CLIMATE ANALYTICS

Climate Analytics Caribbean

Inter-American Court of Human Rights
10th Av, between street 45 and street 47,
Los Yoses, San Pedro,
San Jose, Costa Rica.

www.climateanalytics.org

18 December 2023

Dear Sir/Madam,

Pursuant to Article 44 of the American Convention on Human Rights, Climate Analytics Caribbean is submitting our observations on the request from the Republic of Chile and the Republic of Colombia presented to the Secretariat of the Inter-American Court of Human Rights, for an advisory opinion on "Climate Emergency and Human Rights", in accordance with article 64.1 of the American Convention on Human Rights.

Thanking you in advance for the opportunity and consideration of this submission.

Sincerely,

Rueanna Haynes
Director, Climate Analytics Caribbean

Amicus Curiae

PRESENTED BY CLIMATE ANALYTICS CARIBBEAN TO THE INTER-AMERICAN COURT OF HUMAN RIGHTS

ADVISORY OPINION REQUEST BY THE REPUBLICS OF CHILE AND COLOMBIA ON "CLIMATE EMERGENCY AND HUMAN RIGHTS"

Authors: Agathe Aslanides, Andrés Ángel, Carl Schleussner, Carlon Mendoza, Damon Jones, Inga Menke, Rueanna Haynes

December 2023

Table of Contents

Jurisdiction under the American Convention on Human Rights

The American Convention on Human Rights was adopted in 1969 and entered into force in 1978. It established two authorities with the competence to observe human rights violations. The Inter-American Commission on Human Rights (IACHR) was established ahead of the adoption of the American Convention, in 1959 and in 1979, the Organisation of American States established the Inter-American Court of Human Rights (IACtHR).

Chapter VIII of the American Convention (AC) establishes the IACtHR. Any State Party may consult the IACtHR regarding the interpretation of the American Convention concerning the protection of human rights in the American states (American Convention, article 64). This advisory jurisdiction is stated under article 2.2 of the Statute of the IACtHR (Statute of the Inter-American Court of Human Rights, 1979). The Republic of Colombia has ratified the American Convention in 1973 and the Republic of Chile in 1990 (American Convention on Human Rights "Pact of San Jose, Costa Rica" (B-32), 2022). Furthermore, both countries have recognised the Contentious Jurisdiction of the IACtHR[1]. The request focuses on clarifying "the scope of State obligations, in their individual and collective dimension, in order to respond to the climate emergency within the framework of international human rights law, paying special attention to the differentiated impacts". The request therefore fulfils all the requirements set out by both the Statute and the American Court.

Moreover, chapter VII of the American Convention specifies the competences and jurisdiction of the IACHR. The main function of the IACHR is to promote respect for and defence of human rights (American Convention on Human Rights "Pact of San Jose, Costa Rica" (B-32), 2022, article 1). Additionally, it has the competence:

> *to respond, through the General Secretariat of the Organization of American States, to inquiries made by the member states on matters related to human rights and, within the limits of its possibilities, to provide those states with the advisory services they request.* **(Article 41(e))**.

[1]https://www.corteidh.or.cr/que_es_la_corte.cfm?lang=en#:~:text=Twenty%20States%20have%20recognized%20the,Peru%2C%20Suriname%2C%20and%20Uruguay.

Introduction and statement of selected questions for response

The request for an Advisory Opinion raises what is a critical issue of our time, and a matter of key importance for the effectiveness of the inter-American system for the protection of human rights: the extent of a State's obligations to respond to the climate emergency, paying special attention to the differentiated impacts of this emergency on individuals from diverse regions and population groups, as well as on nature and on human survival on our planet.

This amicus brief is based on a range of international legal sources, including judgments of the International Court of Justice, the jurisprudence of the Inter-American Court of Human Rights, decisions of other regional human rights courts and commissions, concluding observations and general comments of United Nations human rights treaty bodies, reports by the Intergovernmental Panel on Climate Change (IPCC), UN special procedures, resolutions of human rights organs, the United Nations Framework Convention on Climate Change (the Convention) and the Paris Agreement (PA), and decisions taken to give effect to these treaties as well as other relevant sources.

An Advisory Opinion by the Court on the issues before it would be very timely indeed, as it would provide States and other actors with important guidance on the extent of their obligations to protect the human rights of citizens in the climate emergency. An Advisory Opinion by the Court on these present-day realities would provide important guidance to States on how to safeguard and protect individuals from human rights abuses in a changing climate.

Climate Analytics Caribbean will address particular questions presented in the request by Colombia and Chile which are:

1. What is the scope of the State's duty of prevention with regard to climate events caused by global warming, including extreme events and slow onset events, based on the obligations under the American Convention, in light of the Paris Agreement (PA) and the scientific consensus which recommend that global temperatures should not increase beyond 1.5°C?

2. In particular, what measures should States take to minimise the impact of the damage due to the climate emergency in light of the obligations established in the American Convention? In this regard, what differentiated measures should be taken in relation to vulnerable populations or based on intersectional considerations?

2a. What should a State take into consideration when implementing its obligations: (i) to regulate; (ii) to monitor and oversee; (iii) to request and to adopt social and environmental impact assessments; (iv) to establish a contingency plan, and (v) to mitigate any activities under its jurisdiction that exacerbate or could exacerbate the climate emergency?

2b. What principles should inspire the actions of mitigation, adaptation and response to the losses and damage resulting from the climate emergency in the affected communities?

3. What is the nature and scope of the obligation of a State Party to adopt timely and effective measures with regard to the climate emergency in order to ensure the protection of the rights of children derived from its obligations under Articles 1, 4, 5, 11 and 19 of the American Convention?

4. What is the nature and scope of a State Party's obligation to provide children with significant and effective means to express their opinions freely and fully, including the opportunity to initiate or, in any other way, to participate in any administrative or judicial proceedings concerning prevention of the climate change that represents a threat to their lives?

Responses

Question 1

What is the scope of the State's duty of prevention with regard to climate events caused by global warming, including extreme events and slow onset events, based on the obligations under the American Convention, in light of the Paris Agreement (PA) and the scientific consensus which recommend that global temperatures should not increase beyond 1.5°C?

The following sub-sections will first set out the scientific basis for understanding the range of climate events caused by global warming, with a specific focus on the Caribbean region. The section will then go on to examine the relevant obligations under the American Convention that further develop the scope of the State's duty of prevention and then finally will outline the specific obligations of States according to the Paris Agreement and the decisions taken thereunder.

Climate events caused by global warming

This Amicus will make reference to the different Representative Concentration Pathways (RCPs), which are global warming scenarios that account for projected concentrations of greenhouse gases, aerosols, and land use. These scenarios are named after their radiative forcing potential (RCP2.6, 4.5, 6.0 and 8.5). Each pathway comes with a temperature increase approximation for 2100 with respect to pre-industrial times (Stocker, 2014). The RCPs and their median temperature estimates are presented below:

Table 1. Summary of RCPs and mean estimated median temperature increase by year 2100

Pathway names	Estimated median temperature increase (year 2100)
RCP2.6	1.6°C
RCP4.5	2.4°C
RCP6.0	2.8°C
RCP8.5	4.3°C

Source of data: (Stocker, 2014)

There are several types of climate extremes experienced by the Caribbean region such as temperature extremes, heavy precipitation and pluvial floods, river floods, droughts,

storms and hurricanes. It is an established fact that human-induced greenhouse gas emissions have led to an increased frequency and/or intensity of some weather and climate extremes since pre-industrial time, in particular for temperature extremes (IPCC, 2021).

Since the IPCC's Fifth Assessment Report (Pachauri et al., 2015), the case for human influence on observed changes in extremes, including greenhouse gas and aerosol emissions, land-use changes, and extreme precipitation, droughts, tropical cyclones, and compound extremes events(such as dry/hot events and fire weather), has become stronger. **Without human influence on the climate system, certain extreme events would be much more unlikely to occur**.

Regional changes in the intensity and frequency of climate extremes generally scale with global warming. New evidence strengthens the conclusion from the IPCC (2022b) that even relatively small incremental increases in global warming (+0.5°C) cause statistically significant changes in extremes on the global scale and for large regions (high confidence). In particular, this is the case for temperature extremes (very likely), the intensification of heavy precipitation (high confidence) including that associated with tropical cyclones (medium confidence), and the worsening of droughts in some regions (high confidence). The occurrence of extreme events unprecedented in the observed record will rise with increasing global warming, even at 1.5°C of global warming. Projected percentage changes in frequency are higher for the rarer extreme events (high confidence) (IPCC, 2022b)

The IPCC's Sixth Assessment Report finds that human-induced greenhouse gas forcing is the main driver of the observed changes in hot and cold extremes on the global scale (virtually certain) and on most continents (very likely) (IPCC, 2021) . The frequency and intensity of hot extremes will continue to increase and those of cold extremes will continue to decrease, at global and continental scales and in nearly all inhabited regions with increasing global warming levels.

The number of hot days and hot nights and the length, frequency, and/or intensity of warm spells or heat waves will increase over most land areas (virtually certain). In most regions, including the Caribbean, future changes in the intensity of temperature extremes will very likely be proportional to changes in global warming, and up to two to three times larger (high confidence) (IPCC, 2021).

Human influence, in particular greenhouse gas emissions, is likely the main driver of the observed global-scale intensification of heavy precipitation over land regions. Although there is insufficient data in the Caribbean, significant increases in the intensity and frequency of hot extremes and significant decreases in the intensity and frequency of cold extremes were an observed trend and there is evidence of human contribution for some events (Patricola & Wehner, 2018; McLean et al., 2015; Angeles-Malaspina et al., 2018;

Dunn et al., 2020). Although an overall decrease in precipitation is expected for the region, as it will be shown in the next sections of this document, small positive trends were found in multiple extreme precipitation indices over the Caribbean region over a short time period (1986–2010) (Stephenson et al., 2014; McLean et al., 2015).

The IPCC's Sixth Assessment Report (IPCC, 2021) has also noted that the average and maximum rain rates associated with tropical cyclones, extratropical cyclones, atmospheric rivers across the globe, and severe convective storms in some regions, will increase in a warming world (high confidence). Available event attribution studies of observed strong tropical cyclones provide medium confidence for a human contribution to extreme tropical cyclone rainfall, higher category storms with extreme wind speeds as will be outlined in section D of the present document.

Among the IPCC's Sixth Assessment Report's key conclusions is that it is an "established fact" that human-caused greenhouse gas emissions have "led to an increased frequency and/or intensity of some weather and climate extremes since pre-industrial times". It adds that the latest scientific evidence strengthens the verdict of the IPCC's Special Report that "even relatively small incremental increases in global warming (+0.5C) cause statistically significant changes in extremes on the global scale and for large regions".

Scientific evidence of the impacts of an average global temperature above 1.5°C

The "impacts" stated in the IPCC Special Report on Global Warming of 1.5°C refer to the "effects of climate change on human and natural systems" (IPCC, 2018). Whilst the impacts of a global warming of more than 1.5°C will affect regions differently, for many regions it will result in an increase in the occurrence and/or intensity of some extreme weather events. Rising sea levels is one of the main drivers of impact (IPCC, 2022b p.69). Such an impact is linked with increasing ocean acidification and extreme events such as floods, droughts and heat waves (IPCC, 2022b).

In general, if global warming exceeds 1.5°C, it is foreseeable that "human and natural systems will face additional severe risks" (IPCC, 2022a p. 19). Ice-sheets and the glaciers will melt exponentially through an acceleration of sea level rise. This could lead to major risks including the loss of coastal ecosystems such as wetlands and marshlands (IPCC, 2022a p. 47). The IPCC has concluded with high confidence that the "risk of severe impacts increase with every additional increment of global warming during overshoot" (IPCC, 2022a p. 20).

Climate change poses grave challenges to all Caribbean countries, despite the many distinctions amongst them including with respect to geography and climatic conditions. According to the IPCC (IPCC, 2022b), average temperatures in the region have increased

between 0.1°C and 0.2°C every decade, over the past three decades. Rainfall patterns in the region have changed, and an increase in the number of consecutive dry days is expected.

In addition, for the last 33 years, global sea levels have risen at a rate of two to four centimetres every decade. This puts the region's precious freshwater supplies as well as the coastal populations, which depend on tourism and agriculture, at considerable risk.

Obligations of States to avoid causing harm and to respect and ensure rights in accordance with international human rights law

States, as primary duty bearers, have a positive obligation to mitigate climate change and ensure that all persons have the necessary capacity to adapt to the consequences of climate change. According to Articles 55 and 56 of the United Nations Charter, States are obligated to respect, defend, and uphold all human rights for all people. This obligation extends to people living outside of their borders as well. Human rights instruments make it clear that all responsible actors should be held accountable for the negative impacts of their activities and share responsibility for remedying these impacts including addressing the negative impacts of climate change (*Oslo Principles on Global Climate Change*, 2015).

According to Resolution 3/2021 Climate Emergency: Scope of Inter-American Human Rights Obligations, States should adopt and implement policies aimed at reducing greenhouse gas emissions that reflect the greatest possible ambition, foster resilience to climate change and ensure that public and private investments are consistent with low-carbon and climate-resilient development, inter alia (Resolution No. 3/2021 Climate Emergency: Scope for Inter-American Human Rights Obligations, 2021). It requires parties to enact ambitious climate policies that include "GHG mitigation targets that reflect a level of ambition consistent with the obligations of the Paris Agreement" (Resolution No. 3/2021 Climate Emergency: Scope for Inter-American Human Rights Obligations, 2021).

As primary duty bearers, State parties to human rights instruments are under the obligation to respect and *ensure* those human rights. This requires both negative and positive actions. In accordance with Article 1 of the American Convention on Human Rights, each State party must ensure the respect and exercise of the rights protected by said Convention. As recognised by the Inter-American Court on Human Rights, as applied with Article 1(1) of the American Convention, States have the obligation *erga omnes* to respect and guarantee protection standards and the effectiveness of human rights (*Case of the Kichwa Indigenous People of Sarayaku v. Ecuador*, 2012; *Case of the Kaliña and Lokono Peoples v. Suriname*, 2015).

