Università
Ca'Foscari
Venezia

Master's Degree

in Comparative
International Relations

Final Thesis

The Other Public Health Emergency: Climate Change And The Right To The Highest Attainable Standard Of Health.

Supervisor
Ch. Prof. Sara De Vido

Assistant supervisor
Ch. Prof. Duccio Basosi

Graduand
Giulia Paniccia
856221

Academic Year
2019/ 2020

TABLE OF CONTENTS

Abstract

Il cambiamento climatico è ormai riconosciuto come una delle principali minacce per il pianeta e, di conseguenza, per l'uomo. Proprio all'uomo, paradossalmente, sono state riconosciute le responsabilità di questo fenomeno, causato dalle emissioni dei cosiddetti gas ad effetto serra, che restando intrappolati nell'atmosfera generano un aumento nelle temperature, portando a calamità naturali ed eventi estremi. Nonostante le evidenti conseguenze sull'ambiente e sugli ecosistemi, si tende a sottovalutare l'impatto che il cambiamento climatico ha sulla salute dell'uomo. Infatti, malgrado siano stati stabiliti diversi strumenti legali che impongono agli Stati l'obbligo di ridurre le proprie emissioni e di adottare politiche in salvaguardia dell'ambiente, in nessuno di questi strumenti sono contenute misure in tutela del diritto alla salute. Lo scopo di questa tesi è dunque illustrare come il cambiamento climatico e i suoi relativi effetti, influenzando lo stato salutare, fisico e mentale, costituiscano un vero e proprio intralcio alla piena realizzazione del diritto alla salute e, partendo da questo presupposto, di dimostrare come il diritto internazionale ambientale tuttora non fornisca alcuna protezione a questo diritto.

Per poter capire in che modo il cambiamento climatico rappresenti una minaccia per il diritto alla salute di ogni individuo, è necessario delineare questo diritto. Per questo motivo, il primo capitolo dell'elaborato è dedicato all'analisi di tutti gli strumenti legali che garantiscono il diritto alla salute, dal livello internazionale a quello regionale, finendo con le Costituzioni più notevoli di alcuni Stati. Il più importante è certamente la Costituzione dell'Organizzazione Mondiale della sanità, la quale pone come obiettivo principale proprio il raggiungimento del più alto possibile livello di salute per ogni individuo, come specificato dall'articolo 1. Gli Stati membri sono perciò tenuti ad attuare tutte le misure necessarie nei propri sistemi sanitari, e non solo, al fine di assicurare ad ogni individuo un'adeguata e accessibile assistenza sanitaria senza alcun tipo di discriminazione. E' fondamentale chiarire che il concetto di salute va ben oltre l'assenza di malattia e di malessere, ma comprende invece fattori di natura economica, sociale e culturale che sono profondamente correlati tra loro, tanto da rendere impossibile adottare leggi e politiche nell'ambito sanitario senza tenere in considerazione lo sviluppo economico, la stabilità politica e le condizioni sociali di uno Stato. Questi fattori vengono definiti i 'determinanti sociali della salute' e non è affatto una coincidenza che il diritto alla salute appartenga alla seconda generazione di diritti umani, quelli economici, sociali e culturali. Esso è infatti contenuto nell'art. 12 del relativo Patto Internazionale e ulteriormente approfondito dal Commento Generale n. 14, che riprendendo quanto affermato dall'OMS, delinea ulteriormente

gli obblighi degli Stati. In quanto diritto umano, gli Stati hanno il dovere di proteggere, rispettare e realizzare il diritto alla salute: in relazione agli effetti del cambiamento climatico e quindi ai fini di questo elaborato, questi obblighi sono cruciali poiché è su di questi che viene costruita la tesi che il cambiamento climatico corrisponde ad una vera e propria violazione di tale diritto.

Nella seconda parte vengono presentati i più dannosi effetti del cambiamento climatico. Oltre agli effetti diretti e più immediati, come il riscaldamento globale e l'inquinamento atmosferico, sono molti gli impatti dannosi per la salute, a partire dalla malnutrizione, causata dalla distruzione di terreni coltivati, al diffondersi più facilmente in zone non endemiche di malattie infettive portate da virus e batteri, la cui proliferazione viene influenzata dall'incremento delle temperature. Queste condizioni influiscono negativamente sulla salute di qualsiasi individuo, in particolar modo degli individui più vulnerabili. Viene perciò qui introdotto il concetto di vulnerabilità, nelle due accezioni rilevanti all'elaborato, quella nell'ambito del cambiamento climatico e quella dal punto di vista legale. Nel 2014, l'IPCC ha definito la vulnerabilità al cambiamento climatico come 'propensione o predisposizione a subire impatti avversi' che 'comprende una varietà di concetti ed elementi, tra cui la sensibilità o suscettibilità alle minacce e la mancanza di capacità di farvi fronte e di adattarsi'. Si deve notare come in questa definizione sia assente il concetto di esposizione ad impatti avversi, concetto che invece risulta centrale nella delineazione del soggetto vulnerabile nell'ambito dei diritti umani, che identificano come vulnerabili gli individui e i gruppi che, a causa di determinate condizioni, sono più propense ad essere esposte a danni fisici e mentali. Per molti accademici, questa esposizione ad un possibile danno porterebbe il soggetto vulnerabile ad essere deprivato dei propri diritti umani, mentre altri, come Humphreys e Robinson, sostengono invece che la vulnerabilità sia generata proprio dalla mancata protezione legale che uno Stato fornisce ad un individuo, poiché è questa mancanza che impedisce lo sviluppo di un'adeguata capacità adattativa agli impatti avversi. In ogni caso, ciò che emerge è un chiaro nesso tra impatti avversi del cambiamento climatico, vulnerabilità e violazione dei diritti umani che certamente non può essere ignorato dal diritto internazionale. I soggetti più vulnerabili al cambiamento climatico sono infatti quelli più colpiti e il cui diritto alla salute risulta essere più a rischio, necessitando perciò di più tutela.

Avendo dimostrato, attraverso il concetto di vulnerabilità, che il cambiamento climatico porti ad un'effettiva violazione dei diritti umani, in particolar modo del diritto alla salute, il terzo capitolo analizza gli strumenti legali forniti dalla legge ambientale, con lo scopo di capire se, e

come, essi provvedono alla protezione di questo diritto. In particolare, sono stati presi in considerazione i tre principali trattati internazionali sull'argomento: la Convenzione quadro delle Nazioni Unite sui cambiamenti climatici, il Protocollo di Kyoto, e il più recente Accordo di Parigi. Illustrando gli obblighi che questi trattati impongono agli Stati, è possibile notare come, nonostante in essi il cambiamento climatico sia riconosciuto come la più grande minaccia per il genere umano, pochi e inadeguati sono i diretti riferimenti alla salute, completamente assenti sono invece le misure prescritte da questi strumenti in esplicita tutela del diritto alla salute e di conseguenza mancano i meccanismi per attribuire agli Stati, sempre in ambito ambientale, la responsabilità per la violazione o non realizzazione di tale diritto. Ciò nonostante, l'Accordo di Parigi è stato accolto con entusiasmo dall'intera comunità internazionale e particolarmente dall'OMS, che lo ha definito il più importante accordo sulla salute pubblica di questo secolo. Allo stesso modo, accademici come Onzivu considerano il risultato ottenuto a Parigi come un notevole traguardo in grado di apportare non pochi benefici al sistema sanitario pubblico e, di conseguenza, allo stato salutare di ogni individuo. La visione proposta da altri studiosi, ad esempio Bodansky e Rayamani, è certamente meno rosea e suggerisce che, ancora una volta, gli Stati membri abbiano mancato la possibilità di associare, in termini legali, i diritti umani ad un trattato sul clima. Sulla base di tale visione, il capitolo prende in considerazione altri strumenti del diritto internazionale, al di fuori del ramo ambientale, che permettono di riconoscere uno Stato responsabile per i danni generati dal cambiamento climatico, che è a tutti gli effetti una conseguenza delle azioni dei singoli Stati. Vengono perciò discussi i concetti di *no harm*, secondo il quale uno Stato è tenuto a non nuocere con le proprie azioni un altro Stato e il concetto di riparazione per il danno subito. Lo scopo è di dimostrare che il cambiamento climatico possa essere trattato come un danno provocato da uno Stato e che il soggetto danneggiato, corrispondente ad un altro Stato o ad un individuo, sia in diritto di ottenere la riparazione del danno, tramite compenso o cessazione dell'azione dannosa. A supporto di questa tesi viene presentato il caso Urgenda, il primo in assoluto in cui una Corte Suprema, quella Olandese, attraverso una storica sentenza ha invitato lo Stato Olandese a ridurre le proprie emissioni del 25%, facendo riferimento sia al concetto di *no harm,* riconoscendo il danno provocato da tali emissioni, e sia alle responsabilità di ogni Stato ai sensi del diritto internazionale per la tutela dei diritti umani.

Avendo constatato che il diritto ambientale non ha ancora fornito degli strumenti per la tutela del diritto alla salute, la quarta ed ultima parte dell'elaborato analizzerà invece come il ramo del diritto internazionale che si occupa del diritto alla salute e della sanità pubblica sta affrontando

la crisi climatica. Guidate dall'OMS, le iniziative per fortificare la sanità pubblica universale hanno tutte come focus principale l'adattamento del sistema sanitario al cambiamento climatico, specialmente nei paesi più vulnerabili. In collaborazione con la Convenzione Quadro ed altre agenzie delle Nazioni Unite, l'OMS sta promuovendo e supportando programmi che hanno come obiettivo finale l'inclusione del sistema sanitario nei piani di adattamento nazionali di ogni singolo stato, fornendo strumenti e personale per assicurarne l'adeguato svolgimento. Tuttavia, affinché questi piani si rivelino efficaci, è prima di tutto necessario che il sistema sanitario di partenza sia in condizione di provvedere ai bisogni di ogni individuo e di rispondere in maniera appropriata ad ogni tipo di emergenza. Sfortunatamente, questo non accade nei paesi più poveri, le cui condizioni sociali, economiche e politiche costituiscono il più grande ostacolo alla realizzazione di un sistema di sanità pubblica che riesca a provvedere almeno agli elementi più essenziali e necessari, quali acqua e cibo non contaminati e adeguata sanificazione. Sarebbe perciò impossibile per questi stati attuare dei piani di adattamento che effettivamente proteggano gli individui dal cambiamento climatico, non essendo nemmeno in grado di fornire un'appropriata copertura sanitaria. Per questo motivo, tra le priorità dell'OMS, in relazione all'agenda 2030 per lo sviluppo sostenibile, ci sono il raggiungimento della copertura sanitaria universale e la costruzione di sistemi sanitari resilienti, che, raggiunti attraverso il principio conosciuto come *one world, one health*, fanno parte del concetto più ampio di salute globale, promosso e sostenuto dalle Nazioni Unite.

Il problema che emerge da questa discussione è, principalmente, l'avversione degli Stati più sviluppati nel riconoscere esplicitamente l'evidente nesso tra cambiamento climatico e salute umana. Poiché tale riconoscimento implicherebbe l'assunzione di ulteriori obblighi, oltre a quelli già imposti dai trattati ambientali, gli stati continuano ad ignorare l'emergenza sanitaria che il cambiamento climatico ha causato e continuerà a causare, rifiutandosi di introdurre, negli accordi e nelle convenzioni, chiari ed espliciti provvedimenti in tutela del diritto alla salute, a spese dei soggetti più vulnerabili. In particolare, si può notare la loro scarsa volontà di investire le proprie risorse in progetti riguardanti il settore sanitario e l'adattamento al cambiamento climatico nei paesi meno sviluppati e, allo stesso tempo, più danneggiati. Inoltre, la realizzazione di questi progetti è ulteriormente compromessa dal *soft power* dell'OMS, che, per quanto in prima linea nell'affrontare l'emergenza climatica, non è in grado di imporre obblighi specifici e di attestare la responsabilità degli Stati in caso di fallimento nel garantire la piena realizzazione del diritto alla salute ad ogni individuo senza discriminazione.

Introduction

'Climate change is nothing less than a form of slow death'

Leo Falcam, former President of the
Federated States of Micronesia

Climate change is by now deemed as the greatest challenge that humankind has been called to face. As its adverse effects destroy entire ecosystems, melt glaciers and burn forests, the international community has slowly realised that the most dangerous impacts are those related to human health. Due to this paradox, for climate change is nothing but the product of unregulated human activity, the correlation between climate change and human health has only recently been acknowledged and no concrete action has been actually been taken in protection of global health and of the health of every individual. This negligence inevitably interferes with the ability of individuals and communities to enjoy their right to the highest attainable standard of health, for which States are accountable under international human rights law.

The scope of this work is, therefore, to demonstrate that the existing legal instruments do not recognise that climate change represents a threat to global health and that they failed to create clear binding provisions in protection of people's health.

This analysis starts precisely from the human right to health, as delineated in the Constitution of the World Health Organisation and in The International Covenant On Economic, Social And Cultural Rights, eventually taking into account other international legal instruments and regional conventions that include this right. What emerges is a much more complex nature of the concept of health, which does not simply mean the absence of disease. Health is in fact heavily influenced by diverse factors, the upstream determinants of health, which include wealth, social status, education, occupation, gender and ethnicity; in particular, these elements and all their possible combinations determine the ability of individuals to access and afford quality and efficient healthcare. Available and affordable public health services represent the first step in the realisation of the right to health and their efficiency is extremely important during health emergencies, from extreme weather events to pandemics. On this note, the work of Lawrence Gostin explains how health inequalities can be regarded simultaneously as both the cause and consequence of socio-economic inequalities, thus it would be impossible to reduce the former without addressing the latter.

The effects of climate change aggravate the already existing health inequalities, becoming unbearable for the most vulnerable subjects. Two are the understandings of vulnerability that

are considered in the second chapter of this thesis: vulnerability to climate change and vulnerability as conceived in the legal field. The comparison of two views, the one formulated by the climate scientists of the Intergovernmental Panel On Climate Change and the one provided by social and legal scholars such as Nifosi-Sutton and Humphreys, will allow to identify as vulnerable those subjects who are more likely to be exposed to harm and, as a consequence, are deprived of some rights.

On this note, it can be said that the international climate regime, at the core of chapter three, was established precisely to limit people's exposure to the adverse effects and to grant them legal protection and support. Bearing in mind that states cannot and should not be equally accountable for having caused climate change, the UN Framework Convention On Climate Change introduced the concept of common but differentiated responsibilities, which bind developed and wealthy states to significantly reduce their greenhouse gasses emission and to financially assist developing countries to mitigate the most dangerous impacts. It is in the preamble of this Convention that climate change is defined as the greatest threat to humankind, nevertheless quite ironically no mention of human health can be found in the treaty. Similarly, the Paris Agreement, acclaimed as a landmark achievement and a cornerstone of the climate law, only contains a vague reference to human rights and the right to health in its non-legally binding preamble. Despite the different articles dedicated to adaptation, loss and damage and assistance, the agreement does not create obligations for states to limit their emissions to safeguard the collective right to health, nor to financially support the adaptation of the health system of the less developed countries. What has been demonstrated is that unfortunately the Paris Agreement is the umpteenth political compromise among the most industrialised states, each of them primarily focusing on reducing to the minimum their economic losses, rather than on the health and wellbeing of their inhabitants, especially the most vulnerable, and of the international community as a whole.

At this point, the focus is shifted on the role of WHO. Given that global health is threatened by climate change, the Organisation should be on the frontline to face this challenge, as the other bodies taken into account appear to be neglecting the issue. Moreover, considering the transboundary nature of both climate change and public health, the expertise of WHO in managing public health emergencies may be the only feasible possibility. Having launched the Global Mandate On Climate Change And Health in 2008, the Organisation has assumed the leadership in promoting and integrating adaptation of the health sector in the national adaptation plans, through sharing information, assisting with technical resources and employing perfectly trained personnel. Nevertheless, despite advocating for health in all policies and universal

health coverage, WHO has not resorted to its normative power to directly address the public health emergency caused by climate change. Its Constitution confers to it the authority to negotiate legally binding treaties and regulations that would actually oblige States to act in safeguard of global health and to provide adequate funding to the less developed countries so as they would be actually able to adapt their health system and comply with their duty to ensure the highest attainable standard of health to their populations.

1. THE RIGHT TO HEALTH: A GENERAL REVIEW OF ITS LEGAL FRAMEWORK

Introduction

Understanding how climate change negatively affects human health and assessing whether this impact may be classified as a violation of the human right to health and, therefore, whether single States may be found responsible for such violation, is definitely not simple. Even more complicated would be trying to understand this without a clear and precise definition of human health and, consequently health as a human right. Thus, the scope of this first chapter is to provide a general outlook of the legal framework of the right to health, the abbreviation of what is extensively conceived as 'the highest attainable standard of physical and mental health'.

Before starting, it is important to stress that health is not a single, unified concept but it is determined and influenced by a plethora of variables, which have serious impacts on the wellbeing of individuals and communities. The Committee on Economic, Social and Cultural Rights has defined these variables as 'underlying determinants of health' and they include safe drinking water and adequate sanitation; safe food; adequate nutrition and housing; healthy working and environmental conditions; health-related education and information; gender equality.[1] All these factors may not be directed related to the health of an individual, but they certainly affect it, thus they must be taken into account when delineating the right to health and the obligations originating from it; as a matter of facts, it is precisely starting from the underlying determinants of health that the core obligations of the States are drafted, as well as all the provisions safeguarding the most vulnerable groups.

For a more complete and consistent view of the matter, the chapter has been divided in three main paragraphs, corresponding to the three levels of legislations: international, regional and national. This is approach was chosen because, while the international instruments provide a general and universal understanding of the concept of health, setting the standards which bind States to fulfil specific duties, the underlying determinants of health usually depend on the geographical area and on the level of economic and political development of a State. For this reason, it is useful to provide an overlook of the regional and national frameworks, which tend to reflect more the actual conditions of single States.

1.1 The right to health as defined at International level

[1] World Health Organization, Commission on Social Determinants of Health. 'Closing the Gap in a Generation: Health equity through action on the social determinants of health'. Available at: http://www.who.int/social_determinants/enExternal Web Site Policy

Nowadays, the right to health is universally recognised as a fundamental right for all people, however the road that led to its inclusion in international law was not without obstacles. John Tobin links the origins of the right to health as conceived today to two main factors: the development of social and economic rights in Latin America and World War I[2].

Starting from the first element, he notes that there is no consensus among scholars on how the development of economic and social rights and their inclusion in the Constitutions of some Latin American countries actually influenced the establishment of the right to health in international law. For instance, Johannes Morsink claims that the right to medical care, food and shelter were included in the Universal Declaration of Human Rights as a result of the Latin American socialist tradition, which advocated for equality and supported a more collective vision of rights, especially socio-economic rights, in contrast to the Western tradition, more oriented towards civil and political rights[3]. On the other hand, Mary Ann Glendon provides an analysis which suggests that the Latin American understanding of rights was not the product of its socialist ideology, but was rather influenced by the Catholic approach to human dignity and social justice[4]. Despite the different approaches, Tobin remarks that 'the right to health as a contemporary *legal concept* owes much to the Latin American philosophy of human rights'[5], but this is not sufficient to explain how health was integrated as an inalienable human right in international law.

The second factor that he mentions is therefore essential in order to have a complete explanation: according to him, the post-conflict context after WW1 created the perfect setting for the establishment of the right to health at the international level[6]. The majority of scholars agree on the strategic role of health and its impact in maintaining global peace and security in the aftermath of the Great War, recalling the emphasis put by the League of Nations in attending to the health of individuals, especially those living in the countries most affected by the conflict and considering the creation of the Health Organisation as the first step in acknowledging the social determinants of health[7]. Despite the failure of the LON, the health organisation managed

[2] John Tobin, *The Right To Health In International Law*, Oxford University Press (2012), p.
[3] Johannes Morsink, *The Universal Declaration of Human Rights: Origins, Drafting And Intent*, University Of Pennsylvania (1999), P.192
[4] Mary Ann Glendon, 'The Forgotten Crucible: The Latin American Influence On The Universal Human Rights Idea' *Harvard Human Rights Journal* 27 (2003), pp. 29-30
[5] Tobin*, op. cit*., p. 22
[6] Ibid, p. 34
[7] Ibid, p.35

to promote the importance of collaboration among states in dealing with public health matters and raise awareness on issues concerning health that had not been addressed before.[8]

It can be affirmed that the Health Organisation laid the basis for the modern vision of public health, according to which the State has the responsibility to protect and promote the health of its citizens and this is strictly connected with the States' obligation under the human rights discourse to grant to every individual the highest attainable standard of health[9].

1.1.1 The Constitution of the World Health Organisation

After the end of World War II, together with the United Nations, the direct successor of the Health Organisation, the World Health Organisation, was founded. Its legal basis is the World Health Constitution, signed on June 19, 1946 by the sixty one delegates of the International Health conference and entered into force on April 7, 1948, a day that is now celebrated as the World Health Day, to remark the importance of such date[10].

The Constitution defines health as 'a state of complete physical, mental and social well-being' precising that the absence of disease or infirmity is a necessary but not sufficient condition for the 'enjoyment of the highest attainable standard of health' for every human, regardless of their race, religion, political belief, economic and social status[11]. However, this definition has received several critiques and is still considered problematic. For instance, Daniels argues that the inclusion of the concept of social well-being 'risks turning all of social philosophy and social policy into health care'[12], while Jennifer Ruger remarks that even the simple reference to 'well-being' is 'so broad as to constitute an unreasonable standard for human rights, policy and law'[13]. Thus, this definition has not been unanimously embraced by States, for it is not considered relevant to securing the realisation of the right to health, as too broad and vague[14]. Nonetheless, the Constitution of WHO remains the main keeper of the right to health and therefore the delineation of health originating from it cannot be neglected.

The afore mentioned highest attainable standard of health is only reachable through cooperation among individuals and States, which have the responsibility to provide their

---

[8] Paul Lauren, *The Evolution Of International Human Rights: Visions Seen*, University Of Pennsylvania Press (2011), p. 186

[9] George Rosen, *A History of Public Health*, MD Publications (1958), p. 358

[10] WHO, "Constitution of the World Health Organization," (1984), entered into force April 7, 1948

[11] Ibid, preamble

[12] Norman Daniels, *Just Health: Meeting Health Needs Fairly*, Cambridge University Press (2008), p. 36

[13] Jennifer Ruger, 'Toward A Theory Of A Right To Health: Capability And Incompletely Theorized Agreements', Yale JL & Human 273, p. 312

[14] Brigit Toebes, *The Right To Health As A Human Right In International Law*, Intersentia (1999), p. 22

peoples with 'adequate health and social measures' and grant them access to any related knowledge about their right to health. It is important to highlight that the constitution regards the equal development of the promotion of health as a primary source for peace and security, reaffirming the essential role of global health not only in the field of health policy, but in a much broader sphere.

The 'attainment of the highest standard of health by all people' not only is the main objective of the Organisation, as stated by Article 1 of its Constitution[15], but a necessary condition for global security and peace, on which the stability of the whole international community depends and which the United Nations strive to protect and ensure. For this reason, the World Health Organisation plays as a fundamental counterpart to the UN in the health sector, acting as 'the directing and co-ordinating authority on international health work'[16], exercising a normative power to adopt conventions, agreements and regulations in order to promote, develop and improve healthcare systems, scientific research and general health standards. It is clear then, as suggested by Tobin, that in the drafting of the Constitution, the right to health was intended to be both normative and instrumental: the normative side is to impose obligations on States, the instrumental one is to satisfy the strategic interests of the States and of the international community, namely peace and security[17]. Particularly significant is Art. 7, which explains that in case a State Member fails to meet his financial obligations, the Organisation is entitled to suspend its privileges and its benefits, only to restore them once the State has fulfilled its obligation[18]. This is important as it imposes obligations on all state members to financially contribute to the scope of the organisation, according to their wealth and population[19], highlighting how the realisation of highest attainable standard of health is closely related to the States' will not only to reform and adapt their healthcare systems, but, above all, to play an active role in contributing to the improvement and development of the healthcare system of the other members. The profound interdependence of State Members and the consequent necessity for cooperation and coordination is also expressed in Art. 63[20], according to which States are requested to 'communicate promptly to the Organization important laws, regulations, official reports and statistics pertaining to health which have been

[15]Constitution of the World Health Organization," , art. 1
[16] Lawrence O. Gostin, *Global Health Law,* Harvard University Press Cambridge, Massachusetts London, England (2014), p. 104
[17] Tobin, *op. cit*. p. 29
[18] WHO, 'Constitution of the World Health Organization', available at: https://www.who.int/governance/eb/who_constitution_en.pdf?ua=1
[19] Ibid, art. 7
[20] Ibid, art. 63

published in the State concerned'; it is clear that global health is not achievable at a merely global level and that, in order to reach this final step, continuous and scrupulous assessments and updates are fundamental primarily at national level.

From this description, it emerged that global health and the achievement of the highest attainable standard of health for all are at the core of the mandate of WHO. Thus, it comes naturally to assume that global health and the individual human right to the highest attainable standard of health are strictly interrelated, complementary and self-reinforcing, and that WHO, as the main organisation on public health, draws from both systems to draft its policies and its recommendations. Nonetheless, this is not the case. As several scholars point, unfortunately global health and human rights law have developed 'in parallel and non-communicable ways'[21], leading WHO to be focused on merely technical matters and 'too wedded to a traditional biomedical disease model'[22]. From the beginning, WHO has always shown reluctance in using international law, especially human rights; despite its Constitution recognises the right to health as the most important human right, WHO has institutionally failed to integrate the human rights discourse into the global health system[23], neglecting the opportunity to assume the leadership role in promoting a human rights approach to health, which in current times would be extremely useful. On this note, Meier argues that 'the WHO Secretariat remains structurally limited in efforts to advance health-related human rights with an institutional structure […]distant from the international legal system, and governed by medico-technical approaches to health'[24]. This distance from international law and the unwillingness to include the right to health into the global health framework has resulted in several shortcomings and primarily in the inability of the Organisation to cope with the transboundary public health emergencies which require more than a mere medical approach. In particular, as it will be better discussed in chapter 4, by neglecting international law and by refusing to adopt a human rights approach, WHO has failed (and still is failing) to provide an effective response to the climate crisis, which for its severity requires a *hard law* approach, rather than the *soft* one preferred by the Organisation. As climate change is indeed recognised as a public health emergency, but not treated as one, the integration of the obligations deriving from the human right to health (to protect, respect and fulfil such

[21] Sara De Vido, 'A Quest for an Eco-Centric Approach to International Law: The COVID-19 Pandemic as Game Changer', forthcoming.
[22] Audrey R. Chapman, *Global Health, Human Rights, And The Challenge Of Neoliberal Policies,* Cambridge University Press (2016), p. 168
[23] Ivi.
[24] Ibid, p. 170.

right) into the global health system would definitely reinforce the mandate of WHO and its ability to demand action from States.

1.1.2 The International Covenant On Economic Social Cultural Rights

The International Covenant On Economic Social Cultural Rights was adopted by the UN General Assembly on 16 December 1966 and entered into force on 3 January 1976, as the counterpart of the same covenant on Civil and Political rights.

The right to health is introduced by Article 12, which binds the signatory states to 'recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health'[25], specifying the necessary steps that States are to take in order to ensure to their citizens the highest attainable standard of health, namely the reduction of the still-birth rate and infant mortality; improvement of environmental and industrial hygiene; prevention of epidemic and endemic diseases; provision of medical service and medical attention in case of sickness.[26] The delineation of these steps was not an easy task and, just like it happened with the Constitution of WHO, there were contrasting opinions on the kind obligations imposed on States. For some scholars, these obligations are too vague and broad, offering no limit on what a State should do in order to fulfil its duty of securing the right to health[27], for others these prescription are 'insufficiently specified', resulting in the risk of transforming the normative standard of the right to health in a too ambitious aspiration[28]. Matthew Craven, instead, argues that the vagueness in the provision is caused by the deep correlation between the ability of a State to implement economic and social rights and its actual social and economic conditions: since these condition vary from country to country, he claims that it would have been unrealistic to impose the same precise obligation to all States, and that the most reasonable option was to require States to take progressive steps for the full recognition of the right to health.[29] As explained by Tobin, this obligation represents an 'obligation of conduct', meaning an obligation to take actions with the purpose of achieving an 'obligation of result', in this case the realisation of the highest attainable standard of health[30].

---

[25] UN General Assembly (UNGA), "International Covenant on Economic, Social and Cultural Rights," (1966), entered into force January 3, 1976, art. 12.
[26] Ibid
[27] James Griffin, *On Human Rights*, Oxford University Press (2008), p. 208
[28] Onora O' Neill, 'The Dark Side Of Human Rights', *International Affairs 427* (2005), p. 420
[29] Matthew Craven, *The International Covenant On Economic Social And Cultural Rights: A Perspective On Its Development*, Clarendon Press (1995), pp. 135-6
[30] Tobin, *op. cit*., p 178

The definition of the right to health was further expanded in CESCR General Comment No. 14, adopted on 11 August 2000, which in the first place describes health as 'a fundamental human right indispensable for the exercise of other human rights'[31] namely the rights to food, housing, work, education, human dignity, life, non-discrimination, equality, the prohibition against torture, privacy, access to information, freedom of association, assembly and movement (para. 3)[32]. The relation between the human right to health with other human rights may sound obvious in current times, but this definitely was not the case in 1966 when the Covenant was drafted, nor in the year 2000 when the General Comment was issued; it is impressing to notice the progress made by human rights law and, in general how nowadays the intersection of human rights is acknowledged, especially considering the global pandemic that the world is now facing: it can be affirmed that now more than ever the protection and fulfilment of the right to health has proven to be essential to the wellbeing of the international community as whole. What is more, paragraph 4 reaffirms the wide framework embraced by the right to health, which is not merely limited to health care and to the absence of disease, as it was already underlined in the Constitution of WHO, but closely intertwined with socio-economic factors that allow individuals to conduct a healthy life, such as adequate sanitation, safe and healthy working conditions, and a healthy environment.

The general comment provides, *inter alia*, a detailed explanation of the normative content of art. 12, imposing four requirements that the states are to fulfil to ensure the achievement of the right to health: availability, accessibility, acceptability and quality (para. 12)[33]. In particular, the principle of availability affirms that health care facilities have to be available in a quantity that it is sufficient for all the individuals within the State party, and accessibility means that everyone, with no discrimination, shall have access to health facilities, good and services; in order to be accessible, health care shall also be affordable, especially for socially disadvantaged groups. According to Gruskin and Tarantola, these four requirements perfectly fit the practice of public health, stressing the added value of the human rights approach to health which 'requires that any targets set are realised progressively, and ensure transparency and accountability for what decisions are made for and their ultimate outcomes'[34]

After setting a more specific understanding of the right to health, the states parties' obligations are thus listed, the primary one consisting in the States' duty to pursue 'deliberate,

[31] UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment No. 14, 'The Right to the Highest Attainable Standard of Health, UN Doc. E/C.12/2000/4, August 11, 2000.
[32] Ibid
[33] Ibid
[34] Sofia Gruskin and Daniel Tarantola, *The Oxford Textbook Of Public Health,* Oxford University Press (2004)

concrete and targeted' policies aimed at the full realization of the right to health (para. 30)[35]. Conceived as a human right, the right to health also entails three levels of obligations: to respect, protect and fulfil. These types of obligations were theorised by Henry Shue, who applied them specifically to economic, social and cultural rights[36]; the fact that the decision by the ESC Committee to extend the tripartite typology also to the right to health has been unanimously accepted by the interpretative community proves its usefulness in supporting the classification of the necessary measures and its effective contribution in generating a complete understanding of states' obligations under this right[37].

Under the obligation to respect (para. 34), States must refrain 'from denying or limiting equal access to all persons to preventive, curative and palliative health services', meaning that they are not to impose any kind on discrimination or restriction that may exclude someone from benefitting from the afore mentioned services. In addition, they must not censor, withhold or misrepresent health-related information, as individuals are entitled to have full knowledge of their rights. Finally, States should avoid the use of nuclear, biological and chemical weapons when such use causes emissions which pollute air, water and soil and endanger human health.

The States' obligation to protect (para. 35) consists in adopting measures that grant equal access to health care and health services, preserving the principles of availability, accessibility, acceptability and quality; moreover, this obligation is of particular significance especially in cases of privatisation of the health system, when the presence of third parties is likely to limit people's access to medical care. The obligation to fulfil (para. 35), instead, first demands that States actively realize the right to health, giving it sufficient recognition in both their political and legal national systems, adopting legislation that favour equal access to all the underlying determinants of health, namely food, water, sanitation and housing; secondly, states are obliged to provide adequate health infrastructures and health related facilities, together with an insurance affordable for all; finally, they are to introduce national policies to stop environmental hazards, with the aim of reducing the pollution of air, water and soil. What is more, the obligation of fulfil is further divided into other three levels of obligations (para. 37): facilitate, provide and promote; the promotion of the right of to health implies, *inter alia*, a close collaboration with WHO, aimed at raising awareness and spread information on healthy lifestyles, factors beneficial for health and the availability of services.

[35] Ibid
[36] Henry Shue, *Basic Rights, Subsistence, Affluence And Us Foreign Policy*, Princeton University Press (1980)
[37] Tobin, *op. cit*., p. 185

In addition to the obligations that states have towards the individuals within their territory, the General Comment defines also their international obligations, those towards other states (para. 39). It is important to notice that, once again, cooperation is considered essential to fully realise the right to health and how this realisation must occur at both national and international level; thus, states are called to adopt measures and to act even to respect, protect and fulfil the right to health in other countries, by refraining to interfere with its realisation, ensuring equal access (in the limits of their resources) and, above all, by promoting and developing new international instruments which will further enhance the right to health, not only by encouraging the implementations of new agreements on health, but also by collaborating with international and regional financial institutions to expand the resources directed to the health sector.

