** Report of the Special Rapporteur on Human Rights and the Environment, A/HRC/40/55, 2019.

**Backcover** Urban Areas (Natural Earth, 2019).

All maps are made with Natural Earth. Available at <https://www.naturalearthdata.com>



“I want  
you  
to act

as if  
our house  
is on fire.

Because it is.”

Greta Thunberg