In its *"Key messages on human rights and climate change"*, the UNHRO articulates the core obligations of States related to climate change (United Nations Human Rights Office of the High Commissioner, n.d.) as follows:

- Mitigate climate change and prevent its negative human rights impacts
- Ensure that all persons have the necessary capacity to adapt to climate change
- Ensure accountability and effective remedy for human rights harms caused by climate change
- Mobilise maximum available resources for sustainable, human rights-based development
- Cooperate with other States
- Guarantee that everyone enjoys the benefits of science and its applications
- Protect human rights from business harms
- Ensure meaningful and informed participation.

Obligations under the American Convention on Human Rights

Article 1 of the American Convention (AC) provides that "State Parties to this Convention undertake to respect the rights and freedoms recognized herein and to ensure to all persons subject to their jurisdiction the free and full exercise of those rights and freedoms". Furthermore, the AC also requires State Parties to "adopt measures, both internally and through international cooperation, especially those of an economic and technical nature, with a view to achieving progressively, by legislation or other appropriate means, the full realisation of the rights implicit in the economic, social, educational, scientific, and cultural standards set forth in the Charter of the Organization of American States" (American Convention on Human Rights "Pact of San Jose, Costa Rica" (B-32), 2022a, article 26).

Therefore, Parties to the AC are under obligation to ensure the fulfilment and respect of each of the rights cited under the AC. As the right to life is protected by article 4, States shall refrain from unlawfully polluting the environment in a way that has a negative impact on the right to a dignified life. The right to a healthy environment is included in the protection of economic, social and cultural rights (*The Environment and Human Rights: Advisory Opinion OC-23/17 requested by the Republic of Colombia*, 2017). Indeed, such a right is protected under the additional protocol to the American Convention on Human Rights (ACHR) in the area of economic, social and cultural rights as set out in Article 11. In order for this right to reach its realisation, its protection should be permanent and cannot be violated to ensure the exercise of another right.

Focusing now more on positive obligations under the American Convention, States are required to take all appropriate steps to protect and preserve the right to life (*Case of the "Street Children" (Villagran-Morales et al.) v. Guatemala*, 1999 para. 144; *Case of Luna López v. Honduras*, 2013 para. 118. Such obligations include the duty to prevent third parties from violating the protected rights.

Obligations under the Paris Agreement

The Paris Agreement does not contain positive obligations for the protection of human rights. In the preamble it states that countries should *"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"*.

In line with Article 31(2) of the Vienna Convention on the Law of Treaties, this language can be used as context for interpreting the obligations for state action that are contained in the Paris Agreement, including for interpreting the object and purpose of the Agreement.

The object and purpose of the Paris Agreement is contained in its Article 2 as set out below.

"1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

(a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

2. This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances."

In accordance with Article 2.1 the Paris Agreement is also intended to enhance implementation of the United Nations Framework Convention on Climate Change (the Convention) and its objective. The objective of the Convention is also found in its Article 2 as follows:

"*The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would* ***prevent dangerous anthropogenic interference with the climate system****. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."* (emphasis added)

In combination, the Convention and the Paris Agreement objectives establish positive goals to be attained as well as preventative action that needs to be met by States in response to climate change. These actions must be considered in the context of the need to respect, promote and consider various human rights obligations as set out in the Preamble of the Paris Agreement.

The Paris Agreement also contains provisions that set out specific actions to be taken in order to achieve its goals.

Article 4.1 provides that:

"In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty".

Article 4.2 of the Paris Agreement provides that: "*Each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contribution".*

Article 4.3 of the Paris Agreement establishes obligations of "progression" and "highest possible ambition" by providing that: "*Each Party's successive nationally determined*

*contribution will **represent a progression** beyond the Party's then current nationally determined contribution and reflect its **highest possible ambition**, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances"* (emphasis added).

These specific obligations are complemented by procedural obligations on accounting for mitigation actions (Article 4.13); submitting reports to facilitate transparency (Article 13) and the obligation by developed countries[2] to provide financial resources to assist developing countries with their mitigation and adaptation actions (Article 9.1).

Pursuant to Article 14 of the Paris Agreement that establishes a global stocktake of Paris Agreement implementation every five years, Parties have also recently taken a decision[3] that, in recognition of the need for deep, rapid and sustained reductions in greenhouse gas emissions in line with 1.5°C pathways, calls on Parties to contribute to a suite of global actions in a nationally determined manner. These actions include, inter alia: tripling renewable energy capacity globally and doubling the average rate of energy efficiency improvements by 2030; accelerating efforts towards the phase-down of unabated coal power; accelerating efforts globally towards net zero emissions energy systems and *'transitioning away from fossil fuels in energy systems in a just orderly and equitable manner, accelerating action in this critical decade, so as to achieve net zero by 2050 in keeping with the science'*.

This decision is an important development for understanding the types of domestic mitigation measures (as set out in Article 4.2) that are included in Party obligations to act on climate change in line with the temperature goal of the Paris Agreement. As a consensus decision taken by all Parties it can be taken as evidence of Parties own understanding of the scope of their obligations under the Paris Agreement, in specific sectors, as it relates to their contributions to efforts to address the climate emergency.

Question 2:

In particular, what measures should States take to minimise the impact of the damage due to the climate emergency in light of the obligations established in the American Convention? In this regard, what differentiated measures should be taken in relation to vulnerable populations or based on intersectional considerations?

[2] As set out in Annex 1 of the UNFCCC
[3] Contained in document FCCC/PA/CMA/2023/L.17

The following sub-sections will examine the relationship between human rights obligations and state actions in response to climate change. It will outline relevant obligations contained in environmental and other treaties and instruments and highlight specific examples of measures taken by States or imposed by Courts to give effect to the rights of vulnerable populations and to ensure equity.

The activities associated with minimising the impacts of climate change are broadly twofold: mitigation and adaptation (UNESCO, 2019). Mitigation focuses on reducing the emissions of greenhouse gases released into the atmosphere, whilst adaptation focuses on adapting to the impacts of a changing climate. Furthermore, mitigation and adaptation are both addressed in the Paris Agreement respectively in Articles 4 and 7.

A number of cases have considered the relevance of adaptation and mitigation measures in the context of human rights. Notably the Torres Strait Islander case (*Daniel Billy and Others v. Australia (Torres Strait Islanders Petition)*, 2022) in the United Nations Human Rights Committee illustrates the importance for Member States to take mitigation and adaptation measures to protect their civilians and minimise the impacts of climate change. Under this case, the Committee recognised that as "no one shall be subjected to arbitrary or unlawful interference with his privacy, family, home or correspondence" as prescribed by article 17 of the International Covenant on Civil and Political Rights (ICCPR), a State has the duty to "implement adequate measures to protect" one's home, private life and family (*Daniel Billy and Others v. Australia (Torres Strait Islanders Petition)*, 2022 para. 8.12). As pointed out by Committee Member Gentian Zyberi in its individual opinion, "if no effective mitigation actions are undertaken in a timely manner, adaptation will eventually become impossible".

The IACHR and the IACtHR Court have found that environmental damage is linked to and threatens the enjoyment of several human rights protected under the American Convention, the American Declaration and the San Salvador Protocol (United Nations Human Rights Office of the High Commissioner, 2013). According to the report of the Office of the United Nations High Commission for Human Rights: *"the primary substantive obligations imposed on States in the Inter-American system include the obligations to adopt and implement measures to protect the environment and to take adequate measure to address the risks to the enjoyment of human rights that may be posed by environmental and health hazards from development activities"* (United Nations Human Rights Office of the High Commissioner, 2013 para. 76). To protect the environment, the IACHR provides broad discretion to States to choose the adequate measures.

Intersectional considerations and equity

Ensure equity in climate action

The Paris Agreement includes in its preamble an acknowledgement that *"climate change is a common concern of humankind, Parties 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."* Caribbean countries as signatories to the Agreement, share in this collective acknowledgement which includes the expectation that Parties take into account their respective human rights obligations when undertaking activities relating to climate action.

Furthermore, the 1992 Rio Declaration on Environment and Development[4] and the Vienna Declaration and Programme of Action[5], albeit not legally binding in nature, emphasised the call for the right to development to be fulfilled so as to meet equitably the developmental and environmental needs of present and future generations. The UNFCCC calls on States to protect the climate system for the benefit of present and future generations "on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities" (Article 3.1). Article 2.2 of the Paris Agreement also provides that implementation of the Agreement will reflect "equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances".

Guarantee equality and non-discrimination

States have committed to guarantee equality and non-discrimination (*Advisory Opinion OC-4/84 requested by the government of Costa Rica*, 1984 para. 57; UN Human Rights Committee (HRC), 1989 para. 13). Efforts to address climate change should not exacerbate inequalities within or between States. The human rights principles of equality and non-discrimination require action to address and remedy the disproportionate impacts of climate change on the most marginalised and to ensure that climate action benefits persons, groups and peoples in disadvantaged situations and reduces inequalities. The Human Rights Committee has clearly stated this obligation in paragraph 10 of General Comment 18 and the duty to take affirmative action in order to diminish or eliminate conditions that cause or help to perpetuate discrimination. For example, indigenous peoples' rights should be fully reflected in line with the United Nations Declaration on the

[4] UN Doc. A/CONF.151/26 (vol. I), 31 ILM 874 (1992)

[5] UN General Assembly, *Vienna Declaration and Programme of Action*, 12 July 1993, A/CONF.157/23, available at: https://www.refworld.org/docid/3ae6b39ec.html [accessed 28 September 2023]

Rights of Indigenous Peoples[6] and actions likely to affect their rights should not be taken without their free, prior and informed consent (Article 10). Care should also be taken to ensure that a gender perspective, including efforts to ensure gender equality, is included in all planning for action to address climate change. Reference to gender-responsive climate action is included explicitly in the Paris Agreement with respect to adaptation (Article 7.5) and capacity building (Article 11.2).

Access to justice, access to information and public participation

Articles 6 and 12 of the Convention and the Paris Agreement, respectively, contain provisions on public participation, education, awareness, and access to information on climate change. Additionally, the Paris Agreement establishes an enhanced transparency framework (ETF) (Article 13) which will from 2024 largely supersede reporting arrangements under the UNFCCC. Under the ETF, Parties have obligations to periodically submit a national inventory report detailing the anthropogenic emissions by sources and removals by sinks of greenhouse gases (Article 13.7(a)), as well as a biennial transparency report that would include the information necessary to track progress made in implementing and achieving their Nationally Determined Contributions (NDCs) as required in Article 13.7(b). These reports are published on the UNFCCC website and are available to the public. Additionally, NDCs are also registered in a public database. Developed country Parties also have an obligation to provide information on financial, technology transfer and capacity-building support provided to developing country Parties (Article 13.9), and there are several "should" provisions which encourage Parties to provide additional information (e.g. climate change impacts and adaptation – Article 13.8; developing country Parties on finance and other support needed and received – Article 13.10).

In a similar vein, Contracting Parties to the Convention on Biological Diversity are required to create educational and public awareness campaigns about the conservation and sustainable use of biological diversity, permit public participation in environmental impact assessments, and facilitate the exchange of pertinent information.

Adopting a holistic, equitable, and comprehensive approach to development from a human rights viewpoint, with equality and without discrimination, is captured by the UN General Assembly resolution "Transforming our world: the 2030 Agenda for Sustainable Development". Goal 16 of the Sustainable Development Goals (SDGs) is especially relevant to access to information and public participation, as it expressly sets forth three categories of access rights (public access to information and protection of fundamental

[6] UN General Assembly, *United Nations Declaration on the Rights of Indigenous Peoples : resolution / adopted by the General Assembly*, 2 October 2007, A/RES/61/295, available at: https://www.refworld.org/docid/471355a82.html [accessed 28 September 2023]

freedoms; inclusive, participatory and representative decision making; and, equal access to justice). Goal 16 targets also require countries to create effective, accountable and transparent institutions and adopt non-discriminatory laws and policies for sustainable development (Goal 16.b).

The unanimous adoption of the Bali Guidelines (United Nations Environment Programme, 2015) at the eleventh special session of the United Nations Environment Programme Governing Council/Global Ministerial Environment Forum in 2010 marked another significant milestone in the field of environmental law internationally. The Guidelines establish a common understanding of the main elements for ensuring access to information, participation and justice, such as: the right to affordable, effective and timely access to information; the opportunity for early and effective public participation in application of the "any person" principle; and broad interpretation of standing in proceedings concerned with environmental matters.

The Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean was formally adopted at Escazú, Costa Rica, on 4 March 2018. The Agreement adopted at Escazú is the only binding treaty resulting from the United Nations Conference on Sustainable Development (Rio+20) and the first regional environmental treaty in Latin America and the Caribbean. Its objective is "to guarantee the full and effective implementation in the region of the rights of access to environmental information, public participation in the environmental decision-making process and access to justice in environmental matters, and the creation and strengthening of capacities and cooperation, contributing to the protection of the right of every person of present and future generations to live in a healthy environment and to sustainable development" (Article 1).

An example of access to justice is found in the case of *Maya Leaders Alliance et al v the Attorney General*, as heard by the Caribbean Court of Justice. President Byron and Justice Anderson assessed the case's legal history, formal agreements between the Government and the Maya leadership, and previous court decisions in Belize. They concluded that all these factors entailed that the Government of Belize had a duty to take affirmative actions. This duty involved recognising the Maya customary land tenure and the associated land rights while ensuring that other indigenous communities were not adversely affected. The government was required to establish legal mechanisms, such as demarcation and titling, to clarify and protect these rights within the country's laws. Despite the fact that traditional land rights of the Maya people are invisible in the general laws of the country, the court recognised the obligation to implement special measures to acknowledge and safeguard these rights, allowing the Maya people to fully enjoy legal protection (*Maya Leaders Alliance et al v Attorney General*, 2015, para. 59).