The third part of the Comment illustrates the violations of article 12. Pursuant to paragraph 47, the obligations under art. 12 are violated first and foremost when a State is 'unwilling to use the maximum of its available resources for the realisation of the right to health' and when, in case of limited resources, it fails to prove that 'every effort has nevertheless been made'. Concerning the allocation of resources, scholars have identified several issues. The main problem resides in their relative scarcity: for instance, Cranston suggests that the scarcity of resources would make the existence of a universal right to health meaningless, as they are unevenly distributed among States and therefore the maximum available for a country may still be far below the threshold necessary for the realisation of the right to health[38]. Tobin considers this argument a misconception, pointing that international law acknowledges and accommodates the disparities of available resources to States, not demanding the same level of healthcare from every country and stressing the major role that international cooperation and financial aid play in filling this difference[39]. Whereas Tobin's claim is certainly correct, the disparity in the healthcare systems and in the general realisation of the right to health among developed and developing countries cannot go unnoticed and it represents the main obstacle to the enjoyment of such right by all individuals. The other critique, deeply related to the first one, regards the consequent distorted allocation of resources. Hickey and Mitlin point that the obligation to use all the available resources to promote the right to health may cause a restrained allocation of resources to other sectors within a state, undermining the realisation of other human rights[40]. On this note, even Tobin confirms the unavoidability of the prioritization of the

[38] Maurice Cranston, *Political Theory and the Rights of Man*, DD. Raphel (ed), Macmillan (1967), p. 50
[39] Tobin, *op. cit*., p. 69
[40] Sam Hickey and Diana Mitlin*, Rights-Based Approaches To Development: Exploring The Potentials And Pitfalls*, Kumarin Press (2010), p. 187

allocation of scarce resources to secure the right to health and agrees with Buchanan in concluding that 'international law does not provide any explicit formula by which to determine the appropriate level of resources to be allocated to the realisation of the right to health relative to other human rights'[41] .

The adoption of domestic legislations and policies which are non-adequate or incompatible with international legal obligations represents a violation of commission (para. 48), while the failure to adopt national legislations which favour the enjoyment of the right to health and the consequent failure to enforce those are considered violations of omission (para. 49). Noncompliance with the abovementioned obligations to respect, protect and fulfil results in violations for which the victims should be entitled to have effective judicial remedies and adequate reparation, reporting the violation to both domestic and international institutions, such as human rights commissions and patients' rights associations (para. 59); in order to grant and adequate remedy, the States should appropriately integrate into their domestic legislation all the international instruments which protect and promote the realisation of the right to health.

General comment no. 14 clearly provides an extensive description of all the possible applications and violations of the right to health, nevertheless, despite having been adopted in 2000, when the climate crisis had already been acknowledged (both scientifically, by the International Panel on Climate Change, and legally, by the UN Framework Convention), it contains no mentions of the climate nor of the environment. In fact, whereas chemical and nuclear emissions that may damage the environment are explicitly recognised as actual threats for human health, the comment does not impose on States any obligation to reduce their emissions in protection of the right to health.

1.1.3 The Declaration of Alma Ata on Primary Healthcare

The declaration of Alma Ata was adopted during the international conference on primary healthcare on 6 December 1978, in the former USSR. Its adoption was the result of the realisation, by the whole international community, that a urgent action was necessary to protect and promote the enjoyment of the right to health for everyone; in order to do so, the WHO Secretary General Halfdan Mahler required 'a holistic concept calling for efforts in agriculture, industry, education, housing, and communications'[42].

[41] Thomas Bole and William Bonderson, *Rights To Health Care*, Kluwer (1991), p. 66

[42] WHO Commission on Social Determinants of Health, Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health (Geneva: WHO, 2008), 8.

Health is hereby described as a 'worldwide social problem'[43] and, in concordance with the Constitution of WHO and the General Comment No.14 to Article 12 of ICESCR, a priority concerning not only the health and scientific sector, but strictly interrelated with other social and economic sectors. As a matter of fact, human health is highly influenced, if not entirely determined, by the level of development of the social, political and economic environment. The poor conditions of the healthcare system in less developed states is at the same time one of the causes as well as one of the consequences of the low level of their economic development, therefore such imbalance between developed and non-developed states can be resolved only by addressing all the issues at its origin, starting precisely from public health, which according to article 3 of the declaration, provides a vital contribution to the world's wellbeing and peace[44].

The main scope of the Declaration is indeed 'the attainment by all peoples of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life' (art. 5) and the main tool to achieve it should be the development of primary healthcare[45]. It is evident that the target was not reached by the 2000, nor has it been achieved by the year 2020, nonetheless the Alma-Ata declaration still can be regarded as a landmark in the health sector, for it was the first instrument to introduce the concept of primary healthcare. Primary healthcare means 'essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination'[46] and represents the first connection between the individuals and the national healthcare system (art. 6). Reflecting the economic, political and social conditions of a country, there is not a standard formula for primary healthcare, though it should address the main health issues of a State, providing appropriate 'promotive, preventive, curative and rehabilitative' services (para. 1); it involves the supply of adequate food, potable water and sanitation, immunisation for epidemic and endemic diseases and correct methods for their prevention (para. 2); the states are called to provide the community with all the available means, both at local and national level, so as to be informed and educated to be able to participate in the planning, organisation and development of the healthcare system (para. 5), which, as already

[43] International Conference on Primary Health Care, Declaration of Alma-Ata, (September 1972) available at: https://www.who.int/publications/almaata_declaration_en.pdf?ua=1, art. 1
[44] Ibid, art.3
[45] Ibid, art. 5
[46] Ibid, art. 6

stressed, is possible only with the simultaneous development of other sectors, namely agriculture, animal husbandry, food industry, education and communication (para. 4).

The meaning of 'primary health care' has been discussed widely among academics and it is legit to affirm that this concept originated as a response to the ineffective model of institutional based health care, imposed on developing countries by the dominant Western states, nevertheless the precise understanding of this holistic approach is far from being achieved.[47]

It is necessary, in order to attain primary healthcare, to mobilise all the national and international resources, so as to finance and implement policies and plans which not only will benefit single States, but the international community as whole, for 'the attainment of health by people in any one country directly concerns and benefits every other country'[48]. Finally, the Declaration advocates for a redirection of the world's material and economic resources which at the time of its adoption were mainly deployed in the military sector: it was clear that a close collaboration among states, international organisations and NGOs was essential to reach peace, for war and conflicts were the main threats to human health.

The goal set in Alma-Ata was not achieved mainly because, despite the several demands from the WHO, resources were never allocated to the health sector, leaving it with a limited budget and human personnel. The political and economic events of the 1980s and 1990s, namely the oil crisis and the global recession, and the structural adjustments in response of those left little space for health policies, especially in low-income countries, as pointed by Gostin[49]; therefore, already by 1994, after a WHO report on changes and improvements in the public health system, it was clear that it was impossible to reach the main scope of the Declaration within the following six years[50]. Nonetheless, the outbreak of the AIDS epidemic undoubtedly confirmed the urgent necessity to adopt a universal healthcare policy which granted equal access to medical care for everyone: in these circumstances the failure of Alma-Ata was even more obvious.

Thirty years after the Declaration, the WHO issued the World Health Report of 2008 called 'Primary Healthcare (Now More Than Ever)' in an attempt to reaffirm and relaunch the principles of Alma-Ata, integrating them in a new framework more suitable to the economic and politic context of the time, expecting to attain the goal which was set in 1978. In this chapter, addressing the issue of the report is functional to stress the impact and the influence of

[47] Theodore MacDonald, *Third World Health: Hostage to First World wealth*, Radcliffe Publishing (2005) p. 48
[48] Declaration of Alma-Ata, art. 9
[49] Gostin, *op. cit.,* p. 99
[50] Dr Margaret Chan Director-General of the World Health Organization, 'Return to Alma-Ata' 15 September 2008, available at: https://www.who.int/dg/20080915/en/

the Declaration and how, even more than thirty years later, every policy and legislation on primary healthcare promoted by WHO and the international community still refers to it.

1.1.4 The International Health Regulations

The International Health Regulations are considered to be the first international rules that regulate global health security. Although they are not directly related to the right to health, nor are part of its legal framework, they played a major role in the development of global health policies and measures which, in turn, contributed to the further evolution and interpretation of the right to health[51]. As Tobin affirms, there exists a general scepticism among the public health scholars on how international human rights law may actually contribute in securing health outcomes, nevertheless, he points that this contribute has instead been recognised by some key actors within the field of public health, namely WHO and UNICEF[52]. While it is evident that the normative content of the right to health has positively influenced the public health policy making, the inverse is more difficult to prove. In favour of this argument, Tobin points the necessity of 'engagement with material generated outside the legal interpretative community' for 'law is not a complete discipline and is dependent upon insights to be offered from other disciplines when attempting to map out the content of a human right such as the right to health'[53]. From this, one may conclude that the evolution of such right is constantly influenced by the provisions adopted in other fields and that this influence is reciprocal. In addition, the same claim is presented by Mann, who highlights the interconnected relationships between health and human rights[54]. As a matter of fact, health policies and programmes have a huge impact on human rights, for they may come in conflict or benefit from each other and this may be significantly advantageous when the promotion of public health simultaneously results in a promotion of human rights. Therefore, even though the International Health Regulations do not contain any mention of the right to health, it cannot be denied that their scope, the safeguard of public health and the establishment of a global health policy, is deeply interconnected with the core of the right to health that has been discussed thus far[55]. In order to better understand this correlation, a brief discussion on the Regulations will be provided.

---

[51] Paul O' Connell, *Global Health and Human Rights Legal and Philosophical Perspectives* (Routledge,2010) P. 190

[52] Tobin, op. cit. p. 103

[53] Ivi, p. 104

[54] J. Mann et al., *Health And Human Rights, A Reader*, Routledge, NY (1999), p. 15-6

[55] O' Connell, op. cit, p. 190

Officially adopted by the World Health Assembly on 23 may 2005, they are the result of a long process of negotiations, which trace its roots back to 1892, when European States formulated the first International Sanitary Convention (ISC)[56]. Although focused only on the quarantine for cholera, one of the main sanitary emergencies of the time, it was the first step in international cooperation in the health sector, as the States had realised that global issues, such as the insurgence of epidemic diseases, were to be faced as a whole community and not by acting in isolation. A common effort would have been beneficial for every State and thus was absolutely needed.

With time, new infectious diseases were added to the ISC, which already by the end of 1969 had been given the name of International Health Regulations[57], nonetheless, few changes occurred during the following decades concerning global health security and one may legitimately wonder why the WHA had to wait until 2005 to officially adopt the IHR, if the intentions and the consensus from the States had been there for years. According to Lawrence Gostin, the main causes of this stagnation in international health law would lie in the complacency of the States, which relied too much on their national health systems, and in their scepticism towards international organisations[58].

The new millennium, regarded as the era of globalisation and globalism, brought along new threats, not only to human health, such as new epidemic and endemic diseases, but to the international community as a whole, like the environmental crisis, bioterrorism and new types of conflicts. For this reason, it was no longer possible to separate public health policies from new legislation on democracy, security and peace, and the landmark Assembly vote on the revision of the International Health Regulations, described by Former UN Secretary- General Kofi Annan as a step of humanity 'toward a larger freedom'[59] clearly confirmed it.

Ratified by 196 states, including the Holy See, the Regulations can be included among the most widely adopted treaties, legally binding the State parties to all it provisions. The main scope is outlined in article 2, which specifies the urgency to 'protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with

[56] Gostin, *op. cit.*, p. 179
[57] Ivi, p. 181
[58] Ibid
[59] WHO, International Health Regulations (2005), art. 2, available at: https://www.who.int/ihr/publications/9789241580496/en/

international traffic and trade'[60]. As a matter of fact, the IHR extended the jurisdiction of WHO not only to infectious diseases, but to any occurrence that may affect global health security.

Before proceeding with the analysis of the treaty, for the scope of this work it is useful to report some of the clear definitions of recurring terms as given by article 1, in particular the one of 'public health emergency' and 'public health risk'. A public health emergency of international concern is described as 'an extraordinary event which is determined: to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response'[61], while 'public health risk' means a likelihood of an event that may affect adversely the health of human populations, with an emphasis on one which may spread internationally or may present a serious and direct danger'[62].

For what concerns the structure, the IHR deal with three main areas and their interconnection: international commerce, scientific methodology and human rights; as a matter of fact, it is impossible to develop and adequate system of prevention and response to public health emergencies and risks without taking into account these factors, namely the mobility of goods and persons due to international trade, the prescriptions and warnings from the scientific sector and the fundamental rights of individuals. It is common to perceive regulations and restrictions prescribed in cases of public health emergencies as infringements of fundamental rights, in particular the freedom of movement and the right to privacy. For this reason, first and foremost, it is important to underline that all the measures and adjustments demanded by the treaty in order to contain and limit the spread of diseases and further threats to human health must be done in full respect for dignity, human rights and fundamental freedoms of persons, as pursuant to art. 3.[63] This emphasis on human dignity is necessary to point the relevance of international human rights law in the public health system and its correlation with international health law.

As already anticipated, the IHR expanded the Organisation jurisdiction to everything that represents a public health emergency, originated from biological, chemical, radio-nuclear causes and even natural events, accidental or not. These renewed framework of the treaty allows its application, known as 'All Hazards Approach'[64] to all the sources of possible threats to human health such as goods, food and animals, people, vectors and, lastly, of particular relevance for this work, even the environment. Thanks to the 'All Hazard Approach' it was

[60] Gostin, *op. cit*, p. 182
[61] International Health Regulations, art. 1
[62] Ibid
[63] Ibid, Art 3
[64] Gostin, *op. cit*., p. 184

possible to build an efficient system of health risk assessment, which binds State parties to share the information provided by the scientific community, submitting periodic reports directly to the Organisation and implement the regulation, as prescribed by art. 5.[65] In addition, the States' obligation of developing the ability to 'detect, assess, notify and report'[66] a global health risk might be regarded as self-reinforcing, as it requires a strong and stable national health system in order to be fulfilled and, at the same time, it contributes to the neat improvement of the health sector, which will be beneficial for the State itself and for the international community as whole.

A direct consequence of the abovementioned obligation is the States' duty to build national preparedness through the development, strengthening and maintaining of public health capacities, in order to be able to provide an effective and timely response to a public health risk (art. 5, para. 1). Following the directions given by WHO, the first capacity that must be developed by States is national legislation. In compliance with the 'all hazards approach', threats to public health may come from various sources affecting different sectors of the government, such as border security, environmental protection and food production, therefore an adequate and vast domestic legal framework which includes all these sectors is essential for a functional implementation of the regulations; according to a comparative analysis of national legislations published on *American Journal of Public Health,* in 2010, meaning five years after the adoption of the IHR, half of the state parties had modified their national legislation, integrating new policies and financial resources in order to better fulfil their obligations[67]. Secondly, states are required to build an efficient system of planning and risk communication, which allows them to identify possible hazards, assess the most vulnerable groups and consequently strengthen the resilience of these groups[68]. Finally, a major role is played by the domestic infrastructures, which encompass health personnel, laboratories, data system and, obviously, coordination with other sectors.[69] On this note, it is worth mentioning that a large part of the State members does not meet this requirement due to the lack of financial resources and the lack of political will to coordinate and integrate health policies with other governmental activities; this failure, as one may call it, negatively impacts on the response that a State has to health emergencies and as a result, leads to a tardive and incomplete action from the other States, for which the WHO as the main supervisor of global health and health policies, will be

[65] International Health Regulations Art. 5
[66] Ibid
[67] Rebecca Katz and S. Kornblet, "Comparative Analysis of National Legislation in Support of the Revised International Health Regulations: Potential Models for Implementation in the United Sates," *American Journal of Public Health 100*, no. 12 (2010): 2347– 2353.
[68] International Health Regulations
[69] Ibid, art 16

considered liable. Indeed, this might be regarded as the primary weakness of the Regulations, for they require the WHO to assist the States in the developing of their healthcare system, without however imposing specific financial obligations on the latter: articles 13 (para. 5) and 44 (para. 1) demand compliance on the provision of financial and technical resources only to the possible extent.[70]

To settle this issue, in 2009 some proposal were advanced by the IHR revision committee, which suggested the establishment of a global health emergency workforce, a 100 million dollars fund to be released in case of a public health emergency of international concern and new strategies for capacity building.[71] Nonetheless, the main challenge for global health, especially in dealing with public health emergency, remains the States' lack of political will to cooperate among each other and in particular with International Organisations. Clearly, these shortcomings have very different impacts on the State Members, for low-income countries start from a disadvantaged financial condition and thus own less financial resources to invest in capacity building as requested by the IHR; despite several appeals, the WHO lacks the power to actually bind high-income States to fund technical development in lower income countries, leaving the question unsolved.

Aside from this, the role of WHO remains central in controlling the implementation and compliance with IHR, which is in charge of spreading information on health risks from the scientific community to governments and to ensure that governments will educate and make the information accessible to the public; moreover, it is its task to build trust among the States by promoting transparency, regulating conflicts of interest and ensuring the respect of the principle of shared responsibilities, especially concerning the funding of low-income and poor countries.[72]

Fifteen years and a global pandemic after their adoption, the International Health Regulations still present some frailties and, in this time more than ever, it is clear that they are only the starting point of a global health plan which is slowly being designed. Together with the Framework Convention on Tobacco Control[73], the Regulations are still the only case in which WHO actually employed its normative power to develop a binding treaty on health, imposing on the ratifying states precise obligations to prevent and cope with all kinds of public health emergencies. By adopting the 'all hazards' approach, WHO has expanded the concept of public

[70] Ibid, arts. 13 and 44
[71] Gostin, *op. cit.,* p. 188
[72] Ivi, p. 204
[73] WHO, WHO Framework Convention on Tobacco Control, Opened for signature on 16 June to 22 June 2003 in Geneva, entered into force on 27 February 2005. Available at: https://www.who.int/fctc/text_download/en/

health risks to chemical, biological and natural disasters, however the environment and climate change were not considered as possible threats to health and not included in the Regulations, leaving the matter out of the only international agreement on global health[74].

1.1.5 The UN Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health

The Human Rights Council periodically appoints experts to report and provide their opinion and assessment on a particular human right. These experts, called Special Rapporteurs, are independent, meaning that they are not part of the staff of the UN, thus they do not receive a compensation from the UN, nor represent any Government, as their view shall be objective and impartial.

For its broad and widely inclusive framework, the monitoring of the compliance by member States of the right to health has proved to be particularly difficult, therefore in April 2002 the Commission on Human Rights issued the mandate of the Special Rapporteur on 'the right of everyone to the enjoyment of the highest attainable standard of physical and mental health' through resolution 2002/31.[75] The resolution originates from the principles of General Comment No. 14 and from the awareness that the full attainment of the right to health in numerous countries is far from be achieved, especially in the poorest and less developed areas. The Special Rapporteur, who is in charge for a period of three years, has the task to cooperate with all the relevant actors, namely the Governments, International Organisations and NGOs, so as to collect and exchange information on the progressive realisation of the right to health; once the information has been gathered, the Rapporteur shall submit an annual report on the status of the healthcare system throughout the world, the laws and policies adopted to implement the right to health and on possible obstacles, restrictions and discrimination suffered by each individual.[76] In addition, they are requested to make recommendations to Governments on how to enhance their legislation on public health and how to improve the health infrastructure, so as to grant equal access to everyone, though it is fundamental to remark that their work and their recommendations must not overlap and interfere with the competence of

[74] De Vido, op. cit.
[75] UN Commission on Human Rights, Resolution 2002/31 available at: https://www.ohchr.org/en/issues/health/pages/srrighthealthindex.aspx
[76] Ibid

other international bodies on the same matter, nor contradict the obligations and provisions imposed by those.[77]

Of particular note is the request to pay attention to the development of the right to physical and mental health of vulnerable persons, especially children and women; while a more detailed analysis of the vulnerable condition of women and children will be provided in chapter 2, it is worth to mention that the main treaties concerning the human rights of these two groups, namely the Convention on the Elimination of Discrimination against Women and the Convention on the Rights of the Child clearly identify health as an extremely necessary condition for the enjoyment of any other right.

On March 2006 the Commission on Human Rights was replaced by the Human Rights Council and consequently the mandate of the Special rapporteur was slightly amended by several resolutions, starting from resolution 6/29 of December 2007 and ending with resolution 33/9 of October 2016. The first appointed Special Rapporteur was Paul Hunt, from New Zealand, whose mandate lasted from 2002 to 2008; in his first report[78], issued on February 2003, he provided a detailed definition of his understanding of the right to health, based on its legal framework and focused on three broad objectives. First, he pointed that, at the time, the right to health was not recognised yet as one of the fundamental human rights, as it should be, hence he stressed the necessity of this recognition from international and national bodies; secondly, he emphasised the difficulty in the operationalisation of the right to health and consequently, the necessity to identify good practices, at national and international level, which could serve as example and inspiration for other jurisdictions. Finally, he remarked that the 'historic neglect of the right to health' brought to an unclear jurisprudential definition of its meaning which needs to be clarified, drawing on the evolving national and international jurisprudence and the principles of international human rights law. The confusion over the actual meaning of the right to health described by Paul Hunt may be explained through a concept elaborated by Cass Sunstein, called 'incompletely theorised agreements'[79]: in practice, States managed to agree in including the right to health in international treaties, but there was no agreement on the specific measures necessary to fulfil it.

The main theme covered in the first report is the correlation of the right to health with poverty and discrimination. As already widely explained, poverty is the main social determinant of

[77] Ibid

[78] Commission On Human Rights, Report of the Special Rapporteur, Paul Hunt (13 February 2003) available at: https://documents-dds-ny.un.org/doc/UNDOC/GEN/G03/109/79/PDF/G0310979.pdf?OpenElement, p. 8

[79] Cass Sunstein, 'Incompletely Theorized Agreements' *Harvard Law Review 108*, no. 7 (1995), pp. 1773-4. doi:10.2307/1341816

health, for it prevents individuals from accessing basic healthcare facilities and, in most cases even adequate sanitation, non-contaminated food and potable water; at the same time, discrimination aggravates the conditions of the poorer groups, especially because they usually belong to the most discriminated categories, causing an intersection of inequities. It is not surprising then, that poverty was recognised by Paul Hunt as the major obstacle to the attainment of the highest standard of health and that his first recommendation was precisely an appeal to all States for cooperation and solidarity in order to reduce poverty and, as a result, discrimination.[80] In one of his final reports, he imputed the scarce collaboration and the great level of inequality to the unsatisfactory work of WHO, which, more precisely, failed to implement a human rights approach in its mandate, resulting in a 'marginal, contested, and severely under-resourced' promotion of the right to health, which certainly negatively affected the strategies and policies developed by the organisation.[81]

The latest report[82], instead, was issued in April 2020, by the current Special Rapporteur Dainius Pūras, appointed in 2014. During his mandate, his main focus has been mental health and the stigma that still surrounds this illness; throughout his work he has emphasised the existing misconception of mental health and the failure to recognise it, by several institutions, organisations and States in general, as a fundamental component of human health, without which the enjoyment of the highest attainable standard of health would never be possible. By illustrating all the steps that need to be taken in order to ensure an equal treatment to all individuals who suffer from mental health, Dainius Pūras resumes Paul Hunt's discussion on discrimination and how it affects the realisation of the right to health; in particular he notices that mental disorders, just like poverty, can be both the cause and the consequence of discrimination and that only a human rights approach by States and international organisations will close the gap in the healthcare accessibility and the systemic asymmetry in the distribution of medical resources, for its main pillars are precisely equality and non-discrimination.

The comparison between the first and the last report of the Special Rapporteurs on the right to health is useful as it shows the evolution of their mandates and their tasks, but more importantly it shows the continuity and the changes of the perception of the right to health. Whereas in 2003 poverty was considered the main threat to the achievement of global health, in 2020, in the middle of a global pandemic, poverty still represents a major obstacle, however

[80] Report of the Special Rapporteur, Paul Hunt, pp. 44-58
[81] Chapman, op. cit., p. 190
[82] Commission On Human Rights, Report of the Special Rapporteur, Dainius Pūras, available at: https://undocs.org/A/HRC/44/48

it is coupled with other threats that only twenty years earlier were not regarded as such: the environmental crisis and climate change, new kinds of biological weapons and mental disorders. Nevertheless, climate change does not find place in any of the reports and it is briefly mentioned by the Special Rapporteur during his intervention at the Panel discussion on climate change and the right to health in 2016[83]. Four years ago the climate crisis had already been universally acknowledged as the greatest public health emergency and the Paris Agreement was about to come into force, yet the Special Rapporteur described climate change as 'alarming' for its effects perpetuate existing equalities[84], completely neglecting the damages already occurred and with no recommendation nor suggestion to the UN agencies on how to cope with such threat.

Considering the huge damage that the pandemic has caused to health systems all over the world, it will be interesting to read the report of 2021 and the recommendations of the new Special Rapporteur.

1.2 Regional Frameworks

The right to health is also included in several regional treaties on human rights. This inclusion is, obviously, a reflection of the characterisation that international treaties have given to the right to health and its definition in regional legislation is mainly based on the Constitution of WHO and article 12 of the ICESCR.

1.2.1 The African Charter on Human and Peoples' Rights

The African Charter on Human and Peoples' Rights, also known as Banjul Charter, was adopted on 27 June 1981 by the States members of the Organization of African Unity and entered into force on 21 October 1986.[85]

Due to the peculiar conditions of healthcare and medical resources in the continent, particularly concerning the AIDS pandemic and the rate of birth mortality, the inclusion of the right to health in the Charter was fundamental. In Article 16 it is affirmed that 'every individual

[83]UN OHCHR, Statement by Dainius Pūras, Panel discussion on climate change and the right to health. Geneva, 3 March 2016. Available at: https://www.ohchr.org/Documents/Issues/ClimateChange/Impact/DainiusPuras.pdf

[84] Ibid.

[85] African Commission on Human and Peoples' Rights, African Charter on Human and Peoples' Rights (1981) available at: https://www.achpr.org/legalinstruments/detail?id=49#:~:text=The%20African%20Charter%20on%20Human,freedoms%20in%20the%20African%20continent.

shall have the right to enjoy the best attainable state of physical and mental health' (para. 1) and that 'State Parties to the present Charter shall take the necessary measures to protect the health of their people and to ensure that they receive medical attention when they are sick' (para 2)[86]. While the first part of the article is not different from the definitions of the right to health found in other legal instruments, the second part emphasises the States' obligation to grant medical attention to all people in case of illness: here, the focus is more on a curative rather than a preventive approach to healthcare and this represents a major difference.

Moreover, as pointed by Durojaye in his research[87], article 16 does not mention the underlying determinants of health, namely potable water, healthy environment and sanitation, which are of particular relevance in the African area. Even more evident is the failure to address the excessively high rates of maternal and infant mortality and the spread of HIV/AIDS, which are both caused by poor access to sexual and reproductive health facilities. It is clear that these conditions affect women more than men; as a matter of fact, in Africa one woman out of thirty-nine dies due to complications during pregnancy or while giving birth and for this alarming rate, several countries failed to achieve the target number 5 of the Millennium Development Goals to reduce maternal mortality by 75% by 2015.[88] According to a report issued by Save the Children, Africa is the worst place in the world for a woman to give birth[89] and, consequently one may add, for a child to be born.

On this note, it is important to mention the Protocol To The African Charter On Human And Peoples' Rights On The Rights Of Women In Africa[90] , whose article 14 is described by Durojaye as 'one of the most comprehensive provisions on the right to health and sexual and reproductive health under international human rights law'[91]. The article expands the framework of the right to health as defined by the Charter and focuses on the main health issues affecting women. Indeed, it imposes on State parties the obligation to respect and promote the right to health of women, including their sexual and reproductive rights; in particular, States must ensure that women retain control over their fertility, over the decision to have children and when, over the use of any kind of contraception and, particularly concerning HIV/AIDS, to

[86] Ibid, Art. 16
[87] Ebenezer Durojaye, "The approaches of the African Commission to the right to health under the African Charter", *Law Democracy & Development Volume 17* DOI: http://dx.doi.org/10.4314/ldd.v17i1. , p. 396
[88] Millennium Development Goals (MDG) Africa Steering Group, Achieving the Millennium Development Goals in Africa: Recommendations of the MDG Africa Steering Group, June 2008 (New York: UN Department of Public Information, 2008), 30– 31.
[89] Save the Children, State of the World's Mothers Report (2012)
[90] Protocol To The African Charter On Human And Peoples' Rights On The Rights Of Women In Africa, available at: https://www.un.org/en/africa/osaa/pdf/au/protocol_rights_women_africa_2003.pdf
[91] Durojaye, *op. cit*., p.397

ensure that women have access to information about their and their partners' health status (para. 1). What is more, States are requested to provide all women with adequate, affordable and accessible healthcare services, mainly to women in rural areas; to grant pre-natal, delivery and post-natal facilities; and most importantly, 'protect the reproductive rights of women by authorising medical abortion in cases of sexual assault, rape, incest, and where the continued pregnancy endangers the mental and physical health of the mother or the life of the mother or the foetus' (para. 2). This last part is extremely important for it recognises women the right to abortion, albeit with some limitations; unsafe abortion is still one of the major threats to the life and health of women, especially taking into consideration the practice of child marriage, which leads to early child bearing and, consequently, to maternal mortality when the mother is too young and too weak to survive the delivery.[92]

Clearly, there exists a certain incongruency between the innovation presented by the Protocol and the current status of the right to health, especially of women and children, in Africa. According to Durojaye this gap between the legal provisions and the actual realisation of the right to health may be attributed to the lack of political will by the majority of the States, the shortage of human and natural resources to promote the attainment of the right to the health and corruption.[93] The lack of commitment by several African leaders is reflected in the low spending on primary healthcare, which as pursuant to the Declaration of Alma Ata should be the main priority; a study of WHO, has proved that, in order to grant the population primary health services, a State should spend a minimum of 34 US dollars per person per year, while in some African regions such as Eritrea and Central African Republic this sum is lowered to 8 and 11 US dollars per person.[94] Furthermore, this lack of investment in the health sector has caused a shortage in health personnel: WHO has estimated that Africa has 2.3 health workers per 1000 population, a sharp contrast compared to more developed regions such as America, where the ratio is 24.8 per 1000.[95]

It is important to notice that neglecting the health sector violates art. 12 of CESCR: while it takes into account the different availability of resources of the States, therefore it does not impose the same commitment to all countries, it still demands that all the possible efforts must done in the allocation of resources to public health. This, obviously, is not the case for various

[92] Amzat, Jimoh and Razum, Oliver, *Towards a Sociology of Health Discourse in Africa* , Chapter 2: The Right to Health in Africa, DOI: 10.1007/978-3-319-61672-8_2, p. 29
[93] Durojaye, p. 401
[94] Ibid
[95] WHO, Investing in Health for Africa (2010), available at: https://www.who.int/pmnch/media/membernews/2011/investing_health_africa_eng.pdf

States in Africa as many of them rely too much on international funds and, often times, these funds may be misappropriated due to the high level of corruption even at the highest ranks of the government, causing the decay in the sanitary infrastructures.

For what concerns the jurisprudence of the African Commission, it must be said that very few cases regarding the right to health have been addressed. Certainly, the most prominent case dealing with the right to health in Africa is *Social Economic Rights Action Centre and another v Nigeria,* when in 2001, representatives of the Ogoniland population failed a compliant to the Commission claiming that the Nigerian Government had violated several human rights by allowing the activities of the oil companies in the area of the Niger Delta.[96] In this occasion, the Commission adopted the indivisibility approach, underlying the interrelation of civil and political rights with socio-economic rights, judging the Nigerian Government liable for the violation of 4 (right to life), 16 (right to health), and 24 (right of peoples to a satisfactory environment) of the African Charter. Another notable example is the case of *Free Legal Assistance Group and others v Zaire,* when the Government of Zaire was found in violation of article 16 for failing to provide basic services, namely potable water and medical facilities.[97]

Moreover, in 2008 the Commission adopted a resolution urging the State members to fulfil the four requirements of the right to health as defined by General Comment No. 14 of CESCR: availability, accessibility, acceptability and quality of access to medicines for all individuals with no discrimination.[98]

In conclusion, the existence of solid and valid legal framework in Africa which would allow the full realisation of the right to health and all its components cannot be denied; at the same time, several shortcomings and failures, mainly from African Governments and in part from the international community, coupled with the limited available resources in the whole region, have led to poor health and sanitary conditions that even today are difficult to adjust.

1.2.2 The American Convention on Human Rights

[96] *Social Economic Rights Action Centre and another v Nigeria,* Communication No. 155/96) [2001] ACHPR 34; (27 October 2001). Full judgment available at: https://africanlii.org/afu/judgment/african-commission-human-and-peoples-rights/2001/34

[97] *Free Legal Assistance Group And Ors V Zaire* (Communication NO. 25/89, 47/90, 56/91, 100/93) [1995] ACHPR 9; (11 October 1995) available at: http://hrlibrary.umn.edu/africa/comcases/25-89_47-90_56-91_100-93.html

[98] ACHPR/Res.141 (XXXXIIII) 08: Resolution on Access to Health and needed Medicines in Africa. Available at: https://www.globalhealthrights.org/wp-content/uploads/2013/10/Resolution-on-Access-to-Health-and-Needed-Medicines-in-Africa.pdf

The American Convention on Human Rights does not contain a specific provision on the right to health, as it covers mainly civil and political rights, while socio-economic rights are briefly addressed only in article 26.[99] Therefore, an additional protocol was adopted in San Salvador in 1988 to deal with social, economic and cultural rights[100]; the first paragraph of article 10 provides a definition that recalls the one in art. 12 of CESCR, as the right to health is understood to be 'the enjoyment of the highest level of physical, mental and social well-being', whereas paragraph 2 urges the State parties to recognise health as a public good and to implement all the necessary measures for its attainment, namely primary healthcare for all individuals and families, immunisation against infectious diseases, access to information on prevention and, finally 'satisfaction of the health needs of the highest risk groups and of those whose poverty makes them the most vulnerable.'[101]

Despite the efforts made to extend the protection of the Convention to the economic, social and cultural rights, different scholars have identified some issues that the Protocol left unsolved. For what concerns the scope of this chapter, the analysis of Ruiz-Chiriboga is helpful as he stresses that according to Article 19 (6) of the Protocol, only violations of Article 8 (right of unionisation) and Article 13 (right to education) may result in the application of the system of individual petitions to the Inter-American Commission of Human Rights and, when applicable, of the Inter-American Court of Human Rights, meaning that violation of other rights, including the right to health, cannot result in a petition to the Inter- American System.[102] This disregard of socio-economic rights in the American region is evident if one takes into account that only sixteen States parties to the Convention have ratified the Protocol, thus in these countries there is no provision that protects the right to health and everything that it entails. The issue is further aggravated when considering that the major States of the continent, Canada and the United States, are not even parties to the Convention: there seems to be no cohesion nor cooperation on this field at regional level, and the enforcement and application of human rights, included the right to health, are entirely left to broader international instruments and to national legislations. While the provisions on health contained in some of the national Constitutions will

[99] Organization of American States, American Convention on Human Rights, 22 November 1969, 1144 UNTS 123. available at: https://www.oas.org/dil/treaties_B-32_American_Convention_on_Human_Righ
[100] Organization of American States, Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social, and Cultural Rights "Protocol of San Salvador", 17 November 1988, OAS Doc. OAS/Ser.L/V/I.4 rev. 13
[101] Ibid, art. 10
[102] Oswaldo Ruiz-Chiriboga, *The American Convention and the Protocol of San Salvador: Two Intertwined Treaties - Non-Enforceability of Economic, Social and Cultural Rights in the Inter-American System*, Netherlands Quarterly of Human Rights (October 2011), DOI: 10.2139/ssrn.1940559, p. 161

be discussed in the following paragraphs, it is useful to recall the work of Fuenzalida-Puelma, in which the profound differences that divide the States in the continent, at the political, economic and social level are illustrated[103]. Not only there exists a variety in the governance of the American countries, but there is also a great imbalance in the distribution of wealth and resources within the continent which makes practically impossible a uniformed approach to the health issue. Thus, albeit necessary for the implementation of the right to health, domestic legislations are definitely not adequate without a regional framework that supports them and which act as a bridge between national and international tools[104].