Question 2a:

What should a State take into consideration when implementing its obligations: (i) to regulate; (ii) to monitor and oversee; (iii) to request and to adopt social and environmental impact assessments; (iv) to establish a contingency plan, and (v) to mitigate any activities under its jurisdiction that exacerbate or could exacerbate the climate emergency?

The following sub-sections will address the elements States should consider in implementing the foregoing obligations identified above.

Regulating

Human Rights Treaty Bodies have reaffirmed multiple times that States have an obligation to effectively regulate the activities of private actors, including business entities, to ensure effective protection against human rights violations linked to business activities (UN Committee on Economic, Social and Cultural Rights (CESCR), 2019); (United Nations International Covenant on Civil and Political Rights, 2019). This obligation extends to human rights harms outside a State's territory due to the activities of a business entity domiciled within its territory. In the CESCR's GC, the Committee explained that *"[t]he extraterritorial obligation to protect requires States parties to take steps to prevent and redress infringements of Covenant rights that occur outside their territories due to the activities of business entities over which they can exercise control."*

The application of this obligation was further expounded on by five Human Rights' Committees[7] in their Joint Statement on human rights and climate change, affirming that *"States must regulate private actors, including by holding them accountable for harm they generate both domestically and extraterritorially. States should also discontinue financial incentives or investments in activities and infrastructure that are not consistent with low greenhouse gas emissions pathways, whether undertaken by public or private actors, as a mitigation measure to prevent further damage and risk."* (Committee on the Elimination of Discrimination Against Women et al., 2019)

In the CESCR's Concluding Observations to Bahrain (United Nations Economic and Social Council, 2022), the Committee expressed *"particular concern at reports on human rights impact assessment of business activities conducted in the oil and gas industry,"* recommending that the State party adopt frameworks to require *"business entities to exercise human rights*

[7] The five committees are the Committee on the Elimination of Discrimination Against Women; Committee on Economic, Social and Cultural Rights; Committee on the Protection of the Rights
of All Migrant Workers and Members of their Families; Committee on the Rights of the Child; and the Committee on the Rights of Persons with Disabilities.

due diligence in their business activities at home and abroad and ensure that businesses entities operating in the State party and those domiciled under its jurisdiction and acting abroad, irrespective of whether they are privately or State-owned, are held accountable for economic, social and cultural rights violations for which they are responsible, and that victims of such violations have access to effective remedies." Concern was also expressed by the Committee on the Rights of the Child concluding observations to Canada, *"about the disproportionately high carbon footprint of the State party, in particular through investments made in fossil fuels."* (United Nations Convention on the Rights of the Child, 2022). Whilst no specific recommendation was made, the Committee urged Canada to *"reduce greenhouse gas emissions in line with the State party's international commitments."*

Monitoring and overseeing

The CESCR states that in order for States to ensure effective prevention and enforcement of their obligations as States, they should establish appropriate monitoring and accountability procedures (UN Committee on Economic, Social and Cultural Rights (CESCR), 2019 para. 33). Especially when discharging their duty to protect, the appropriate framework should be established and enforced to make sure violations are accountable for and that access to remedies is possible (UN Committee on Economic, Social and Cultural Rights (CESCR), 2019 para. 38). According to the UN Committee on the Rights of the Child, each individual State should develop permanent bodies or mechanisms to promote coordination, monitoring and evaluation of activities throughout all sectors of government (UNICEF, n.d.). Furthermore the UN CRC stated that self-monitoring and evaluation is an obligation for Governments (UN Committee on the Rights of the Child (CRC), 2003 para. 46). Rigorous monitoring of implementation entails a framework incorporated in all levels of government. The CRC also encourages independent monitoring by national human rights institutions, NGOs and others. An efficient monitoring system is done through the development of appropriate indicators and the collection of sufficient and reliable data (UN Committee on the Rights of the Child (CRC), 2003 para. 2).

Requesting and adopting social and environmental impact assessments

One way to take possible environmental harm into account when making decisions is through environmental impact assessments (EIA). Under general international law, States are required to conduct an evaluation whenever there is a possibility that a planned activity could have a major negative impact in a transboundary context, especially on a shared resource (*Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, 2010). The ICJ held that prior assessment of transboundary impacts is not merely a treaty-based obligation

but a requirement of general international law. It is also the first case to consider the content of such an EIA.

The finding of the ICJ treats a transboundary EIA as a distinct and freestanding obligation in international law – reflecting Principle 17 of the Rio Declaration on Environment and Development, the Espoo Convention, and Article 7 of the ILC draft articles on transboundary harm. The court also supported the view that an EIA is a fundamental component of the general duty of due diligence in the prevention and control of transboundary harm. The court further suggested that the nature of the obligation may change over time in order to take into account the capabilities of the parties involved as well as the unique facts of each case.

Either way, the Court has now confirmed that in appropriate circumstances an EIA must be carried out prior to the implementation of a project that is likely to cause significant transboundary harm.

EIAs in the Caribbean serve a crucial role in promoting public participation and transparency in decision-making. Caribbean courts have emphasised the importance of EIAs in helping decision-makers make informed choices regarding environmental matters and ensuring public consultation (Economic Commission for Latin America and the Caribbean (ECLAC) & Caribbean Court of Justice Academy of Law (CCJ Academy of Law), 2018 p.38-39). In cases such as R. et al v ex parte Belize Alliance of Conservation Non-Governmental Organisations (*R. et al v ex parte Belize Alliance of Conservation Non-Governmental Organisations*, 2002 para. 62) and People United Respecting the Environment et al v Environmental Management Authority et al (*People United Respecting the Environment et al v Environmental Management Authority et al*, 2000 para. 87), the courts stressed that EIAs serve to alert decision-makers and the public to the environmental impacts of an activity. Caribbean courts have also underlined that public participation must pertain to the complete EIA, and all available information should be accessible to the public (*Belize tourism industry association vs the National environmental appraisal committee*, 2014 para. 102). In the 1989 Port of Spain Accord on the Management and Conservation of the Caribbean Environment, Ministers of CARICOM responsible for the environment agreed, *inter alia*, that in the formulation of policies and plans, the requirement for environmental impact assessment, which are essential prerequisites to the rational management of our environment, shall be included.

Establishing a contingency plan

Under States obligations in the face of possible environmental damage, there is a duty to establish a contingency plan to respond to emergencies or environmental disasters (*The Environment and Human Rights: Advisory Opinion OC-23/17 requested by the Republic of*

Colombia, 2017). It must include security measures and procedures to minimise consequences of such disasters. The State primarily responsible for the contingency plan is the State in whose territory the activity or project is carried out. However, where appropriate, the plan should be carried out in cooperation with other potentially affected States and relevant international organisations (Advisory Opinion OC-23/17).

The IPCC (2012) has confirmed that climate change will pose added challenges in many cases for attaining disaster risk management goals, and appropriately allocating efforts to manage disaster risks, for at least two sets of reasons. Firstly, climate change is very likely to increase the occurrence and vary the location of some physical events, which in turn will affect the exposure faced by many communities, as well as their vulnerability. For example, vulnerability may increase due to direct climate related impacts on the development and development potential of the affected area, because resources otherwise available and directed towards development goals are deflected to respond to those impacts. Secondly, climate change will make it more difficult to anticipate, evaluate, and communicate both probabilities and consequences that contribute to disaster risk, in particular that associated with extreme events. Therefore, the duty to establish contingency plans extends into the area of climate change as it is proven that the changing climate will cause increased disasters.

Mitigating any activities under its jurisdiction that exacerbate or could exacerbate the climate emergency

The Paris Agreement provides, at present, the most specific authoritative statement of a global mitigation goal (Article 4.1), and a corresponding long-term temperature goal (Article 2.1(a)). In principle, climate science can interpret a temperature goal in terms of atmospheric concentrations in the atmosphere and, in turn, in terms of mitigation scenarios. Some general treaty provisions are also relevant to climate change mitigation. For instance, as GHG emissions result in a warming and acidification of seawater, the obligation of States to protect and preserve the marine environment under the UN Convention on the Law of the Sea implies a general obligation to mitigate climate change.[8] Likewise, as the impacts of climate change affect the enjoyment of human rights, the positive obligation of States to take measures to protect the enjoyment of human rights implies a general obligation to mitigate climate change.[9]

---

[8] United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 397 (UNCLOS) art 192.

[9] M Bachelet, 'Open-Letter from the United Nations High Commission for Human Rights on integrating human rights in climate action' (21 November 2018) <https://www.ohchr.org/Documents/Issues/ClimateChange/OpenLetterHC21Nov2018.pdf>

Similarly, a number of domestic legal standards and doctrines may be read as suggesting that local or national governments have a general duty to reduce climate change.[10] It has been argued that national or local governments, holding environmental resources in trust for the public, have the duty to protect these resources, including the atmosphere[11]—an argument that the District Court of Oregon appeared ready to consider.[12] General mitigation obligations could also extend to non-State actors. Thus, it was argued in some jurisdictions that large corporations had a general obligation to mitigate climate change under the common law of nuisance,[13] or even perhaps following a horizontal interpretation of certain human rights instruments.[14]

Furthermore, it has been found that a State must mitigate significant environmental damage, even when it has occurred despite preventive measures (*The Environment and Human Rights: Advisory Opinion OC-23/17 requested by the Republic of Colombia*, 2017). To discharge this obligation, the Opinion found States must ensure that:

1. Appropriate measures are taken to mitigate the damage;
2. These measures are adopted immediately, even if the source of the contamination is unknown, and
3. The best available technology and science is employed.

Question 2b:

What principles should inspire the actions of mitigation, adaptation and response to the losses and damage resulting from the climate emergency in the affected communities?

The following sub-sections will address the many interlinked and interconnected human rights and environmental law principles that can be applied to climate action. These include – but are not limited to – the principles of equality and non-discrimination, accountability and access to

[10] Greenpeace Nordic Association v. Ministry of Petroleum and Energy (Norway), judgment of the District Court of Oslo pronounced on 4 January 2018, case 16-166674TVI-OTIR/06 <http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/non-us-casedocuments/2018/20180104_16-166674TVI-OTIR06_judgment-2.pdf> (unofficial English translation), where the constitution of Norway is interpreted as the basis of a general mitigation obligation of the government.

[11] Ali v. Pakistan (April 2016) <https://web.law.columbia.edu/sites/default/files/microsites/climatechange/files/Resources/Non-US-Climate-Change-Litigation-Chart/pakistanyouthclimatepetition.pdf

[12] Juliana v. USA 217 F.Supp.3d 1224 (D. Or, 2016).

[13] American Electric Power v. Connecticut (2011) 564 U.S. 410

[14] A Savaresi, J Hartmann and I Cismas, 'The impact of climate change and human rights: some early reflections on the carbon majors inquiry' (28 november 2018) <https://ssrn.com/abstract=3277568>

remedy, transparency and inclusiveness, equity and common but differentiated responsibilities and respective capabilities, international cooperation and solidarity and the precautionary principle.

International environmental law principles

International environmental law is the body of agreements and guiding principles that reflect global efforts to address the most pressing environmental issues facing the Anthropocene, such as mass species extinction, climate change, and ozone depletion. Some relevant international environmental law principles that should be applied in the context of climate action include the following:

Due diligence

This concept is associated with the possible responsibility of a State in relation to the obligations with respect to its conduct or behaviour, as opposed to the obligations requiring results that entail the achievement of a specific objective (*Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, 2010 para. 197); ((International Law Commission, 2001 article 3 para. 8).

Prevention

The obligation of prevention encompasses all the diverse measures that promote the safeguard of human rights and ensure that eventual violations of these rights are taken into account and may result in sanctions as well as compensation for their negative consequences (United Nations, 1992 principle 2); (United Nations, 1972 principle 21).

Under environmental law, this principle has meant that States have the *"responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction"* (United Nations, 1992 Principle 2). This principle is applicable with regard to activities which take place in a State's territory, or in any area under its jurisdiction that cause damage to the environment of another State or in areas that are not part of the territory of any specific State. Such an obligation of prevention arises when there is a risk of "significant damage". According to the International Law Commission's draft articles on prevention of transboundary harm from hazardous activities, "significant" should be understood as more than "detectable but need nor be at the level of serious or substantial" (International Law Commission, 2007 article 1). To comply with this principle, States should take specific measures, including: regulate, supervise and monitor, require and approve environmental

impact assessments, establish contingency plans and mitigate when environmental damage has occurred.

Duty of Cooperation

Under international environmental law, the duty of cooperation is also reinforced in the ACHR (Article 26) and has been reflected as a duty under the Stockholm Declaration and the Rio Declaration. The duty establishes that *"States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem"*. This principle has been recognised by arbitral tribunals, the International Tribunal for the Law of the Sea and the ICJ. Under the ICJ, the obligation to cooperate derives from the principle of good faith as the affected States require the cooperation of the State of origin in order to take measures of prevention and mitigation, to ensure the protection of human rights.

Precautionary principle

When making decisions, the precautionary principle should be used when potentially harmful, irreversible, or catastrophic effects are identified but the scientific assessment of the potential damage is not conclusively established. In these cases, taking action to prevent these potential negative effects must be warranted. According to the precautionary principle, uncertainty must not impede the need for urgent action. Article 3 (3) of the Convention states that *"parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures."*

The Rio Declaration also calls for States to adopt a precautionary approach to environmental harms and act "where there are threats of serious or irreversible damage" even in the absence of full scientific certainty. Therefore, action needs to be taken even in cases where the extent or probability of possible harm is unclear. This principle is present in other international treaties such as the Stockholm Convention on Persistent Organic Pollutants[15] and the Biological Diversity Convention.[16]

[15] Opened for signature May 23, 2001, UN Doc. UNEP/POPS/CONF/4, App. II (2001), reprinted in 40 ILM 532 (2001) [hereinafter Stockholm Convention].
[16] 5 June 1992 (1760 U.N.T.S. 69.