As matter of facts, a regional legal instrument that ensures the availability and accessibility of health services and that grants judicial enforcement of the right to health is fundamental, for many of the social determinants of health are directly dependent on the geographical location and on the economic and political development of the area. The African Charter and its Protocol on women's rights discussed above represent a perfect example of the importance of a regional approach to the right to health, as the Protocol addresses the major health challenges of the continent, namely HIV and maternal mortality.

Certainly, there exists a significant difference between the health conditions, and consequently the realisation of the right to health, in the most developed countries in the continent, United States and Canada, and those in Latin America. On this note, Alicia Ely Yamin provides a particular description of the right to health in Latin America, linking it to the 'contestation over boundaries between private morality and public policy, between individual and social responsibility for health, and between the role of the state and markets'[105]; for what concerns the private morality, she explains that since colonial times in the region, there exists a moral perception of one's health and that illness is regarded as a divine punishment for sin[106]: this, at least in part, shifts the burden of health from States to individuals, thus making it more a private rather than a public question. Furthermore, the structural adjustments carried in the region during the 1980s led to a substantial weakening of health ministries and to a financial and resource destitution of the public health system.[107] Consequently, throughout the 1990s Latin American countries adopted further reforms in the health sector aimed at increasing

[103] Hernan L. Fuenzalida-Puelma, *Right to Health in the Americas: A Comparative Constitutional Study,* Pan American Health Organization, (1989), p. 42-44

[104] Ivi

[105] Alicia Ely Yamin, *The Right to Health in Latin America: The Challenges of Constructing Fair Limits*, 40 U. Pa. J. Int'l L. 695 (2019), p. 698 Available at: https://scholarship.law.upenn.edu/jil/vol40/iss3/4

[106] Ibid

[107] Nila Heredia et al., 'The right to health: what model for Latin America', *The Lancet*, Elsevier (April 2015) DOI:https://doi.org/10.1016/S0140-6736(14)61493-8

equity, effectiveness, quality, efficiency, sustainability and social participation whose outcome, however, was not positive.[108]

Despite mild improvements in some areas, such as maternal and infant mortality rates, Latin America remains a region of profound social inequities which severely affect the realisation of the right to health, among other rights, especially for the poorest and most vulnerable groups of the population. This failure, as already suggested, is to blame mainly on the lack of political will by States to cooperate at a regional level, resulting in the absence of a regional body which has the jurisdiction to find States liable of violating such right.

1.1.3 The European Social Charter

The European Social Charter is the instrument of the Council of Europe on social, economic and cultural rights, complementing the European Convention on Human Rights. Originally adopted in 1961, it has been revised in 1996 and signed by all 47 States members of the CoE.

It is worth noting that the Charter is the only legally binding treaty in Europe in which the right to health not only is recognised, but also mentioned in multiple articles, dealing with different subjects [109]. Article 3 imposes obligations related to the right to safe and healthy working conditions[110]; articles 7 and 17 protect the right of the child; article 8 includes the rights of women working during pregnancy and article 23 deals with the rights of elderly people. Obviously, the Charter contains a whole article dedicated to the right to health, Article 11; it binds States to implement appropriate measures in order to 'remove as far as possible the causes of ill-health (1), provide advisory and educational facilities for the promotion of health and the encouragement of individual responsibility in matters of health (2), prevent as far as possible epidemic, endemic and other diseases, as well as accidents (3)'.[111] Although it does not depart from the definitions of the right to health thus far analysed in this chapter for it has been drafted relying primarily on the Constitution of WHO, it definitely presents some significant differences. The intention of States was, in fact, to avoid redundant provisions already present in other international treaties, therefore they opted for 'a more radical approach to social matters' to be realised through a more effective protection of social standards across Member

[108] Pan American Health Organization, Public health capacity in Latin America and the Caribbean: assessment and strengthening, Washington, D.C, PAHO (2007), p.9

[109] Lougarre, Claire. "What Does the Right to Health Mean?: The Interpretation of Article 11 of the European Social Charter by the European Committee of Social Rights." *Netherlands Quarterly of Human Rights 33*, no. 3 (September 2015). doi:10.1177/016934411503300304, p. 330

[110] European Social Charter (as Amended) 1996, arts. 3, 7, 17, 23

[111] Ibid, Article 11.

States[112]; consequently, art. 11 has been outlined in more precise terms that bind States to 'more realistic obligations', namely the promotion of health and the provision of healthcare in case of sickness.[113]

The positive obligation of health promotion, which is to be realised in cooperation with other international bodies, in particular WHO, involves three points: prevention, education/awareness raising and regulation.[114] First, States have the duty to adopt adequate measures and implement national legislations in order to prevent any event and condition that may represent a threat or a risk for the health of individuals; in accordance with international standards, the Charter considers as major threats that must be prevented air pollution, environmental hazards and the spread of infectious diseases.[115] Second, States must prove to have implemented appropriate policies to educate their population both on the risks of the aforementioned events, which affect the community as a whole, and also on the possible threats to the health of the individuals; to comply with this obligation, health education should be provided in schools and through awareness raising campaigns.[116] Third, art. 11 binds States to implementing and supervising the regulations that protect the right to health of all individuals, especially women, children and the elderly, who are more vulnerable to health hazards.[117] For what concerns the provision of healthcare in cases of sickness instead, the Charter simply recalls the four requirements of healthcare set by WHO: healthcare must be available, accessible, affordable and of quality for everyone with no discrimination.[118]

The States' compliance with their obligations arising from the Charter is monitored by the European Committee of Social Rights, commonly referred also as the European Committee, through two procedures: the reports submitted by the State themselves, in practice since the adoption of the Charter, and the collective complaints, established in 1995 through an additional protocol.[119]

---

[112] CoE, 'Collected Travaux Préparatoires of the European Social Charter, Volume I (1953–1954)' (n 12), 16: 'Report presented by Mr Heyman on behalf of the Committee on Social Questions' (18 September 1953) Doc 188. Available at: https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016806c1c47

[113] CoE, 'Collected Travaux Préparatoires of the European Social Charter, Volume IV (1957)' (n 13) 122–124.

[114] *The Right To Health And The European Social Charter*, Information document prepared by the secretariat of the ESC, March 2009, p.2

[115] Ibid

[116] Ibid, p. 5

[117] Ibid, p. 9

[118] Ibid, p.10

[119] Lougarre, *op. cit.,* p. 331

In respect of article 11, the reporting procedure has allowed the European Committee to develop, through the years, multiple thematic health indicators regarding each obligation deriving from its formulation; for instance, among the indicators is it possible to find life expectancy, natal mortality, level of access to healthcare, air pollution, food safety, prevention of the use of alcohol and drugs and health education in schools[120]. By developing these health indicators, not only did the Committee manage to establish the legal standards on the basis of which the level of realisation of the right to health is assessed, it also directly contributed in the delineation of the actual legal meaning of the right to health.[121]

In her work, Lougarre explains that, despite the reporting procedures provides the European Committee with several methods to assess compliance, the most frequently used are the States' obligation to submit relevant data concerning the health situation within their territories and their obligation to provide healthcare services that are comparable with European averages.
With regard to data collecting it is important to clarify that the Committee, under the recommendation of the UN Special Rapporteur on the right to health Paul Hunt, collects disaggregated data on sex, race, ethnicity and socio-economic status, in order to have a more complete understanding of possible discriminations suffered by the most vulnerable groups.[122] Moreover, due to the evolving nature of the Charter, the Committee has recently incorporated the data submitted by the shadow reports of some NGOs, developing new health indicators, such as the accessibility to healthcare of transgender people.[123]

The States' obligation to perform in the field of healthcare according to European standards has instead been criticised. The critiques are rather understandable for, as already discussed, health and healthcare are profoundly related and influenced by socio-economic factors that may significantly variate from State to State; in general, the Committee tends to compare Countries with the same level of income and available resources, however this may not result in a fair comparison, since other conditions such as the geographical location, the number of population and individual behaviour also impact on a State's healthcare system. Nonetheless, the Committee has specified that it considers States in violation of art. 11 only if their performance in the healthcare sector falls significantly below the European standards and, even in this case, States that are below the average are constantly encouraged to progressively improve their

[120] ibid
[121] Ibid
[122] UNCHR 'Annual Report of the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health, Paul Hunt (Main Focus: A Human Rights-Based Approach to Health Indicators)' (2006) UN Doc E/CN.4/2006/48 para 49(b).
[123] ECSR, 'Conclusions 2013' Georgia, Articles 11, 12 and 14 of the Revised Charter

performance.[124] According to Lougarre this practice reflects two obligations on the States which recall the approach adopted by other international human rights bodies, namely the CESCR: a minimum core obligation (to provide healthcare service not below a precise standard) and the obligation to progressively realise the right to health.[125]

Contrary to the reporting procedure, which applies to all States, the collective complaint procedure has to be accepted through the ratification of the Additional Protocol; this system has been introduced to improve the efficiency of the monitoring mechanism, thus it should be considered an addition to the reporting procedure rather than complementary to it. The term 'collective' indicates that neither individuals, groups of individuals nor States can file a complaint, but only specific organisations, mainly NGOs and international organisations;[126] once the compliant is declared admissible, the Committee realises a decision which should be respected by the State, in case it is found in violation of any of the provisions of the Charter.

In evaluating this procedure, Churchill and Khaliq affirm that the fact that States can decide whether to be subjected to collective complaints extremely lowers its efficiency, as thus far only 15 States of the total 47 have ratified the Additional Protocol[127]; moreover, the collective nature of the complaints limits the protection of the rights of individuals, who are not entitled to take action.[128] It is true that the right to health is often conceived more as a collective rather than an individual right, especially because the social determinants of health are more likely to derive from the status of a group as a whole and because healthcare systems are usually built according to the necessities of local and national communities, however health is a necessary condition for the enjoyment of other more individual rights and thus individuals should have the right to file complaints against a State if they reckon their right to health is being violated.

Nevertheless, despite some weaknesses, mainly in the collective complaints field, it can be affirmed that among the regional instruments discussed in this chapter, the European Social Charter with its monitoring system provides the most accurate and complete protection of the right to health.

1.3 National Constitutions

[124] Lougarre, *op. cit.,* p. 352
[125] Ivi, p. 353
[126] Additional Protocol to the European Social Charter Providing for a System of Collective Complaints, ETS No. 158; 34 ILM (1995), art 1 and 2
[127] Churchill and Khaliq, 'The Collective Complaints System of the European Social Charter: An Effective Mechanism for Ensuring Compliance with Economic and Social Rights?' *EJIL (2004),* Vol. 15 No. 3, Downloaded from https://academic.oup.com/ejil/article-abstract/15/3/417/374135 by guest on 21 June 2020, p 424
[128] Ivi, p 427

The international and regional instruments analysed so far bind the States parties to implement in their domestic legal systems appropriate legislation and develop adequate policies that grant the progressive realisation of the right to health to all the individuals within their jurisdictions. According to Gostin, the right to health is currently included in 130 Constitutions: some of them recall the international provisions, explicitly mention 'the right to the highest attainable standard of health', while others go even further and guarantee also safe water, food and housing.[129] In addition, as illustrated in the previous paragraphs, most monitoring bodies require periodic submission of reports by States, describing the development of the health system and the level of protection of the right to health. What is more, Gauri and Brinks argue that the explicit mention of the right to health within a national Constitution favours the litigation on such right and supports the implementation and promotion of the right to health at the international level[130]

Kinney and Clark have identified different kinds of provisions included in national Constitutions that deal with health and healthcare: a statement of aspiration, affirming a goal in relation to the realisation of the right to health; a statement of entitlement, which actually establishes the right to health; a statement of duty, that imposes duties on the provision of healthcare and health facilities; a programmatic approach, suggesting specific approaches to the realisation and the financing of a health system and finally, a referential statement, which directly refers to international treaties addressing the right to health.[131] Undoubtedly, there is a difference in value of these statements, which reflect the degree of commitment to the right to health by the States.

Before proceeding with a brief overlook of the state of the right to health in different countries, it should be noticed that some Constitutions have been drafted and adopted well before others, at a different level of development of international law, especially human rights law, therefore, a distinction between developed and developing countries is necessary.

1.3.1 The right to health in Developed Countries

As the main scope of this work is discussing the effects of climate change on the progressive realisation of right to health, it is useful to consider how the most developed States perform in the health sector. These states, namely United States, China and Russia not only are among the

[129] Gostin, *op, cit*., p. 263
[130] Gauri and Brinks, *op. cit*
[131] Eleanor D. Kinney and Brian Alexander Clark, 'Provisions for Health and Health Care in the Constitutions of the Countries of the World', " *Cornell International Law Journal*: Vol. 37: Iss. 2 (2004) Article 2. Available at: http://scholarship.law.cornell.edu/cilj/vol37/iss2/2

main contributors to the climate emergency, but they also happen to be among the countries most affected by the pandemic that the world is currently facing, which severely impacted on their public health systems.

Let us start from the United States, which as widely known, have always been reluctant to accept and conform to international human rights standards regarding social and economic rights, being the only industrialised country that does not provide a legal recognition of the right to health and universal health coverage.[132] The lack of recognition of a right to health has led to the privatisation of healthcare which, consequently, heavily discriminates the most vulnerable groups, especially the low-income population and the black community. Unsurprisingly, a study conducted by the Department of Health and Human Services' Agency for Healthcare Research and Quality found that 'racial, ethnic, and socioeconomic disparities are national problems that affect health care at all points in the process, at all sites of care, and for all medical conditions—in fact, disparities are pervasive in our health care system.'[133] According to Yamin, the thin legal framework for health and the reluctance by the US Government to ensure the protection of the right to health may derive from the common perception that health is an individual and private issue, the result of poor personal choices for which the State cannot be held accountable.[134] Despite her critical insight, she does however believe that there still exists a possibility to overcome the thin legal framework of the right to health; supporting Cass Sunstein's view, she suggests that 'with a modest shift in personnel on the Supreme Court, economic and social rights, including health, could well be included in our constitutional understandings, and certainly in the nation's constitutive commitments, which is where they belong'.[135]

Another industrialised country whose legal protection of health is worth mentioning is definitely China, especially considering that it is where the current global pandemic originated. Contrary to the US, the Constitution of the People's Republic of China contains a specific provision on the right to health in art. 21: 'the state develops medical and health services, promotes modern medicine and traditional Chinese medicine, encourages and supports the setting up of various medical and health facilities by the rural economic collectives, state

[132] Alicia Ely Yamin, 'The Right to Health Under International Law and Its Relevance to the United States', No. 7 *American Journal of Public Health Vol 95*, No.7 (July 2005) p. 1156

[133] Agency for Healthcare Research and Quality. The National Healthcare Disparities Report. Washington, DC: US Department of Health and Human Services; 2003. Available at: http://www.ahrq.gov/qual/nhdr03/nhdrsum03

[134] Yamin, 'The Right to Health Under International Law and Its Relevance to the United States', p. 1157

[135] Cass Sunstein. *The Second Bill of Rights: FDR's Unfinished Revolution and Why We Need It More Than Ever*. New York, NY: Basic Books (2004). p. 108

enterprises and undertakings and neighbourhood organizations, and promotes public health activities of a mass character, all to protect the people's health' (1) and 'The state develops physical culture and promotes mass sports activities to build up the people's physique' (2). [136] Moreover, the right to health is addressed in other domestic instruments, such as the Labour Law which grants healthy conditions for workers[137], the Environmental Law which affirms the right to a healthy environment[138] and the Women's Rights Protection Law that protects women's reproductive and sexual rights.[139] Finally, pursuant to the provisions of the ICESCR, ratified in 2001, in 2009 a new policy was implemented by the State Council with the aim to grant safe, effective, convenient and affordable health care services, determined to provide accessibility especially to the most rural areas through large investments[140]. Nevertheless, the effectiveness of such policies is yet to be demonstrated.

Thus, the main weakness of the Chines system is not the lack of a general legal framework for the right to health, but, as suggested by UN Special Rapporteur Philp Alton, the lack of political accountability, which includes adequate resource allocation and participation in the developing of law and policies concerning health and healthcare.[141] On this note, MacNaughton and Qiu explain that 'transparency regarding information on budgets, regulations, quality of performance and achievement of targets' is fundamental in the policymaking and monitoring process of the right to health;[142] these traits can usually be found in democracies, while in a system like the Chinese one, based mainly on one single party, it is rather difficult that these requirements are met.

Without going any further with this discussion, it may be concluded that the main issue regarding the right to health in China is not of legal nature, but political.

The realisation of the right to health in Russia has been in a profound crisis since the collapse of the Soviet Union in 1991. In the Constitution of the Russian Federation, adopted in 1993,

---

[136] Constitution of the People's Republic of China's (2004)

[137] People's republic of china Labour Law (1995)
Available at http://www.china.org.cn/english/government/207405.htm

[138] People's Republic Of China Environmental Protection Law (2015), Arts. 9–15. Available at http://www.gov.cn/xinwen/2014-04/25/content_2666328.htm.

[139] Women's Rights Protection Law (2005), ch. 4. Available at: http://www.china.org.cn/english/government/207405.htm (English).

[140] Jose Zuniga et al., *Advancing The Human Right To Health,* Oxford University Press (2013), p. 162

[141] Office of the United Nations High Commissioner for Human Rights, *End-of-Mission Statement on China, by Professor Philip Alston, United Nations Special Rapporteur on extreme poverty and human rights (August 23, 2016*). Available at http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=20402&LangID=E.

[142] Shengnan Qiu and Gillian MacNaughton, 'Mechanisms of Accountability for the Realization of the Right to Health in China', *Health and Human Rights Journal*, (April 2017)

article 41 grants the right to health and free healthcare to every individual, financed by the State, both at national and at municipal level; more importantly, it provides punishment for those who conceal information and facts that may represent a threat to health in the country.[143] Nevertheless, as assessed by a report of WHO in 2011, there are still major threats to the health status of Russia, the most serious being the high neonatal mortality rate, the low life expectancy and HIV, for which it has the highest percentage of contagions in Europe.[144] What is more, one should consider the vastity and variety of country, with its diverse distribution of population and income that represent a major obstacle for the fulfilment of the right to health; assuming that healthcare should be available and accessible to all, the disproportionate allocation of financial resources across the different regions creates a significant inequality which the Government is struggling to overcome. Just as in China, the fallacies of the healthcare system are not caused by the lack of legal provisions to regulate it, but once again by the absence of transparency and information provided by the State, which despite its democratic disguise adopts quite illiberal policies.

1.3.2 The right to health in Developing Countries

Developing Countries have reportedly a minor responsibility for climate change, though they are the most impacted by it; obviously, this has major effects on their healthcare system and it may constitute an obstacle to the policies implemented by the States in order to fulfil their obligations regarding the right to health.

Following a study conducted by S. Katrina Perehudof for the WHO Department of Health Technology and Pharmaceuticals, the developing countries which contain the broadest and most comprehensive framework for the right to health in their constitutions are Honduras, Cuba, Ethiopia and Ecuador.[145]

The Constitution of Honduras was adopted in 1982 and its article 145 it is declared that 'the right to protection of one's health is recognized' and that 'it is everyone's duty to participate in the promotion and preservation of the personal health and the community', while art. 149 assigns to the Ministry of Public Health and Social Attendance the task to elaborate an adequate national health plan that is suitable chiefly for the most vulnerable groups; moreover, article 123 mentions the right to health when illustrating the rights of the child, amongst which

[143] Constitution of the Russian Federation (993) Available at: <http://constitution.garant.ru/english>.
[144] WHO, 'Russian Federation Health system review', Health Systems in Transition, Vol. 13 No. 7 (2011), p. 28
[145] S. Katrina Perehudof, 'Health, Human Rights & National Constitutions' , WHO (July 31, 2008)

it is included that 'every child shall have the right to grow and develop in good health, for whom special care shall be given during the prenatal period, as much for the child as for the mother'.[146] Currently, the major challenge that the Government has to overcome are the limited resources available to spend in the health sector, especially in infrastructures and health personnel and, strictly related to this, the increasing incidence of extreme natural events that periodically hit the country, causing health emergencies that the health system is not yet ready to handle.[147]

Cuba profoundly amended its Constitution in 2019 and it is worth mentioning this new version for through article 72 the State complies with its obligation concerning the right to health with the provision of free medical healthcare for all, access to all sanitary infrastructures and the promotion of health campaigns, vaccinations, health education and participation in the policy making;[148]furthermore, article 43 is asserts that ' the State encourages the holistic development of women' giving significant relevance to their reproductive rights, granting them free examinations and paid maternity leave.[149] The national health system is based on the principle of universality and the main objective, after the amendments of the Constitution, is primary healthcare for all and providing quality and efficient services, as requested by the international standards.[150]

A good comparison in the Latin American region may be the one with Brazil. Its Constitution was drafted in 1988, after a military dictatorship and, as suggested by Brinks and Gauri, the inclusion of a really comprehensive right to health was the result of the *movimiento sanitarista,* a social movement which opposed the regime and whose main purpose was the universalisation of the national healthcare system[151]. Consequently, in the section of social rights, article 6 of the Constitution recognises health as a fundamental one, and articles 196-200 impose on the State the obligation to adopt 'social and economic policies aimed at reducing the risk of illness and other hazards and at the universal and equal access to actions and services for its promotion, protection and recovery' and contain provision regarding preventive care, health of workers and the health of the environment.[152] In addition, the Constitution created the Unified Health

[146] Constitution of Honduras (adopted 1982, amended 1991), art 123, 145, 149
[147] Pan-American Health Organization, Health in Americas (Honduras) available at https://www.paho.org/salud-en-las-americas-2017/?p=4280
[148] Constitution of Cuba (adopted in 1976 as amended in 2019), available at: http://extwprlegs1.fao.org/docs/pdf/cub184086E.pdf, art. 72
[149] Ibid, Art. 43
[150] Pan-American Health Organization, Health in Americas (Cuba), available at https://www.paho.org/salud-en-las-americas-2017/?p=4251
[151] Gauri, Varun, and Daniel M. Brinks, *Courting Social Justice: Judicial Enforcement of Social and Economic Rights in the Developing World*. Cambridge: Cambridge University Press (2008), p. 305
[152] Federal constitution of Brazil (1988) art. 6

System which grants universal and comprehensive access to health care, promotion of equality and participation and on whose legal framework other governmental bodies are based, such as the National Health Actions and Services List and the 'Health Map'.[153] Despite the availability of legal instruments, it is obvious that the right to health, as in 2020 is far from being fulfilled by the Brazilian State. According to Yamin, this is mainly caused by two reasons: the first is the increasing level of privatisation of the healthcare system, which is beneficial for the middle and the upper classes, while the lower income people have access to inadequate public services; the second is the elevate number of environmental accidents occurring in the country (to which one must add the fires in the amazon region in January) which principally affect people living in the rural areas, who usually belong to the poorest groups and that tend to be overlooked by the Government.[154]

Moving to Africa, it is possible to see that the right to health is first and foremost defined in relation to other rights, namely the right to life, housing, food and water. For instance, article 90 of the Ethiopian Constitution declares that the State shall grant, within the limits of its resources, equal access to public health, clean water, food, housing and education, especially to pregnant women so as to avoid any harm to them and to the baby.[155] Section 27 of the Constitution of South Africa first states that everyone has the right to access to healthcare services and reproductive rights, then links these rights to the right to food and clean water, finally affirms that the States must take reasonable legislative measures in order to meet its obligations.[156]This section, deals with a positive entitlement, for it confers the right to health to everyone and at the same time imposes a positive duty on the State to provide everyone with health services[157] and it may considered a huge progression in a racially fragmented country; the provision included in the Constitution are particularly relevant if considering that, as reported by Ngwena and al, not only has South Africa the highest concentration of people living with HIV, it also has a high burden of tuberculosis which is not treated appropriately[158]. Moreover, the country has undergone a deep transformation in the healthcare sector with the

[153] Pan-American Health Organization, Health in Americas (Brazil) available at: https://www.paho.org/salud-en-las-americas-2017/?p=4246

[154] Alicia Ely Yamin, 'The Right To Health In Latin America: The Challenges Of Constructing Fair Limits', *University of Pennsylvania Journal of International Law,* Vol. 49:3, Penn Law: Legal Scholarship Repository (2019), p. 707

[155] Constitution of Ethiopia (1994), available at: https://www.wipo.int/edocs/lexdocs/laws/en/et/et007en.pdf arts. 89-90

[156] Constitution of South Africa (adopted in 1996, as amended in 2003) , available at: https://www.justice.gov.za/legislation/constitution/SAConstitution-web-eng.pdf, sect. 27

[157] Charles Ngwena and al. *The Right To Health In Post-Apartheid Era South Africa* in *Advancing The Human Right To Health,* Oxford University Press (2013), p. 132

[158] Ibid, p. 130

White Paper for the Transformation on The Health System Of South Africa, which established a national ministry in charge of the health policies and provided two main strategies to reduce the inequalities in the access to primary health care[159]. To conclude, the Constitution of Uganda not only establishes the accessibility to healthcare for everyone in particularly for children and orphans (Part XIV), it also contains a section regarding the right to a healthy environment and medical services which the State should grant to its citizens (part XX).[160]

As already discussed in the paragraph on the African Charter, the main issue with the right to health in African countries is the low percentage of judicial decisions by National Courts directly involving the right to health. As Gostin remarks, most of the national litigations in which this right has been mentioned had as a primary focus the right to housing, to social security or to safe water, while health was only invoked as a consequence of this violation.[161]

Conclusions

The analysis of the legal instruments conducted in this chapter has provided a more clear understanding of the concept of human health and how it is protected by the legal system. Despite some differences, caused mainly by the diverse geographical, temporal and social context in which the treaties and the conventions have been drafted, it is possible to identify a common pattern in the definition and in the realisation of the right to health, which is, as Tobin has suggested, 'derived from the social process that led to the recognition of a person's interest in achieving the highest attainable standard of health as the basis for a human right'[162]

First, it is clear that the human right to health does not entail merely physical health, but includes several factors that need to be considered by the States when fulfilling their obligations. Among these, it is worth mentioning that every instrument discussed specifies that this right must be enjoyed by every individual without any kind of discrimination. It is also important to notice the priority given to an equal access to primary healthcare services, which are generally described as accessible, affordable and available. Universality, equality and accessibility are thus the major principles on which the health law is founded. However, as it has been illustrated for Africa and Latin America, not always a good and comprehensive legal framework corresponds to the actual realisation of the right and to its equal enjoyment by

[159] Ibid, p. 137
[160] Constitution of Uganda (1995)
[161] Gostin, *op. cit*., p. 265
[162] Tobin, *op. cit*., p. 372

everyone. This highlights another feature that emerged, the absence of an enforcement body which prevents the discrepancy from the written legal provisions and those put in practice.

Secondly, the different level of realisation of the right to health is mostly caused by the inequal distribution of resources, which severely impacts on a State's capacity to comply with the international legal standards. One on hand, this depends on the level of economic development of the country, which may find itself in a more disadvantaged position compared to other countries. On the other hand, it may even originate from the lack of political will to invest in the health sector, allocating the available resources to other fields, and the lack to implement international regulations. In both cases, more developed and higher income States are called to intervene and finance the countries that are not able to meet their obligations, as it represents the only way to grant the right to health to their people. While this mechanism is certainly based on solidarity and collaboration, it also represents one of the main issues concerning global public health which will be addressed in the following chapters: States responsibility

Finally, related to collaboration and responsibility, it is evident that the attainment of the highest standard of health for everyone everywhere is not a goal reachable by single States, but that it is only possible through coordinated actions, policies and efforts. Now more than ever it has been proven that the only way to overcome, or at least, limit, the current and future challenges for human health is collaboration, sharing of resources and information and transparency. On this note, it is important to remark the failure of WHO in integrating the human rights discourse into global health law, which continues to be too focused on technical and medical aspects and less concerned with individual human rights, and international law in general. The absence of a meeting point for global health and the human right to health, meaning a proper legal instrument which includes both systems, can be placed at the basis of the several shortcomings, first and foremost inequality, which characterise the health sector.

2. THE GREATEST THREAT TO HUMAN HEALTH: CLIMATE CHANGE

Introduction

The correlation between climate change and human health has only recently been acknowledged. Over the past centuries, little effort has been put in the research of possible health risks caused by variations in weather and climate, for they were perceived as natural variations that have always occurred; however, since the 1990s scientists and health researchers showed a growing interest in discovering more on what connects human health to climate change[163]. It is not a coincidence that this interest originated right at the end of the twentieth century, when the effects of global warming and the consequent extreme weather events started to manifest and when the first report of the International Panel on Climate Change was published. As in 2020, several studies have been conducted on the effect that climate change produces on human health and how they impact on the healthcare systems of different countries, linking these two complex sectors: environmental science and public health.

Having already examined the concept of health and how it is legally defined in chapter one, the scope of this chapter is instead to provide an analysis of the consequences that climate change has on human health and how it represents a major obstacle to the full realisation of the right to health for all individuals, in order to be able in the following chapters to illustrate how (and if) such a dangerous threat has been addressed by State leaders and policymakers while negotiating international treaties on climate mitigation as well as in delineating public health reforms. Starting from the reports of the IPCC, this chapter will describe the origins of climate change and its effects on the environment, following with an analysis of the most dangerous consequences from human health, both direct and indirect, and concluding with a focus on vulnerable groups, who are the most subjected to the afore mentioned consequences.

It would be impossible to proceed without delineating three key words that will be recurring in this chapter: weather, climate and climate change.

The term 'weather' indicates the state of the air and atmosphere at a specific time and place, including temperature, percentage of precipitations, dryness, clearness or cloudiness, while climate has been defined as the average condition of weather at a place over a specific period of time, meaning the average temperature, dryness, clearness or cloudiness and, more generally

[163] Rais Akhtar and Cosimo Palagiano*, Climate Change and Air Pollution: The Impact on Human Health in Developed and Developing Countries,* Springer 2018, p.5

'the weather conditions prevailing in an area in general over a long period'[164]; normally, climate scientists identify climate from weather using a period of thirty years.

The concept of climate change is instead slightly more complex. Being considered the greatest emergency of this century, there exist hundreds of books and articles in different fields written on the subject, paired with social movements, demonstrations and campaigns aimed at spread awareness. However, due to this overlapping of information, a precise understanding of climate change is not always immediate for everyone and thus a clear definition is necessary. Scholars have defined climate change 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'[165]. Therefore, it is important to notice that climate change is influenced and, in turn influences weather and that these three concepts cannot be studied separately as they are strictly interrelated.

Before discussing the causes and consequences of climate change, it should be highlighted that this work is not a scientific research, therefore all the medical information provided will only have the purpose of illustrating how severely climate change affects people's enjoyment of the highest attainable standard of health.

2.1 The Intergovernmental Panel on Climate Change

The Intergovernmental Panel on Climate Change is the main international body which deals with climate change, established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP)[166]. Thanks to the collaboration of specialists and experts in any relevant field, the mandate of this body is the periodical release, approximately every five years, of a scientific report evaluating the climate change conditions, its impacts on the environment and on the socio-economic sphere, providing state leaders and policy makers with suggestions and prospects to implement adequate policies and legislations[167]. Starting from 1990, the IPCC has released five reports, which confirmed the serious threat represented by climate change. Among these, of particular relevance is the fourth Assessment Report of 2007, considered a landmark achievement for it showed an unanimous

[164] Markus Amann, Nigel Arnell, Sonja Ayeb-Karlsson et al, The 2019 report of The Lancet Countdown on health and climate change, *The Lancet*, Volume 394, Issue 10211, November 16, 2019 DOI:https://doi.org/10.1016/S0140-6736(19)32596-6

[165] United Nations Framework Convention on Climate Change. Full text of the Convention http://unfccc.int/essential_background/convention/background/items/1350.php

[166] Barry S. Levy and Jonathan A. Patz, *Climate Change and Public Health,* Oxford University Press (2015), p.4

[167] Ivi

consensus, by the whole scientific community, that climate change is the biggest threat to human life[168].

Redacted with the contribution of three working groups on 'The Physical Science Basis', 'Impacts, Adaptation And Vulnerability' and 'Mitigation Of Climate Change', this report managed to raise and spread awareness on the unavoidable changes that human activity is causing to the planet, not only among world leaders, but within the international community in general, because as requested by the Panel, the experts used a non-technical, albeit precise and correct, style in order to be easily understood by everyone[169].

Starting by pointing the changes in climate, the experts affirmed that 'warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level' and that 'evidence from all continents and most oceans shows that many natural systems are being affected by regional climate changes, particularly temperature increases.'[170] As a matter of fact, since the 1950s the Earth has been facing an unprecedent warming, caused mainly by human activity which, if left unregulated, will lead to an increasing in the temperature of the Earth surface between the average of 1.0° and 3.7° by 2081-2100.[171]

These predictions were reaffirmed by the fifth report, issued in 2014, which confirmed with *medium confidence* that 'the period between 1982 and 2012 was likely the warmest 30-year period of the last 1400 years in the Northern Hemisphere'[172]. The AR5 finally convinced even the most sceptical on climate change, as former IPCC chairman Watson declared: 'Up until now, the criticism has been that climate science is like a house of cards, and if you pull out one or two sets of data, it all collapses. That narrative has been refuted. [AR5] shows that the observational evidence for human-caused warming is overwhelming, compelling, and irrefutable.'[173]

The results of this warming, that according to the scientific community started more than 70 years ago, can easily be observed and are nowadays well known: change in precipitations,

---

[168] Stephen Humphreys and Mary Robinson, *Human Rights And Climate Change*, Cambridge University Press (2009), p. 160

[169] IPCC, 2007: *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds).

[170] Ibid, p. 2

[171] Akhtar and Palagiano, *op. cit*., p. 9

[172]IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland

[173] Levy and Patz, *op. cit*., p.7

extreme weather events, wildfires and sea level rise. Levy and Patz explain that changes in precipitation on one hand lead to heavy rainfalls, which are likely to cause heavy floods especially in regions like Asia, Africa, Central and South America, while on the other hand, areas such south-west US, South Mediterranean and regions in Africa are experiencing severe droughts due to the drastic decrease in rainfall[174]; the absence of precipitation and the consequent droughts facilitate the origins of wildfires, such those occurred in Siberia, in the Amazon forest and in Australia during the past year. In the same way, global warming is causing a mass loss in the Greenland and Antarctic ice sheets, especially from 2002, and a general melting of glaciers worldwide[175]. This phenomenon is considered the main cause of sea level rising: the IPPC Fifth report has assessed that over the period between 1900 and 2010 global mean sea level rose by 20 cm and has predicted with *high confidence* that by 2100 it will further rise by 26 to 36 cm[176], exacerbating storm surges, worsening coastal erosion, and inundating low lying areas, endangering low-lying coastal nations, particularly low-lying island nations in the Pacific Ocean[177].

Moreover, according in the section dedicate to future projects, scientists stated that Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, that extreme precipitation events will become more intense and frequent in many regions, the ocean will continue to warm and acidify and global mean sea level to rise[178]. Finally, the report concluded confirming that climate change is amplifying already existing risks, which are unevenly distributed worldwide and that are generally greater for vulnerable communities and vulnerable countries, though recognising that the most affected are also those whose activity has contributed the least to climate change[179].

2.2 Greenhouse gasses emissions and global warming

After having illustrated the effects of climate change on the environment and on natural and human system, it is fundamental to analyse its causes and its origins.

[174] Levy and Patz, *op. cit*. p. 11
[175] Ibid, p.12
[176] IPCC, 2014: *Climate Change 2014: Synthesis Report,* p. 4
[177] Levy and Patz, op. cit., p. 13
[178] IPCC, 2014, p. 15
[179] Ivi

Scientists and experts have, with a unanimous consensus, identified one major cause for climate change: anthropogenic greenhouse gas (GHG) emissions. Levy and Patz explain that the variability in climate depends on the balance between incoming solar radiation (shortwave) and outgoing infrared radiation (longwave)[180]; greenhouse gasses acquired this denomination as they function similarly to a greenhouse: incoming solar shortwave energy manages to pass through them to heath the surface of the earth, however the outgoing longwave radiations remain trapped in the molecular structure of this gasses, which absorbs them and stops them from leaving the surface of the planet, creating the famous greenhouse effect[181]. While scientists have agreed that a limited presence of GHG is beneficial for the Earth, as they contribute to balance and to attain an optimal temperature for living, an excess clearly represents a threat for the survival of every living organism.

The most common GHG is carbon dioxide (CO_2), followed by methane (CH_4) and nitrous oxide (N_2O)[182]. The concentration of these gasses in the global atmosphere has been constantly increasing since 1750, due to human activities; this date corresponds to the starting point of the industrial era, which resulted in an unprecedented growth in the economy and in the population[183]. Indeed, it has been scientifically proved and affirmed with *high confidence* that the concentration of carbon dioxide increased from about 280 parts per million (ppm) at the beginning of the nineteenth century, to about 400 ppm now, representing a variation of over 40 %, mainly due to the combustion of fossil fuels, deforestation and cement production; today, carbon dioxide corresponds to 72% of global greenhouse gasses: the electricity generation sector annually emits 34%, transportation 28%, agriculture 8%, commercial 6% and residential 5%[184]; while the concentration of methane is slightly lower than CO_2, this gas is 22 times more powerful in reflecting infrared radiations back to the earth surface and its emissions come chiefly from the agricultural sector[185]. It is evident that there exists no sector which does not contribute to greenhouse gasses emissions and, in turn, to global warming, one may even state that the global economy is built on them and that is the reason why it is becoming more and more difficult to reach agreements on emissions cutting and quotas.

Essentially, human intervention has brought the current level of greenhouse gasses in the atmosphere to the highest point in the whole climate history of the planet and their effect, called

[180] Levy and Patz, op. cit., p. 34
[181] Ibid, p.35
[182] IPCC, 2007: *Climate Change 2007,* P. 5
[183] IPCC, 2014: Climate Change 2014, p. 4
[184] William M. Rom, *Environmental Policy And Public Health*, John Wiley And Sons (2012), p. 191
[185] Ivi

radiative forcing [186] is 'extremely likely to have been the dominant cause of the observed warming since the mid-20th century'[187]. Before the industrial era, the cycling of carbon between soil, vegetation, atmosphere and the ocean occurred in a steady dynamic equilibrium, however this balance has been altered by human activity, which, as Butler illustrates, has been storing elevate quantities of CO_2 that prevent the longwave radiations from being released[188]. It is clear then, that global warming and all its consequences are a result of an altered equilibrium caused by humans themselves and that this alteration is irreversible, especially considering that the report of 2014 affirmed that the human influence on the climate system has grown compared to the data registered in the report of 2007 and will continue to grow[189] despite new laws and regulations on GHG emissions. On this note, Butler reports the claims of the scientific community, whose findings show that nowadays even a complete termination of GHG would not avoid a human-caused warming in this century, consisting in additional increase by 1°C in the temperature of the Earth, as a consequence of all the radiations already accumulated in the past decades[190].

2.3 Impacts Of Climate Change On Human Health And On The Healthcare System

It has been unanimously accepted that climate change is the result of human intervention in the natural carbon cycle. At the same time, it is now universally recognised that climate change is the biggest threat to human life and human health and, consequently, the greatest challenge that humans must face. Currently, men are struggling to solve, or at least mitigate, a crisis provoked by their own actions and that is causing and will continue to cause permanent damages to their lives and to their future generations. This paragraph will provide an analysis of the influence that climate change has on human health and, as a result, on the healthcare systems.

The scientists working on *The Lancet Countdown On Climate Change* have identified three pathways through which climate change affects human health: direct, ecosystem-mediated and human and institution-mediated[191]. These three categories reflect the different levels at which climate change interferes and interacts with human health: while direct effects are simpler to

[186] Ivi
[187] IPCC, 2014: Climate Change 2014, p. 7
[188] Colin Butler, *Climate Change And Global Health*, CAB International, London (2014), p. 15
[189] IPCC, 2014: Climate Change 2014, p. 47
[190] Ibid, p. 16
[191] Pamela Das and Richard Horton, 'Pollution, health, and the planet: time for decisive action' , *The Lancet*, Volume 391, Number 10119 (Feb 03, 2018), p. 410

detect and, in a certain sense, less difficult to limit, it becomes more and more complex to identify and assess how climate change, combined with other structural factors such as geographical area, socio-economic conditions and individual predisposition affects human health.

2.3.1 Direct: heat waves, non-communicable diseases, extreme weather events and air pollution

As it has been assessed in the previous paragraphs, the most immediate consequence of climate change is global warming, which generates frequent and intense heat waves. Whereas ambient environmental heat is influenced only by air temperature, human physiology is more complicated: heat is a function not only of air temperature but a combination of humidity, air movement like wind speed, and heat radiation, originating mainly from the sun[192].

Normally, a healthy human body can automatically adjust to climate variations and, with time, they have learnt to adapt to particularly extreme temperatures: populations living in regions which are subjected to really cold winters have developed complex heating systems, whereas populations living in hotter regions started to wear appropriate clothes and adapted their habits to the weather conditions. Therefore, since these conditions are differently experienced from region to region, and every population has their own way of adaptation, the WHO has not yet provided an official definition of extreme heat or extreme cold[193]. Actually, researches have established that the heat and cold thresholds above and below which adverse health effects drastically increase depend on the geographical area and are not universal[194]. However, it is important to acknowledge that, albeit not universal, the human body has its limits in adapting to extreme temperatures, and scientists have previously warned that this threshold may be reached in the near future. Moreover, as Butler remarks, it is biologically easier for humans to adjust to colder rather than warmer temperatures and for this reason, most frequently health adverse effects are caused by exposure to heat[195].

The most common situation in which humans are exposed to extreme heat is during heat waves. The World Meteorological Association has defined heat waves as a period of 5 or more days where the temperatures are far above the average maximum[196], however this definition is

[192] Levy and Patz, *op. cit*., p. 75
[193] Ibid, p.76
[194] Ivi
[195] Butler, *op. cit.,* p. 48
[196] The World Meteorological Association, *Global Data-processing and Forecasting System,* available at: https://public.wmo.int/en/programmes/global-data-processing-and-forecasting-system

often neglected by organisations, even by WHO, thus there is generally a misconception of what an heat wave actually is and, consequently, many of them are not registered and their effects not considered. During the last twenty years, severe heat waves have hit different areas of the world, interesting whole continents, specific regions and even singular metropolitan cities and despite the diverse conditions in which these events have occurred, the effects experienced by people were almost the same, somehow confuting the assumption that the adaptivity capacity depends on the location. For instance, in the second half of July 2006, in California was registered a severe heat wave which caused more than 200 deaths and, during the same period, an overcrowding of hospitals and emergency departments admission in the area were recorded[197]; similarly, in 2010 in northern China an increase of 41% in the mortality rate coincided with a heatwave in the same region[198]; finally, in 2003 Europe experienced one of the greatest heat waves ever witnessed: it lasted three weeks and resulted in around 40.000 deaths in 12 different countries[199]. Indeed, according to the Assessment and Prevention of Acute Health Effects of Weather Conditions in Europe project, even an increase of only 1°C in the maximum apparent temperature resulted in an increase of hospitalisation by +4.5 % in Mediterranean and North-Continental cities[200].

The internal temperature of the human body is usually maintained in a range around 37°, through thermoregulatory functions which control heat loss and gain; when the body is exposed to elevate temperatures, the quantity of heat absorbed exceeds the quantity of heat eliminated, thus the body must find other ways to release the excessive heat[201]. This happens through perspiration and vasodilatation, a mechanism that reduces blood pressure and, in turn, increases blood viscosity and serum cholesterol, which are frequently identified as the main causes of myocardial infarction, thrombosis and ischemic stroke[202]. What is more, as Levy and Patz point, deaths during heat waves are not a consequence of 'mortality displacement', a situation in which terminally ill people die a few days earlier with heat exposure than they would have if the exposure had not occurred'[203]: while heat exposure may exacerbate pre-existing illness such

[197] R. Sari Kovats and Shakoor Hajat, 'Heat Stress and Public Health: A Critical Review', *Annual Review of Public Health* Vol. 29, (2008), pp.49-53
[198] Ibid
[199] Ibid
[200] Kent E.Pinkerton and William N.Rom*, Global Climate Change and Public Health,* Springer Science+Business Media (New York 2014), p. 11
[201] Butler, op. cit., p. 50
[202] Broolke Anderson, Francesca Dominici et al. 'Heat-related emergency hospitalizations for respiratory diseases in the Medicare population', *American Journal of Respiratory and Critical Care Medicine* 2013; 187: 1098–1103.
[203] Levy and Patz, op. cit. p. 92

as atrial fibrillation and abnormal heart rate variability, it may also facilitate the insurgence of cardiovascular diseases in perfectly healthy people[204].

The most efficient treatment for these diseases requires an immediate hospitalisation with medicines that stabilise blood pressure and blood coagulation, however due to the increasing incidence of heat waves it is more and more frequent that hospitals and ERs are overcrowded. Here, recalling the four principles on which healthcare is funded, the main strain is on accessibility and availability: people living closer to sanitary structures are more likely to receive an instant treatment than those living in more rural areas, as well as those who have easier access to specific medicines. Nevertheless, it must be noticed that people residing in urban areas may have an higher level of accessibility to healthcare, but they are more exposed to heat due to the so called *urban heat island effect*[205]*;* because of their structure, cities absorb more heat than rural areas, for the elevate density of buildings, industrial activities and population, which results in a higher number of vehicles and public transport. Moreover, dark surfaces, such as asphalt and parking lots, combined with fewer trees, absorb heat more readily and are not able to release it, generating further heat.

Finally, when discussing heat waves and consequences of heat exposure one should not forget to mention occupational heat effects. Already in 2003, Parsons warned about the risks encountered by workers, especially those living in the tropical areas at a low altitude (where the majority of the population is located)[206], who are more likely to be subjected to heat stress and heat strain. Kjellstrom explains that physical movement and muscular work increase the core body temperature, thus working during a heat wave results in a further increasing of internal temperature of the body[207]; assuming that working conditions are in compliance with all workers' rights, in particular workers' health rights, the only solution in order to reduce their heat stress is to take longer breaks and slow down the pace of their activity, so as to decrease their core body temperature[208]. Nonetheless, this would inevitably reduce work output and work productivity, causing an economic loss the individual worker, as well as the company and the whole community. On this note, some researches have even concluded that, by 2030 reduced work capacity induced by climate change will be the greatest economic threat, as global warming will increase the incidence of clinical heat effects, such as deaths from heatstroke at

[204] Ibid p. 93
[205] Ibid p. 94
[206] Ken Parsons, *Human thermal environments. The effects of hot, moderate and cold temperatures on human health, comfort and performance* (3rd ed.). Taylor & Francis, (London 2014), p. 65
[207] Tord Kjellstrom et al, 'Public health impact of global heating due to climate change: Potential effects on chronic non-communicable disease'. *International Journal of Public Health* 2010; 55, p. 99
[208] Ivi

the work place, heat exhaustion, damage of organs and injures caused by accidents due to heat stress[209]. However, in addition to the economic loss, one must not fail to consider the huge strain that these clinical effects are imposing on the health care systems, especially in those countries where they are less developed; several researches have reported the always more frequent hospitalisations, outpatient visits to the sanitary services, and ambulance call-outs, mainly from workers subjected to physical fatigue or who have not access to air conditioning nor can frequently drink water[210]. Whereas these may seem fundamental rights for the health of the workers, they are not always provided, as company leaders are reluctant to grant more breaks to their employees in fear of losing labour productivity; in this way they contribute to an endless circle, since the decrease in work output is mainly the result of scarce physical conditions of the workers and their limited ability to perform in such elevated temperatures.

Extreme weather events are certainly another major consequence of rising temperatures and global warming which affect human health. In 2012, the IPCC released the Special Report On Extreme Events (SREX), an extensive scientific document which assesses and analyses the relation between human activity and the environment and how they generate climate extremes[211]. The IPCC defines climate extremes as 'the occurrence of a weather or climate measure above (or below) a predetermined threshold (e.g. 97.5%) near the upper (or lower) ends of the observed range of values of the variable'[212]; as pointed by the definition, these events are rare and thus difficult to identify and record, however in the last twenty year an increase in their occurrence has been registered, which has been interpreted as another signal of the inevitable climate crisis the world is facing.

According to the study conducted by Guha-Sapir *et al.,* the most frequent extreme events occurred in the last decades are floods, droughts and hurricanes[213]. Caused by heavy precipitations, floods are considered to be an increasing trend, especially in areas like China and India; theoretically, climate change influences three types of floods: riverine, coastal and glacial outlet, all depending on the constant sea level rise. While floods, hurricanes and cyclones have the same direct effects on human health, mainly physical injuries and damage to health care structures which are not able to treat the wounded, the effects produced by droughts are

[209]Ibid p. 1oo
[210] Ivi
[211] IPCC (2012) *Intergovernmental Panel on Climate Change Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* (Field, C.B., Barros, V., Stocker, T.F., Qin, D., Dokken, D.J., Ebi, K.L., et al)
[212] Ibid
[213] Debarati Guha-Sapir et al. 'Annual Disaster Statistical Review 2010: The Numbers and Trends'. *Centre for Research on the Epidemiology of Disasters*, Université Catholique de Louvain, Brussels, Belgium, p. 45

considered to be secondary, meaning that they will impact more on the quantity and quality of drinkable water and food available to the population, which in turn will negatively affect their health condition[214]. Furthermore, it should be taken into account that often these natural disasters are followed by others and hence, their consequences are amplified. On this note, the SREX has identified three different scenarios: two simultaneous or successive extreme events, combination of extreme events with underlying conditions that exacerbate the effects of the other, combination of events that are not themselves extreme, but their effects multiplied together make them extreme[215]. For what concerns human health, besides the direct damages that natural disasters cause, namely serious injuries that may lead to death, the most dangerous of these scenarios is the insurgence of epidemics right after the extreme event, which has been proven to happen with *high confidence*[216]. The natural catastrophe destabilises the biological balance of the region and simultaneously worsens the sanitary conditions of the population, creating a favourable environment for pathogens and bacteria, from which epidemics originate; moreover, the combination of damaged hospitals, which cannot treat the affected people and the adverse conditions in which they have to live following evacuations, strongly contribute to the diffusion of the disease[217].

Finally, air pollution is a major result of climate change. Variation in the composition of the atmosphere and in temperatures affects air contaminants in their emissions, transport, dilution, chemical transformation and deposition[218]; for instance, global warming facilitates the emissions of biogenic and anthropogenic volatile organic compounds (VOCs) and the production of high concentration of ground level ozone, commonly known as 'smog' and of fine particulate matter ($PM_{2.5}$), which are considered the most dangerous air pollutants[219]. The negative impact of air pollution on human health has been illustrated by the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD), whose latest report of 2017 showed evidence of morbidity and mortality due to the elevated presence of air contaminants, which provoke or favourite the insurgence of chronic obstructive pulmonary diseases (COPD), ischemic heart diseases (IHD), stroke, lung cancer, diabetes, asthma and acute lower respiratory infection[220].

---

[214] Ibid, p. 50
[215] IPCC (2012)
[216] Ibid
[217] Butler, op. cit., p. 60
[218] Rais Akhtar and Cosimo Palagiano, op. cit., pp. 9-2
[219] Ibid
[220] GBD Chronic Respiratory Disease Collaborators, 'Prevalence and attributable health burden of chronic respiratory diseases, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017', *Lancet Respir Med 2020; vol.8,* DOI: https://doi.org/10.1016/S2213-2600(20)30105-3

These kind of diseases are estimated to account over 8.5 million deaths per year, corresponding to the 16 % of all the deaths worldwide. As a matter of fact, only in 2017 an estimated 544. 9 million people suffered from chronic respiratory disease, the majority of them located in the high income regions[221], due to the excessive level of black carbon and ozone.

Ground-level ozone, or smog, represents the main cause for respiratory diseases. Its high concentration, particularly in large cities, which is generated by a photochemical reaction between nitrogen dioxide (from motor vehicles), volatile organic compounds and sunlight, has been predicted to increase by 2050, despite several measures adopted to reduce it[222]. As explained by Epstein and Ferber, it is undeniable that the constant exposure to this gas decreases pulmonary functions and damages airwave mucosa, leading to pulmonary inflammation, increased hospitalisation for asthma and frequent deaths for respiratory failure[223]. Among these, asthma is definitely the most diffused, especially among children living in large urban areas: it has been estimated that globally over 230 million people suffer from it[224] ; this chronic disease not only is exacerbated by breathing polluted air, but ozone exposure may even determine its insurgence in otherwise healthy patients[225]. In addition, an increase in temperatures, carbon dioxide level and ozone lead to longer flowering seasons, with a higher production of pollen, which is responsible for most of the allergic symptoms and worsens the conditions of patients affected by asthma[226].

The environmental health problem with the greatest global disease burden is household air pollution, resulting mainly from solid fuels like biomass and coal: it has been reported that this phenomenon interests almost 40% of global households, mainly in the rural areas of low income countries[227]; what is more alarming is that not only still in 2014, solid cook fuels were the main source for approximately 2.8 billion people, but that this number has remained unchanged since 25 years prior[228]: in fact, while economic development has contributed to reducing the percentage of people relying on solid cook fuels, adopting clean alternatives, the total number stayed unvaried, proving that economic development alone is not sufficient to overcome this

[221] Levy and Patz, *op. cit*., p.111
[222] GBD, chronic respiratory diseases 1990-2017,
[223] Paul Epstein and Dan Ferber, *Changing Planet, Changing Health: How the Climate Crisis Threatens Our Health and What We Can Do about It,* University of California Press , Los Angeles (2011), p. 86
[224] Ibid
[225] Levy and Patz, *op. cit*., p.111
[226] Ibid, p. 112
[227] Kirk Smith, Nigel Bruce, Kalpana Balakrishnan, et al. 'Millions dead: How do we know and what does it mean? Methods used in the comparative risk assessment of household air pollution'. *Annual Review of Public Health*, vol 35, (2014) pp. 185–86
[228] Ibid

issue. The main consequences of household air pollution are basically the same as any other kind of air pollution, namely pulmonary and cardiovascular diseases, lung cancer and pneumonia, accounting for 3.6 million premature deaths annually due to direct exposure as well as second-hand cookfire smoke[229].

When discussing the effects that climate change has on air quality, one should not forget to take into account wildfires. Caused mostly by severe droughts and extreme hot temperatures, the increase of their incidence has been noted worldwide, from Canada to Australia, from Brazil to Russia, all of which have suffered from severe wildfires in the past years and received global attention. In terms of adverse effects to health, wildfires are particularly dangerous as their emissions consists of air pollutants carbon dioxide (CO2), nitrous oxide (N2O), ozone (O3), particulate matter (PM), carbon monoxide (CO), methane (CH4), nitrogen oxides (NOx), organic compounds, aldehydes, volatile organic compounds (VOCs), free radicals and polycyclic aromatic hydrocarbon (PAH)[230], which are irritants, asphyxiant and carcinogens, capable of penetrating deep into the lower lung. For these reasons, besides the more immediate injuries like burns and respiratory crisis, wildfires are usually associated with severe asthma, bronchitis, pneumonia and even deaths caused by respiratory and cardiovascular failure. Moreover, their emissions elevate the concentration of greenhouse gasses in the atmosphere, further contributing to climate change, which in turn increases the frequency of wildfires.

2.3.2 Indirect: infectious diseases and pandemics

Scholars describe as indirect those effects of climate change that do not act directly on human health but affect the ecosystem, causing an alteration which favours the insurgence of conditions that eventually have negative consequences for humans.

It has been demonstrated that extreme variation in temperature and in the surrounding environment have strong influence on the spreading of two specific types of diseases: vector-borne and waterborne[231].

As a matter of fact, population growth and climate change have altered and continue to alter the environment in a way that has extended the suitability for disease transmission, both in time and space[232]; it is not surprising then, that diseases originally recorded in specific regions during

---

[229] Ibid

[230] Fay H. Johnston et al. 'Estimated global mortality attributable to smoke from landscape fires'. *Environmental Health Perspectives, vol 120 (*2012), p. *699*

[231] Nicholas H. Ogden, 'Climate change and vector-borne diseases of public health significance', *FEMS Microbiology Letters*, Volume 364, Issue 19, October 2017, https://doi.org/10.1093/femsle/fnx186, p.32

[232] Jay Lemery and Paul Auerbach, *Enviromedics: The Impact of Climate Change on Human Health,* Rowman & Littlefield (2017), p. 38

specific seasons have exceeded spatial and seasonal limits, spreading worldwide and pushing scientists to investigate the nature of such phenomenon. The most widely diffused are Malaria, dengue, West Nile virus disease, Lyme disease, and Zika virus infection, which have been identified by the World Health Organisation as the main contributors to global disease burden, with almost one billion cases per year and more than one million deaths annually[233].

Obviously, the complexity of the epidemiology of vector-borne diseases will not be discussed in this work, nevertheless it is essential to point that, despite this complexity, scientists have been able to prove that climate change has played a major role in their diffusion. Basically, vector-borne diseases origin from pathogens carried by other organisms, usually invertebrates such as mosquitoes, ticks, and fleas and the transmission from the vector to the host is possible only under particular circumstances: the pathogen, the carrier and the host must coexist in a suitable environment. Most of the times, vectors are *poikilotherms,* meaning that not only they are particularly sensitive to change in temperatures, but they easily learn to adapt to them[234]; in practice, global warming provides the most appropriate environment for transmission, as higher temperatures incentive the increase in numbers and geographical range of the vectors, thus accelerating the rate of replication within the host and the probability of infectivity to humans. In particular, as climate warming is occurring even around the poles, temperate regions appear to be the most threatened by the emergence or re-emergence of certain vector-borne diseases.

Probably malaria represents the most notable example on how higher temperatures influence the diffusion of certain diseases. Historically, malaria was diffused in tropical areas, but since the 1990s, there have been outbreaks in the East-Africa highlands, located at a more elevated altitude and characterised by lower temperatures. Interestingly, concurrent with the unusual insurgence of this disease, other phenomena were registered, namely changes in precipitation patterns, warming temperatures and forest removal for subsistence agriculture[235], all well-known consequences of climate change. On this note, several studies have linked these outbreaks with increasing temperatures, higher percentage of humidity and climate variations, due to adaptive nature of the pathogen[236].

The parasite responsible for Malaria belongs to the species *Plasmodium* and it is carried by the *Anopheles* mosquito[237]; after entering the human body through the mosquito bite, the parasite travels to the liver, generating a chain of symptoms that eventually lead to severe

[233] Who
[234] Jay Lemery and Paul Auerbach, *op. cit.*, p. 39
[235] Nicholas H. Ogden, *op. cit.*, P 33
[236] Levy and Patz, *op. cit.*, p. 146
[237] Ivi

anaemia, kidney failure, fluid in the lungs, low blood sugar, altered mental status, and even coma[238]. Currently, approximately 220 billion cases of malaria are annually registered, amounting to about 600 million deaths per year.[239]

The main public health concern regarding malaria is not its fatality, as it can be cured, but the fact that it is mostly spread in low income regions which have no access to the appropriate treatments or, in the worst cases, not access at all. What is more, where medicines are available, people have been fighting with the disease for so long that they have become drug-immune and their socio-economic conditions prevents them from receiving stronger and more updated cures[240].

WHO has responded to the malaria epidemic by creating the Global Malaria Programme (GMP) aimed at developing a policy-making process to control and mitigate the incidence of the disease, mainly through recommendations on three levels: 'better anticipate, develop policy, optimize uptake'[241], in order to assist States particularly affected by malaria to meet the related public health needs, coordinate responses at regional and national level and promote collaboration among experts to test new products and new strategies; moreover, and most importantly, since the beginning of 2000 there has been a substantial increase in the investment of funds in the fight against this disease, approximately 2.7 billion US dollars recorded in 2018[242]. However, this sum was not sufficient to reach the milestone of 6.5 billion US dollars by 2020, which, according to the World Malaria Report of 2017, was necessary to reduce the incidence of malaria of 40%[243].

On this basis, Gething assumes that, despite global warming hitting even countries at northern latitudes, malaria does not represent a serious threat for developed countries, as their healthcare systems are more advanced and appropriate to handle infectious diseases, through patient tracking, consequent isolation and vaccine availability, but mostly because of greater financial availability, which is clearly lacking in less developed countries[244]. Here, the focus is on the socio-economic conditions of the different countries and how, as it has already been illustrated in the first chapter while describing the social determinants of health, they impact on the

[238] Jay Lemery and Paul Auerbach, *op. cit*., p. 39
[239] Ibid, p. 40
[240] Ivi
[241] World Health Organisation, Malaria: policy making process, available at: https://www.who.int/malaria/policy/en/
[242] World Malaria Report 2017. Geneva: World Health Organization; 2017, pp 4-5, available at: https://www.who.int/docs/default-source/documents/world-malaria-report-2017.pdf?sfvrsn=8b7b573a_0
[243] Ivi
[244] Peter W. Gething et al. 'Climate change and the global malaria recession'. *Nature 465* (2010), 342–346.

enjoyment of the right to health by individuals and the community as a whole. For this reason, this issue will be better discussed in the following paragraphs which deal with the concept of vulnerability.

Transmitted in the same way by mosquitos, dengue is another widely spread vector-borne disease, albeit less popular compared to malaria. In 2019, it was enlisted by WHO among the ten most threatening infectious diseases, after having estimated that its spread has been increasing at a higher rate than any other disease, amounting to 400% increase between 2000 and 2013, with 100 million symptomatic cases and 300 million asymptomatic annually[245]. The most affected regions are Asia, Latin America and Africa, with the greatest burden recorded in large urban areas, due to the high adaptive capacity to urban environments of the primary vector which feeds mainly on humans[246]. Similarly to malaria, it has been demonstrated that a warmer and wetter climate facilitates the replication of the dengue vector and consequently the transmission in endemic regions, whereas these conditions are strictly necessary but not sufficient for contagion in non-endemic areas, where the disease is transmitted only among already infected humans[247]. When manifested, the symptoms of such infection involve fever, headaches, nausea, rash and in worst cases respiratory distress, bleeding, a rapid drop in blood pressure leading to shock and even death, though WHO assures that the fatality rate has dropped to 1%[248]. Currently, the existing vaccines are only partially effective and anyway not affordable and accessible for the majority of the affected people; therefore, once again the discourse is shifted towards the socio-economic status of the countries and their lacking healthcare systems.

In 2002, WHO through resolution WHA55.17 urged Member States to play a more active role in fighting dengue by allocating more human and financial resources to the research for new vaccines, strengthening their health care systems so as to be ready to handle numerous infections and provide everyone with the appropriate treatment and by engaging in cooperation with other international actors like international organisations and NGOs in developing efficient strategies for vector and patient control[249].

Although with less serious consequences, Lyme is one of vector-borne diseases more influenced by climate change. Caused by the bacterium *Borrelia burgdorferi* and carried by hard-bodied ticks, its symptoms vary from rash to headache and fatigue, which can easily be

[245] World Health Organisation, 'Dengue and severe dengue', available at: https://www.who.int/health-topics/dengue-and-severe-dengue#tab=tab_2
[246] Butler, op. cit., p. 77
[247] Ivi
[248] World Health Organisation, 'Dengue and severe dengue'
[249] World Health Organisation, Fifty-Fifth World Health Assembly, Resolution WHA55.17, 18 May 2002, 'Dengue fever and dengue haemorrhagic fever prevention and control'

treated with antibiotics, however if left untreated it may lead to shock, heart block and neurological damages[250]. Lemery and Auerbach precise that even the milder symptoms, if combined with pre-existing pathologies or other types of infection, may have serious consequences[251].

Variation in climate affect its diffusion through three pathways: by changing the geographic range of the transmission cycle, by increasing the number of infected ticks, thus increasing the risk of contagion for humans and by altering the human exposure to environment particularly suitable to the vector replication. As a matter of facts, a shift northward has been recorded in the last decades, especially towards North America, in areas usually too cold for ticks to reproduce[252]: this is the main proof of the influence that climate variation has on these kind of diseases.

Humans contract waterborne diseases when they are exposed to water contaminated by viruses, bacteria and parasites, which cause diseases such as diarrhoea, cholera, polio and hepatitis[253]. Numerous researches and studies have observed the emergence of outbreaks of such diseases right after some extreme weather events, in particular floods and hurricanes, indicating a clear correlation between the two phenomena[254]. As explained in the previous paragraphs, there is no doubt on the impact that climate change and global warming have on natural disasters, especially on the frequency and intensity of water-related events, precisely floods and hurricanes. Basically, heavy rainfall causes the overflow of sewage and other waste, increasing the concentration and transportation of pathogens. In less developed countries, this contaminated water represents the only source of water and it is used to drink, to cook and for sanitary purposes, therefore is terribly easy to become infected; according to WHO, contaminated water is the primary drinking source for almost 2 billion people[255]. On the other hand, instead, in developed countries this water is often used in the agricultural sector, consequently contaminating food[256]: for instance, in the US, one of the most developed countries, WHO estimates 12 to 19 million infections annually[257].

Diarrhoea is definitely the most widely known waterborne disease, counting approximately 830 000 deaths per year, resulting from drinking unsafe water or eating contaminated food.

[250] Levy and Patz, op. cit., p. 55
[251] Lemery and Auerbach, op. cit., p. 46
[252] Ivi
[253] Kent E. Pinkerton and William N.Rom, op.cit., p. 167
[254] Ivi
[255] Ibid, p. 170
[256] Ivi
[257] Berry and Patz, op. cit., p, 159

Diffused mainly in Southeast Asia and Africa, it affects mostly children under the age of five, whose immune system is too weak to fight the gastrointestinal infection from which it originates[258]. Despite the serious consequences, especially as symptom of cholera, it has been proved that epidemics of diarrhoea would be easily prevented by providing access to safe drinking water to those countries in need, improving sanitation and hygiene conditions as well as promoting health education on how the disease is transmitted. Needless to say, the major obstacles to effective prevention remain lack of cooperation and financial investment in the health sector.

2.3.3 The Coronavirus pandemic: does temperature influence transmission? Is there a correlation between exposure to air pollution and Covid- 19 mortality rate?

When describing how the spread of infectious diseases is favoured by environmental alteration, it is impossible not to consider the global pandemic that the world is currently experiencing and wondering whether this represents another case of climate-mediated outbreak.

In the past two decades, this is the third time that the world is faced with an epidemic, then turned pandemic, caused by different types of the same virus, the coronavirus: the 2003 SARS-CoV, the 2012 MERS-CoV and the current COVID-19. Despite the diversity of these diseases and the complexity of their epidemiology, it is possible to identify a firm common point: a suitable environment is essential for their emergence, and they all emerged when it was already clear that ecosystems were undergoing a profound change. For this reason, scientists assumed that changes air temperature, humidity and seasonality may have played a major role, not only in their diffusion but also in their mortality rate. Studies conducted by Lin *et al*.[259] or, more recently by Park[260] have associated coronavirus diseases with the most common respiratory system diseases and seasonal influenzas, whose transmission has been proved to be severely affected by three climate factors: temperature, humidity and precipitations.

Obviously, being it a novel virus, plenty of research still needs to be carried in order to precisely define the characteristics of the coronavirus which caused the Covid-19 pandemic, thus it is important to remark that new findings may confute what has been discovered in the past months. More importantly, such findings should be read taking into account the varied

[258] ivi

[259] Lin, K et al, 'Environmental factors on the SARS epidemic: air temperature, passage of time and multiplicative effect of hospital infection.' *Epidemiology & Infection 134 (2), 223–230, (*2006). https://doi.org/10.1017/S0950268805005054

[260] Park, J.E., '*E*ffects of temperature, humidity, and diurnal temperature range on influenza incidence in a temperate region' , *Influenza Other Respir. Viruses 14 (1), 11–18.*,(2020). https://doi.org/10.1111/irv.12682

responses that each State had to the virus, the different development of their health care systems and, of course their socio-economic conditions. Generally speaking, for now scientists seem confident in affirming that the transmissibility of the virus is higher at lower temperatures, while it tends to decrease with warmer temperatures[261]; however, while these findings have been scientifically proved, there exists a certain incongruency with the actual pattern of the pandemic, as it has dramatically spread in typically warm regions such as South-America, California and India. This incongruence may be explained by the other two climate factors that affect viral transmission, humidity and precipitations: Wang has observed that the rate of contagion is directly proportional to the increase in the level of humidity and precipitations[262], which are commonly registered in the afore mentioned areas.