Human rights principles

It has been noted that there are obstacles to a straightforward application of human rights principles to climate change (Knox, 2014). The difficulty of establishing direct causal relationships between human activity-induced climate change and its consequences for the exercise of human rights is one potential barrier.

Applying environmental human rights standards to climate change presents a more fundamental issue because those principles were largely created to address environmental harm that occurs within national borders. Almost all of the regional jurisprudence, in particular, arises from cases in which the benefits and the costs of the environmental harm are felt within the domestic jurisdiction of one State (Office of the High Commissioner for Human Rights (OHCHR), 2009 para. 71). Human rights bodies should, in these situations, grant a State broad latitude in determining how to balance environmental harm with other interests, provided that the State's choices are the product of rigorous, well-informed deliberation including all parties involved. However, this approach does not translate easily to transboundary problems such as climate change, where the benefits and the costs are not all incurred by the same entity.

As a result of the ambiguity surrounding the extraterritorial application of human rights obligations in general and the environmental context in particular, the human rights principles related to climate change are most apparent in relation to a State's action (or lack thereof) concerning the impact of climate change on the enjoyment of human rights within its borders. A State's internal obligations include duties to help those within its jurisdiction adapt to climate change, and may also include duties of the State to mitigate its own emissions. Although extraterritorial obligations are cloudier, it is still possible to discern some emerging principles (Knox, 2014).

According to the Human Rights Council of the UN, the *"full enjoyment of human rights depends on a supportive environment"* (UN Human Rights Council, 2012 para. 19). Indeed, the firmly established aspects of the relationship between human rights and the environment is that "environmental degradation can and does adversely affect the enjoyment of a broad range of human rights, including rights to life, health, food and water" (UN Human Rights Council, 2012 para. 34). Environmental harm and degradation is qualitatively similar to climate change (Knox, 2014 p. 4). It entails that to make sure climate change does not interfere with the enjoyment of human rights, climate action underpins the enjoyment of such rights. The UN Human Rights Council provided a report on the effects of specific rights, those include: the right to life, the right to adequate food, the right to water, the right to health, the rights to adequate housing and the right to self-determination (Office of the High Commissioner for Human Rights (OHCHR), 2009).

Common But Differentiated Responsibilities and Respective Capabilities CBDR-RC

The principle of equity, including intergenerational equity, as specifically recognized in the UNFCCC, calls for all parties to "protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities (CBDR-RC)" (Art. 3 (1)). The Paris Agreement provides that the agreement will be implemented to reflect equity and the principle of CBDR-RC, in the light of different national circumstances (Article 2.2).

The common but differentiated responsibilities principle refers to the notion that even if there is a general duty applicable to all countries to take climate action, the type of action taken depends on respective capabilities and differing national circumstances. It was integrated into principle 7 of the Rio Declaration within the context of sustainable development. Furthermore, the Paris Agreement refers to the duty of developed countries to take the lead in providing financial assistance to developing countries to help them take adequate measures to fight climate change (Article 9.3).

Equality and non-discrimination

To guarantee that climate action benefits individuals, organisations, and peoples in disadvantaged situations and lowers inequities, it is imperative that action be taken to address and correct the disproportionate consequences of climate change on the most marginalised people in accordance with the human rights principles of equality and non-discrimination.

The disproportionate impacts of climate change on persons in vulnerable situations raises concerns of climate justice, fairness, equity and access to remedy. The ACHR, Universal Declaration of Human Rights (UCHR), the ICCPR and other human rights instruments make it clear that all persons who suffer human rights harms are entitled to access to effective remedies. The Human Rights Council (2014) has repeatedly called for climate justice and immediate action to mitigate and adapt to climate change.

For example, indigenous peoples' rights should be fully respected in all climate action in accordance with the United Nations Declaration on the Rights of Indigenous Peoples (2007). In line with the PA's call for gender-responsive climate action, care should be taken to ensure that a gender-centric approach—including efforts to guarantee gender equality—is included in all planning for climate change action.

Children, the elderly, minorities, immigrants, and those in vulnerable situations must all have their rights adequately safeguarded. Equality and non-discrimination should be factored into States' climate action plans.

Transparency and inclusiveness

A number of human rights instruments, such as the UDHR, the International Convention on the Elimination of all forms of Racial Discrimination, the ICCPR, the Convention on the Elimination of All Forms of Discrimination Against Women, the CRC, the Convention on the Rights of Persons with Disabilities (CRPD) and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), protect the rights to participate and have access to information, especially those of persons, groups and peoples in vulnerable situations.

"Participation is a basic human right in itself [and] a precondition or catalyst for the realization and enjoyment of other human rights" (UN Human Rights Council, 2013). Effective rights-based climate action requires participatory and transparent processes. For example, article 18 of the UNDRIP states that *"indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions."*

Similarly, under international environmental law, the Rio Declaration on Environment and Development, the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) and the Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean (Escazú Agreement) guarantee participation and access to information in the environmental context. Furthermore, Article 12 of the PA specifically establishes the obligation of the parties to cooperate to enhance public participation and access to information.

Question 3

What is the nature and scope of the obligation of a State Party to adopt timely and effective measures with regard to the climate emergency in order to ensure the protection of the rights of children derived from its obligations under Articles 1, 4, 5, 11 and 19 of the American Convention?

Question 4

What is the nature and scope of a State Party's obligation to provide children with significant and effective means to express their opinions freely and fully, including the opportunity to initiate or, in any other way, to participate in any administrative or judicial proceedings concerning prevention of the climate change that represents a threat to their lives?

The following sections provide evidence from climate science publications relevant to the impacts of climate change in the Caribbean to be considered in relation to questions 3 and 4 of the request for an advisory opinion.

Particular and Specific vulnerability of children to climate change

The climate crisis affects children even before birth and throughout their lives. This is also true for countries with relatively weak governance and high vulnerability to extreme weather events, like the Island States in the Caribbean. This section summarises the latest scientific evidence on the impacts of climate change in the Caribbean. Children and youth today are among the most vulnerable groups in societies, while their contribution to the climate crisis itself is limited. They are affected both directly and indirectly by climate change and the impacts include, among others, increased extreme events, loss of livelihoods and health impacts (mortality due to heatwaves, physical development and growth issues, psychological impacts, etc.) (Menke & Schleussner, 2019). The lack of or delayed climate action today, will worsen future impact particularly in the second half of the 21st century and will be experienced particularly by children and youth (see figure 1).

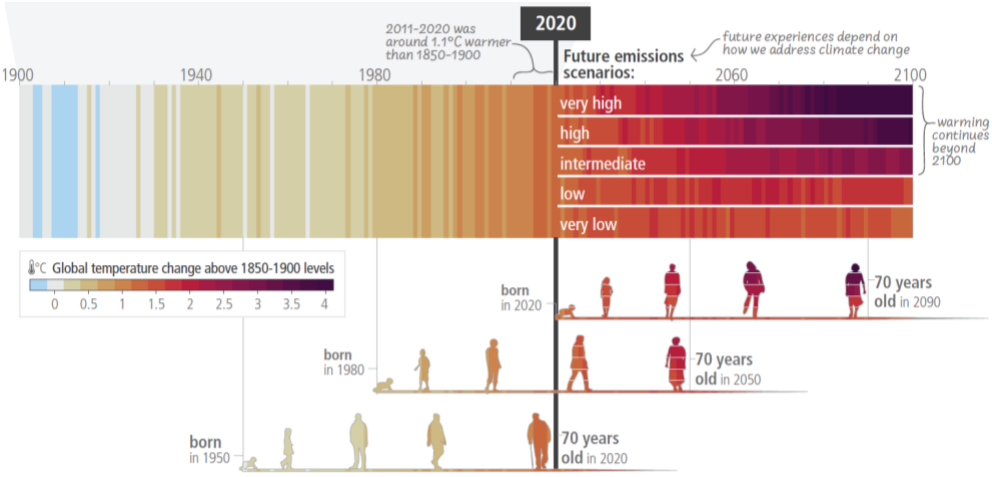

Figure 1. Observed (1900–2020) and projected (2021–2100) changes in global surface temperature (relative to 1850-1900) and relation to the lifespan of different human

generations, showing the expected warming that they will experience. Source: IPCC, 2023

Caribbean countries (both islands and continental Caribbean States) are extremely vulnerable to climate impacts, mainly due to their reduced area and complex topography, economic dependency on tourism and agriculture, high public debts, limited freshwater availability, and inadequate hazard forecasting tools (Taylor et al., 2018). Consequently, some of these countries consistently rank among the most affected by weather-related losses. Germanwatch's latest Climate Risk Index (CRI) ranked Puerto Rico (1), Haiti (3) and The Bahamas (6) in the top 10 worldwide for the period 2000-2019 (See Figure XX). Other Caribbean countries in the Top 50 include Dominica (11), Grenada (24), and St. Vincent and the Grenadines (48). This index takes into account total average fatalities, average fatalities per 100.000 inhabitants, average economic losses (million USD) and average losses per unit of GDP (%) (Eckstein et al., 2021). Overall, the results of the CRI suggest a higher-than-average vulnerability of the Caribbean to the impacts of climate change (See figure 2).

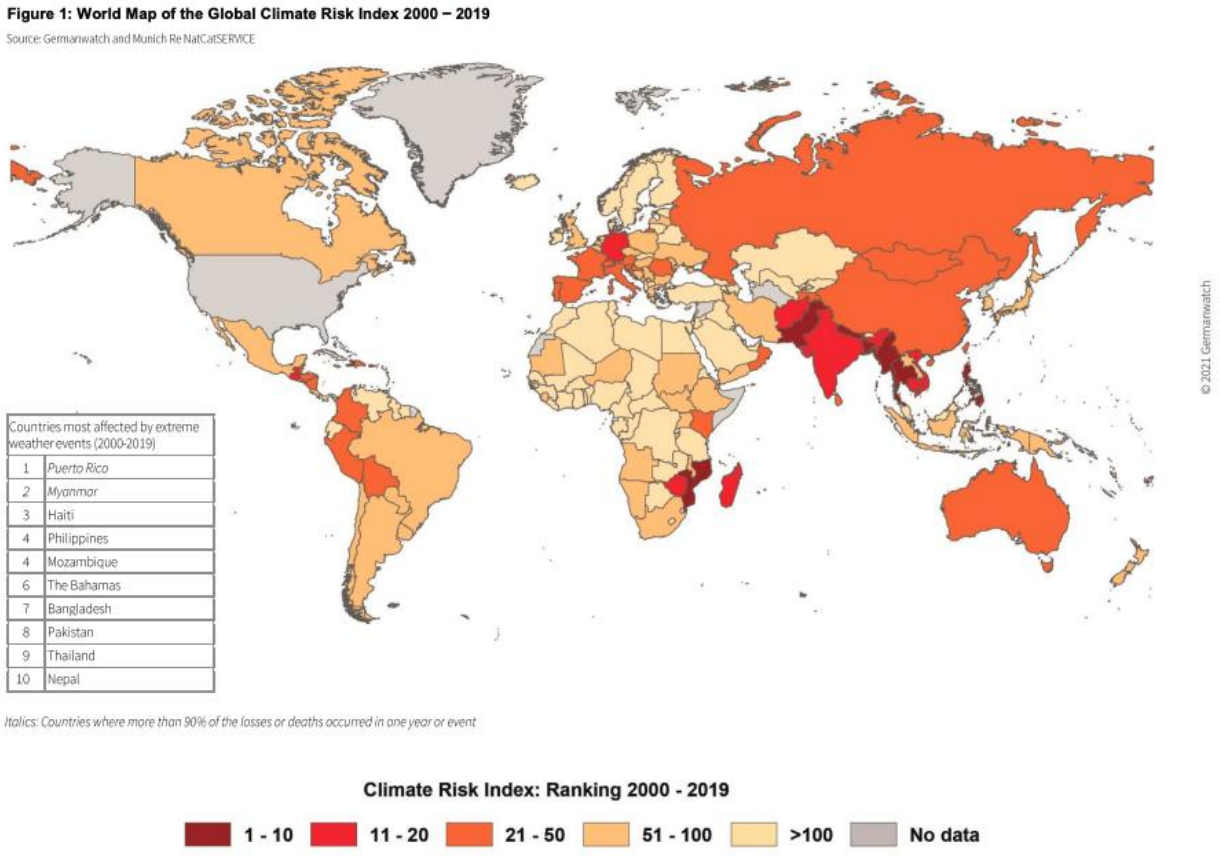

Figure 2. World Map of the Global Climate Risk Index 2000-2019
Source: Eckstein et al., 2021

Overarching impacts of climate change in the Caribbean

In general, the Caribbean region is projected to experience higher temperatures and drier weather due to climate change (Ministerio de Ciencia, Tecnología y Medio Ambiente, 2020). In countries like Puerto Rico, rainfall is expected to decrease up to 25% for the RCP8.5 pathway in the period 2041-2060 according to some models (Bowden et al., 2021). Stennett-Brown et al., (2017) suggest, according to the Statistical Downscaling Model (SDSM) for the Caribbean, that an increase in Continuous Dry Days (CDDs) is to be expected for most of the 45 weather stations modelled in the region by 2071-2099 (with respect to 1961-1990). According to the IPCC, additional warming by 0.2° - 1.0°C in the Caribbean compared to current conditions could lead to a predominantly drier region (5–15% less rain than present day), a greater occurrence of droughts along with associated impacts on agricultural production and yield (IPCC, 2022a).

The impacts of higher temperatures and drier weather are amplified by the limited capacity of countries in the Caribbean to adequately anticipate and respond to extreme events exacerbated by the climate crisis (Lowe et al., 2020). The increased risks and economic losses associated with higher frequency of extreme weather events has a detrimental impact on infrastructure, which is particularly prevalent in the Caribbean. Sea level rise affects livelihoods and cultural heritage, as well as touristic infrastructure. It is worth noting that some areas of the Caribbean basin are especially vulnerable to sea level rise due to geologically-induced vertical motions. This is the case of the Cartagena Bay in Colombia, where cumulative subsidence, which is a progressive lowering or sinking of large extensions of land, in the period 2014-2020 has been recorded to be 72.3mm. If the trend continues, a subsidence of 225mm to the year 2100 on the financial sovereign risk as shown by (Mallucci, 2020). Latin America and the Caribbean are characterised by a high financial vulnerability to climate change due to its reliance on activities that can be seriously affected by it. Moreover, undertaking the necessary adaptation and mitigation measures would imply public debt levels of 100% of GDP or more by 2050 in countries like Barbados and Saint Lucia (Economic Commission for Latin America and the Caribbean, 2023).

Additionally, sea level rise poses a threat to coastal infrastructure, which is particularly prevalent in the Caribbean. Sea level rise affects livelihoods and cultural heritage, as well as touristic infrastructure. It is worth noting that some areas of the Caribbean basin are especially vulnerable to sea level rise due to geologically-induced vertical motions. This is the case of the Cartagena Bay in Colombia, where cumulative subsidence, which is a progressive lowering or sinking of large extensions of land, in the period 2014-2020 has

been recorded to be 72.3mm. If the trend continues, a subsidence of 225mm to the year 2100 is expected (Restrepo-Ángel et al., 2021).

Sea level rise also threatens groundwater resources via saltwater intrusion in coastal aquifers. This risk has been explicitly acknowledged by many Caribbean Island States in their National Communications (The Government of Grenada, 2017; Ministry of Economic Growth and Job Creation. Climate Change Division, 2018; The Government of Saint Lucia, 2017; Trinidad and Tobago, 2021) and has even been described as a "major concern" in Antigua and Barbuda's Third National Communication (The Government of Antigua and Barbuda, 2015), therefore affecting water supply, both for direct human consumption and for agriculture. Another related impact is the inland migration of coastal ecosystems, which results in increased erosion (Rull, 2023).

Sectoral impacts

Two sectors are of particular importance for the economy of Caribbean States: Tourism and agriculture. According to the (World Travel & Tourism Council, 2022), the GDP share for this first sector in 2019 was 83.3% (Antigua and Barbuda), 59.8% (Saint Lucia), 43.6% (Saint Kitts and Nevis and Grenada), 42.5% (Bahamas), 40.5% (Saint Vincent and the Grenadines), 29.5% (Barbados), 29.1% (Jamaica), 26.8% (Dominica) and 7.9% (Trinidad and Tobago). On the other hand, the GDP share of agriculture in 2020 was 16.9% (Guyana), 15.2% (Dominica), 8.7% (Jamaica) and 8.6% (Saint Vincent and the Grenadines) (The World Bank, 2023). Both sectors are already facing climate impacts today, with a likely increase in the future which particularly threatens the economic future of today's children. Additional losses of ecosystem services or infrastructure may gravely affect the economic sustainability of the region.

Tourism

The increasing concentration of tourism infrastructure in coastal areas has made the sector particularly vulnerable to climate change in general and sea level rise in particular (Cashman & Nagdee, 2017). According to the IPCC, 30% of hotels along the Gulf of Mexico and the Caribbean Sea are exposed to flooding and 66% are located on eroding beaches (IPCC, 2022a). Under the RCP4.5 scenario, the estimated beach tourism revenue loss in the Caribbean is about 38% by 2100. If appropriate management methodologies are implemented, governments would only need to spend 0.87% of accommodation-derived income to prevent these losses, according to recent estimates (Spencer et al., 2022).

Tourism in the Caribbean is especially vulnerable to extreme weather events such as tropical cyclones and hurricanes. For example, in 2017 Puerto Rico saw a net beach elevation and width loss in the northwest, north-central and southeast coasts of the island after being hit by Hurricane María. Furthermore, the hurricane disrupted electric energy flows and interrupted water supply for 3.4 million people (University of Puerto Rico Rio Piedras Campus et al., 2021).

Climate impacts and extreme weather events have a significant impact on transport infrastructure, critical for the tourist industry. Monioudi et al. (2018) studied four airports and four seaports in Jamaica and Saint Lucia and found that they will be affected by increasing coastal flooding during this century. The authors also calculated that the return periods (RP) of extreme sea level events (ESLs) in an RCP4.5 pathway, are expected to significantly decrease over time (meaning that the extreme events will likely be more frequent in the future). In Jamaica, ESLs are expected to occur each 50 years by 2030. A much more dramatic decrease to almost 10 years, was calculated for Saint Lucia (Monioudi et al., 2018).

Extreme heat is predicted to cause 13.45 days of disruption per year in Jamaica and 11.86 in St. Lucia. These figures could increase up to 29.67 and 55.33 respectively between 2081 and 2100. The authors also found that more frequent flooding of vital infrastructure such as the aforementioned transportation assets is expected in the long term.

Tourism is also affected by the outbreak of Sargassum spp, a floating macroalgae whose proliferation in the Caribbean Sea and Central Atlantic is attributed to rising sea surface temperatures resulting from climate change (Wang et al., 2019). Tides of Sargassum have been reported to disrupt tourism in the Caribbean and are estimated to impose millions of dollars of clean-up costs across the Caribbean (Milledge & Harvey, 2016).

Finally, the sector is also significantly affected by disease outbreaks, as travel advisories may recommend foreigners to avoid spending time in the affected countries (Ewing-Chow, 2019). As will be explained in the section on health below, these impacts are expected to worsen due to climate change.

Agriculture

According to the IPCC, evidence suggests an overall reduction in area suitable for crop cultivation across the Caribbean due to the region's expected warmer climate and increasingly variable rainfall (IPCC, 2022a). Expected warmer temperatures may compromise agricultural production in the Caribbean in several ways. (Elusma et al., 2022) considered a range of environmental indicators such as soil depth, moisture, grain size, elevation, precipitation, evaporation, coverage, river density and distance. It concluded

that Caribbean countries like Haiti are already at risk of agricultural drought and therefore, more vulnerable to warmer and drier climate conditions.

Additionally, agriculture in the Caribbean has also been significantly impacted in the past by extreme weather events. The United Nations Economic Commission for Latin America and the Caribbean (CEPAL), attributes the severe crop yield loss of 2008 and 2012 to extreme weather events. Among them, 8 hurricanes in 2008, 5 of them with category 3+ Saffir-Simpson; and 10 hurricanes in 2012, 2 of them with category 3+ Saffir-Simpson (*Estimación del impacto del cambio climático sobre los principales cultivos de 14 países del Caribe*, n.d.). This report explicitly recognises an accentuated sensitivity of agricultural activities in the region due to limited water for irrigation, limited financial resources, inadequate infrastructure, complex socio–economic and demographic conditions and an elevated structural heterogeneity on farm and property types. Yet, it underscores that adequate timely adaptation processes may significantly reduce the impact of climate change on agriculture in the region.

Ortiz-Bobea et al. (2021) calculated the impact of anthropogenic climate change on agricultural productivity growth (APG). The study suggests that Latin America and the Caribbean has suffered a -26% reduction in APG since 1961. They also conclude that agriculture has become more vulnerable to climate change. Furthermore, anthropogenic climate change has significant effects on aquaculture in the Caribbean. The IPCC estimates that both inland and marine aquaculture in Latin America and the Caribbean show medium to high vulnerability affecting food security, livelihoods, and risking water and land-use conflicts (IPCC, 2022a).

Climate impacts on the rights of Children under the American Convention on Human Rights

The impacts of climate change in the Caribbean described above have the potential to cause severe damages to children in the present, as well as to negatively influence their future existence. The Small States in the Caribbean[17] had a combined population of 7.505.478 in 2020, of which 21,62% (1.618.087) are children under the age of 15 (The World Bank, 2022). The current average life expectancy for the countries of this region is 81.1 and 84.7 years for males and females, respectively (World Data Lab, 2023).

Following the best estimate of the future temperature trajectory based on the Climate Action Tracker (2019), increase in the global mean temperature is expected to exceed 1.5°C around the year 2035 (model median, range from 2030 to 2052), 2°C around 2055,

[17]According to The World Bank, this group consists of: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago.

and more than 3°C in 2100. This means that today's children will suffer the negative consequences of climate change as it worsens in the next decades (See figures 3 and 4).

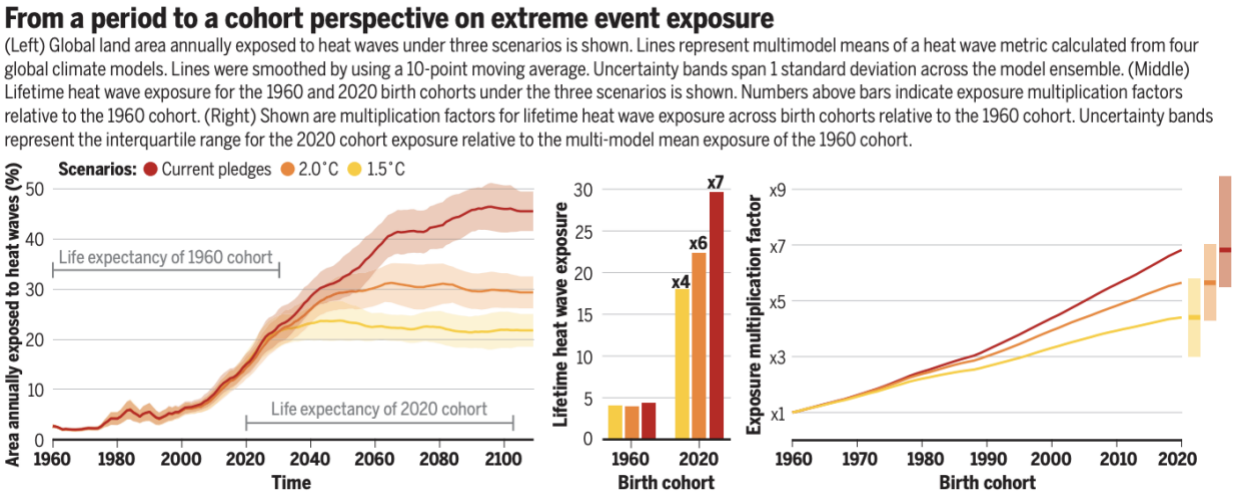

Figure 3. Exposure of different generations to extreme weather events Source: Thiery et al., 2021

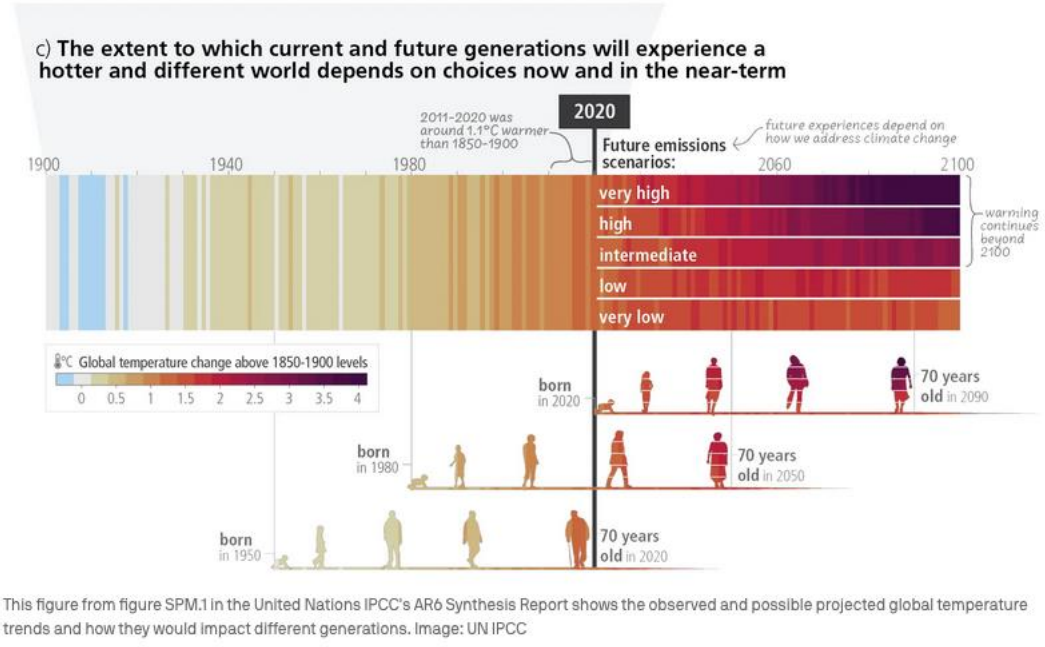

Figure 4. Extent to which current and future generations will experience a hotter world depending on choices now. Source: IPCC, 2023

Substantive rights of children engaged by climate change

Right to life

Children are expected to experience more extreme weather events than older generations. Thiery et al. (2021) quantified changes in lifetime exposure to climate extremes across generations and concluded that in Latin America and the Caribbean, exposure of children born in 2020 is expected to increase three to six fold compared to people born in 1960 under current pledges. However, such increased exposure would be significantly lower if global warming is halted at 1.5° (Thiery et al., 2021). The current global warming pathway poses significantly higher risks for the coming generations. IPPC establishes, with a degree of 'high confidence', that there are already observable changes in the climate system due to human-induced global warming.

Extreme weather events have historically contributed to excess mortality in the Caribbean. According to the World Meteorological Organization, extreme weather events caused 74,839 deaths in North America, Central America, and the Caribbean between 1970-2019, accounting for 18% of climate related disasters worldwide in that period (World Meteorological Organization, 2021). By January 2021, the combined population of the three regions (North America, Central America and the Caribbean) was 595.783.000 citizens, which is roughly 7.56% of the World's total) (UN Department of Economic and Social Affairs, 2022). Tropical cyclones and floods accounted for most of the lives lost. This is consistent with Burgess et al. (2018), who indicate that the most significant events for the Caribbean region are tropical cyclones and flooding, accounting for 71.4% (264 events) and 15.9% (59 events) of recorded occurrences between 1960 and 2013 respectively. According to their estimates, the mean annual normalised damages from climate-related events in the region between 1964-2013 amounted to USD 824 million.