Further research has showed that the influence of climate change is not limited to transmission only, but concerns the mortality rate as well: for Covid-19 is a respiratory disease which mainly damages lungs, many interrogated on the correlation between its fatality rate and the exposure to air pollutants. In the precedent paragraphs, the effects of air pollution on the respiratory system have been illustrated, focusing on how they favour the insurgence of chronic diseases, lung failure and acute respiratory syndromes. On this basis, it is not surprising that those who have been subjected to a longer exposure to polluted air resulted more vulnerable to the virus. Quoting the analysis by Contini and Costabile, 'the possibility of a detrimental effect of air pollution on the prognosis of patients affected by COVID-19 is plausible and deserves further investigation'[263], a conclusion confirmed by Dominici *et al.* in their research for Harvard University, which showed that 'a small increase in long-term exposure to PM2.5 leads to a large increase in the COVID-19 death rate'[264].

Although climate change cannot be identified as the major cause of the current pandemic, it clearly has contributed to its transmission, not only facilitating the contagion, but in the first place creating the suitable environment for viral replication and for human exposure to the pathogen, subsequently aggravating the effects on the patients affected. Moreover, the socio-economic development of countries played a key role in the mitigation of the pandemic, and once again, many of the measures indicated by WHO as fundamental in order to prevent its

[261] Wang et al., 'A novel coronavirus outbreak of global health concern. Lancet 2020, 395 (10223), 470–473. https://doi.org/10.1016/S0140-6736(20)30185-9

[262] Ibid

[263] Daniele Contini And Francesca Costabile, 'Does Air Pollution Influence COVID-19 Outbreaks?' , *Atmosphere 2020, 11(4), 377*; April 2020, https://doi.org/10.3390/atmos11040377

[264] Francesca Dominici et al, 'Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study', *Medrxiv : The Preprint Server For Health Sciences,* April 2020, DOI: 10.1101/2020.04.05.20054502

diffusion could not be implemented, or were implemented with severe fallacies, due to the adverse consequences that climate change has caused to specific regions of the world; for instance, it is widely known that social distancing and accurate hygiene are essential to avoid infections, however these simple prescriptions could not be adopted in overcrowded urban areas in south-east Asia or in countries where the only sources of water are contaminated and, when safe, scarce and inaccessible.

2.3.4 Impacts mediated by socio-economic factors: malnutrition, food security and mental illness

Identified also as tertiary effects, those mediated by socio-economic factors are the most complex as they are the result of deep interrelations among many sectors: environmental, public health, social, economic and political. Also, tertiary effects never occur on their own, for they frequently affect people who already carry the burden of primary and secondary consequences of climate change, resulting in serious health conditions usually paired with poverty. Due to this intricate and complex correlation, the consequences of tertiary impacts are more difficult to predict and prevent, as it would require a joint effort and immediate action from the whole international community.

This paragraph will illustrate how climate change, combined with socio-economic factors, has influenced people's food security and people's mental health.

The FAO Rome Declaration On World Food Security has defined food security as the condition when 'individuals have physical and economic access to sufficient food that is safe, nutritious, and culturally acceptable for meeting their dietary needs at all times'[265]. This definition is drawn from General Comment 12 of CESCR which establishes the right to adequate food[266], an extension of art. 11 of the ICESCR on the 'right to be free from hunger'[267]; as well as expanding art. 11, General Comment has introduced five pillars on which the right to food and, consequently food security, is based: availability, stability, accessibility, sustainability and adequacy[268], meaning that the absence of one these factors endangers an individual's food security. Clearly, there is a profound interdependence between the right to

[265] Food and Agriculture Organization. Rome Declaration on World Food Security, 1996. http://www.fao.org/docrep/003/w3613e/w3613e00.HTM.
[266] CESCR General Comment No. 12: The Right to Adequate Food (Art. 11), Adopted in 1999, available at: https://www.refworld.org/pdfid/4538838c11.pdf
[267] ICESCR, art. 11
[268] CESCR General Comment No. 12

food and the right to health, thus by threatening food security, climate change has a negative impact on both.

Climate change, by increasing incidence of extreme weather events and natural disasters, especially droughts and floods, causes indigent damages to crops, which in turn affects food availability and stability; a decrease of 8% is indeed expected in crops of maize, rice and wheat in Africa and south Asia[269] , while the global food production is estimated to decrease up to 2% per decade, leading to an increase of global food demand by 14%[270].

The major consequence of the damages to crops and of the decrease in food production is malnutrition, which manifests as both undernutrition and overweight/obesity. Undernutrition affects mostly children, especially under 5 years of age, living in low and medium income countries: WHO has estimated that it represents the leading cause of death of approximately 45% of children worldwide, most of them located in South-Asia and Africa[271]; in the same way, 2 billion people suffer from what is commonly referred as *hidden hunger*, a condition delineating deficiencies of micronutrients and minerals, such as vitamins and iron, which further aggravate the health outcomes of undernutrition[272]. Moreover, acute undernutrition poses a serious threat to the immune systems, facilitating the contagion from infectious diseases and increasing their severity and their mortality[273], an aspect of particular relevance considering the current Covid-19 pandemic. Meanwhile, the more developed countries are experiencing what has been defined as an epidemic of overweight/obesity and the related non-communicable diseases, due to the large consume of highly processed foods, fat and sugars[274], which provoke diabetes and cardiovascular diseases, recognised as the leading reasons of two thirds of global deaths[275].

While the adverse health impacts of malnutrition are nowadays widely known, one should also consider the economic consequences, which are usually less immediate to figure. Not only it increases the health care spending, automatically decreasing the demand for other sectors, but its effects limit the labour productivity of individuals: according to Lomborg, it has been

---

[269] Ibid

[270] Porter JR, Xie L, Challinor A, et al. 'Food security and food production systems'. In Intergovernmental Panel on Climate Change, Working Group II. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Geneva: IPCC, 2014.
Available at: http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-Chap7_FGDall.pdf.

[271] John H. Knox et al. 'Climate change impacts on crop productivity in Africa and South Asia'. *Environmental Research Letters (2012*) p. 7.

[272]Ibid

[273] Ibid

[274] Tim Wheeler and Joachin von Braun, 'Climate change impacts on global food security' *Science 2013; 341* pp.511

[275] Ibid, p. 512

calculated that the economic losses due to nutrition issues in the next 20 years will amount to 30 billion US dollars[276].

Considering the diverse sectors and fields that it directly and indirectly affects, global malnutrition has been at the hearth of the international agenda for years. WHO has issued several resolutions, the most prominent being WHA resolution 65.6 on Comprehensive implementation plan on maternal, infant and young child nutrition[277], through which the organisation has urged member states to: implement comprehensive food and nutrition policies; to include national nutrition plans in their health system reforms; to develop nutrition-related policies outside the health sector; to provide adequate human and financial resources in order to implement and monitor such policies[278]. Furthermore, WHO has been closely collaborating with UN in the development of the United Nations Decade of Action on Nutrition 2016–2025[279], so as to achieve the goals of the 2030 agenda for sustainable development, of which malnutrition, good health and climate action represents the core objectives[280].

Among the adverse health effects caused by climate change, mental illness is definitely the most overlooked, as it is considered of secondary importance compared to infectious diseases and air pollution. Nonetheless, contrary to the still widely diffused belief that mental health is not as relevant as physical health, several studies have demonstrated that climate change seriously impacts on individual mental wellness and that it actually influences their behaviour, limit their labour productivity and alters their interactions within the society.

The effects that climate change can have on mental health have been classified in three categories: direct experience of natural disasters; indirect exposure to news and images of extreme events; indirect psychosocial effects at the community level[281]. The always more frequent and severe extreme weather events directly affect mental health causing acute posttraumatic stress disorders (PTSD), depression, somatic disorders, drug and alcohol abuse[282]; for instance, a research carried by reported that following the Hurricane Katrina in

[276] Bjørn Lomborg (ed.). *How much have global problems cost the World?* Cambridge, UK: Cambridge University Press, 2013 p. 44

[277] WHO, Resolution WHA65/6 on Comprehensive implementation plan on maternal, infant and young child nutrition (21–26 May 2012), available at: https://www.who.int/nutrition/publications/CIP_document/en/

[278] Ibid

[279] UN, *United Nations Decade of Action on Nutrition 2016–2025,* available at: https://www.un.org/nutrition/about/mid-term-review-un-decade-action-nutrition

[280] Ibid

[281] Levy and Patz, *op. cit*., p. 194

[282] Howard Frumkin, *Environmental health: From global to local*. San Francisco, CA: Jossey Bass, 2010.

2005 a 'high prevalence of psychiatric morbidity' was diagnosed in the affected population and, thirty days after the disaster half of the surveyed patients was experiencing anxiety disorders[283]. Regarding anxiety, scientists have identified two types: *habitual ecological worrying*, which is not pathological, and *environmental anxiety,* which causes obsessive and disabling concern about some health risks imposed by climate change, which are in reality less relevant compared to the well-documented ones[284]; this kind of anxiety has been diagnosed as pathological, for it causes panic attacks, weakness and fatigue[285]. Indirect exposure to natural disasters through media content can provoke symptoms of PTSD, diverse from those originating from direct experiencing the trauma: in this case, people may become aware of the human causation of such events and may start processing this realisation which eventually translates into self-blame[286]. Furthermore, significant attention must be given to the psychological burden generated by evacuation, reallocation and migration of individuals forced to leave their residences, their regions and their countries following extreme events such as floods, hurricanes and wildfires. In addition to the physical injures, psychological distress plays a major role in the life of displaced people, who struggle to integrate in new places and with new cultures[287].

Finally, similarly to malnutrition, psychological disorders are effects heavily influenced by the socio-economic conditions of every individual, which are composed of infinite variables; thus, there does not exist a standard response to mental health, which makes even more complex the development of policies aimed at protecting it. On this note, WHO has established the Comprehensive Mental Health Action Plan 2013-2020[288], now extended to 2030[289], which has, among other things, the objective of providing adequate support for mental illness and strengthening the strategies of prevention of mental health, especially during emergencies caused by conflicts and, obviously, natural disasters[290]. Moreover, the international community is being urged to act in support of mental health and States have been called to enact effective

[283] Ronald. C. Kessler, Sandro Galea, Ronald T. Jones et al. 'Mental Illness and Suicidality after Hurricane Katrina.' *Bulletin of the World Health Organization*, available at: http://www.who.int/bulletin/volumes/84/10/06-033019.pdf.

[284] Bas Verplanken and Debora Roy, 'My worries are rational, climate change is not: Habitual ecological worrying is an adaptive response'. *PLoS One 2013; 8* (September 2013) https://doi.org/10.1371/journal.pone.0074708

[285] Ivi

[286] Levy and Patz, *op. cit*., p. 196

[287] Lemery and Auerbach, *op. cit*., p. 48

[288] WHO, Comprehensive mental health action plan 2013-2020-2030, available at: https://www.who.int/mental_health/action_plan_2013/en/

[289] Ibid

[290] WHO, Mental Health in Emergencies, available at: https://www.who.int/en/news-room/fact-sheets/detail/mental-health-in-emergencies

measures to mitigate mental illness by the work of the Special Rapporteur For The Right To Health Dainius Pūras, who as explained in chapter one, has been focusing his mandate on this issue and on reducing the stigma surrounding psychological disorders.

2.4 The effects of climate change on already existing health inequalities

The previous paragraph has illustrated the influence that climate change has on the health of individuals, consequently interfering with the enjoyment of their right to health. However, clearly climate does not affect everyone in the same way and, above all, its consequences on health do not fall equally among people: some groups and some categories are more affected than others. The explanation of this difference lies in the concept of *vulnerability*. In order to assess how climate changes infringes the right to health of some persons rather than others, first one must understand why some individuals are more vulnerable in comparison to others. Although this is not the place to extensively discuss them, it is important to acknowledge that plenty of literature and research in different fields has been written on the meaning of vulnerability, trying to delineate this broad and wide concept and to define who is to consider vulnerable, why and most of all, to what. Due to the scope of this work, the concept of vulnerability will be considered first in relation to climate change, delineating how some groups are more affected than others, and then included in the international human rights framework, trying to combine both views.

The AR4 IPCC report issued in 2007 included a description of vulnerability as 'the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity'[291]. This definition clearly draws from the work of Chambers who, already in 1984, described vulnerability as the level of 'exposure to contingencies and stress, and difficulty coping with them'[292] and identified two different components of such conditions: external, meaning the risks, stress and hazards to which and individual is subjected, and internal, in terms of defencelessness and inability to coping with them[293]. Accordingly, Bohle, Downing and Watts affirm that 'vulnerable individuals, groups, classes and regions are those most

[291] IPCC 2007
[292] Robert Chambers, 'Vulnerability, coping and policy', IDS Bulletin, Vol 20, No 2, (1989) pp 1-7,
[293] Ibid

exposed to perturbations, who possess the most limited coping capacity and suffer the most from the impact of a crisis or environmental perturbations (such as climate change), and who are endowed with circumscribed potential for recovery'[294]. Basically, climate vulnerability can be assessed in terms of exposure, capacity and potentiality; the internal factors, capacity and potentiality, are determined by the availability of resources and by the entitlement of individuals and groups to access these resources[295], and, in a much broader sense, by what Watts indicates as the rights that individuals and groups have over the available resources[296]. This understanding of vulnerability, supported by IPCC, combines two theoretical frameworks: the *risk-hazard*[297], which puts emphasis on exposure, and *social constructivist*[298], which stresses the internal dimension of vulnerability. Nonetheless, recently relevant changes have been apported to the IPCC definition, starting from Special Report On Extreme Events (SREX) of 2012, which, in assessing the risks related to extreme weather events, listed hazards, exposure and vulnerability as three separate conditions, making them interdependent[299]. Following SREX, in 2014 the new IPCC Report AR5 delineated vulnerability as the result of sensitivity and adaptive capacity of a system, delinking it from the concept of exposure, which is instead described as 'the presence of a vulnerable system at a location that could be adversely affected'[300]. This view reflects the theory of vulnerability as a 'starting point' as reported by Kelly and Adger[301] or as 'contextual', meaning that it is a pre-existing condition, embedded in the nature of the system and not dependent on hazards[302]. Obviously, this was considered a shift in paradigm and it was particularly significant as it also changed the parameters for vulnerability assessment; basically, since AR5, vulnerability assessment has been carried considering as only indicators the sensitivity and the adaptive capacity of the vulnerable subject, a method that has been judged more efficient and solid compared to the previous one, as it aims at establishing, identifying and preventing the weaknesses and risks faced by systems, groups

[294] Hans G. Bohle, Thomas E. Downing and Michael J. Watts, 'Climate change and social vulnerability', *Global Environmental Change 1994 4 (1)* pp 37-48
[295] Ibid
[296] Michael Watts, 'Entitlements or empowerment', Review of African Political Economy, Vol 51, 1991, pp 9-26.
[297] Hans–Martin F¨ussel, 'Vulnerability in Climate Change Research: A Comprehensive Conceptual Framework', *Breslauer Symposium, no. 6 (2005)*
[298] Ibid
[299] IPCC (2012)
[300] IPCC (2014)
[301] Neil Adger, Kelly, P.M. 'Social Vulnerability to Climate Change and the Architecture of Entitlements' *Mitigation and Adaptation Strategies for Global Change 4, (1999).* P. 259
https://doi.org/10.1023/A:1009601904210
[302] Karen O'Brien et al. 'Why different interpretations of vulnerability matter in climate change discourses *Clim. Pol. 7* 73–88 (2007)

and individuals, in order to strengthen their health status and their resilience regardless of the potential exposure to hazards[303].

Notably, the concept of exposure is essential for the understanding of vulnerability from the legal point of view, for international human rights law identifies as vulnerable those individuals and groups who 'because of certain factors are particularly exposed or more likely to be exposed to harm, both physical and emotional'[304]. The exposure to harm results in a lack of legal protection and deprivation of certain rights, which most of the times arise from 'discrimination based on internationally prohibited grounds' and it is not sufficiently acknowledged by States[305]. In relation to climate change, Nifosi-Sutton affirms that its effects, both direct and indirect, create a *de facto* situation which prevents persons from exercising human rights, namely the right to health, the right to water, the right to food, the right to adequate housing and the right to respect for family life[306]. On this note, Humpheys and Robinson affirm that 'human rights violations are powerful drivers of vulnerability to climate change' for they can influence the three factors by which climate vulnerability is determined[307] and that 'the susceptibility of an individual or group of people exposed to climate change damage is in many ways influenced by the degree to which they enjoy human rights'[308].

Certainly, the violation of rights triggers the States' responsibility under international human right laws, as they are considered the main duty bearers. Concerning the right to health, it is important to remark that State parties to the Covenant on ESCR have the obligation to ensure the rights included in the Covenant where individuals, due to reasons beyond their control, are unable to realise the rights themselves[309], thus meaning that States have a non-derogable obligation to provide an adequate standard of health and access to healthcare without discrimination at any time, even during natural disasters, public health emergencies and economic crisis[310]. Moreover, general comment 14 affirms that in case of emergency, UN agencies and State parties to the Covenant on ESCR that are in a position to offer humanitarian

[303] Jagmohan Sharma and Nijavalli H Ravindranath, 'Applying IPCC 2014 framework for hazard-specific vulnerability assessment under climate change' *Environmental Research Community, 1* (2019) 051004
[304] ibid, p 15
[305] Ingrid Nifosi-Sutton, *The Protection of Vulnerable Groups under International Human Rights Law,* Routledge New York (2017), p. 10
[306] Ibid, p. 11
[307] Humphreys and Robinson, *op. cit*, p. 258
[308] Ivi
[309] Nifosi-Sutton, op. cit., p. 20
[310] Ivi

relief should ensure that international medical aid is given to the most vulnerable or marginalized groups of the population of the affected State'[311].

On the basis that vulnerability means deprivation of rights, in this case of the right to health, the groups that have been recognised as the most vulnerable by CESCR are women, children, the elderly, low-income population and indigenous people, for they already lack appropriate legal protection compared to other persons[312]. Moreover, there exists unanimously accepted evidence that the health of an individual is heavily influenced by some factors, such as gender, wealth and ethnicity, which confirms the identification of the afore mentioned categories as the most vulnerable[313].

Therefore, in light of the framework provided for the understanding of vulnerability, by enlisting these categories among the most vulnerable equals to consider them to have the highest sensitivity to environmental hazards and the lowest capacity to adapt to their aftermath, as well as an insufficient and inappropriate legal protection, which is aggravated by the exposure to hazards. The following two paragraphs will present two different kinds of vulnerable groups, albeit related: first, subgroups within a community, namely women, children and indigenous people; then whole vulnerable communities, such the less developed countries and small island states.

2.4.2 The vulnerable or disadvantaged persons: women, children and indigenous people

Children are definitely the most threatened by climate change. Beyond the fact that climate change and its effects are slowly destroying the world in which present children will have to build their future, as it has been explained in the previous paragraphs there are some really serious impacts that are affecting children which are more immediate and therefore urgent to address. Moreover, the vulnerability of children is always interrelated with other sources of vulnerability, which aggravate their condition even more: to age, one must add also gender, ethnicity, social status and nationality; indeed, one may affirm that within the vulnerable group of children, other subgroups of more vulnerable children may be identified.

Among the natural disasters influenced by global warming, droughts are the ones that cause more harm to children. Their destructive effects on crops and land deprive populations of access to food and safe water, impacting more on children who have different physiological necessities compared to adults. According to UNICEF, there are currently 160 million children living in

[311] Ibid, p. 21
[312] Ivi
[313] who

areas of extremely high drought severity, of which 60 million have low access to safe drinking water and to improved sanitation, therefore they inevitably suffer from malnutrition and under nutrition; moreover, this deficiency of nutrients facilitates the emergence of chronic diseases, as well as infectious diseases carried by contaminated water[314]. On the other hand, floods have mainly the same effects: children are deprived of their family environment, of their access to water and sanitation and more exposed to water-borne pathogens, especially diarrhoea, which as already reported, causes millions of deaths annually[315]. UNICEF has estimated that the number of children living in regions highly exposed to floods amounts to 530 million[316]; finally, warming temperatures favour the spread of malaria, which hits chiefly children under the age of 5.

Needless to say, the most vulnerable children are those who live in low income countries particularly exposed to these hazards: their socio-economic status, as well as the level of development of their countries deeply influence children's adaptive capacity to climate change, therefore exacerbating its effects on their health, for most of the times they are not provided with access to adequate sanitation and basic healthcare. This deprivation represents, *inter alia*, a violation of the right to the highest attainable standard of health, according to the Covenant on ESCR and especially as conceived in the UN Convention On The Rights Of The Child, adopted in 1989[317]. The convention recognises children as particularly vulnerable subjects and recalling the Declaration on the right of the child affirms that 'the child, by reason of his physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth'[318]. The appropriate legal protection of children's right to health is given by art. 24, which precisely focuses mainly on the two issues representing the major burden for children's wellness: access to primary healthcare and malnutrition[319]. Therefore, the convention imposes on states the obligation to implement measures to grant an accessible, affordable and available primary healthcare to any children with no discrimination and to engage in programmes aimed at fighting malnutrition and particularly undernutrition,

[314] Unicef, Unless We Act Now: Impacts Of Climate Change On Children, https://www.unicef.org/publications/files/Unless_we_act_now_The_impact_of_climate_change_on_children.pdf
[315] Ibid
[316] ibid
[317] UN OHCHR, *Convention on the Rights of the Child*, Adopted and opened for signature, ratification and accession 20 November 1989, entered into force 2 September 1990, art. 24. Available at: https://www.ohchr.org/en/professionalinterest/pages/crc.aspx
[318] Ibid
[319] Ibid

which account for the main causes of infant mortality[320], concluding with urging States to undertake international cooperation so as to progressively achieve the full realisation of children's right to health, especially taking into account the needs of developing countries[321].

Climate change is universally recognised as a risk multiplier for gender inequality. As reported by Humphreys and Robinson, women are disproportionality affected by its consequences, most of those can be observed in the health field[322]. Starting from the direct consequences, namely higher risk of injury and mortality during extreme weather events and concluding with physical, sexual and domestic violence in their aftermaths, women are particularly vulnerable also to more indirect effects. First of all, malnutrition represents a major threat for women: the deficiency of minerals, above all iron, combined with blood loss during menstruation, causes acute forms of anaemia, which have severe impacts on their physical strength, resulting in more injuries and fatigue; moreover, food insecurity during pregnancy and breast feeding is one of the main causes of infant mortality and maternal mortality, mainly in the African region[323]. In addition, women traditionally spend more time at home, being more exposed than men to household pollution, inhaling more ozone and carbon dioxide which deposit faster and deeper in women's lungs, causing chronic respiratory diseases[324] and which are able to penetrate to the placenta, impacting on fetal growth and development[325]. Similarly to children, low socio-economic status aggravates climate change effects, further impacting on women living in rural areas, who are traditionally in charge of collecting water for the household, therefore spending more time outside even during heatwaves and droughts and, generally, being in charge of the family and the children, are the last ones to leave the house in case of emergencies and evacuation[326]. If eventually they manage to escape, as migrant and displaced women their condition is even more vulnerable, as they suffer from discrimination in the field of employment, education, healthcare and social participation[327]. Lastly, as already discussed in the first chapter, in non-developed countries like many in the African region, women carry the major burden for HIV infections, which destroy their immune system and make them even more vulnerable to climate hazards; this definitely may be blamed on the poor

[320] Ibid
[321] Ibid
[322] Humphreys and Robinson, op. cit., p.
[323] Salim Momtaz and Muhammad Asaduzzaman, *Climate Change Impacts and Women's Livelihood,* Routledge (2020), p.93
[324] Ivi
[325] Ibid, p. 94
[326] Ivi
[327] Ibid, p. 95

or non-existent access that many women have to reproductive health services, despite their inclusion in most of international and regional legal instruments on health.

Therefore, if it is true that vulnerability depends on the subject's adaptive capacity, it is also true that women's low adaptive capacity to climate change and its effect is the main consequence of the low level of primary health care and health care services accessible and available to them. At the international level, women's right to health is determined by art. 12 of CEDAW, which compels states to 'take all appropriate measures to eliminate discrimination against women in the field of health care in order to ensure, on a basis of equality of men and women, access to health-care services, including those related to family planning'[328]. This article is further expanded by General Recommendation n. 24, which first of all clarifies the necessity to give special attention 'to the health needs and rights of women belonging to vulnerable and disadvantaged groups, such as migrant women, refugee and internally displaced women, the girl child and older women, women in prostitution, indigenous women and women with physical or mental disabilities'[329], recognising the existence of societal factors which may differently affect the vulnerable condition of any woman. Secondly, it recommends states to implement valid policies with the aim of reducing food insecurity affecting women and providing them with health care services with the same level of availability, affordability and quality of those provided to men, taking into account diseases and illnesses particularly related to women, as well as health issues related to the menstrual cycle and pregnancy[330]; great importance is given to reproductive health and access to information, consequently interconnecting the right to health to the right to adequate education, which is considered essential in order to be better informed on their entitlements[331]. Finally, not only states are urged to adopt policies and legislations based gender equality, they also must periodically report the progression of such policies and, above all, grant a system that ensures effective judicial action in compliance with art.12[332].

An universal definition for indigenous peoples has not been adopted by UN, due to the diversity of each population, but generally the term indigenous is used to indicate 'populations practicing unique traditions, who retain social, cultural, economic and political characteristics that are distinct from those of the dominant societies in which they live' and who are 'the

[328] UN Convention on the Elimination of All Forms of Discrimination against Women, adopted in New York 18 December 1979, available at: https://www.ohchr.org/en/professionalinterest/pages/cedaw.aspx
[329] CEDAW General Recommendation No. 24: Article 12 of the Convention (Women and Health), adopted in 1999, available at: https://www.refworld.org/docid/453882a73.html
[330] Ibid
[331] Ibid
[332] Ibid

descendants of those who inhabited a country or a geographical region at the time when people of different cultures or ethnic origins arrived'[333]. Spread all over the world, from the Inuit in the Arctic, to the Maori in New Zealand, there are currently 370 million indigenous people in more than 70 countries in the world[334].

Given their close dependence on natural resources and their close relationship with the environment, they definitely are one of the most affected categories by climate change. Draughts, dune extension and high speed winds are causing loss of vegetation in the African Kalahari Desert, negatively impacting on the farming practices, which are the primary source of subsistence of the indigenous populations of the area; similarly, glacial melts in the Himalayas reduced the amount of water flow on the long term, limiting the access to water for millions of rural dwellers in the region; in the amazon, forest fragmentation and wildfires destructed hectares of vegetation and produced excessive quantity of carbon in the atmosphere, which produce the already described effects on the respiratory system, leading to chronic conditions and generally, deforestation leads to forced migration and displacements of millions of indigenous communities all over the world[335]. Nifosi-Sutton confirms that indigenous persons' vulnerability is determined by various institutional and legal barriers which constraint their adaptive capacity to climate change[336]. Despite several steps forwards from the international community, in particular the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) adopted in 2007[337], which grants indigenous people all the basic human rights, including the access to all social and health services (art. 24) and protection of vulnerable members of indigenous communities, namely women and children (art. 22), the level of legal protection enjoyed by indigenous is to be considered insufficient and inadequate. It is evident that those population are still suffering the burden of past colonialism, which has limited and, sometimes, deprived them of many of their entitlements, especially concerning land property, self-determination and cultural traditions; thus, to completely eliminate this inequality and re-build a balanced power relationship, the fundaments of colonialism and west superiority should be totally eradicated. Although this is not the place for such discussion, it is possible to conclude that this is a quite difficult task.

[333] UN, Department of Economic and Social Affairs, Indigenous Peoples. https://www.un.org/development/desa/indigenouspeoples/about-us.html
[334] Ibid
[335] Ibid
[336] Nifosi-Sutton, op. cit, p. 183
[337] UN Declaration on the Rights of Indigenous Peoples, adopted on 13 September 2007, arts. 22-24, available at: https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

2.4.3 Socio-economic vulnerability: Low Income States and Small Island States

Socio-economic vulnerability is a more collective concept, as it regards the social status of a population, as defined mostly by the country in which they reside. While the geographical location accounts for the exposure to hazards, the level of social, economic and political development profoundly affects the rights enjoyed by individuals, thus determining their level of adaptive capacity. Needless to say, adverse geographical location and underdevelopment are usually combined together, resulting in an extremely high vulnerability to climate change for low income States, developing countries and Small Island States.

The World Bank identifies as low-income countries those who have a Gross National Income per capita lower than 1,035 $[338] and, unsurprisingly most of them are located in Africa and are highly dependent on agriculture. The IPCC has estimated that between January 1980 and July 2013, 51% of deaths related to climate change effects occurred in the least 49 developed countries[339], mainly caused by undernutrition and the spread of infectious diseases due to contaminated water. As agriculture represents their primary economic source, damages to food crops and yields not only have immediate health effects related to malnutrition, but they also cause economic issues; the decrease of food production will in fact lead to an increase of its price, leading low income countries into famines or into further poverty[340], which will in turn impact on the social status of the population. With these premises, it is obvious that for the majority of individuals the full realisation of certain human rights, in particular the right to health and the access to healthcare is practically impossible; moreover, one should not forget to consider the vulnerable groups of individuals within in these states: women and children living in low income countries carry the greatest burden of climate change effects.

Similarly, small islands states in the Caribbean, Indian and Pacific oceans terribly suffer from global warming and hotter temperatures, which, as can be easily guessed, have negative implications in the whole socio-economic structure of the countries. The most immediate adverse consequence of climate change that can be observed is sea level rise, which has already made the smallest islands uninhabitable, by flooding land infiltrating fresh water sources with salt water[341]. In addition, most of the small island states are located in the tropical region, which is already highly sensitive to change in temperatures and has high incidence of extreme weather

[338] World Bank, World Bank Atlas Method, available at: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

[339] William M. Rom, op. cit., p. 284

[340] Ivi

[341] John Knox and Ramin Pejan, *The Human Right to a Healthy Environment*. Cambridge: Cambridge University Press, 2018. doi:10.1017/9781108367530 p. 221

events; the Human Development Report of 2011 affirmed that 'of the 10 countries suffering the greatest number of natural disasters per capita from 1970 to 2010, 6 were Small Island Developing States'[342], which do not possess the adaptive capacity nor the resources for a complete recovery: for instance, it is estimated that it might take several decades for Haiti to recover from the earthquake occurred in 2010[343]. Together with injuries and destruction of ecosystems, the most indigent damages are those inflicted on the already insufficient and inefficient infrastructures, especially those providing health care services, namely hospitals and ambulatories. These impacts, together with the low resilience and the weak political structure of most of small island countries, generate consequences that cannot be mitigated; thus, some States, for instance Maldives and Kiribati, have started a process of relocation of their inhabitants to safer islands and have reportedly considered the possibility of purchasing land in other nearby countries so as to provide their citizens with a new home[344].

Completely aware of their condition of extremely vulnerable subjects, some small island states and low income countries have reunited and established the Climate Vulnerable Forum, defined as 'an international partnership of countries highly vulnerable to a warming planet' by the 2011 Dhaka Ministerial Declaration, which, *inter alia*, urged industrialised countries to address the 'health, human rights, and security implications of climate change'[345]. Moreover, already in 2007, through the Malè Declaration, small island states explicitly called the international community to commit to an 'inclusive process that puts people, their prosperity, homes, survival and rights at the centre of the climate change debate'[346].

Conclusion

This chapter has analysed the causes of climate change and its effects on human health, with the aim to understand how this phenomenon prevents individuals and groups of individuals from fully enjoy their right to health. Considered the biggest threat to human life and human health, climate change is, ironically, a product of human activity, precisely the activity of the industrialised States that in the past decades have extensively been exploiting the environment in order to become industrial and economic powers. This exploitation has long reached the point of non-return, leading humans to face an unprecedented environmental crisis.

---

[342] Ivi

[343] Ibid

[344] Ibid.

[345] Dhaka Ministerial Declaration Of The Climate Vulnerable Forum, adopted in Dhaka on 14 November 2011, available at: https://daraint.org/wp-content/uploads/2011/11/Dhaka.Declaration.pdf

[346] Male' Declaration on the Human Dimension of Global Climate Change, adopted on 14 November 2007, Available at: http://www.ciel.org/Publications/Male_Declaration_Nov07.pdf

The impacts that climate change has on human health are numerous and can be easily observed: global warming and air pollution directly interact with the human body generating chronic diseases, respiratory syndromes and heat strokes. Warmer temperatures cause extreme weather events, which contaminate water and damage food production, leading to malnutrition and optimal environment from the transmission of infectious diseases, such as malaria and dengue, which can degenerate into epidemics and pandemics. Therefore it is evident that the wellness and the general health, which should be enjoyed by every individual with no discrimination, are profoundly threatened by climate change. Particular emphasis should be put on the expression *with no discrimination*, for as it has been assessed, in the last paragraphs, that climate change does, in fact, discriminate and its effects are heavier on certain groups. To understand who these groups are and why they are more subjected to climate, a brief explanation of the concept of vulnerability has been provided, both directly related to climate change and to international human rights law. Thus, having established that vulnerability depends on the exposure to hazards, on the capacity that the subjects have to adapt to hazards outcomes and, finally, on the rights granted to them, the most vulnerable categories have been identified: children, women, indigenous people, low income countries and small island states. After overviewing the major climate impacts which they suffer, it may be possible to assume that, while exposure certainly plays a significant role, it is the lack of adequate legal protection that makes these persons extremely vulnerable to climate change effects, because they are universally recognised as the most vulnerable in any field, by every relevant international and regional legal instruments. It is for this reason that specific conventions and declaration have been adopted by the UN with the scope of furnishing these groups an appropriate and sufficient legal protection, by urging States to implement specific measure so as to better protect their needs.

What emerged by this analysis is that not only does climate change influence people's health, it also infringes their right to the highest attainable standard of health by undermining the core principles on which such right is founded. By destroying infrastructures and damaging resources, climate change prevents primary healthcare services from being available, accessible, affordable and of quality. Moreover, it has been widely demonstrated that such services, especially medications, treatments and vaccines in some regions are available and accessible to specific categories only, meaning those who possess the higher adaptive capacity and the material resources to afford them; clearly, poverty and lack of financing of the health sector are the main contributors to these types of discrimination.

While climate change definitely represents the greatest threat to human health and to the full realisation of the right to health, one may say, on the other hand, that it is precisely because such right is far from be fulfilled and equally enjoyed by everyone that climate change has become this dangerous. Therefore, it may logically be concluded that adequate measures which combine both issues, climate change consequences and health inequalities need to be implemented at international, regional and national level.