Scientific evidence indicates that the frequency and intensity of extreme weather events will increase as a result of anthropogenic climate change. According to Holland & Bruyère (2014), since 1975 there has been an observable increase in the proportion of Category 4-5 hurricanes of around 25-30% per degree Celsius of global warming. Bhatia et al. (2018) observed in simulations made with GDFL's HiFLOR (High-resolution Forecast-oriented Low Ocean Resolution) model, an increasing trend in the basin-average tropical cyclone count throughout the 21st century and estimate that 2.5 more tropical cyclones per year will on average occur 2016 and 2035 compared to the period 1986-2005. According to the IPCC, 22 out of 29 Caribbean islands were impacted by a category 4 or 5 tropical cyclone in 2017 (IPCC, 2022a).

In the context of the climate crisis, hurricane-related damages could increase between 20% and 77% due to increased wind speed (Mallucci, 2020). Moreover, observations

suggest that the impacts of extreme weather events like hurricane Maria (2017) in Puerto Rico's excess mortality are related to socio-economic variables. Individuals in lowest development areas exhibited the highest risk (Santos-Burgoa et al., 2018).

Additionally, the IPCC's Sixth Assessment Report projects an increase in extreme heat events and mean air temperature in the Caribbean SIDS (medium confidence). The same can be said for marine heat waves (IPCC, 2021). Some studies have estimated future marine heatwaves impacts for the period 2022-2070, finding particularly large total projected mean days for the Caribbean (over 250 days) compared to other coral reef zones (over 150 days) (Yao & Wang, 2022). These projections highlight the particular vulnerability of the region to this type of extreme event. A 70% to 90% loss of reef-building corals is expected even if warming it limited to the 1.5°C goal of the Paris Agreement. For a warming of 2.0° or more with respect to pre-industrial levels, 99% of corals are expected to decline (IPCC, 2022b).

However, not all impacts of anthropogenic climate change on people's livelihoods are economically measurable. The most recent literature and IPCC reports have adopted the framework of non-economic loss and damage to highlight the impacts of climate change beyond what is economically measurable. Examples of these impacts include disruption to cultural practices, emotional and psychological distress, climate-induced migration, and the undermined reliability of long-term ecological knowledge about cyclical and seasonal changes in subsistence-oriented communities (Savo et al., 2016). In the Caribbean, slow-onset events related to climate change (sea level rise, land degradation, mean temperature rise, desertification, etc) have been found to affect food security, particularly among women and children (Abeldaño Zuñiga et al., 2021).

Additionally, the Small Island Developing States (SIDS) in the Caribbean are particularly vulnerable to climate-induced migration due to their high exposure to tropical cyclones as explained above. These extreme events have devastating non-economic consequences for communities in the region (Thomas & Benjamin, 2020).

The scientific evidence presented above is clear to suggest that the impacts of climate change threaten people's livelihoods in the Caribbean and the effects are expected to worsen significantly with further global warming. These impacts are particularly acute for children, who will suffer more frequent and more intense extreme weather events with potential lethal consequences throughout their lives.

Right to Housing

Climate change also poses risks for children's right to housing in the Caribbean. As indicated above, the region is particularly vulnerable to sea level rise and extreme weather events due to the prevalence of coastal infrastructure for residential use. This means that

families are at risk of losing their houses, thus affecting children's rights to adequate housing. Cashman & Nagdee (2017) highlight that approximately every second person in the Caribbean region lives below an elevation of 6m above sea level in the Caribbean region, indicating an acute vulnerability to sea level rise.

To illustrate the vulnerability of Caribbean nations to extreme weather events, the examples of Hurricanes Irma (Aug. - Sept. 2017), Maria (Sept. - Oct. 2017) and Dorian (Aug. - Sept. 2019) are relevant. The first one caused infrastructure destruction and losses worth $2.6 billion USD in Antigua and Barbuda and the British Virgin Islands, while the second caused damages in Dominica amounting to 226% of the country's GDP ($930.9 million USD) and finally, Dorian left much of Abaco Island (Commonwealth of The Bahamas) inhabitable, destroying 45% of homes (UNICEF, 2019).

Children's right to housing is further threatened by climate-induced migration, as extreme weather events force entire communities to leave their homes. According to Hoffmann et al. (2020), the impacts of climate change on migration is greatest in low and middle-income countries in Latin America and the Caribbean. According to the IPCC, small island States in the Caribbean are disproportionately affected by extreme weather events forcing migration relative to their small population size (IPCC, 2022a). Given the frequency and intensity of tropical cyclones and floods in the region, extreme weather events are expected to increase climate-related migration in the future, threatening children's right to housing.

Right to health

There is abundant evidence linking changing weather conditions with increasing health vulnerabilities in the Caribbean. The impacts of climate change on human health are multi-faceted. They include increasing vector-borne diseases, respiratory diseases, affectations from extreme weather events, and impacts on mental health.

The impacts of climate change on human health are particularly acute in relation to children, as they can be affected throughout their lives. Evidence suggests that climate change can affect children even before birth through Prenatal Maternal Stress (Barreca & Schaller, 2020). There is a clear association between high levels of mental distress (due to abuse or other traumatic experiences) in pregnant women and negative pregnancy outcomes like preterm birth (Christiaens et al., 2015; Nesari et al., 2018) and insulin resistance later in life (Entringer et al., 2008).

Gestation stress can lead to adverse inter- and transgenerational impacts which can be cumulative and therefore climate change stresses can be passed via epigenetic mechanisms to future generations (Olson & Metz, 2020). Moreover, climate change

increases stillbirths and complications from preterm birth (McElroy et al., 2022) and according to a recent study, a total of 150.000 gestation days per year between 1969 to 1988 have been lost due to heat exposure, with an additional 250.000 days per year expected by 2100 (Barreca & Schaller, 2020). Although this last result cannot be directly attributed to climate change, it clearly shows that an increase in heat exposure, which is expected in the context of global warming, would be detrimental to the gestation period of women.

Furthermore, in-utero heat stress can result in cognition impacts and future income losses. The ability to concentrate or to learn might be impaired, reducing learning outcomes. Moreover, the average academic achievement per child has been observed to decline in the U.S. by 4% to 7% with 2°C and 4°C increases respectively (US-EPA, 2023). Exposure to hotter and drier in utero and early-life conditions are associated with the greatest educational penalties (Randell & Gray, 2019). Moreover, they are exposed to differential and specific risks due to their particular physiological characteristics relative to adults. One example of many is the heat-induced health impacts owing to the fact that their bodies are not as efficient at thermoregulation as adults (US-EPA, 2023). There is ample evidence that children born in unfavourable socio-economic settings, children suffering from preexisting medical conditions (respiratory, endocrine, renal and others) and/or who come from specific ethnic backgrounds are more vulnerable to the effects of the climate crisis (US-EPA, 2023).

A recent article published in Nature deals with the extreme temperatures measured during 2023's northern hemisphere summer globally and its health impacts citing experts like Marina Romanello (University College London) and Josep Antó (Barcelona Institute for Global Health). The article highlights health impacts caused by temperature extremes on the brain (dizziness, fainting, sleep disruption, reduced concentration and learning ability), heart (vessels dilation, blood pressure lowering, faster heartbeat, cardiovascular disease), lungs (aggravation of asthma and chronic obstructive pulmonary disease) and kidneys (limited blood flow causing oxygen supply reduction and damage up until chronic kidney disease (Wong, 2023).

Vector-borne diseases

Evidence suggests that climate change contributes to vector-borne diseases outbreak. According to the IPCC, climate change facilitated the emergence of CHIKV in Latin America and the Caribbean. Something similar has been reported in relation to dengue in Colombia and Ecuador (IPCC, 2022a).

According to many experts, climate change is one of the leading causes of the surge in mosquito-borne viral infections registered by the Pan American Health Organisation (PAHO) in 2020. Dengue is among the 10 most severe global health threats according to

the WHO (Ewing-Chow, 2019). Other diseases, like leptospirosis, have recently been described for the first time in certain territories of the Caribbean such as the U.S. Virgin Islands after tropical cyclones Maria and Irma (Ryan et al., 2015).

In Latin America, climate change is likely to amplify the risk of infection of mosquito-borne diseases. Colón-González et al. (2018) demonstrate that limiting warming to 1.5°C could reduce the annual incidence of dengue fever by 6.4 million cases in Latin America. Cholera outbreaks have also been associated with extreme events in the Caribbean, as suggested by a recent study of Haiti after the tropical cyclone Matthew(Hulland et al., 2019).

Another consequence of a warming climate, specifically in the Caribbean, is that the breeding cycle of the mosquitoes has shortened, the transmission capacity is decreasing and the period between outbreaks passed from 5-7 years to 2-4 years. Wetter events after droughts have also increased the likelihood of finding mosquito-friendly habitats and therefore, increasing vector borne diseases (Dr. Joy St. John, Exec. Dir. of CARPHA, cited in Ewing-Chow, 2019).

Although dry years are happening more frequently in the Caribbean, the number of infection cases is increasing due to sporadic heavy rainfall episodes and poor water storage practices in the dry season. A recent study found a statistically significant relationship between dengue cases, temperature and rainfall. Poor water storage practices, lack of infrastructure and sporadic heavy rainfall contribute to dengue transmission in the region (Francis et al., 2023). Projections show an increase in dengue vulnerability due to an increased number of mosquitoes and a spread in their geographic range (Ebi et al., 2018).

Waterborne diseases arising from a lower mean annual rainfall (MAR) and therefore a higher concentration of faecal indicator bacteria (FIB) in rivers is also a concern related to climate change for the Caribbean. Vulnerability is increased due to three factors mainly: Relatively poor sanitation infrastructure; heavy dependance on rainwater and aquifers; and, owing to their small size, susceptibility to overcrowding (Strauch et al., 2014).

Mental health

The negative consequences of extreme weather events trigger depression, anxiety and post-traumatic stress disorder (PTSD) (Hayes et al., 2018). In the Caribbean, increased incidence of depression, anxiety, and PTSD was observed for at least six months after Hurricane Dorian among children, adults and especially, medical staff (Rise, N., Oura, C., Drewry, J., 2022). Adverse pregnancy outcomes and developmental conditions have been observed to arise from this, like the aforementioned conduct disorders and others such as neurodevelopmental impairments, attention-deficit, hyperactive disorder and even adaptive immunity (O'Connor et al., 2013).

Right to Food and Water

The IPCC has recently identified the Caribbean as one of the regions with greatest risk of malnutrition due to decline in food availability and increased cost of healthy food due to the impacts of climate change (IPCC, 2022a). A recent study estimated that an additional 1.4 million children will be undernourished in Latin America and the Caribbean between 2000-2050 because of climate change (Phalkey et al., 2015).

Higher temperatures can compromise crop health, yield, food sovereignty and food supply in the Caribbean. Warmer days result in plant stress via increased evaporation, and frequent and prolonged droughts may inhibit pollination from insects, birds and other animals (Mbow et al., 2019).

The Caribbean has experienced widespread drought in the last decade. Herrera et al. (2018) estimate that anthropogenic climate change was responsible for 15-17% of the drought's severity in the region between 2013-2016. The impact of climate change on drought conditions in the region is only expected to increase. Models cited in IPCC's Sixth Assessment Report, like the one by Rhiney et al. (2018) conclude that even a temperature increase of less than 1.5°C is expected to reduce crop suitability and available crops in Jamaica. Moreover, the IPCC projects that agricultural drought is projected to increase across Central America and the Caribbean, threatening food production (IPCC, 2022a).

Freshwater availability is also expected to decrease due to generally drier conditions (less precipitation), but also due to sea level rise and its impact on coastal aquifers (through saline intrusion). For the Caribbean, a decrease in precipitation of up to 30% in the wet season (May - October) may occur (Taylor et al., 2018). Campbell et al. (2011) predict drier conditions between November and January for the Caribbean south of the parallel 22°N, wetter conditions for the rest of the area (only Northern Cuba and the Bahamas) and a general drier climate for the whole Caribbean from June to October (for the period 2071-2100). According to the IPCC, a likely decrease in rainfall during the summer of the Northern Hemisphere is expected to affect the Caribbean and is likely to worsen in the coming decades (IPCC, 2021).

Karnauskas et al. (2018) estimate that 25% of the overall freshwater stress across the Caribbean region could be avoided if global warming is limited to 1.5°C. In a 2023 Call for Action on water security, the governments of Saint Lucia, Cabo Verde, Palau and Samoa reminded the international community and the general public that Small Island Developing States (SIDS) are among the most water-scarce countries worldwide. According to the Call for Action, 90% of these countries lie only a few metres above sea level and 70% of them may face shortages in the coming years, adding to already chronic water shortages due to factors like drought, population growth, urbanisation, tourism and agricultural impacts (Government of Saint Lucia et al., 2023).

Overall, climate change affects food production and freshwater availability for human consumption. As anthropogenic global warming increases in the following decades, the threat to children's right to food and water will significantly worsen.

Conclusion

In conclusion, this amicus curiae outlines the intricate intersections of climate change, human rights, and state obligations, with a specific emphasis on the unique challenges faced by Caribbean nations. As we navigate the complex web of legal frameworks, scientific evidence, and moral considerations, it is imperative to contextualise our findings within the Caribbean context.

The scope and adequacy of the measures taken by states to address climate change in accordance with the purpose and goals of the Paris Agreement and the United Nations Framework Convention on Climate Change must be considered in the context of their existing human rights obligations.

The latest IPCC publication's key finding relates to the "established fact" that human-caused greenhouse gas emissions have "led to an increased frequency and/or intensity of some weather and climate extremes since pre-industrial times". The IPCC also states that '*human-caused climate change is already affecting many weather and climate extremes in every region across the globe*' leading to *'widespread adverse impacts and related losses and damages to nature and people (high confidence)'. The IPCC goes on to state that [v]ulnerable communities who have historically contributed the least to current climate change are disproportionately affected*. (A.2 IPCC AR6 SYR)

Climate Analytics Caribbean respectfully requests the Court to recognise and articulate the States' obligations under international human rights law and international environmental law taking into consideration both the disproportionate effects of climate change on children and the particular effects on the Caribbean region.

The ACHR aims to protect children from harm caused by climate change. Children are particularly vulnerable to climate change as their rights to life, housing, health, food, humane treatment, privacy, and freedom of expression are at stake. This amicus curiae advocates for a timely and effective approach to provide measures that will ensure the protection of children's rights.

In offering responses to the questions posed, the Inter-American Court should consider the need for collaborative efforts, acknowledging the distinct challenges, vulnerabilities, and obligations of particular regions and peoples. This amicus curiae stands as a testament to regional cooperation and leadership in the face of the shared climate emergency.

Bibliography

Abeldaño Zuñiga, R. A., Lima, G. N., & González Villoria, A. M. (2021). Impact of slow-onset events related to Climate Change on food security in Latin America and the Caribbean. *Current Opinion in Environmental Sustainability*, *50*, 215–224. https://doi.org/10.1016/j.cosust.2021.04.011

Advisory Opinion OC-4/84 requested by the government of Costa Rica, (Inter-American Court of Human Rights January 19, 1984).

Angeles-Malaspina, M., González-Cruz, J. E., & Ramírez-Beltran, N. (2018). Projections of Heat Waves Events in the Intra-Americas Region Using Multimodel Ensemble. *Advances in Meteorology*, *2018*, 1–16. https://doi.org/10.1155/2018/7827984

Barreca, A., & Schaller, J. (2020). The impact of high ambient temperatures on delivery timing and gestational lengths. *Nature Climate Change*, *10*(1), 77–82. https://doi.org/10.1038/s41558-019-0632-4

Belize tourism industry association vs the National environmental appraisal committee, No 223 (Supreme Court of Belize 2014).

Bhatia, K., Vecchi, G., Murakami, H., Underwood, S., & Kossin, J. (2018). Projected Response of Tropical Cyclone Intensity and Intensification in a Global Climate Model. *Journal of Climate*, *31*(20), 8281–8303. https://doi.org/10.1175/JCLI-D-17-0898.1

Bowden, J. H., Terando, A. J., Misra, V., Wootten, A., Bhardwaj, A., Boyles, R., Gould, W., Collazo, J. A., & Spero, T. L. (2021). High-resolution dynamically downscaled rainfall and temperature projections for ecological life zones within Puerto Rico and for the U.S. Virgin Islands. *International Journal of Climatology*, *41*(2), 1305–1327.

https://doi.org/10.1002/joc.6810

Burgess, C. P., Taylor, M. A., Spencer, N., Jones, J., & Stephenson, T. S. (2018). Estimating damages from climate-related natural disasters for the Caribbean at 1.5 °C and 2 °C global warming above preindustrial levels. *Regional Environmental Change*, *18*(8), 2297–2312. https://doi.org/10.1007/s10113-018-1423-6

Case of Luna López v. Honduras, (Inter-American Court of Human Rights October 10, 2013).

Case of the Kaliña and Lokono Peoples v. Suriname, (Inter-American Court of Human Rights November 25, 2015).

Case of the Kichwa Indigenous People of Sarayaku v. Ecuador, (Inter-American Court of Human Rights June 27, 2012).

Case of the "Street Children" (Villagran-Morales et al.) v. Guatemala, (Inter-American Court of Human Rights November 19, 1999).

Cashman, A., & Nagdee, M. R. (2017). Impacts of Climate Change on Settlements and Infrastructure in the Coastal and Marine Environments of Caribbean Small Island Developing States (SIDS). *Science Review*, 155–173.

Christiaens, I., Hegadoren, K., & Olson, D. M. (2015). Adverse childhood experiences are associated with spontaneous preterm birth: A case–control study. *BMC Medicine*, *13*(1), 124. https://doi.org/10.1186/s12916-015-0353-0

Colón-González, F. J., Harris, I., Osborn, T. J., Steiner São Bernardo, C., Peres, C. A., Hunter, P. R., Warren, R., Van Vuurene, D., & Lake, I. R. (2018). Limiting global-mean temperature increase to 1.5–2 °C could reduce the incidence and spatial spread of dengue fever in Latin America. *Proceedings of the National Academy of Sciences*, *115*(24), 6243–6248. https://doi.org/10.1073/pnas.1718945115

Committee on the Elimination of Discrimination Against Women, Committee on Economic, Social

and Cultural Rights, Committee on the Protection of the Rights of All Migrants Workers and Members of their Families, Committee on the Rights of the Child, & Committee on the Rights of Persons with Disabilities. (2019). *Five UN human rights treaty bodies issue a joint statement on human rights and climate change.*

Daniel Billy and Others v. Australia (Torres Strait Islanders Petition), (United Nation Human Rights Committee July 21, 2022).

Dunn, R. J. H., Alexander, L. V., Donat, M. G., Zhang, X., Bador, M., Herold, N., Lippmann, T., Allan, R., Aguilar, E., Barry, A. A., Brunet, M., Caesar, J., Chagnaud, G., Cheng, V., Cinco, T., Durre, I., De Guzman, R., Htay, T. M., Wan Ibadullah, W. M., … Bin Hj Yussof, M. N. (2020). Development of an Updated Global Land In Situ-Based Data Set of Temperature and Precipitation Extremes: HadEX3. *Journal of Geophysical Research: Atmospheres*, *125*(16), e2019JD032263. https://doi.org/10.1029/2019JD032263

Eckstein, D., Künzel, V., & Schäfer, L. (2021). *Global climate risk index … 16th edition (2021)*. https://www.germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf

Economic Commission for Latin America and the Caribbean (ECLAC) & Caribbean Court of Justice Academy of Law (CCJ Academy of Law). (2018). *Ensuring environmental access rights in the Caribbean: Analysis of selected case law*.

Elusma, M., Tung, C., & Lee, C.-C. (2022). Agricultural drought risk assessment in the Caribbean region: The case of Haiti. *International Journal of Disaster Risk Reduction*, *83*, 103414. https://doi.org/10.1016/j.ijdrr.2022.103414

Estimación del impacto del cambio climático sobre los principales cultivos de 14 países del Caribe. (n.d.). CEPAL.

Ewing-Chow, D. (2019, December 31). A Climate Change-Driven Dengue Outbreak Has Been

Described As The Caribbean's 'Worst Medical Crisis Ever.' *Forbes*. https://www.forbes.com/sites/daphneewingchow/2020/12/31/a-climate-change-driven-caribbean-dengue-crisis-has-been-described-as-the-worst-catastrophe-in-the-regions-history/

Francis, K., Edwards, O., & Telesford, L. (2023). Climate and dengue transmission in Grenada for the period 2010–2020: Should we be concerned? *PLOS Climate*, *2*(6), e0000122. https://doi.org/10.1371/journal.pclm.0000122

Hayes, K., Blashki, G., Wiseman, J., Burke, S., & Reifels, L. (2018). Climate change and mental health: Risks, impacts and priority actions. *International Journal of Mental Health Systems*, *12*(1), 28. https://doi.org/10.1186/s13033-018-0210-6

Hoffmann, R., Dimitrova, A., Muttarak, R., Crespo Cuaresma, J., & Peisker, J. (2020). A meta-analysis of country-level studies on environmental change and migration. *Nature Climate Change*, *10*(10), 904–912. https://doi.org/10.1038/s41558-020-0898-6

Holland, G., & Bruyère, C. L. (2014). Recent intense hurricane response to global climate change. *Climate Dynamics*, *42*(3–4), 617–627. https://doi.org/10.1007/s00382-013-1713-0

Hulland, E., Subaiya, S., Pierre, K., Barthelemy, N., Pierre, J. S., Dismer, A., Juin, S., Fitter, D., & Brunkard, J. (2019). Increase in Reported Cholera Cases in Haiti Following Hurricane Matthew: An Interrupted Time Series Model. *The American Journal of Tropical Medicine and Hygiene*, *100*(2), 368–373. https://doi.org/10.4269/ajtmh.17-0964

Human Rights Committee (HRC). (1994). U.N. Doc. HRI/GEN/1/Rev.1 at 26- General Comment 18, Non-discrimination (Thirty-seventh session, 1989), Compilation of General Comments and General Recommendations Adopted by Human Rights Treaty Bodies

Resolution No. 3/2021 Climate Emergency: Scope for Inter-American Human Rights Obligations,

(2021).

Inter-American Court of Human Rights. (2017). *Advisory Opinion OC-23/17*. https://www.corteidh.or.cr/docs/opiniones/seriea_23_ing.pdf

International Law Commission. (2001). *A/56/10—Report of the International Law Commission on the work of its fifty-third session*.

International Law Commission. (2007). *A/Res/62/68—Report of the International Law Commission on the work of its fifty-third session*.

IPCC. (2012). *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change*. https://www.ipcc.ch/report/managing-the-risks-of-extreme-events-and-disasters-to-advance-climate-change-adaptation/

IPCC. (2018). *Summary for Policymakers. In: 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*. https://www.ipcc.ch/sr15/

IPCC. (2021). *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. https://www.ipcc.ch/report/ar6/wg1/

IPCC. (2022a). *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. https://www.ipcc.ch/report/ar6/wg2/

IPCC. (2022b). *Global Warming of 1.5°C: IPCC Special Report on Impacts of Global Warming of 1.5°C above Pre-industrial Levels in Context of Strengthening Response to Climate Change,*

Sustainable Development, and Efforts to Eradicate Poverty (1st ed.). Cambridge University Press. https://doi.org/10.1017/9781009157940

IPCC. (2023). *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*.

Knox, J. H. (2014). Human Rights Principles and Climate Change. In *Oxford Handbook of International Climate Change Law* (Cinnamon Carlarne, Kevin R. Gray, and Richard Tarasofsky, p. 21).

Lowe, R., Ryan, S. J., Mahon, R., Van Meerbeeck, C. J., Trotman, A. R., Boodram, L.-L. G., Borbor-Cordova, M. J., & Stewart-Ibarra, A. M. (2020). Building resilience to mosquito-borne diseases in the Caribbean. *PLOS Biology*, *18*(11), Article 11. https://doi.org/10.1371/journal.pbio.3000791

Mallucci, E. (2020). Natural Disasters, Climate Change, and Sovereign Risk. *International Finance Discussion Paper*, *2020*(1291r1), 1–34. https://doi.org/10.17016/IFDP.2020.1291r1

Mbow, C., Rosenzweig, C., Barioni, L. G., Benton, T. G., Herrero, M., Krishnapillai, M., Liwenga, E., Pradhan, P., Rivera-Ferre, M. G., Sapkota, T., Tubiello, F. N., & Xu, Y. (2019). *Food Security* (5; Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems). https://www.ipcc.ch/site/assets/uploads/sites/4/2022/11/SRCCL_Chapter_5.pdf

McElroy, S., Ilango, S., Dimitrova, A., Gershunov, A., & Benmarhnia, T. (2022). Extreme heat, preterm birth, and stillbirth: A global analysis across 14 lower-middle income countries. *Environment International*, *158*, 106902. https://doi.org/10.1016/j.envint.2021.106902

McLean, N. M., Stephenson, T. S., Taylor, M. A., & Campbell, J. D. (2015). Characterization of Future Caribbean Rainfall and Temperature Extremes across Rainfall Zones. *Advances in*

Meteorology, *2015*, 1–18. https://doi.org/10.1155/2015/425987

Menke, I., & Schleussner, C.-F. (2019). *Global climate change impacts on children*. Climate Analytics. https://climateanalytics.org/media/report_cc_impacts_on_children_2019.pdf

Milledge, J., & Harvey, P. (2016). Golden Tides: Problem or Golden Opportunity? The Valorisation of Sargassum from Beach Inundations. *Journal of Marine Science and Engineering*, *4*(3), 60. https://doi.org/10.3390/jmse4030060

Ministerio de Ciencia, Tecnología y Medio Ambiente. (2020). *Cuba. Third National Communication (NC3)*. https://unfccc.int/documents/266604

Monioudi, I. N., Asariotis, R., Becker, A., Bhat, C., Dowding-Gooden, D., Esteban, M., Feyen, L., Mentaschi, L., Nikolaou, A., Nurse, L., Phillips, W., Smith, D. A. T., Satoh, M., Trotz, U. O., Velegrakis, A. F., Voukouvalas, E., Vousdoukas, M. I., & Witkop, R. (2018). Climate change impacts on critical international transportation assets of Caribbean Small Island Developing States (SIDS): The case of Jamaica and Saint Lucia. *Regional Environmental Change*, *18*(8), 2211–2225. https://doi.org/10.1007/s10113-018-1360-4

Nesari, M., Olson, J. K., Vandermeer, B., Slater, L., & Olson, D. M. (2018). Does a maternal history of abuse before pregnancy affect pregnancy outcomes? A systematic review with meta-analysis. *BMC Pregnancy and Childbirth*, *18*(1), 404. https://doi.org/10.1186/s12884-018-2030-8

O'Connor, T. G., Winter, M. A., Hunn, J., Carnahan, J., Pressman, E. K., Glover, V., Robertson-Blackmore, E., Moynihan, J. A., Lee, F. E.-H., & Caserta, M. T. (2013). Prenatal maternal anxiety predicts reduced adaptive immunity in infants. *Brain, Behavior, and Immunity*, *32*, 21–28. https://doi.org/10.1016/j.bbi.2013.02.002

Office of the High Commissioner for Human Rights (OHCHR). (2009). *A/HRC/10/61—Report on the relationship between climate change and human rights* (A/HRC/10/61).