3. THE LEGAL FRAMEWORK FOR CLIMATE CHANGE: DOES INTERNATIONAL LAW PROTECT HUMAN HEALTH?

Introduction

With the publication of the first report of the IPCC in 1989, the whole international community became aware of the great threat posed by climate change, recognising the necessity of introducing rules and regulations in order to prevent and mitigate its effects. This necessity generated what is today referred as climate change law, the ensemble of international, regional, national and transnational treaties and agreements addressing the climate crisis and establishing binding rules aimed at controlling it. As it has been widely demonstrated, the study of climate change involves several, different fields and actors, including non-state actors; thus, given the transboundary nature of issue, Mehling et al. suggest that 'climate law appears to have a tendency to cross legal and geographical boundaries'[347] as well as 'overlapping sources of legal authority, deformalisation and recurrent interactions between legal systems, regimes and actors involved'[348]. Therefore, it is not surprising that, with time, the climate regime has encompassed new disciplines and new bodies of law: while customary international law was present already in the first environmental treaties, it is only with the Paris Agreement and thanks to the landmark *Urgenda v. The Netherlands*[349] litigation that the human rights discourse has officially and legally been correlated to climate law.

Certainly, climate change law is in constant evolution, due to the continuous progresses of climate science and to the new challenges posed by climate change, but also due to the continuous and rapid changes that, since the 90s, have been occurring within the international community. The emergence of new powers, the centrality acquired by non-State actors and NGOs, paired with the different interests of each Party, has profoundly changed the negotiating processes that lead to climate treaties, as it will be discussed later. It has been observed, how from the UNFCCC to the Paris Agreement, there has been a shift from the 'traditional model of intergovernmental cooperation centred on a binding treaty' towards 'a more fragmented topography of regional and bilateral networks and partnerships, where informal consultations take the place of legally enshrined rights and obligations'[350], which precisely reflects the much more varied and, somehow, fragmented situation that the world is currently facing.

[347] Erkki J. Hollo, Kati Kulovesi and Michael Mehling, *Climate Change and the Law,* Springer Science+Business Media (Dordrecht 2013) p. 11
[348] Ibid, p.15
[349] Urgenda Foundation v. The State of the Netherlands, Case No. C/09/456689 / HA ZA 13-1396, 24 June 2015
[350] Ivi

With the adverse effects of climate change becoming more and more severe, States realised that, beyond emissions reduction, the main focus of the climate regime should be adaptation in the most affected regions. However, major controversies emerged concerning the modalities of funds collecting and their allocation, often leading, predictably, to stalemate and little progress on the matter. Needless to say, the costs of cutting emissions, financing mitigation and adaptation projects in all sectors and converting to clean and sustainable energy are not easy to bear; in addition, these actions must be in total cooperation and in accordance with the established objectives, thus require collaboration from every side and, unfortunately, this is not always the case. After all, aside the common goal of reducing the threat to humankind represented by climate change, the interests of single States, especially the most powerful and wealthy, tend to prevail, thus endangering the global efforts and progresses achieved until now.

This chapter will thereby discuss and analyse the three main treaties of the climate regime, the UN Framework on Climate Change, the Kyoto Protocol and the Paris Agreement. By assessing their weaknesses and their strengths, the scope of this part is to eventually evaluate whether and how, the climate regime framework recognises climate change as a major threat for the human right to health thus providing the legal basis for its protection.

3.1 The UN Framework Convention on Climate Change

The UN Framework Convention on Climate Change (UNFCCC) is part of the Rio agreements, developed and adopted on 9 may 1992 by the Intergovernmental Negotiation Committee (INC) and signed during the UN Conference on Environment and Development (UNCED); it entered into force two years later, after the 50th ratification on 21 March 1994. With 197 Parties, 196 States and one regional economic integration organisation (the European Union), the Convention has practically an universal value[351].

Recognising that climate change represents 'a common concern of humankind'[352] and 'determined to protect the climate system for present and future generations'[353], the ultimate objective of the Convention, stated in art. 2 is 'the stabilisation of greenhouse gasses concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'[354]. Particular attention has been drawn on the expression

[351] Ibid, p. 14
[352] United Nations Framework Convention on Climate Change (UNFCCC), New York, 9 May 1992, Entered into force 21 March 1994, available at: https://unfccc.int/resource/docs/convkp/conveng.pdf
[353] Ibid.
[354] Ibid, Art. 2

'dangerous *anthropogenic* interference' for two main reasons. First, the Convention has identified human activity as the main driver of climate change, admitting that humans may be able to stabilise some of the emissions if acting promptly, though without specifying the necessary time frame; second, it recognises that a dangerous interference may origin from such human activity, however it does not provide an explanation of what 'dangerous' entails and which is the threshold that is not to be crossed. Despite these fallacies, as Dolzer points out, art. 2 can be interpreted as the source of a binding long-term commitment for all parties to the convention to prevent climate change[355], and this vagueness can be attributed to the early stages of climate science and the uncertainty due to the complex nature of the phenomenon. However, drawing from the existing studies conducted by the IPCC, already in 1992 it was possible to establish that, in order to prevent global increasing temperature from exceeding 2°C, the concentration of greenhouse gasses in the atmosphere needed to be stabilised at around 450ppmm[356]. Therefore, several scholars have interpreted art. 2 as an obligation on the States to take action to limit the concentration around this quota, and considering that none of the Parties nor non-party States has objected to it, art. 2 could be deemed to constitute an international customary law of an *erga omnes* character[357].

Article 3 contains the principles that the Parties are called to follow: the State responsibility not to cause transboundary environmental damage, the principle of preventive action, the principle of cooperation, sustainable development, the precautionary principle and the principle of common but differentiated responsibility[358]. A brief overview of the legal meaning of such principles will be provided, while a more detailed discussion of the last one will be offered in the following paragraphs.

Notably, in accordance with the statement in the preamble, namely that climate change represents a concern for humanity, art. 3 starts by calling to parties to 'protect the climate system for the benefit of present and future generations'[359]: at the time, the idea that climate change could be somehow reversed so as to not threaten the future generations was still valid. On this note, the convention makes use of the precautionary principle affirming that ' the Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects'[360], remarking that the afore mentioned lack of scientific

[355] Steinar Andresen and Shardul Agrawala, 'Leaders, Pushers and Laggards in the Making of the Climate Regime', *Global Environmental Change Vol. 12* (2002) p. 41, https://doi.org/10.1016/S0959-3780(01)00023-1
[356] Hollo, Kulovesi and Mehling, *op. cit*, p 93
[357] Ivi
[358] Ibid, p. 92
[359] Ivi
[360] UNFCCC, Art. 3.3

certainty should not represent an excuse for inaction and for postponing the adaptive and mitigating measures. From the legal perspective, Sands describes the main point of the precautionary principle as the obligation to take positive action to protect the environment, 'regardless the existence of any scientific evidence detailing specific harm'[361]. Moreover, Brunnée et al. have suggested that this provision puts more emphasis on the duties on mitigation rather than adaptation, as from the beginning adaptation was considered an alternative, in case the mitigation strategies were to be ineffective[362]. The compliance with the precautionary principle consists in the adoption of a cost-effective solution, which is the cost that the international community is willing to pay to lower the risk of the damage they would suffer without acting.[363]

The obligation of implementing preventive action to mitigate climate effects however does interfere with the principle of sovereignty which allows states to exploit their own resources; thus, borrowing from the text of art. 21 of the Stockholm Declaration[364], the Convention did recognise such right in its preamble, however imposing restriction on the potential harm caused to the environment of other States[365]; moreover, by including this principle within the Preamble and not within the text of the agreement, the Parties do not recognise the right to unlimited greenhouse gasses emissions, thus limiting the sovereignty of the States by restricting the level of emissions allowed[366].

One of the major pillars of the convention is sustainable development, a well-known concept by now, but recently formulated at the time of the signature: it was significantly developed in 1987, in the World Commission on Environment and Development report titled 'our common future'[367]. Art. 3.4 describes sustainable development as both a right and a duty, which must be promoted internationally as well as in the domestic legislation, by ensuring that the development of present generations does not compromise the ability of the future generations to meet their needs and through the improvement of technology and social organisation, so as

[361] Philippe Sands, *Principles of International Environmental Law* , 2nd ed. (Cambridge: Cambridge University Press, 2003), p. 231

[362] Jutta Brunnée, 'COPing with Consent: Law Making under Multilateral Environmental Agreements', 15 *Leiden Journal of International Law* (2002), P. 2

[363] Roda Verheyen, *Climate Change Damage And International Law*, Martinus Nijhoff Publishers Leiden / Boston (2005), p. 53

[364] Declaration of the United Nations Conference on the Human Environment 1972 (Stockholm Declaration), art. 21

[365] Verheyen, *op. cit*., p. 54

[366] Ivi.

[367] World Commission on Environment and Development, *Our Common Future (1987),* available at: https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

to incentivise economic growth[368]. Such development and improvement can be achieved only through cooperation, among states, non-state actors and organisations, as well as among different fields, such science, international law and policy-making. For this reason, art. 5 and art. 6 bind Parties to support research, education, training and public awareness[369], at national and regional level.

In order to monitor and assist the compliance with the Parties' obligations, art. 7 has established a monitoring body, the Conference of the Parties (COP), the supreme body of the Convention, which shall exercise all the function necessary to the implementation of the provisions in the convention. The COP is composed of representatives of all the States Parties, who meet annually, to report and advance the implementation of the Convention and its objectives; usually it operates with a consensus regime, recurring to a two third majority vote when unanimity cannot be achieved[370]. Obviously, in adopting any decision, the COP must consider all the scientific evidence and data available, thus is constantly assisted by subsidiary bodies such as the IPCC[371]; furthermore, besides the scientific knowledge, the COP must take into account the 'other existing international law obligations enshrined either in customary law or treaties'[372].

Despite having recognised climate change as a threat to human kind and, on this basis, having adopted the precautionary principle in order to prevent dangerous interference to climate that may harm present and future generations, it is impossible not to notice the total absence of any provision related to the adverse effects that climate change has on human health. As the first treaty on climate change, which *de facto* created the climate regime and on whose principles all the following treaties and agreements were based, it is appalling that health was completely neglected, since, after all, the primary scope of the Convention was precisely to reduce the dangerous effects of climate change, through emission limitation, mitigation and adaptation strategies. One may question what was even the point of creating a legal framework which binds States to cut their emissions and finance mitigation plans, without creating explicit obligation to act in protection of human health. It can be argued that the exclusion of health from the climate treaties, which is at the core of this thesis, finds its roots precisely in the Framework Convention, which despite having all the instruments and the authority needed to

[368] Ibid.
[369] UNFCCC, arts. 5-6
[370] UNFCCC, *Organizational Matters: Adoption of Rules and Procedures*, FCCC/CP/1996/2, (22 May 1996), Rule 41, available at: https://unfccc.int/sites/default/files/resource/02_0.pdf
[371] Ibid
[372] Verheyen*, op. cit*., p. 61

include health and specifically the right to health within the environmental law, has completely missed the opportunity.

3.1.1 The Principle Of Common But Differentiated Responsibilities

The principle of common but differentiated responsibilities has emerged from the concept of equality in international law. It consists in a substantive approach to justice by recognising that 'different groups before the law require different rights and different responsibilities'[373].

The adjective 'common' recalls the definition of climate change as common concern and indicates the existence of a common interest, from the international community as a whole, to enforce and implement a treaty, thus creating *erga omnes* obligations[374]. Rajamani argues that such obligations require States to take action considering a collective interest rather than national, to formulate domestic legislation on the basis of the global nature of the problem and to achieve outcomes that are suitable for the entire community[375]. Responsibility refers to the States' contribution to climate change, though since it is such contribution that transformed the countries into industrialised countries, providing them the technical and financial capability to adapt and mitigate the environmental damage, it may be argued that responsibility in this context can be interpreted in two ways: responsibility for (as in for having caused the problem) and responsibility to (from the responsibility for having caused the problem)[376]. Consequently, the responsibilities are differentiated as annex countries are accountable for both, while non-annex countries only bear the second kind, because despite not having caused the problem, they still have the duty to take action in order not to exacerbate it.

As a matter of fact, such principle affirms that all the countries have the common responsibility to protect the environment, however they have historically different contribution to environmental degradation and different abilities to implement technical and economic measures to prevent, reduce and control climate change risk[377]. According to Verheyen, the main features of this principle are the asymmetry of obligations and financial support for less developed countries[378].

---

[373] Benjamin J. Richardson, Yves Le Bouthillier, Heather McLeod-Kilmurray, Stepan Wood (eds.), *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy (*Cheltenham: Edward Elgar, 2009), p. 84

[374] Lavanya Rajamani, "The Increasing Currency and Relevance of Rights-based Perspectives in the International Negotiations on Climate Change", *Journal of Environmental Law*, *vol. 22*(2010), p. 120

[375] Ivi

[376] Verheyen, op. cit., p. 68

[377] Ibid, p. 69

[378] Ibid p. 70

The different contribution to climate change is acknowledged in the Preamble, where is noted that 'historical and current global emissions of greenhouse gases has originated in developed countries'[379] and remarked in art.3, where the major burden in combating climate change is assigned to developed countries[380]. Accordingly, the Convention establishes obligations of both substantive and procedural nature, differentiating between developed and developing countries; moreover, on the basis of this principle, it is possible to distinct between two types of commitments: general, concerning cooperation, information exchange and reports; specific, regarding developed countries only, which oblige them to cut their GHG emissions and to financially support developing countries so as to achieve compliance with their duties[381]. On this note, two annexes are included in the convention, in order to precisely differentiate the two groups of countries. Annex I includes all the countries that in 1992 were members of the Organisation for Economic Cooperation and Development (OECD), plus the countries with economies in transition, mainly eastern European states and the then recently formed Russian Federation, which are requested to provide financial aid, while Non-annex countries are low income and developing countries. It seems logic that non-developed countries are, consequently, also the most affected and the most vulnerable to climate change, although it must be remarked that the distinction present in the annex, thus the differentiation of responsibility, has not been made considering the level of vulnerability, as it was requested during the negotiations by Small Island States, but merely on the basis of economic capacity[382]. This decision has been criticised by several scholars, who claimed that an approach focused more on the vulnerability of countries to climate change damage, rather than on their economic capacity to recover from it would have been more efficient and would have better reflected the 'realities of climate change'[383].

Nevertheless, a major role in choice of dividing the Parties between those receiving economic support and those providing it for it, was played by the level of per capita GHG emissions. It has been proved that between 1990 and 1997, 71% of CO_2 emissions were caused by Annex 1 countries, as well as 78% of emissions between 1900 and 1990[384], therefore industrialised countries bear the main responsibility for historical emissions and for the environmental damage and are called to provide a larger contribute to the mitigation and adaptation strategies.

[379] UNFCCC, Preamble
[380] UNFCCC, Art. 3.1
[381] Ibid
[382] Verheyen, *op. cit.*, p 71
[383] Ibid
[384] Ibid

In light of the different responsibilities, during the negotiation phase the developing countries pushed for the inclusion of another principle, the 'polluter pays' principle in art. 3, according to which the costs of mitigation and adaptation should be covered by those countries which were responsible for most of the emissions. While present in art. 16 of the Rio Declaration, which affirms that 'the polluter should bear the cost of pollution'[385], such principle is not, however, reflected in the Convention. Rajamani explains that by adopting the principle of common but differentiated responsibilities, the Convention has used the historical emissions of developed countries as a measure of their responsibility, but that this measure does not impose actual responsibilities on state parties for climate change damage, nor imposes on developed states additional duties[386]. Following this reasoning, it may be concluded that by dividing the countries in different groups, the Convention has recognised their different capabilities to cope and combat climate change effects, consequently urging the highly industrialised states to 'take the lead', but this lead role is not to be a reflex of their major contribution to climate damage, nor a punishment for their responsibility. Furthermore, albeit differentiated, the Convention does still recognise the common responsibilities shared by every country, not excluding developing and vulnerable countries from substantial mitigation obligations[387]. On this note, Bodansky argues that the adoption of the principle of common but differentiated responsibilities within the treaty has practically precluded the coexistence in the same text of the polluter pays principle, which is not accepted as a measure of responsibility between countries in international law[388].

Clearly, during the almost 30 years since the adoption of the Convention the principle of common but differentiated responsibility has been subjected to various interpretations and has evolved, so as to be applied in new treaties, therefore is quite difficult to give a precise definition of this concept. The transformation and the development of the economies of those which in 1992 were identified as low income countries has also modified their position within this framework and thus their responsibility for the contribution to global climate change. Certainly, the principle of common but differentiated responsibilities played a major role also in the drafting of the Paris agreement, albeit with a significant reconceptualization, and for this reason, its current evolution will be discussed later in this work. As for its status in the

[385] Rio declaration art. 16

[386] Lavanya Rajamani, 'The Principle of Common but Differentiated Responsibility and the Balance of Commitments under the Climate Regime', 9 *RECIEL 91*, pp. 120-122.

[387] Verheyen, op. cit, P 73

[388] Daniel Bodansky, *The Art and Craft of International Environmental Law,* Harvard University Press (2010), p. 130

Convention of 1992, it did not fulfil the criterion necessary for being considered 'customary international law', meaning to be a binding principle for States[389], however it is an overarching principle fundamental for the further development of the climate regime, constituting the basis for 'the interpretation of existing obligations and the elaboration of future international legal obligations' within this regime[390].

3.1.2 The establishment of the Financial Mechanism

As discussed above, with the principle of common but differentiated responsibilities the Convention imposes financial obligations on developed countries. Among these, it is possible to distinguish between two kinds of financial obligations: the first one is to provide economic support to non-developed countries, so as to help them fulfil their duties (art. 4.3), while the other is aimed at financing adaptation (art. 4.4)[391]. It is important to notice that the UNFCCC is the first legal instrument in the climate regime to impose financial duties on its Parties: although it does not establish a precise amount of resources, it provides developing countries with the legal basis to claim aid from developed countries in order to achieve compliance with their obligations[392]. It can be said that art. 4.3 and 4.4 are the most eloquent expression of the principle of common but differentiated responsibilities.

The financial mechanism of the Convention, which regulates the provision of financial resources on a grant or concessional basis, is established by art. 11 and it is subjected to the authority of the COP, which must ensure a transparent system of governance[393]. It can be defined as 'the totality of legal, institutional and procedural arrangements that regulate and make possible the flow of financial resources mandated by the Convention'[394]. The main body of this mechanism is the Global Environment Facility, which was already operating since 1991 under the control of UNEP, UNDP and the World Bank, to provide gather financial resources to cope with climate change, biodiversity loss and ozone depletion[395]. The fact that it was controlled by the World Bank and its voting mechanism raised not few objections from developing countries, which demanded an independent financial body for the Convention. For

[389] Ivi
[390] Ivi
[391] UNFCCC, art. 4
[392] Verheyen, *op. cit*., p. 93
[393] UNFCCC art. 11
[394] Farhana Yamin and Joanna Depledge, *The International Climate Change Regime,* Cambridge University Press *(*2009) .p. 265
[395] Verheyen, *op. cit*., p 107

this reason, without setting another system, the Convention, through art. 21.3 disposed the reconstructing of GEF, making in an independent body[396].

The Global Environment Facility is therefore an international financial organisation, with a quite complex structure. The Council is its main governing body, its reunites twice a year in order to adopt new decisions and it is composed of 32 members, which represent the participants' constituency groups: 16 representatives of developing countries, 14 for developed countries and two for the economies in transition[397]. The assembly, instead, has a representative for each State member and gathers every three years to revise the GEF performance and negotiate new mandates[398]. As the Convention does not require specific quotas, the countries that are obliged to provide financial support give voluntary contributions every four years to the GEF Trust Fund[399]. Between its foundation in 1991 and 2011, the GEF has promoted 914 projects to finance climate change mitigation and adaptation with US$3.84 billion in 156 developing countries and economies in transition[400]; thanks to the activity of the GEF, additional US$21.8 billion have been donated by other organisations and members of the civil society[401]. As it has been pointed, the main focus on the Convention, at least at its early stages was mitigation, thus the GEF has given priority to funding mitigation projects, more than 700 with US$3.39 billion[402]. Another explanation for why the GEF has prioritised mitigation projects rather than adaptation may be suggested by its operational strategy, which stipulates that the funding must be allocated to projects which will result in 'global benefits'[403]: while mitigation efforts have global effects, adaptation strategies and plans only affect the region in which they are applied. In 2010, a new policy called System for Transparent Allocation of Resources (STAR) was adopted by the GEF Council, aimed at regulating the distribution of financial resources on the basis of country performance, benefits for the environment and national GDP[404] and which replaced the old mechanism harshly criticised by developing countries for it did not take into account the needs poorest states.

As previously mentioned, it is the COP who detains the authority to decide over the policies and programs that the GEF shall fund, while the delineation of actual projects has been left to

[396] UNFCCC, rt. 21.3
[397] Hollo, Kulovesi and Mehling, *op. cit* p. 217
[398] Ivi
[399] Ivi
[400] Ibid, p. 218
[401] Ivi
[402] Ivi.
[403] Yamin and Depledge, *op. cit,* p. 266
[404] Ivi.

latter[405]; the relationship between the two bodies is defined by art. 11.1 of the Convention and the Memorandum of Understanding (MoU) between the GEF and COP, nonetheless such relationship is contested, once again, by developing countries which argue that it complicates the access to funds and that the equality of voting in the COP is not reflected in the GEF voting mechanism, which is always in favour of the largest contributors[406].

The controversies concerning the equal allocation of funds and the appropriate guidance offered by the COP led to reforms in the GEP and to the establishment of additional, independent financial bodies, namely the Adaptation Fund and the Green Climate Fund, which will be discussed in the following paragraphs. Certainly, the main weakness of the financial mechanism is the modality in which the funds are allocated. By relying on the precautionary principle, that binds States to take preventive measures in mitigating climate effects, it is impossible not to think how such principle should have been applied to the financial obligations and not merely on the emission cutting. If the most urgent necessity was to support the less developed countries in implementing mitigation plans, one should ask why little, or no funding at all, was directed to the health systems of these countries, which could have been improved in advance and may have been more prepared to cope with the health emergency caused by climate.

3.2 The Kyoto Protocol: the top-down approach

After only three years since the entering into force of UNFCCC, the obligations on climate change mitigation contained in art. 4.2 were declared to be inadequate by the first conference of the Parties, COP1, at the Bonn Mandate[407]. For this reason, after establishing an 'Ad hoc Group on the Berlin Mandate' (AGBM), the Parties started the negotiations to draft 'another legal instrument'[408], concluded in December 1997 with the adoption, by COP3, of the Kyoto Protocol.

The new Protocol was drafted mainly from two elements of the UNFCCC: the notion of historical responsibility for greenhouse gasses emissions by industrialised countries, contained in paragraph 3 of the Preamble and the well-known principle of common but differentiated responsibilities and respective capabilities, as explained in art. 3.1[409]. Despite having agreed on

[405] Ivi.

[406] Benito Müller and Luis Gomez-Echeverri , 'The Financial Mechanism of the UNFCCC: A Brief History', *European Capacity Building Initiative (*April 2009), p. 10, available at: https://climatestrategies.org/wp-content/uploads/2009/04/rfm-compendium.pdf

[407] Verheyen*, op. cit*, p. 108

[408] Yamin and Depledge, *op. cit*, p. 199

[409] Hollo, Kulovesi and Mehling, op. cit, p. 169

these principles, the Parties were not able to reach a compromise on emissions reduction quotas, adaptation plans and, obviously, the funding mechanism, leading to a complex and long negotiation process, which, once again, was driven by the conflicting interests of developed and developing countries[410]. At the basis of this conflict, there was the demand of developing countries to establish a more rigid compliance system, as well as new funding mechanism focused on adaptation, as they were the most vulnerable to climate hazards and thus in greater need of adaptation plans[411]; on the other hand, economically stronger countries advocated for a mechanism for compensation from the social and economic losses caused by the implementation of the obligations arising from the Protocol[412]. A compromise was obtained through the adoption of two documents, the Buenos Aires plan of action and the Bonn agreement, which together form the Marrakech accords, ratified by COP7 in 2001[413].

Finally, the Protocol entered into force on 16 February 2005, with then 129 signatories (now become 192)[414]. Nonetheless, a major drawback was caused by the US withdrawal in 2001: whereas it could not prevent the Protocol from entering into force, the fact that US only accounted for 36% of CO_2 emissions in 1990, clearly raised not few doubts on the actual efficiency of the Protocol[415].

The COP set a first period of commitment, from 2008 to 2012, to achieve the main target of the treaty, namely the reduction of greenhouse gasses emissions by 5% in comparison to the year 1990 (art. 3)[416]. In order to do so, the Treaty has developed two main mechanisms, which will be discussed below: emissions trading between parties which signed the Protocol and the clean development mechanism.

As anticipated, COP agreed to an additional legal instrument on climate change because the provisions concerning mitigation and emission reduction contained in the Convention were considered unsatisfactory and inefficient. Bearing this in mind, the Protocol should have, at least in theory, compensated the fallacies of the Convention, starting from more precise obligations on States, both on emissions targets and on funding allocation, concerning the adverse health effects of climate change. If, at the time of drafting, the COP possessed all the

[410] Ivi.
[411] Ivi.
[412] Ibid, p. 170
[413] Ivi.
[414] Ivi.
[415] Andreas Löschel & Zhong Xiang Zhang, 'The Economic and Environmental Implications of the US Repudiation of the Kyoto Protocol and the Subsequent Deals in Bonn and Marrakech', *Weltwirtschaftliches Archiv* 138, (2002). p. 723, available at: https://doi.org/10.1007/BF027076592002.
[416] Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 3, available at: https://unfccc.int/sites/default/files/resource/docs/cop3/l07a01.pdf

scientific data and knowledge to establish specific quantified emissions quotas for each industrialised State, it also should have known the potential damage that excessive emissions were causing to human health. Yet, what emerged was an advanced, more technical and more economic version of the Convention, primarily focused on ensuring the Parties' compliance with their emission targets, but, once again with no place for health. Moreover, neither the creation of the adaptation fund managed to bring developed states to actually being concerned about adaptation: this represents another missed opportunity to act, if not preventively, at least timely, and strengthen the public health system.

3.2.1 Quantified Emission Limitation And Reduction Objectives

Following one of the pillars of the Convention, the principle of common but differentiated responsibilities, art. 3 has remarked the distinction between industrialised (annex 1 countries) and developing countries (non-annex 1), imposing reduction quotas only on the first group, due to their historical responsibility for climate change. Moreover, two more annexes were added to the protocol: annex A, containing a list of greenhouse gasses whose emissions had to be reduced, and annex B, with the percentage of reduction for each country[417]. According to the 'quantitative emission limitation and reduction objectives' (QUELRO) established by art. 3, the treaty has assigned to the 36 industrialised countries which signed it, a determined Amount or 'greenhouse gas budget' which had been calculated according to the 1990 emissions of the greenhouse gases listed in Annex A minus the percentage target listed in Annex B (Art 3.7)[418]. Verheyen explains that these reduction commitments were not applied following any legal formula or 'an attempt to apply Article 2 FCCC in terms of calculating allowable emissions on the basis of likely damage' but are the result of political bargaining[419]. This may be the primary reason that led the US to withdraw from the agreement, as according to what President Bush declared, it imposed a major limitation obligation on the US, potentially damaging its economy and exempted from such obligations countries like India and China, which were also major contributors[420].

The compliance with QUELRO was regulated by art. 17, which established one of the three flexible mechanisms of the Protocol, the emissions trading. Basically, emissions trading allows countries that have emission units to spare (emissions permitted them but not *used*) to sell this

[417] Ibid
[418] Ibid, art. 3.7
[419] Verheyen, op. cit., p. 110
[420] Ivi. President bush declaration can be found at: http://www.whitehouse.gov/news/releases/2001/03/

excess capacity to countries that are over their targets[421], thus transforming carbon dioxide in a proper commodity, which can be sold and bought, generating an actual market, today referred as 'carbon market'. Emissions trade may be considered a double-edged sword, as on one side it is helpful to countries which struggle to meet their targets, allowing them to respect their obligations, on the other side it is risky as given the possibility to sell their units, some countries may oversell them precisely to be in compliance with their duties. In order to avoid this overselling, it was decided that the States could sell only a pre-determined part of its 'Kyoto budget', through a mechanism called 'the commitment period reserve'[422].

From the legal stand point, the compliance with QUERLOs was monitored by the Enforcement Branch, a part of the Compliance Committee, which includes also a Facilitative Branch. Both branches are composed of 10 members, representing the five UN Regions, the Small Island States, the Annex 1 and non-annex 1 Parties[423]. As suggested by its name, contrary to the facilitative branch, the Enforcement Branch is of adjudicatory character, thus it was conferred the authority to prescribe legal consequences in case a Party failed to respect its QUERLOs. Among their obligations, annex B parties have two reporting obligations: an annual report describing their national GHG inventory and a periodical national communication, both of which are reviewed and controlled by the Expert Review Teams (ERT), as provided by art. 8[424]. Once the report has been reviewed and considered in non-compliance, the ERT makes a submission to the Enforcement Branch which, after having ensured that the submission is not ill-found, will notify the Party; the Party has the right to request a public hearing before the EB, so as to present its views as well as the right to provide a further submission within ten weeks. At this point, with or without the further submission, the EB will adopt a final decision, which will be communicated to the Party concerned, the other Parties and to the public in general[425]. If the final decision recognises the violation, the Enforcement Branch must declare that the Party is in non-compliance with its obligations and will impose on the State a 'penalty rate' for the excessive emissions, which consists in a reduction of 30% from its assigned amount of emission, meaning that in the following commitment period, the Party in violation will have to reduce 30% more[426]; in addiction, the Party will be requested to submit a compliance action

[421] UNFCCC, The Kyoto Protocol Mechanisms, https://unfccc.int/process/thekyotoprotocol/mechanisms/emissions-trading
[422] Ibid
[423] Yamin and Depledge, op. cit., p. 278
[424] Francesca Romanin Jacur, 'The Kyoto Protocol's compliance mechanism', in Michael Faure (ed), *Elgar Encyclopedia of Environmental Law* (2015), pp. 239–250 DOI:https://doi.org/10.4337/9781783477616.I.20
[425] Ibid.
[426] Ibid.

plan and its eligibility requirements for the use of the flexibility mechanisms will be suspended[427]. As Romanin Jacur remarks, the EB enjoys a certain margin of appreciation in affirming the noncompliance of one party, because 'the consequences of non-compliance must be adjusted to the cause, type, degree and frequency of non-compliance'[428]. Nonetheless, if the concerned Party believes it has been denied due process, it may appeal to the Conference of the Parties members of the Protocol (CMP) within 45 days and if the appeal is uphold, it is then referred to EB for a further evaluation[429].

3.2.2 The Clean Developed Mechanism and the Adaptation Fund

The second flexible mechanism created by the Protocol is the Clean Developed Mechanism (CDM). Established by art. 12, the CDM is aimed at facilitating emissions reduction through joint projects between developed and developing countries[430]. These projects have two main outcomes: first, they help developing countries in the realisation of sustainable development, as thanks to additional funding some activities can be carried producing less emissions; second they generate certified emissions reductions (CERs), which can be used by Annex 1 countries to fulfil their emission reduction obligation under art. 3, by adding CERs to their budgets so as to take less action at home[431]. Basically, by financing projects that help non-annex countries to reduce their emissions, even if on them no obligation is imposed by the Protocol, Annex 1 countries receive 'bonus points', that can be detracted by their emissions quotas[432]. Despite the original scope of this mechanism was to involve developing countries in emissions reduction, Humphreys argues that its logic has been undermined for with time it has been used mainly 'as an authorised loophole by developed countries to show formal compliance with their international obligations'[433]. As a matter of fact, art. 12 does not prohibit such use, nor does specify that CDM projects must be supplemented by domestic action[434].

Besides this issue, other problems concerning this mechanism have been brought up by different scholars. In her discussion on climate justice, Eni-ibukun affirms that CDM was

[427] Ibid
[428] Ibid
[429] Ibid
[430] Yamin and Depledge, op. cit., p. 143
[431] Ivi.
[432] Ibid, p. 144
[433] Humphreys, *op. cit*., p. 189
[434] Ivi.

supposed to ensure justice in the treatment of developing countries within the climate regime[435]. She reports that in 2013, the majority of projects related to the CDM, almost 70%, were carried in India, China, Brazil and Mexico, thus revealing an inequal distribution[436]. At the basis of this issue, she identifies the market based nature of the mechanism; developed countries consider CDM projects as proper investments, therefore before they engage and undertake one they tend to evaluate certain elements from which the final profit is determined, namely the lack of capacity and local expertise, the transaction costs, the implementation costs and usually they have a preference for large-scale projects[437]. Thus, as the main objective is making the most profit, it is obvious that the countries chosen to host CDM projects are those which have a more stable political system and a more developed industrial sector, as well as a more advanced economy. The highest price for this mechanism is thus paid by the poorest and most vulnerable countries, which not only happen to be the most affected by climate change and environmental degradation, but consequently the most in need of these kind of projects. Similarly, Humphreys emphasises the lack of consideration of countries' vulnerability. As it was already mentioned, the Protocol was mainly conceived to regulate climate change mitigation, rather than adaptation, despite already at the time of its adoption many less developed countries were already facing serious adverse effects of climate change and thus adaptation plans should have been a priority[438]. He thereby criticises the fact that CDM projects are not prioritised in accordance with their impacts on the poor and vulnerable and the environment in general, neglecting the basic needs of individuals, especially the most vulnerable, who are not in possession of the appropriate technical and financial resources to adopt domestic adaptation strategies. Speaking of adaptation and CDM, the most prominent provision of the Protocol on the matter is art. 12.8 which states that 'the share of the proceeds from certified project activities is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation'[439]; from this provision, in 2001 the Adaptation Fund was established, financed by a fixed share of 2% all the proceeds from the CERs and by private individual donations[440]. With currently 745 million US dollars allocated in 105 projects, the Fund has operated in the areas of water resource management, land management, agriculture, infrastructure development,

[435] Tomilola Akanle Eni-Ibukun, *International Environmental Law and Distributive Justice,* Routledge Research in International Environmental Law (2015), p. 248
[436] Ivi
[437] Ibid, p. 250
[438] Humphreys, *op. cit*., p. 190
[439] Kyoto Protocol, art. 12.8
[440] Ibid

fragile ecosystems and healthcare; the health field has been one of the first sectors to benefit from the fund, as it allowed the promotion of programs to monitor, forecast and control vector borne diseases influenced by higher temperatures and water borne diseases caused by extreme weather events, and capacity building strategies to prevent and manage natural disaster related to climate change[441].