Olson, D. M., & Metz, G. A. S. (2020). Climate change is a major stressor causing poor pregnancy outcomes and child development. *F1000Research*, *9*, 1222. https://doi.org/10.12688/f1000research.27157.1

American Convention on Human Rights "Pact of San Jose, Costa Rica" (B-32), (2022). https://www.refworld.org/docid/3ae6b36510.html

Statute of the Inter-American Court of Human Rights, (1979). https://www.refworld.org/docid/3decb38a4.html

Ortiz-Bobea, A., Ault, T. R., Carrillo, C. M., Chambers, R. G., & Lobell, D. B. (2021). Anthropogenic climate change has slowed global agricultural productivity growth. *Nature Climate Change*, *11*(4), 306–312. https://doi.org/10.1038/s41558-021-01000-1

Oslo principles on global climate change. (2015). Eleven International Publishing.

Pachauri, R. K., Mayer, L., & Intergovernmental Panel on Climate Change (Eds.). (2015). *Climate change 2014: Synthesis report*. Intergovernmental Panel on Climate Change.

Patricola, C. M., & Wehner, M. F. (2018). Anthropogenic influences on major tropical cyclone events. *Nature*, *563*(7731), 339–346. https://doi.org/10.1038/s41586-018-0673-2

Pauw, P., Bauer, S., Richerzhagen, C., Brandi, C., & Schmole, H. (Eds.). (2014). *Different perspectives on differentiated responsibilities: A state-of-the-art review of the notion of common but differentiated responsibilities in international negotiations*. Dt. Inst. für Entwicklungspolitik.

People United Respecting the Environment et al v Environmental Management Authority et al, CV 2007-02263 (High Court of Justice of the Republic of Trinidad and Tobago 2000).

Phalkey, R. K., Aranda-Jan, C., Marx, S., Höfle, B., & Sauerborn, R. (2015). Systematic review of current efforts to quantify the impacts of climate change on undernutrition. *Proceedings of the National Academy of Sciences*, *112*(33). https://doi.org/10.1073/pnas.1409769112

Pulp Mills on the River Uruguay (Argentina v. Uruguay), (International Court of Justice April 20,

2010).

R. et al v ex parte Belize Alliance of Conservation Non-Governmental Organisations, Action No. 61 (Supreme Court of Belize 2002).

Restrepo-Ángel, J. D., Mora-Páez, H., Díaz, F., Govorcin, M., Wdowinski, S., Giraldo-Londoño, L., Tosic, M., Fernández, I., Paniagua-Arroyave, J. F., & Duque-Trujillo, J. F. (2021). Coastal subsidence increases vulnerability to sea level rise over twenty first century in Cartagena, Caribbean Colombia. *Scientific Reports*, *11*(1), 18873. https://doi.org/10.1038/s41598-021-98428-4

Rull, V. (2023). Rise and fall of Caribbean mangroves. *Science of The Total Environment*, *885*, 163851. https://doi.org/10.1016/j.scitotenv.2023.163851

Ryan, B., Franklin, R. C., Burkle, F. M., Aitken, P., Smith, E., Watt, K., & Leggat, P. (2015). Identifying and Describing the Impact of Cyclone, Storm and Flood Related Disasters on Treatment Management, Care and Exacerbations of Non-communicable Diseases and the Implications for Public Health. *PLoS Currents*. https://doi.org/10.1371/currents.dis.62e9286d152de04799644dcca47d9288

Santos-Burgoa, C., Sandberg, J., Suárez, E., Goldman-Hawes, A., Zeger, S., Garcia-Meza, A., Pérez, C. M., Estrada-Merly, N., Colón-Ramos, U., Nazario, C. M., Andrade, E., Roess, A., & Goldman, L. (2018). Differential and persistent risk of excess mortality from Hurricane Maria in Puerto Rico: A time-series analysis. *The Lancet Planetary Health*, *2*(11), e478–e488. https://doi.org/10.1016/S2542-5196(18)30209-2

Savo, V., Lepofsky, D., Benner, J. P., Kohfeld, K. E., Bailey, J., & Lertzman, K. (2016). Observations of climate change among subsistence-oriented communities around the world. *Nature Climate Change*, *6*(5), 462–473. https://doi.org/10.1038/nclimate2958

Spencer, N., Strobl, E., & Campbell, A. (2022). Sea level rise under climate change: Implications for

beach tourism in the Caribbean. *Ocean & Coastal Management*, *225*, 106207. https://doi.org/10.1016/j.ocecoaman.2022.106207

Stennett-Brown, R. K., Jones, J. J. P., Stephenson, T. S., & Taylor, M. A. (2017). Future Caribbean temperature and rainfall extremes from statistical downscaling: STATISTICAL DOWNSCALING OF CARIBBEAN TEMPERATURE AND RAINFALL. *International Journal of Climatology*, *37*(14), 4828–4845. https://doi.org/10.1002/joc.5126

Stephenson, T. S., Vincent, L. A., Allen, T., Van Meerbeeck, C. J., McLean, N., Peterson, T. C., Taylor, M. A., Aaron-Morrison, A. P., Auguste, T., Bernard, D., Boekhoudt, J. R. I., Blenman, R. C., Braithwaite, G. C., Brown, G., Butler, M., Cumberbatch, C. J. M., Etienne-Leblanc, S., Lake, D. E., Martin, D. E., … Trotman, A. R. (2014). Changes in extreme temperature and precipitation in the Caribbean region, 1961–2010. *International Journal of Climatology*, *34*(9), 2957–2971. https://doi.org/10.1002/joc.3889

Stocker, T. (Ed.). (2014). *Climate change 2013: The physical science basis: Working Group I contribution to the Fifth assessment report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.

Strauch, A. M., Mackenzie, R. A., Bruland, G. L., Tingley, R., & Giardina, C. P. (2014). Climate Change and Land Use Drivers of Fecal Bacteria in Tropical Hawaiian Rivers. *Journal of Environmental Quality*, *43*(4), 1475–1483. https://doi.org/10.2134/jeq2014.01.0025

Taylor, M. A., Clarke, L. A., Centella, A., Bezanilla, A., Stephenson, T. S., Jones, J. J., Campbell, J. D., Vichot, A., & Charlery, J. (2018). Future Caribbean Climates in a World of Rising Temperatures: The 1.5 vs 2.0 Dilemma. *Journal of Climate*, *31*(7), 2907–2926. https://doi.org/10.1175/JCLI-D-17-0074.1

The Environment and Human Rights: Advisory Opinion OC-23/17 requested by the Republic of Colombia, (Inter-American Court of Human Rights November 15, 2017).

The Government of Antigua and Barbuda. (2015). *Antigua and Barbuda. Third National Communication (NC3)*. https://unfccc.int/documents/67473

The Government of Grenada. (2017). *Grenada. Second National Communication*. https://unfccc.int/documents/201190

The World Bank. (2022). *Population, total—Caribbean small states* [dataset]. Wo

The World Bank. (2023). *World Development Indicators: Structure of value added* [dataset]. https://wdi.worldbank.org/table/4.2

Thiery, W., Lange, S., Rogelj, J., Schleussner, C.-F., Gudmundsson, L., Seneviratne, S. I., Andrijevic, M., Frieler, K., Emanuel, K., Geiger, T., Bresch, D. N., Zhao, F., Willner, S. N., Büchner, M., Volkholz, J., Bauer, N., Chang, J., Ciais, P., Dury, M., … Wada, Y. (2021). Intergenerational inequities in exposure to climate extremes. *Science*, *374*(6564), 158–160. https://doi.org/10.1126/science.abi7339

Thomas, A., & Benjamin, L. (2020). Non-economic loss and damage: Lessons from displacement in the Caribbean. *Climate Policy*, *20*(6), 715–728. https://doi.org/10.1080/14693062.2019.1640105

UN Committee on Economic, Social and Cultural Rights (CESCR). (2019). General Comment No. 24 (2017) on State Obligations Under the International Covenant on Economic, Social and Cultural Rights in the Context of Business Activities (CESCR). *International Legal Materials*, *58*(4), 872–889. https://doi.org/10.1017/ilm.2019.33

UN Committee on the Rights of the Child (CRC). (2003). *General comment no. 5 (2003): General measures of implementation of the Convention on the Rights of the Child*. https://www.refworld.org/docid/4538834f11.html

UN Department of Economic and Social Affairs. (2022). *WPP2022_GEN_F01_DEMOGRAPHIC_INDICATORS_COMPACT_REV1* [Demographic

indicators]. https://population.un.org/wpp/Download/Standard/MostUsed/

UN Department on Economic and Social Affairs. (2004). *Johannesburg Declaration on Sustainable Development*. https://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm

Universal Declaration of Human Rights, (1948). https://www.refworld.org/docid/3ae6b3712c.html

United Nations General Assembly (UNGA), (2007). -Resolution adopted by the General Assembly [without reference to a Main Committee (A/61/L.67 and Add.1)] 61/295United Nations Declaration on the Rights of Indigenous Peoples.

International Covenant on Civil and Political Rights, (1966). https://www.refworld.org/docid/3ae6b3aa0.html

International Covenant on Economic, Social and Cultural Rights, (1966). https://www.refworld.org/docid/3ae6b36c0.html

Declaration on the Right to Development: Resolution / adopted by the General Assembly, (1986). https://www.refworld.org/docid/3b00f22544.html

UN Human Rights Committee (HRC). (1989). *CCPR General Comment No. 18: Non-Discrimination*. https://www.refworld.org/docid/453883fa8.html

UN Human Rights Council. (2012). *A/HRC/22/43—Report on the issue of human rights obligations relating to the enjoyrment of a safe, clean, healthy and sustainable environment*.

UN Human Rights Council. (2013). *A/HRC/23/36—Report of the Special Rapporteur on extreme poverty and human rights*.

UN Human Rights Council. (2014). *A/HRC/RES/26/27—Resolution Adopted by the HRC 26/27 Human Rights and climate change*.

Maastricht Principles on the Human Rights of Future Generations, (2003).

https://www.ohchr.org/sites/default/files/documents/new-york/events/hr75-future-generations/Maastricht-Principles-on-The-Human-Rights-of-Future-Generations.pdf

UNESCO. (2019). The Ethical Challenges of Climate Change. *The UNESCO Courier*, *3*(483), 58.

UNFCCC. (2016). *The Paris Agreement*. United Nations. https://unfccc.int/sites/default/files/resource/parisagreement_publication.pdf

UNICEF. (n.d.). *Implementing and monitoring the Convention on the Rights of the Child—Turning child rights principles into action and results for children.* https://www.unicef.org/child-rights-convention/implementing-monitoring

UNICEF. (2019). *Child Alert: Children Uprooted in the Caribbean* (UNICEF Child Alert) [UNICEF Child Alert]. 978-92-806-5078-5

Charter of the United Nations, (1945). https://www.refworld.org/docid/3ae6b3930.html

United Nations. (1972). Stockholm Declaration on the Human Environment. *Report of the United Nations Conference on the Human Environment*.

United Nations. (1992). Rio Declaration on the Environment and Development. *Report of the United Nations Conference on Environment and Development*, *1*.

United Nations Convention on the Rights of the Child. (2022). *Committee on the Rights of the Child: Concluding Observations on the Combined Fifth and Sixth Periodic Reports of Canada*.

United Nations Economic and Social Council. (2022). *Committee on Economic, Social and Cultural Rights: Concluding Observations on the Initial Report of Bahrain*.

United Nations Environment Programme. (2015). *Putting Rio Principle 10 into Action: An Implementation Guide for the UNEP Bali Guidelines for the Development of National Legislation on Access to Information, Public Participation and Access to Justice in Environmental Matters*.

Resolution 3281 (XXIX): Charter of Economic Rights and Duties of States, (1974). https://investmentpolicy.unctad.org/international-investment-agreements/treaty-

files/2778/download

United Nations Human Rights Office of the High Commissioner. (n.d.). *Human Rights and Climate Change: Key Messages*.

United Nations Human Rights Office of the High Commissioner. (2013). *Individual Report on the American Declaration of the Rights and Duties of Man, the American Convention on Human Rights, and the Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights* (13; Mapping Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment).

United Nations International Covenant on Civil and Political Rights. (2019). *General Comment No. 36 (2019) on article 6: Right to life*.

University of Puerto Rico Rio Piedras Campus, Barreto, M., Mendez, R., Universidad de Puerto Rico, Cabrera, N., Universidad de Puerto Rico, Bonano, V., Universidad de Puerto Rico, Diaz, E., Universidad de Puerto Rico, Perez, K., Universidad de Puerto Rico, Castro, A., & Universidad de Puerto Rico. (2021). THE STATE OF COASTAL EROSION IN PUERTO RICO AFTER HURRICANE MARIA. *Revista Geográfica de Chile Terra Australis*, *57*(1), 29–40. https://doi.org/10.23854/07199562.2021571esp.Barreto29

Wong, C. (2023). Extreme heat harms health—What is the human body's limit? *Nature*, d41586-023-02482-z. https://doi.org/10.1038/d41586-023-02482-z

World Data Lab. (2023). *Projected life expectancy* [dataset]. https://population.io/

World Meteorological Organization. (2021). *WMO Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes (1970–2019)*. https://library.wmo.int/records/item/57564-wmo-atlas-of-mortality-and-economic-losses-from-weather-climate-and-water-extremes-1970-2019#.YS9CMNMzZBx

World Travel & Tourism Council. (2022). *Travel & Tourism in the Caribbean. Prospects for Growth*.

https://wttc.org/Portals/0/Documents/Reports/2022/Travel-and-tourism-in-the-caribbean.pdf

Yao, Y., & Wang, C. (2022). Marine heatwaves and cold-spells in global coral reef zones. *Progress in Oceanography*, *209*, 102920. https://doi.org/10.1016/j.pocean.2022.102920