Nonetheless, it is not difficult to figure that the funding collected until now, especially if considering the small amount of the proceeds from the CDM allocated to adaptation, are totally insufficient to cope with the effects of climate change. Predictably, these shortcomings fall upon the most vulnerable people, whose needs, despite the brief mention in the Protocol, are not given particular attention. Recalling the notion of vulnerability, which is profoundly linked to the level of human rights enjoyed by an individual, it comes without saying, as confirmed by Humphreys[442], that the Kyoto Protocol, consisting in the only legally binding treaty in the climate regime until the Paris Agreement, is not directly concerned with human rights. By imposing binding commitments only on emissions reduction from developed States and creating flexible mechanisms which actually provide those states with an easier and cheaper strategy to comply with their obligations, the Protocol, eight years after its first commitment period, has proved to be mainly an economic treaty, basically regulating the trade of a commodity which itself had created, carbon. One may argue that it is pointless to draw these conclusions *ex post,* since the Kyoto Protocol was the first of its kind and that climate effects were still difficult to predict at the time of its adoption. However, as Verheyen has reported in her research, already in the early 2000s 'scientists have argued that the even if the 5.2% target of the Protocol were fulfilled, it would have little or no effect on climate change impacts in the medium to long-term'[443], meaning that there was, indeed, awareness of the threatening impacts that climate change was having and was going to have worldwide, especially on the most exposed countries and yet, the main objective of the treaty has been mitigation rather than timely action in support of the least developed countries. As the pillar of both the UNFCCC and the Protocol is the principle of common but differentiated responsibilities, it seems that these responsibilities have not been correctly addressed. In light of the analysis conducted in the previous chapter, considering the disastrous effects that climate change is having on human health, it comes natural to wonder whether before the Quantified Emission Limitation And Reduction Objectives and certified emissions reductions, the Conference of the Parties should

[441] Tomilola Akanle Eni-Ibukun, *op. cit*., p. 251
[442] Humphreys, *op. cit*., p. 194
[443] Verheyen, *op. cit*, p. 166

have formulated mechanisms and strategies in support of the healthcare systems of the most affected countries and, in general, to strengthen the health sector.
As remarked by Humphreys, climate law 'must reflect the fact that climate change is much more than an environmental and economic issue but also a core human rights issue'[444].

3.3 The Paris Agreement: a bottom-up alternative

When the outcomes of the first commitment period of the Kyoto protocol where evaluated, it was clear that they did not meet the expectations and already in 2007, an Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention (AWG-LC') was established to negotiate and additional agreement to further implement the Convention[445]. Another Ad Hoc Working Group 'on the Durban Platform for Enhanced Action ('AWG-ADP) was created in Durban at COP17, aimed at developing 'a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties to be adopted at COP21'[446], resulting in the Durban Mandate. The core of this mandate was certainly the phrase 'applicable to all', which advocated for a 'greater symmetry' in the climate regime and abandoned the marked division between developed and developing countries applied in the Kyoto Protocol[447]. In addition, during the COP18 at Doha, developed countries such as the Russian Federation, Japan and New Zealand refused to undertake new commitments for another mandate of the Kyoto Protocol, while Canada definitely withdrew from the treaty[448]. On this basis, a new instrument was absolutely needed, thus the long and complex negotiation process for the Paris Agreement started: it was finally opened for signature at COP21 in Paris on 22 April 2016, entered into force on 4 November 2016 and it is currently ratified by 189 states plus the European Union[449]. As it was approved also by Many Small Island Developing States, the agreement has been widely hailed as a 'breakthrough in international climate governance based on its ensuing procedural framework that could, in theory, encourage states to raise ambition in accordance with their existing obligations under the UNFCCC'[450], defined by the French president Francois Hollande 'a major leap for mankind', by Barack Obama 'a

[444] Humphreys, *op. cit* , p. I95
[445] Daniel Bodansky, Jutta Brunnée, Lavania Rajamani, *International Climate Change Law,* Oxford University Press (2017), p. 209
[446] Ivi.
[447] Ivi.
[448] Ivi.
[449] Ibid, p. 210
[450] Ivi

turning point for the world'[451] and United Nations Secretary General Ban Ki-Moon declared that its acceptance presents 'a significant day for historians of the future to look back on'[452].

3.3.1 Scope of the Agreement

The scope of the Agreement is delineated in art. 2, which affirms the will to strengthen the global response to climate change through sustainable development and eradication of poverty, by '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'[453], while 'increasing the ability to adapt to the adverse impacts of climate change and fostering climate resilience' and 'making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development'[454]. This article is the result of a compromise reached after several negotiations between developing and developed countries. The developing countries demanded that the new treaty included a broader global goal, not focusing only on emissions reduction, but also on financing and adaptation and insisted on an ambitious long term temperature goal to keep temperatures 'well below 1.5°C above pre-industrial levels'[455]. On the other side, middle-income and oil producer States feared that setting the threshold at 1.5°C would have negatively impacted on their economic development, thus preferred a less ambitious objective to keep the temperatures below 2°C above pre-industrial level[456]. To overcome this stalemate, an additional body was established, the Structured Expert Dialogue (SED) with the aim to provide scientific evidence on which was the most appropriate solution: from their report it emerged that setting the threshold at 2°C was not sufficient to protect the most vulnerable countries from the severe effects of climate change[457]. This outcome was widely accepted by the Alliance Of Small Island Sates, for they represented the most vulnerable parties, however despite some developed Parties such as European Union and Canada accepted the recommendation of the SED, others like Saudi Arabia and Australia continued opposing[458]. Since it was evident that it was impossible to make further progress, the parties opted for the broadly framed art. 2. The second clause of the article,

[451] Ivi.
[452] Ivi.
[453] UN Paris Agreement, entered into force on 4 November 2016, art. 2, available at: https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf
[454] Ibid.
[455] Ibid
[456] Ibid.
[457] Bodansky, Brunnée, Rajamani, *op. cit*., p. 228
[458] Ivi.

instead, reiterates the fundaments of the UNFCCC, equity and common but differentiated responsibilities, though shifting the focus more on 'different national circumstances' rather than on historical responsibilities[459]. Nevertheless, since the Agreement remains deeply anchored to the Convention and its principles, Rajamani argues that this addition is 'unlikely to have much legal impact'[460].

If art. 2 affirms the main objective of the treaty, art. 4 illustrates how the Parties are called to achieve it. Affirming that 'each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve', art. 4 represents a move away from the previous climate treaties, especially from the Kyoto Protocol, for two precise reasons. First, the concept of 'nationally determined contributions' entails that in this case, a party's contribution to the agreement is not established at the international level, but it is determined and proposed by the Party itself[461]. Second, the expression 'intends to achieve' indicates an obligation of *conduct*, not of *result*, meaning that the treaty binds the Parties to aim at achieving their contributions, without imposing them to actually achieve them[462]. This aspect has been deemed problematic by many scholars, because the Agreement does not provide sanctions or corrective measures in case of inaction or for a State that will undertake only the minimum action[463]; similarly, this shortcoming had been noticed by the European Union and small island States, which advocated also for the inclusion of obligations of result, meaning the obligation on States to actually achieve their targets, but was strenuously opposed by China, India and above all, the United States because they 'did not wish to subject themselves to legally binding obligations of result'[464]. What is more, this issue was not the only case in which the United States firmly objected to the inclusion of certain provisions. US President Barack Obama was aware that he could not receive the approval from the US Senate to ratify a new treaty with substantive legal obligations, therefore he worked to obtain an executive agreement without substantive obligations, so as not to need the consent of the Senate[465]; in addition, it has been reported that under request of the US, the language of the agreement has been modified: the frequent use of 'shall', 'should' and 'will' imply, as Rajamani defines it, 'good faith

[459] Ivi
[460] Lavanya Rajamani, 'Ambition and Differentiation in the 2015 Paris Agreement: Interpretative Possibilities and Underlying Politics' *International and Comparative Law Quarterly, 65* (2016), pp.500-501
[461] Paris Agreement, art. 4
[462] Bodansky, Brunnée, Rajamani, *op. cit*., p. 235
[463] Margaretha Wewerinke-Singh and Curtis FJ Doebbler, 'The Paris Agreement: Some Critical Reflections on Process and Substance', *The University of New South Wales law journal Volume 39(4)* (November 2016) available at https://www.researchgate.net/publication/311557964
[464] Ibid
[465] Ibid

expectation' that the parties will respect their obligations, but with no such imposition[466]. These considerations became anyway pointless, as Donald Trump in 2017 officially announced the US withdrawal from the treaty, which following the three years rule, should be formalised in November 2020[467].

The main focus of the lengthy art. 4 is mitigation and all the necessary strategies to successfully achieve it. Contrary to the Convention and the Kyoto Protocol, the Paris Agreement has indeed a whole article dedicated to adaptation and for this reason it deserves particular attention. Adaptation is defined in art. 7 as a global goal, to be reached by 'enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change' and to be faced at 'local, subnational, national, regional and international dimensions', recognising the additional strain put on developing states and small island states whose effort is thereby recognised[468]; on this note, art. 7 acknowledges that adaptation action 'should follow a country-driven, gender-responsive, participatory and fully transparent approach' with a special consideration of vulnerable groups, communities and ecosystems and assisted by traditional knowledge, knowledge of indigenous peoples and local knowledge systems' in order to integrate the adaptation strategies to the 'relevant socioeconomic and environmental policies and actions, where appropriate'[469]. Furthermore, it reaffirms the obligation set by the Convention, imposing on developed states the duty to financially assist developing countries in the planning and implementation of their adaptation strategies[470], a key demand from small island states[471]. Whereas it is undeniable that art. 7 represents a major step forwards in terms of adaptation action and, above all, inclusion of more vulnerable groups in the planning, Maljean-Dubois et al. argue that it remains 'an aspirational text with procedures, but little substance' and that it has left developing states to rely, once again, on the good faith of industrialised countries to support them in adapting to climate change[472].

It is clear that the most urgent need for developing countries, especially the most vulnerable, is adaptation and, in order to be able to better face the effects of climate change, they based their demands during the negotiation process on three main pillars: finance, access to

[466] Bodansky, Brunnée, Rajamani, op. cit., p. 235
[467] Statement by President Trump on the Paris Climate Accord: https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord/
[468] Paris Agreement, art.7
[469] ibid
[470] Ibid
[471] Ibid
[472] Maljean-Dubois, Thomas Spencer and Matthieu Wemaere, 'The Legal Form of the Paris Climate Agreement: a Comprehensive Assessment of Options', *Carbon & Climate Law Review* , 2015, Vol. 9, No. 1, p.75 available at: http://www.jstor.com/stable/43859674

technology and capacity building. These demands have been accepted by dedicating an article to each them, respectively art.9, art. 10 and art. 11; art. 10 confirms the already existing provision on technology transfer and development, identifying the Technology Mechanism established under the Convention as the body responsible for this task[473], while art. 11[474] adds little to the development of capacity building already provided by the Convention. Even in this case, Maljean-Dubois et al affirm that the inclusion of these articles, resembling an 'aspirational preamble', adds nothing to the operative party of the treaty[475]. For what concerns art. 9 and finance, a more detailed discussion will be provided later.

Since the treaty is based on NDCs and the Parties voluntary submissions, absolute transparency is necessary. Art. 13 thus generates 'an enhanced transparency framework for action and support with built-in flexibility which takes into account Parties' different capacities' aimed at building 'mutual trust and confidence and to promote effective implementation'[476]; the transparency framework, which considers the needs of the least developed countries and small island states, involves periodical reports on GHG emissions, information sharing and communication, annual submissions, by developed countries, of the financial support provided and, by developing countries, of the financial support received for adaptation[477].

In order to ensure such transparency, the COP will periodically check the implementation of the agreement and assess the progress towards the achievement of its objectives (art. 14)[478]. In order to do so, every five years a 'global stocktake' will take place, starting from 2023. Although the decision to assess the progress of the implementation every five years remarks the long-term nature of the agreement, Rajamani notices that while precise goals for mitigation have been set, the same has not been done with adaptation, finance, capacity building and technology; in addition, it is specified that the stocktake will consider collective progress only, meaning that the status of implementation for individual nations will not be assessed[479]. Finally, art. 15 addresses the issue of compliance, by establishing an expert-based and of facilitative nature committee, which will 'function in a manner that is transparent, non-adversarial and non-punitive'[480]. The fact that the Paris Agreement lacks an enforcement body has been widely criticised, for ' a means of minimal enforcement of compliance is the most basic constituents

[473] Paris Agreement, art.10
[474] Ibid, art. 11
[475] Maljean-Dubois, Thomas Spencer and Matthieu Wemaere, *op. cit*., p. 77
[476] Paris Agreement, art. 13
[477] Ibid
[478] Ibid, art. 14
[479] Bodansky, Brunnée, Rajamani, op. cit, p. 243
[480] Paris Agreement, art. 15

of the rule of law'[481]. Nevertheless, due to the hybrid nature of the treaty and the absence of legally binding obligations of results, it should have not be unexpected; furthermore, considering the reluctance of many developed countries, first and foremost the US, to undertake other binding commitments, it was quite unlikely that the provision of a legally binding enforcement mechanism with severe compliance consequences, as the Enforcement Branch of the Kyoto Protocol, would have been approved. As Rajamani concludes, art. 15 does not explicitly exclude such possibility, however it does not leave much room for a broader interpretation[482]. A more positive view is instead offered by Stern, who praises the decision of not imposing binding targets and not providing an enforcement compliance system, as he believes that binding targets would have undermined the ambitious nature of the treaty, because many states would have opted for lower targets in fear of the legal consequences in case of failure[483].

3.3.2 The concept of 'loss and damage'

Art. 8 is entirely dedicated to loss and damage, affirming that 'the Parties recognize the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage'[484]. While the concepts of mitigation and adaptation extensively appear in the UNFCCC and in the Kyoto Protocol, it is the first time that a legally binding treaty within the climate regime refers to loss and damage, thus it is important to understand why it was included precisely at this point and, above all, what exactly this concept entails. Unsurprisingly, there is not an universal definition provided by the Convention for loss and damage, therefore scholars have given contrasting views on its meaning, resulting in controversial debates that, even nowadays are far from being solved. Some scholars differentiate between *losses,* associating them with irreversibility, namely the fatalities caused by extreme weather events and *damages,* concerning everything that may be alleviated and repaired, such the damages on buildings[485]. Others, like Verheyen and Mace, instead classify losses and damages in avoided, unavoided and unavoidable, focusing mainly on the unavoidable ones; this classification is by far the most common, as many analysts agree

[481] Bodansky, Brunnée, Rajamani, op. cit, p. 244
[482] Ivi
[483] Todd Stern, 'The Paris Agreement and Its Future', *Brookings,* Paper 5 (October 2018)
[484] Paris Agreement, art. 8
[485] Emily Boyd, Rachel A. James *et al*, 'A typology of loss and damage perspectives', *Nature Climate Change volume 7* (2017), pp. 723–729

in describing unavoidable losses and damages as 'beyond adaptation', meaning that they cannot be managed nor reduced by adaptation strategies due to adaptation limits[486]. Therefore, one may conclude that behind the concept of loss and damage lies the recognition of the existence of 'adverse impacts of human-induced climate change that cannot be avoided by mitigation or adaptation, or that will not be avoided in the future by adaptation due to insufficient resources', as summarised by Verheyen and Mace [487].

Loss and damage, both material and immaterial, constitutes a major concern particularly for small island states, therefore it is not surprising that it was precisely upon the request of AOSIS that it was eventually included in the climate regime. The concept was brought up by the AOSIS during the first negotiations for the UNFCCC, back in 1991, demanding a system that acknowledged the damage provoked by climate change to the more vulnerable countries. Despite their pressure, it was only in 2012 that the COP in Doha actually decided to institutionalise a loss and damage mechanism, which was finally established the following year, the Warsaw International Mechanism for Loss and Damage (WIM)[488]. Through decision 2/CP.19, COP finally addressed 'loss and damage associated with impacts of climate change, including extreme events and slow onset events, in developing countries that are particularly vulnerable to the adverse effects of climate change'[489]. In order to do so, the WIM mandate includes enhancing knowledge and understanding of comprehensive risk management approaches, improving dialogue and cooperation among the various stakeholders and promoting financial and technological support for most affected states[490]. Moreover, the COP has formed an Executive Committee (ExCom) as the governance body of the system, which has the task of guiding the action of the WIM and annually report its progress to the COP[491]. This result may seem a huge victory for small island states, however, as commented by Burkett, the mandate of WIM was initially too broad, without a specific plan, apart from the two-year planning, and clearly the outcome of a political compromise[492].

---

[486] Mj Mace and Roda Verheyen , 'Loss, Damage and Responsibility after COP21: All Options Open for the Paris Agreement'. *RECIEL 25* (2016),. doi:10.1111/reel.12172, p. 198

[487] Ibid, p. 200

[488] Reinhard Mechler and Swenja Surminski*, Loss and Damage from Climate Change*, Springer International Publishing, 2019, p. 10

[489] UNFCCC, Decision 2/CP.19, Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts (UN Doc.FCCC/CP/2013/10/Add.1, 31 January 2014)
available at: https://unfccc.int/sites/default/files/resource/docs/2013/cop19/eng/10a01.pdf

[490] Reinhard Mechler and Swenja Surminski, *op. cit*., p 12

[491] Ibid

[492] Maxine Burkett, 'Loss and Damage', *Climate Law 4:1–2* (2014), p. 119, available at: https://brill.com/view/journals/clla/4/1-2/article-p119_10.xml

The compromise was even more evident during the negotiations for the Paris Agreement. The developing States did not want to lose the progress made with the establishment of WIM, but at the same time hoped for a more active and stronger mandate for the body; in particular they believed that loss and damage should have been recognised as a field of international activity and that, considering the evident inequity involved, support should have been provided at the international level[493]. On the other hand, developed countries showed little interest in further expanding the mechanism for loss and damage, as according to them it was already sufficiently granted by the WIM, with no necessity for additional provisions, let alone an explicit article within the treaty[494]. Therefore, if small island states declared that the inclusion of a stand-alone article on loss and damage was a necessary condition for their ratification of the treaty, developed countries eventually made this concession, but not without a trade-off. First, for its wording, art. 8 does not impose any substantive international legal obligation on the Parties: paragraph 3 affirms that states 'should enhance understanding, action and support…as appropriate, on a cooperative and facilitate basis with respect to loss and damage associated with the adverse effects of climate change'[495] but does not go beyond that, not actually adding content to the principles of the UNFCCC. Second, through paragraph 51 of Decision 1/CP.21, COP introduced a caveat to the treaty, specifying that 'Article 8 of the Agreement does not involve or provide a basis for any liability or compensation'[496]. In international law compensation indicates the legal consequence due to wrongful behaviour and, regardless of its form (reparation, rehabilitation, restitution, satisfaction), it usually consists of a monetary payment to repair a damage done[497]. The issue of compensation is extremely relevant when discussing loss and damage, as one may assume that if a loss or a damage occurs, someone is likely to be held responsible for it and should provide a compensation for the caused damage. Nonetheless, with paragraph 51 COP explicitly removed this assumption, not linking any clear obligation to art. 8 which may provide a basis for compensation. Basically, while COP addressed the concept of loss and damage and even conceded a dedicated article, it did not recognise the very evident correlation between loss and damage and responsibility and compensation, not granting to the most affected (thus the most damaged) Parties the right to seek reparation. On this note, however, it is important to make two remarks; first, although the

[493] Reinhard Mechler and Swenja Surminski, op. cit., p 15
[494] Ivi.
[495] Paris Agreement, art.8
[496] UNFCCC Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015, Decision 1/CP.21, para. 51. Available at: https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf
[497] Reinhard Mechler and Swenja Surminski, *op. cit*., p 17

decisions of the COP clearly reflect the will of the majority of the Parties, they are not legally binding and they can be amended, meaning that it is possible that, with time, a loss and damage compensation system may be introduced under the guidance of WIM; second, the impossibility to seek compensation for loss and damage within the climate regime does not exclude States' possibility to access public international law remedies, which will be indeed addressed in the last paragraph of this chapter.

Furthermore, as for developed countries loss and damage was perceived as an extension of adaptation, they considered pointless to create another mechanism responsible for the financing of loss and damage[498]. Therefore, though art. 8.3 explicitly mentions support for measures to address loss and damage, interpreted by many as a clear link with the Financial Mechanism, there is actually no provision regarding financial support to address loss and damage and the only body to which this issue has been closely associated is the WIM[499]. On this merit, Decision 2/CP.19, paragraph 5(c)(ii) describes the WIM mandate, affirming that when necessary it should address 'loss and damage, including to the operating entities of the financial mechanism of the Convention'[500], including the Green Climate Fund. Once again, the language adopted is too broad to generate a clear obligation and, as Bodansky described it, art. 8 and the provision related to it (COP decisions, compensation, WIM mandate) resemble more 'an expectation or recognition rather than a legal obligation'[501], somehow confirming that the inclusion of loss and damage was a mere concession form the developed states which actually cost them nothing, but will present a high price for the more vulnerable countries.

3.3.3 The importance of the Green Climate Fund

As it has been discussed in the prior paragraphs, the obligation of developed states to financially support developing states for mitigation and adaptation is enshrined in art. 4 of the Convention. However, it has also be remarked that the vast majority of the funds gathered through the financial mechanism, mainly through the GEF, are destined to mitigation projects, while adaptation is neglected, despite the existence of the Adaptation Fund. Therefore, developing countries believed that a further mechanism addressing adaptation and mitigation in an equal manner was absolutely necessary and started elaborating proposal for a new fund.

---

[498] Ibid.
[499] Paris Agreement, art. 8.3
[500] UNFCCC, Decision 2/CP.19, para. 5
[501] Daniel Bodansky, 'The Legal Character of the Paris Agreement', *Review of European, Comparative and International Environmental Law 25:2* (2016), p. 142

Conceived in 2009 during the COP15 in Copenhagen and officially established by COP16 in Cancun through decision 1/CP.16, the Green Climate Fund (GCF) is an operating entity of the Financial Mechanism of the Convention[502]. The Fund is accountable to and works under the guidance of the COP, following the principles of the Convention and at the core of its mandate there is the task 'to make a significant and ambitious contribution to the global efforts towards attaining the goals set by the international community to combat climate change'[503]. Its Governing Board has permanent headquarters in Songdo, Republic of Korea, and it is composed of 24 members, equally divided between developing and developed countries, precisely to avoid imbalance of power during decision making, which happens by consensus[504]: particular attention is given to the representation of developing countries, which includes relevant United Nations regional groupings and representatives from small island developing States and least developed countries [505]. In addition, the Board is assisted by a trustee with administrative competence to manage the financial assets of the fund and, until now, the World Bank has been appointed as the interim trustee by COP[506].

Besides its structure based on equal representation, a singular peculiarity of the Fund, which differs from the other bodies of the financial mechanism, is the allocation of the funds and its ambition. First of all, the funds received are, theoretically, allocated equally to mitigation and adaptation, in a balanced 50%-50% and, half of the funds for adaptation are directed to small island states, least developed countries and African countries[507], thus recognising the urgency to support the most vulnerable parties. Second, the most innovative feature of the GCF is the engagement with non-party stakeholders, such as cities and the private sector, involving a mix of players at international, national, sub-national and industry levels. Consequently, the main entities which participate to the financing arrangements can be divided in two sections: the National Designed Authorities (NDAs) and the Accredited Entities. The NDAs are government institutions that serve as the point of communication between the developed countries and the GCF, ensuring country ownership and that the investment follow the needs of each country[508];

[502] UNFCCC decision 1/CP.16, Green Climate Fund, (FCCC/CP/2010/7/Add.1 15 March 2011) https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17
[503] ibid
[504] Sarah Bracking, 'The Anti-Politics Of Climate Finance: The Creation And Performativity Of The Green Climate Fund', *Antipode vol. 47 no.2* (2015), p. 288, https://doi.org/10.1111/anti.12123
[505] Ivi
[506] Ivi
[507] Reinhard Mechler and Swenja Surminski, *op. cit*., p.36
[508] Ivi

The Accredited Entities instead can be both governmental and non-governmental, public and private, and their task the supervision of the fund allocation and channelling of the resources to the programmes approved by the Board[509]. These programmes are namely the GCF Readiness Programme, which is aimed at enhancing the developing countries adaptation strategies and plans, and the Project Preparation Facility, which provides grants and loans to the accredited entities in order to better plan projects[510].

The adjective ambitious is often used to describe the GCF, for when it started the first resource mobilisation in May 2014, its objective was the capitalisation of between US $10 and 15 billion by November 2014[511]; what is more, in the Copenhagen accord developed countries had committed themselves to jointly mobilise US$ 100 billion annually by 2020, mostly destined to adaptation projects[512]. Needless to say, neither of these goals was achieved, thus one may comment that they were quite unrealistic, rather than ambitious. Nevertheless, the GCF has been progressively fulfilling its main purpose: in 2016, during its first year of operation, it has collected US$ 2.5 billion invested in 35 projects, focusing on building resilience in wetlands, building climate resilient infrastructure and promoting clean energy development[513]. Finally, during the initial resource mobilisation (IRM) period, US$ 8.31 billion were pledged by 45 countries, including non-traditional donors countries and less developed countries, such as Chile, Colombia, Indonesia, Mexico, Mongolia, Panama, Peru, Republic of Korea, and Viet Nam [514].

It is precisely the involvement of some less developed countries as donors and the voluntary nature of the funding provided that links the GCF to the Paris Agreement. As often mentioned, the Agreement was considered a landmark in the climate regime for the paradigm shift adopted, from the top-down, internationally imposed obligations typical of the Kyoto Protocol, to the bottom-up approach, with the nationally determined contributions and the voluntary financial support adopted in Paris. The rigid division between developed and non-developed countries, as well as annex and non-annex states, is not included in the Agreement, which, as already discussed, opted for a *lighter* and more vague language. Whereas in art. 9 it is clearly affirmed that 'Developed country Parties shall provide financial resources to assist developing country

[509] Ivi
[510] Ibid, p. 37
[511] Yulia Yamineva, 'Climate Finance in the Paris Outcome: Why Do Today What You Can Put Off Till Tomorrow?' *Review of European Community and International Environmental Law 25(2),* (July 2016) p. 181
[512] Ivi
[513] Green Climate Fund, Status of Pledges and Contributions made to the Green Climate Fund, Status date: 31 july 2020, available at: https://www.greenclimate.fund/sites/default/files/document/status-pledges-irm_1.pdf
[514] Ibid

Parties'[515], paragraph 2 also adds that 'other Parties are encouraged to provide or continue to provide such support voluntarily'[516], inviting other states to actively participate in the funding; this change, or to better call it, evolution is important because it reflects the progressive development of some States: those who at the time of the adoption of the Convention, during the early 1990s, and even more than a decade later, when the Protocol was drafted, were considered less developed and thus not accountable for emissions nor for financial support, are now emerging economic powers and their role has definitely changed. Moreover, art. 9.4 perfectly recalls the financial arrangement of the GCF illustrated above, asserting that 'balance between adaptation and mitigation, taking into account country-driven strategies, and the priorities and needs of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change and have significant capacity constraints, such as the least developed countries and small island developing States, considering the need for public and grant-based resources for adaptation'[517]. On this basis, it can be concluded that the paradigm shift had already started with the conceiving of the GCF and was completed with the adoption of the Paris Agreement.

One last consideration to be made on the Fund is that, similarly to the Paris Agreement, it has been subjected to harsh criticism from, amongst all, the United States. One of the main reasons that lead president Trump to withdraw from the Agreement seems to be indeed the massive contribution that the US, under the Obama administration, had committed to provide to the GCF, namely US$ 3 billion[518], of which Obama had versed one. According to Trump, the GCF is 'another scheme to redistribute wealth out of the US' and no other country was going to undertake such a huge commitment, therefore putting the US in a disadvantaged position[519]. Clearly, the US withdrawal will be effectual only after November 2020, when a new President may have already been elected. This leaves many open questions on the future relationship between the US, the Agreement and the Fund. Certainly, the amount of funds that Trump was supposed to provide deeply impact on the capacities of the fund, which, as explained by Minas and Bowman, cannot recourse to any court or arbitral tribunal to recover the missing $2 billion,

[515] Paris Agreement, art. 9
[516] Ibid, art. 9.2
[517] Ibid, art 9.4
[518] Stephen Minas And Megan Bowman, 'Post-Paris/Post Trump: The Green Climate Fund And Climate Finance Governance In The Eye Of The Storm?', *Transnational Law Institute Think! Paper 75/2017*, p. 4
[519]Ibid. The authors remark that Trump statement affirming that no other country has contributed to the GCF as much as the US can be easily dismissed as the US contribution amounts to $9 per capita, compared to the $59 per capita provided by Sweden and Luxemburg.

for none of these mechanism is specified in the US-GCF Contribution Agreement[520]. Nevertheless, despite the huge loss that the Fund may suffer from the US withdrawal, it should be taken into account the numerous and various non-party and private stakeholders which can contribute to the fund: by reducing barriers to the private sector investment in developing countries, the GCF is broadening the base of climate finance, which had always seen States as the only actors[521].

3.3.4 Finally a health agreement?

The legal instruments provided by the climate regime and their provisions to mitigate and limit the climate crisis have been extensively analysed thus far in this work and now, in light of these considerations, it is possible to try and answer the question posed in the title of this third chapter, as well as in this paragraph. Does the Paris agreement contain provisions to protect health? Can it be regarded as a health agreement? For some, such as Dr. Diarmid Campbell-Lendrum, the WHO Team Lead on Climate Change and Health, the answer is absolutely affirmative: 'We see the Paris Agreement as a fundamental public health agreement, potentially the most important public health agreement of the century. If we don't meet the climate challenge, if we don't bring down greenhouse gas emissions, then we are undermining the environmental determinates of health on which we depend: we undermine water supplies, we undermine our air, we undermine food security'[522]. The fact that climate change poses a serious threat to the determinants of health has been widely demonstrated in chapter 2, nonetheless simply acknowledging does not equal an effective prevention and action to limit such threat. According to the words of Dr. Diarmid Campbell-Lendrum, however, it appears that not only does the Paris Agreement address the linkage between climate change and determinants of health, it also provides the means to stop the climate crisis, which in turn will protect public health and people's related rights. It is true that, contrary to the Convention and the Kyoto Protocol, the Paris agreement contains an explicit reference to the right to health in its Preamble, which affirms that '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,

[520] Ibid, p. 5
[521] Ivi
[522] UNFCCC, The Paris Agreement is a Health Agreement – WHO, ARTICLE / 03 MAY, 2018, available at: https://unfccc.int/news/the-paris-agreement-is-a-health-agreement-who

empowerment of women and intergenerational equity'[523]; what is more, the Preamble mentions other human rights deeply interconnected with health, whose protection is indeed fundamental for the full realisation of the right to health and explicitly addresses the most vulnerable groups whose human rights are more at risk. From the preamble, therefore, one may think that, in Paris, a human rights approach was finally adopted into the climate regime, thus granting protection to of the right to health. Nonetheless, these references are not contained in the operative body of the treaty and are limited to the Preamble, which is not legally binding. During the negotiation process, several parties, joined by NGOS and international bodies, insisted for an inclusion of human rights concerns in the Agreement, not focusing on the much debated right to a healthy environment, but precisely on well-established and recognised human rights, namely the right to life, food and health[524]. Moreover, Costa Rica and other seventeen countries requested a collaboration between national representatives in these two connected fields, the climate regime and human rights law[525] and advanced proposals to include an explicit reference to human rights in art. 2 of the agreement, which identifies its main purpose. Eventually, as it has emerged from the description of the treaty provided above, the proposal was rejected for two reasons: first, the belief, of the more developed countries, that introducing the human rights discourse into the purpose of the agreement would have shifted the focus from the climate objectives[526]; second, the confusion over which rights should have been given special attention in the context of the agreement[527].

Despite the mention of human rights in the Preamble is regarded as a step forward (albeit small) a further intersection of human rights law and climate law, many scholars have highlighted the fallacies of this inclusion. For instance, Bodansky, Brunnée and Rayamani remark how the preamble actually invites to Parties to consider human rights when 'taking action' against climate change, thus the reference does not concern the effects that climate change has, or has already had, on these rights[528]. On this note, it is useful to remind the approach adopted by the office of the high commission of human rights (OHCHR) suggests otherwise: states are obliged to take affirmative measures to prevent human rights harms caused by climate change, including foreseeable long-term consequences'[529]. Furthermore, Rayamani

[523] Paris Agreement, Preamble
[524] Knox, *op. cit.,* p. 243
[525] Ivi
[526] Ibid, p. 244
[527] Ivi
[528] Bodansky, Brunnée, Rayamani, op. cit., p 226
[529] OHCHR, *Understanding human rights and climate change,*
https://www.ohchr.org/Documents/Issues/ClimateChange/COP21.pdf

then points how, in the Preamble, the Parties are called to 'respect, promote and consider' their human rights obligations, instead of 'respect, protect and fulfil', which would require specific action from the States[530].

Another view is instead offered by Onzivu. Although he acknowledges the past failures of the Convention and the Protocol in considering human rights harm, especially to the right to health, admitting that the absence of substantive reference to health in the UNFCCC 'undermines what could otherwise be a clear and coherent legal basis for the promotion of health under international climate law'[531] and supporting WHO claim, in 2011, that 'health is poorly represented in the operating mechanisms for the climate change convention'[532], his assessment of the Paris Agreement is rather positive. According to him, the agreement poses an important basis for the progressive development of health-related norms in international climate law, which may enhance global and national public health promotion and protection and has increased the centrality of public health issues within the climate regime[533]. The explicit reference in the preamble, though not binding, has helped in broadening the discourse of the major role that health may play in the international climate law. Moreover, contrary to Rayamani, he argues that, despite the absence of health in the operative body of the agreement, the language adopted in other provisions clearly recalls the right to health and its protection[534]. For instance, by limiting the temperature increase to 1.5°C above industrial levels, the Agreement indirectly is reducing the risks that such increase poses to human health[535] and, by directly linking the Subsidiary Body For Scientific and Technological Advice to the UN Sustainable Development Goals (of which public health is a major goal), it automatically embraces its principles and supports its objectives, thus putting health at the centre of its concerns[536].

In support of its view, Onzivu explains that health definitely is a co-benefit of mitigation and that, the perspective that it may become a co-benefit of adaptation, surely incentives the effort in adaptation plans in many regions[537]. On this note, a study conducted by Wiley and al., has demonstrated that almost two thirds of the intended nationally determined contributions

---

[530] Bodansky, Brunnée, Rayamani, op. cit., p 227

[531] William Onzivu in *Climate Change, Public Health, and the Law,* Michael Burger and Justin Gundlach (eds), Cambridge University Press (2018), p. 353

[532] WHO, *Improving Coherence Of Climate Change, Health And Developing Policy* (2011)

[533] Onzivu, op. cit., p. 355

[534] Ivi

[535] Ivi

[536] Ibid, p. 354

[537] Ivi

submitted to the UNFCCC contained a direct reference to health[538], thus proving that public health has been recognised by the Parties as fundamental for the fulfilment of the Paris Agreement. Interestingly, health and public health are present in all the submissions from African, Asian, Latin American and Caribbean Parties, while only 13% of European countries integrated health in their NDCs and, not surprisingly, there was no explicit reference in the United States[539]; in addition, of all the mentions of health, 75% were related to adaptation, rather than mitigation[540].

From this, some considerations may be done. First, the main, ambitious target of the Paris Agreement to limit the temperature increase to 1.5°C above pre-industrial levels, certainly has positive effects on human health and therefore contributes to the protection of the right to health; however, while definitely higher than in other treaties within the climate regime, the target of reducing emissions and limiting global warming is present in the UNFCCC and in the Kyoto Protocol as well, one might say that it is the reason for which international climate law was established, thus albeit a significant improvement, the Paris Agreement does not represent an innovation on this field, nor in protecting human health from climate change. Second, it is evident that less developed and more vulnerable countries are particularly in need of provisions to protect their right to health and, for this reason, have been demanding an explicit reference to such right in the binding body of the Agreement; nevertheless, as it has been mentioned before, there have always been constraints and limitations from more developed States, especially from the US, on what to include in the treaty and which language to use, hence the reference to human rights in the Preamble may be considered, once again, as another concession given by the developed states to accommodate the requests of the less developed Parties. Third, despite some of the funding of the Green Climate Fund are supporting health-related projects[541], the agreement does not contain any provision directly requiring the States to invest in the health sector, thus it is left to the COP's will to decide where to allocate the financing.

On the basis of these considerations, it may appear that the only possible conclusion to draw is that the Paris Agreement is far from being a health agreement. Surprisingly, the WHO, the main organisation on public health, has argued otherwise. Dr Tedros Adhanom Ghebreyesus, the Director-General defined it as 'potentially the strongest health agreement of this century'[542],

[538] Elizabeth Wiley et al., *Health In Intended Nationally Determined Contributions,* available at: https://www.mcgill.ca/epi-biostat-occh/files/epi-biostat-occh/analysis_of_indcs_1.pdf
[539] Ibid
[540] Ibid
[541] WHO's COP-24 Special Report: *Health And Climate Change* (2018), available at: https://unfccc.int/news/who-health-benefits-far-outweigh-costs-of-meeting-paris-goals
[542] Ibid

basing on the estimates that predict that a full and correct implementation of the agreement, thus by *simply* reducing emissions, could save almost a million lives annually and that the cost to achieve this target, through mitigation policies, will be doubled by the health gains and co-benefits received[543]. It has been proved, that 7 million people die annually due to exposure to air pollution and this costs US$ 5.11 trillion in welfare losses worldwide, which corresponds to almost 4% of the GDP of some countries, like China and India[544]: the costs to implement their obligations undertaken in Paris, instead, amounts to only 1% of their GDP. Therefore, it is more convenient to invest in mitigation and adaptation strategies, rather than bearing the costs of the impacts that climate change has on the health sector. Accordingly, Dr Maria Neira, WHO Director of Public Health, Environmental and Social Determinants of Health, declared that 'when health is taken into account, climate change mitigation is an opportunity, not a cost'[545].

It is evident that there are divergent opinions on the linkage between the Paris Agreement and the protection of health, consequently related to the realisation of the right to health. On one side, it can be asserted that for its substantive nature, the Agreement cannot be classified properly as a health agreement; on the other, it is true that its main objective to reduce the temperature increasing to 1.5°C above pre-industrial level is aimed at limiting, or at least slowing, climate change and thus, by limiting climate change it would also reduce the effects that it has on human health, so it would be incorrect to conclude that the Agreement does not consider health. Nevertheless, the potential co-benefits that health may derive from the Agreement are definitely not sufficient to address the damages that climate change has already caused. Considering the severity of the matter, a vague reference is not and cannot be enough: there is an urgent need for an international treaty that links climate change to human health, and which establishes binding obligations on State to take action to safeguard the human right to health of every individual.

3.4 Other State responsibilities and obligations

Throughout the chapter, it has been showed how the climate law has established rules and imposed obligations on States to limit their greenhouse gasses emissions in order to reduce the anthropogenic influences on the environment and on the climate; also, with the establishment of GEF, the Adaptation Fund and the GCF, it has provided a financial mechanism in support of the more vulnerable countries which do not possess the economic and technical capabilities to

[543] Ibid
[544] Ibid
[545] Ibid

adopt mitigation and adaptation strategies. However, as it has been discussed in the paragraph on loss and damage, climate law has not, for now, established provisions that precisely define climate change damage, prohibit certain types of damage or formulated a way in which such damage may be compensated. Concerning human health, it is undeniable that huge damages have been caused by climate change that have severely affected people's ability to fully enjoy their right to health, nonetheless the Convention, the Protocol nor the more recent Paris agreement contain provisions on how these damages should be addressed and on who should be considered responsible.

The fact that climate law does not tackle the issue of damage, however, does not exclude the application of other rules present in customary international law, thus it is possible for States to invoke rules and principles which are not part of the climate regime, but which are recognised as customary international law.

3.4.1 The No Harm Rule

According to the no harm principle, every State has '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'[546] . This principle, which has its foundations in the concept of *good neighbourliness*[547] between States, was first affirmed by the well-known *Trail Smelter* case, when, through arbitration, a tribunal concluded that Canada was responsible for the emissions produced by a private smelter within its territory, that were causing damages to the US agriculture and consequently established a mechanism to control future emissions in order to prevent further transboundary harm[548]. In 1941 the tribunal decided that 'Under the principles of international law . . . no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence'[549]. Even now, decades later, this decision is considered to have set the fundaments of prevention duties and for State responsibility for environmental damage and, was thereby reaffirmed in the 1972 Stockholm Declaration on Human Environment, in its

[546] Verheyen, op. cit., p. 145
[547] Ivi
[548] The Trail Smelter arbitration, the United States v. Canada, 1938 and 1941, RIAA vol. 3, pp. 1905-1982, https://legal.un.org/riaa/cases/vol_III/1905-1982.pdf
[549] Ibid

principle 21[550] and in the 1992 Rio Declaration[551], which definitely made the no harm principle the cornerstone of international environmental law.

Since climate change is undoubtedly the gravest environmental harm ever witnessed, it is astonishing that the no harm rule has not been included within the climate law. Whereas the principle of common but differentiated responsibilities basically draws from the no harm rule, as it is primarily related to the historical contribution to climate change, Mayer remarks that this differentiation has been conceived mainly on the economic capabilities of some States, meaning that developed countries have accepted to bear the greatest share of responsibility for climate change as wealthy and in possess of the capabilities to implement mitigations plans, but without acknowledging that as industrialised States they caused harm to others[552]. Consequently, even the most recent instrument, the Paris Agreement, is founded on the voluntary contributions of the Parties and, as discussed above, the reference to loss and damage appears to be the result of political compromise, rather than the actual will to address the harm provoked by industrialised States.

One of the main objections faced in including the no harm rule within climate law is related to the concept of *lex specialis*[553]; some argue that the Kyoto Protocol, having established the principle of common but differentiated responsibilities, acts as a *lex specialis,* thus precluding the application of the no harm rule[554], since the two principles deal with the same matter. However, according to the *lex specialis* principle, 'there must be some actual inconsistency between them, or else a discernible intention that one provision is to exclude the other'[555] and this is not the case. As a matter of fact, prior and during the negotiations for the Convention, Small Island Developing States have, indeed, openly affirmed that the adoption of the convention and their adherence to the climate regime did not 'constitute a renunciation of any rights under international law concerning state responsibility for the adverse effects of climate change, and that no provisions in the Convention [could] be interpreted as derogating from the principles of general international law'[556]. Therefore, Mayer concludes that the climate regime

[550] Declaration of the United Nations Conference on the Human Environment, United Nations Conference on the Human Environment, principle 21

[551] UN Rio Declaration On Environment And Development 1992, Principle 2, available at: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf

[552] Benoît Mayer, *The International Law on Climate Change,* Cambridge University Press (2018), p. 67

[553] The doctrine of *lex specialis* affirms that a specific law (climate change law) prevails on the general law (customary international law)

[554] Ibid, p. 68

[555] Ivi

[556] Declarations of Kiribati, Fiji, Nauru and Tuvalu upon signature of the UNFCCC, 1771 UNTS 317–18.

does not constitute a *lex specialis*, for it does not address the breach of the no harm rule[557]. Despite this, it must be observed that, in order to function within climate law, the no harm rule needs to be adapted to the context; more specifically Verheyen explains that there are two major difficulties in adapting this rule to the climate regime, concerning the nature of the harm and the content of the State's obligations. It is commonly accepted that, to result in a breach of the no harm rule, the damage occurred must be significant, thus of important meaning[558], with serious consequences[559] and resulting in serious injuries[560]. This classification is not problematic if considered within the climate change framework, for it has been unanimously recognised that the damages provoked by climate change are far for being insignificant and constitute a serious threat for the wellbeing and health of people. Nevertheless, difficulties arise because, drawing from the analysis in chapter 2, the effects of climate change can be both direct and indirect, remote and consequential, interconnected and influenced by political, social, economic and cultural factors. For instance, it has been described how health is deeply socially, economically and culturally determined, as well as profoundly affected by the vulnerability of the subject to specific situations, particularly due to the level of legal protection provided by the State. In light of this, it becomes extremely complicated to identify the type of harm suffered, if and how it has impacted on the resilience and adaptive capacity of the community and of the individuals. Thus, assessing harm caused by climate change is clearly more difficult and less immediate than in more general cases of environmental degradation[561]. However, there exists plenty of scientific evidence elaborated by the IPCCC that connect the high level of GHG emissions to the global temperature increase and similarly, there exists evidence proving that the more frequent incidence of extreme weather events, diseases outbreaks, deaths for chronic diseases and malnutrition are caused by the constant global warming. Considering the atmosphere and the high seas as global commons, one may logically apply the no harm rule to circumstances where 'one, several, or even all states are causing serious harm to global atmospheric commons, which, states recognized, are equally of common concern'[562].

The content of a State's obligation in relation to the no-harm rule was defined by the International Law Commission as one of due diligence[563], which obliges states to 'take all

[557] Mayer, op. cit., p. 70
[558] Verheyen, *op. cit*., p. 150
[559] Ivi.
[560] Ivi.
[561] Mayer, *op. cit.,* p. 72
[562] Ivi.
[563] Prevention of Transboundary Harm from Hazardous Activities, draft articles adopted by

appropriate measures to anticipate, prevent or minimise the causes of climate change, especially through effective measures to reduce greenhouse gas emissions'[564]. Since it has been scientifically proved that the measures adopted by states to mitigate climate change are inappropriate and, taking into account the precarious health conditions of millions of individual due to climate change effects, it is not incorrect, quoting the words of Mayer, to affirm that the States' failure to take appropriate measures is indeed a violation of the standard of due diligence [565]. In international law, such standard is assessed on the basis of three criteria: the opportunity to act or prevent, foreseeability or knowledge that a certain activity could lead to transboundary damage and proportionality in the choice of measures to prevent harm or minimize risk[566]. This due diligence test can be applied to all kinds of activities, including those causing climate change and, as a result, making the no-harm rule easily adapted to the climate change regime. Although in the past decades it has been argued by Schröder that these requirements of conduct in the context of climate change may be unreasonable or disproportionate due to the scientific uncertainty on the matter, which gave States a larger margin of discretion in adopting mitigation policies[567], this is definitely not the case in 2020, for such scientific uncertainty has been overcome and currently States are in possess of all the necessary information to actually act with due diligence. In particular, progress in science and technology have significatively contributed to the second element, the foreseeability: it is now certain that emissions above a certain threshold cause the global warming which is at the origin of natural disasters, pandemics and lack of food and water security; furthermore, not only is possible to predict the future effects of climate change, but considering the concept of vulnerability, is now possible also to predict which areas and which population are going to be affected the most, therefore allowing State to formulate proportionate responses. As the first report of IPCC issued in 1990 already warned that anthropogenic emissions were responsible for the constant temperature increase, the argument on scientific uncertainty and the impossibility to foresee and prevent climate change damage is not valid.

To conclude, on the basis of these analysis it is possible to affirm that the no-harm rule may be easily introduced within the climate regime, especially as this rule applies equally to all countries, both developed and developing, but based on their capacities, thus reflecting the

---

the International Law Commission, UN Doc A/56/10, Commentary on art 3, para 7 (2001). https://legal.un.org/ilc/texts/instruments/english/commentaries/9_7_2001.pdf

[564] Ivi.

[565] Ivi.

[566] Ivi.

[567] Verheyen, op. cit., p. 153

approach adopted by the Paris Agreement in urging the so called non-annex parties to take action. In her study of 2005, Verheyen optimistically affirmed that the application of the no-harm rule was to be fundamental in the negotiation for the future climate treaties as States would be called to comply with an existing customary international law obligation, rather than with their good-will promises[568]. Needless to say, the Paris Agreement took a whole different, one may even say opposite, approach.

3.3.2 Reparation for the damage

As the no-harm rule constitutes a customary international law obligation, a State that breaches it is to bear the responsibility. In international law, the concept of responsibility is understood as 'a concomitant of substantive rules and of the supposition that acts and omissions may be categorised as illegal by reference to the rules establishing rights and duties'[569], and on this basis, the conduct of a State which breaches its international obligations it is considered to be an internationally wrongful act[570]. According to the law of the State responsibility, which is a body of law codified by International Law Commission (ICL)[571], an internationally wrongful act generates two legal consequences: the continued duty of performance, as in the obligation to cease the wrongful act, and the obligation to make reparation for any injury[572]. Thus, the focal point of responsibility is reparation, which following the judgment issued by the Permanent Court of International Justice in the case of the *Factory at Chorzów ,* should 'wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed'[573].

As already mentioned, Small Island States have been fighting for decades to introduce the concept of responsibility and reparation within the climate regime but all they obtained was a short article in the Paris Agreement. Behind this, there exist several reasons that make particularly complicate to link full reparation to the damages caused by climate change.

First of all, the ICL established that there must be a clear link of causation between the harmful activity and the outcome. While it is more immediate to link GHG emissions to global warming

[568] Vehreyen, op. cit., P. 192
[569] Mayer, op. cit, p. 78
[570] Ivi.
[571] ILC, 'Draft Articles on State Responsibility for Internationally Wrongful Acts', Report of the International Law Commission, 53rd session'', General Assembly, Official Records, 56th session, Suppl. No. 10, UN Doc. A/56/10. Available on /http://www.un.org/law/ilcS
[572] Ibid.
[573] The Permanent Court Of International Justice, Case Concerning The Factory At Chorzow, https://www.icj-cij.org/files/permanent-court-ofinternationaljustice/serie_A/A_09/28_Usine_de_Chorzow_Competence_Arret.pdf

and variations in climate, also thanks to the IPCC reports, it is definitely less easy to establish and to prove that the GHG emitted by a certain State have damaged the health of an individual or of a population. However, the law of state responsibility has showed some flexibility, establishing that the concept of responsibility will be applied to any harm, unless it is 'too indirect, remote, and uncertain to be appraised'[574], thus not requiring a direct link of causation. Despite this, the issue of determining causation remains an on-going debate. Some scholars such as Boyle argues that it is practically impossible to prove causation concerning transboundary air pollution and climate change[575], whereas Okowa supports the idea that, albeit difficult, it is in fact possible to establish a causation link, relying both on scientific evidence and on the *Trail Smelter* case; in this case, she remarks, the mere fact that even a small fraction of the harmful emissions was generated within the territory of Canada was sufficient for the tribunal to attribute the damage to the country[576].

Second, once the wrongful conduct and its outcome have been acknowledged, they must be attributed to a specific State, which will be found responsible for the breach; similarly, the State which was subjected to the harm and thus has the right to receive the reparation, must be identified. Here, the difficulties arise since, usually, harms generated by GHG emissions are conceived as harms to the global commons and not to individual States[577]. Thus, the health effects of climate change and its impact on people's right to health tend to be regarded as harms suffered by the international community as whole, making more difficult to recognise who is entitled to reparation[578]. What is more, while the ICL generally admits the possibility of reparation for a damage towards the international community as a whole, such as restitution and satisfaction[579], within the climate change regime that would not be feasible, thereby the issue remains. In addition, climate change law provisions on adaptation are primarily directed to harms suffered by individuals or groups of individuals (namely the most vulnerable) and not by the State in its totality[580]. Mayer remarks that this approach in not consistent with international law as, generally, 'international law is based on the assumption that the state

[574] Mayer, *op. cit*., p. 92
[575] Alan E. Boyle, 'State Responsibility and International Liability for Injurious Consequences of Acts Not Prohibited by International Law: A Necessary Distinction?' *The International and Comparative Law Quarterly Vol. 39, No. 1 (Jan., 1990),* p. 3, available at: ttps://www.jstor.org/stable/760317
[576] Phoebe N. Okowa, State Responsibility for Transboundary Air Pollution in International Law, *Oxford University Press,* (2000), P.69
[577] Ibid, p. 70
[578] Ivi.
[579] Boyle, op. cit, p.5
[580] Mayer, op. cit., p. 92

suffers an injury when its nationals are harmed'[581], therefore advocating for the complementary adoption of both adaptation and classical reparation. To support his argument, he highlights how funds for adaptation gathered through the various body of Financial Mechanism (mainly the GCF) are imposed on multiple conditions and directed to specific sectors while neglecting others, thus he suggests that identifying the States as intended beneficiaries of reparation and not specific groups would resemble a more *just* response to the issue of climate change damage[582]. Concerning the main focus of this work, namely the damage that climate change causes to human health, this view can be particularly significative. On one hand, it is undeniable that health is an individual matter and that climate change differently affects people's health depending on their social, economic and vulnerability status; on the other, one should also notice that by negatively impacting, albeit in different ways and at different levels, the health of individuals, by limiting their capacity to access healthcare or by posing strains on the public health systems (as illustrated in chapter 2, this usually happens during and after heatwaves, extreme weather events and as we are currently experiencing, during epidemics), basically climate change causes a harm to the State as a whole. Therefore, Mayer's position does not appear to be ill funded.

Third, after having identified the beneficiary of the reparation, the damage must be compensated. Even in this case, the major problem in applying this rule to the climate regime is that there are some effects induced by climate change, mainly health effects, which are not of economic nature and thus cannot be financially compensated. Adverse health impacts, loss of life, physical and psychological well-being are listed by several authors, namely Morrissey and Oliver-Smith[583], Fankhauser and Dietz[584] and Andrei[585], as the primary non-economic loss and damage (NEDL), those harms that cannot be quantified and whose value is not defined by the market. In this particular circumstances, where it is evident that a full reparation will not be

[581] Ibid, 93
[582] Ivi.
[583] James Morrissey and Anthony Oliver-Smith 'Perspectives on non-economic loss and damage: understanding values at risk from climate change' L*oss and damage series, United Nations University Institute for Environment and Human Security*, Bonn. (2013) http://loss-and-damage.net/download/7308.pdf
[584] Sam Fankhauser, Simon Dietz and Philip Gradwell 'Non-economic losses in the context of the UNFCCC work programme on loss and damage (policy paper)'. *Economics and Policy, Grantham Research Institute on Climate Change and the Environment* London School of Economics—Centre for Climate Change (2014)
[585] Stephanie Andrei *et al.*, 'Non-economic loss and damage caused by climatic stressors in selected coastal districts of Bangladesh', *Bangladesh Centre for Advanced Studies*. Supported by the Asian Development Bank. http://www.icccad.net/wp-content/uploads/2016/02/ADB-Study-on-Non-Economic-Losses-and-Damages-Report_Final-Version-Reduce d-File-Size.compressed1.pdf

provided, adaptation is the only solution. Although Mayer[586] and Mechler[587] agree on the substantial difference between the obligation included in the Paris Agreement to financially support adaptation strategies and the restorative obligation in international law, they also admit that directing the funds gathered through the GCF towards the public health sector of the most affected States and investing in healthcare infrastructure may be the most efficient way to acknowledge the damage suffered and, while not compensating for it, would still be a form of reparation.

3.3.3 Recognition of state responsibility: the Urgenda Foundation v. Netherlands case

The case of *Urgenda* v. the Netherlands is considered one of the most successful climate litigations. While it drew attention already at the time of its submission to the district court of The Hague, it was the decision of the Dutch Supreme Court in December 2019 which made this case famous worldwide and a proper landmark for climate justice. The analysis of this case is relevant to this work as it shows how a national court has used the concept of no-harm and breach of the duty of care to judge a climate case, as well as it has recognised the link between GHG emissions, climate change and human rights violations.

Urgenda is a foundation established in 2008 aimed at 'stimulating and accelerating the transition processes to a more sustainable society, beginning in the Netherlands'[588]. In November 2012, on the basis of the new IPCC finding, Urgenda requested the Netherlands, on behalf of 886 Dutch citizens, to reduce its GHG emissions of 40% by 2020 compared to 1990 levels[589]; the request was denied by the Government, which consequently was brought before the district court of The Hague by the foundation[590]. The focal point of the litigation was the emissions reduction targets adopted by the Netherlands: the objective to reduce 14 to 17% by 2020 its emissions, without implementing a process of structural transition towards more sustainable modes of production and consumption, was considered unsatisfactory by *Urgenda*. Thus, before the District Court the foundation claimed that 'the State acts unlawfully if it fails to reduce or have reduced the annual GHG emissions in the Netherlands by at least 40%

---

[586] Mayer, 'The relevance of the no-harm principle to climate change law and politics', *Asia Pacific Journal of Environmental Law, Vol. 19, 2016*, p. 82

[587] Reinhard Mechler and Swenja Surminski, *op. cit*, p. 142

[588] By-laws of Urgenda, Art. 2, as cited in the District Court of The Hague (DC), Urgenda Foundation v. The State of the Netherlands, Case No. C/09/456689 / HA ZA 13-1396, 24 June 2015, para. 2.2, available at: https://elaw.org/system/files/urgenda_0.pdf (Urgenda 1).

[589] Benoit Mayer, 'The State of the Netherlands v. *Urgenda* Foundation: Ruling of the Court of Appeal of The Hague (9 October 2018)', *Transnational Environmental Law, 8:1,* pp. 167 doi:10.1017/S2047102519000049

[590] Ibid, p. 170

compared to 1990, by the end of 2020'[591]. The claim advanced by *Urgenda* was built on different legal basis, which have already been addressed in this chapter: the climate regime and the obligations to which the State is subjected as a Party of the UNFCCC and the Kyoto Protocol, the customary international law no-harm rule, the precautionary principle and human rights law (specifically right to life and to family right under ECHR), plus the obligation that the State has under its domestic law to protect the environment and tort law[592]. While the District Court rejected most of the legal sources presented by Urgenda, namely the fact that under the climate regime the Netherlands have obligations towards other states, not towards individuals[593], it has however recognised that the legal sources presented by the foundation helped in defining the duty of care that the State owns to the society and the doctrine of hazardous negligence[594]. On this basis, On 24 June 2015, the District Court of The Hague decided that the Netherlands 'must cut its greenhouse gas emissions by at least 25% by the end of 2020 (compared to 1990 levels)' and 'immediately take more effective action on climate change'[595].

This judgment was considered ground-breaking and created a major political debate within but also outside the country. Despite having committed to taking steps to implement the decision of the Court, the Netherlands still submitted the judgment to the Hague Court of Appeal, which held is hearing on 28 may 2018[596]. Similarly, *Urgenda* filed a counter-appeal, as the District Court had dismissed its claims on human rights and based its ruling only on environmental and domestic law[597]. Therefore, this time, the focus was shifted from the State's obligation under international climate law, towards the State's obligation under human rights law; on 9 October 2018, the Hague Court of Appeal upheld the decision of the District Court on the basis of the positive obligations of the State 'to take concrete action to prevent further violation of art. 2 (right to life) and art. 8 (right to family life) of ECHR'[598] , recognising that

[591] Urgenda 1, para. 4.29.
[592] ibid, para. 4.36
[593] Ibid, para 4.46
[594] Ibid, para 4.45
[595] *I*bid*,* para. 4.42.
[596] Mayer, op. cit., p. 173
[597] Jonathan Verschuuren, '*The State of the Netherlands v Urgenda Foundation*: The Hague Court of Appeal upholds judgment requiring the Netherlands to further reduce its greenhouse gas emissions', RECIEL. 28 (2019), pp.94-98 https://doi.org/10.1111/reel.12280
[598] Court of Appeal of The Hague (CA), The State of the Netherlands (Ministry of Infrastructure and the Environment) v. Urgenda Foundation, C/09/456689 / HA ZA 13-1396, 9 Oct. 2018, available at: https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:GHDHA:2018:2610 (Urgenda 2), para. 31

the GHG emitted by the Netherlands represent a threat of the human rights of future generations, recalling the language adopted by the UNFCCC[599].

Among the objections presented by the State, two are particularly noteworthy in light of what has been discussed in the prior paragraphs: the causation link between global climate change and GHG emitted within the Dutch territory and the responsibility of the State under the climate regime. As illustrated above, the major difficulties in climate litigation consist in establishing a clear causation link between the wrongful act and the damage occurred; as a matter of fact, this is the reason of unsuccess of most of the climate-related cases at national level, for the inability of the applicants to identify a satisfactory causation link[600]. Nevertheless, the Hague Court of Appeal noted that, in this case the applicant (Urgenda) was not requesting reparation for the damage, but the reduction of the emissions (in a certain sense, the cessation of the wrongful act), thereby limiting the relevance of the causation link, as 'it suffices that there is a real risk of the danger for which measures have to be taken'[601].

Secondly, the State argued that the its contributions to GHG emissions amounts to less than 0.5% of total emissions, therefore even a drastic reduction would unlikely have a positive impact on the wellbeing, thus on the health, of Dutch nationals[602]. Needless to say, the objection was rejected by the Court, on the basis of the well-known common but differentiated responsibilities, affirming that as an annex 1 Party to the Convention, the Netherlands had obligations to reduce its emissions within its capabilities[603] and remarking that it was not possible to allow such objection for 'each state held accountable would then be able to argue that it does not have to take measures if other states do not [do] so either'[604].

In light of the judgment of the Hague Courte of Appeal , the Government filed an appeal to the Supreme Court on January 2019. Almost an year later, on 20 December 2019, the decisions of the District Court and of the Court of Appeal were confirmed by the judgment issued by the highest judicial body of the country[605]. More specifically, the Supreme Court reiterated the reasoning of the Court of Appeal, reinforcing the focus on human rights. With the support of the scientific evidence provided by the reports of IPCC (mainly AR4 and AR5), the Court has concluded that climate change, by causing extreme weather events, heat waves, severe droughts and infectious diseases epidemics, directly affects the health, wellbeing and life of

[599] ibid, para 41
[600] Verschuuren, *op. cit.*, p. 95
[601] Ivi
[602] Ivi
[603] Urgenda 2, para. 62
[604] Ibid, para. 64
[605] The Urgenda Climate Case, https://www.urgenda.nl/en/themas/climate-case/

individuals[606], protected by arts. 2 and 8 of the ECHR and thus, by contributing to climate change with its emissions, the State was violating these rights; furthermore, these articles impose on the State the positive obligation 'to take measures to counter the genuine threat of dangerous climate change'[607]. Whereas the State argued that these articles do not oblige to provide protection climate change, as the threat is too broad both in cause and nature, thereby not falling under the protection of ECHR[608], the Court drew from the jurisprudence of ECtHR and concluded that the case actually falls within the scope of the ECHR, as art. 2 has been previously applied to cases concerning environmental hazards and natural disasters[609]; similarly, the case-law of the ECtHR showed that art. 8 has been violated in different cases related environmental harm and thus 'encompasses the positive obligation to take reasonable and appropriate measures to protect individuals against possible serious damage to their environment'[610]. Moreover, the Supreme Court has relied on the precautionary principle in deciding that the obligations to take measures to counter an immediate threat generating from arts 2 and 8 are to applied in the context of climate change[611] for its effects, although may occur in the long term, still represent a direct threat to the life and wellbeing of the inhabitants of the Netherlands. On this basis, and following the scientific consensus that, in order to prevent the temperature increase to go beyond 2°C above industrial levels, the minimum target of emission reduction was 25-40%[612], the Supreme Court thus ruled that the Netherlands is obliged to achieve the reduction at least 25% by 2020.

It is not surprising that the ruling of the Supreme Court received acclamation and admiration worldwide, as for the first time ever not only did a national court affirm the profound interconnection between human rights and climate change, it mainly based its ruling on the evidence that climate change causes severe harms to human rights and for this, States can be found responsible. On this note, the UN High Commissioner for Human Rights Michelle Bachelet declared that 'the recognition by the highest Dutch court that the Netherlands' human rights obligations provide a legal basis to compel stronger and more rapid action by the

[606] Supreme Court Of The Netherlands Civil Division, The State Of The Netherlands (Ministry Of Economic Affairs And Climate Policy), V. Urgenda Foundation 19/00135 20 December 2019 available at: https://www.urgenda.nl/wp-content/uploads/ENG-Dutch-Supreme-Court-Urgenda-v-Netherlands-20-12-2019.pdf , para 4.2 (Urgenda 3)
[607] Ibid, para,5.6.2
[608] Ibid, para 5.1
[609] Ibid, para 5.2.2
[610] Ibid, para 5.2.3
[611] Ibid, para 5.3.3
[612] Ibid, para 8.3.5

Government is vitally important'[613] and urged individuals and civil society groups 'to undertake climate litigation in order to protect human rights'[614].

Although the human rights concerned in the *Urgenda* case are the right to life and the right to family life, it is undeniable that in its reasoning, the Court took into account the adverse effects that climate change has on health and on the human right to health. Thus, if not explicitly and rather indirectly, this judgment is particularly significant in the discourse regarding health and climate change. This case, being the 'first in the world in which citizens established that their government has a legal duty to prevent dangerous climate change'[615], is undoubtedly considered the starting point of a new approach to climate litigation, the human rights approach, the same one which Small Island States and Developed States have been demanding for years to be introduced within the climate regime. Despite not involved in the case, the decision of the Supreme Court is clearly of major relevance for the most vulnerable countries, which see in this judgment a solid precedent on which they can now base their claims in protection of their rights.

Conclusion

Similarly to what has been done in chapter one, this chapter has analysed the legal framework for climate change with the final aim to assess whether it provides any protection to the right to health which, as demonstrated in chapter 2, is negatively affected by the consequences of climate variations. Taking into account the three main legally binding treaty within the climate regime, namely the UN Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement, it has been possible to evaluate the evolution and the continuities of climate law. Albeit in different declinations, due to the two decades occurred from the UNFCCC to the Paris Agreement, it is possible to identify three common, recurrent elements: the common but differentiated responsibilities, the precautionary principle and the financial support for mitigation and adaptation. As the scope of climate law is to limit climate change damage, the reduction of GHG emission is the main target of all three treaties, one may even say that each treaty is the consequence of the failure to meet the objectives set in the previous one. Logically, the UNFCCC recognises the different historical contributions that developed and developing countries had to GHG emissions resulting in climate change (common but

[613] UNOHCHR, *Bachelet welcomes top court's landmark decision to protect human rights from climate change,* available at: https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25450&LangID=E
[614] Ibid.
[615] The Urgenda Climate case, https://www.urgenda.nl/en/themas/climate-case/

differentiated responsibilities), thus dividing the Parties in two groups; those who have the obligation to reduce their emissions, in order to prevent a further increase in the temperatures (therefore applying the precautionary principle) and, on the basis of their wealth as developed states, are called to provide funds for mitigation and adaptation projects, and those who are the beneficiaries of such funds, as the less developed and more vulnerable States. Despite the shift to a more 'country-driven' approach in the Paris Agreement, the division between the two groups of States still plays a major role in negotiations and in every Conference of the Parties.

The first problem that arises from this analysis, is the lack of an enforcement body that monitors the compliance with the States' obligations. While, contrary to the other treaties, the Kyoto Protocol has set stricter obligations and is provided with a legally binding Enforcement Branch, one should not forget that as a treaty, if Parties decide to be relieved from their commitments, they have the possibility to withdraw. Secondly, the obligation to financially support developing countries in mitigating and adapting to climate change has caused controversies and debates which exacerbated the tensions between annex 1 and non-annex Parties, mainly in deciding to which country and to which sectors the funds should be allocated and, above all, for the industrialised States' frustration of having to bear all the costs; moreover, the establishment of various bodies for the Financial Mechanism, from GEF to the GCF, has generated further confusion on the issue and terminated, once again, with the US withdrawing from the Agreement. Lastly, the complete absence (if not considering the minimal reference in the Paris Agreement Preamble) of an explicit correlation between climate change and infringement of human rights cannot be overlooked. As is has been assessed, WHO has regarded the Paris Agreement as public health agreement, for with its targets and language, albeit indirectly, aims at reducing the impacts that climate change has on the health of individuals. However, due to the relevance of the Agreement within the climate regime and the severity of damages provoked by climate change on the health of the most vulnerable groups, indirect benefits and implicit references are clearly not sufficient.

Speaking of damage, another issue emerged is the absence, in the treaties considered, of a compensation mechanism which addresses the problem of reparation and responsibility. The last part of the chapter has thus taken into account rules and principles outside the climate regime which nonetheless may be applied to climate change damage: the no-harm rule of customary international law and the law of state responsibility, focusing on the State's obligation to reparation for the damage caused. A demonstration on how these rules may be applied to the context of climate change has been provided by the climate litigation *Urgenda Foundation v. the Netherlands*, in which not only a State (the Netherlands) was judged

responsible of having caused harm to individuals and thus obliged to reduce its emissions, but the Dutch Supreme Court also recognised, for the first time ever, that the harm originated from the wrongful act of the State consisted in a breach of human rights, namely arts. 2 and 8 of ECHR.

As scientific and technologic progress has allowed a more accurate and precise knowledge of the impacts of climate change on human life, as well as having developed new tools to predict and prevent, at least partially, the disastrous consequences of this phenomenon, it is astonishing how these progresses are not reflected in the developing of legal provisions and policies that appropriately protect human health. Although it represents a landmark for climate law, for presenting a bottom-up alternative and involving less developed countries as financial donors, thus evolving for the more traditional approach of the Kyoto Protocol, it is undeniable that the Paris Agreement is mainly the results of too many political compromises, between industrialised and less developed countries, but also between the COP and the United States. If, one side, these compromises were fundamental to reach an agreement to be ratified by the greatest number of States, they necessarily diverted the attention from the main objective of the treaty, namely to strengthen the global response to climate change and increasing the adaptive capacities of individuals and countries, which would be impossible without first ensuring that individuals' and populations' right to health, and thus their wellbeing, is granted.

4. CLIMATE CHANGE IS AN HEALTH EMERGENCY: THE URGENCY OF ADAPTATION IN THE HEALTH SYSTEM

Introduction

The previous chapter aimed at understanding whether climate change law is actually concerned with the right to health. While most of the State's obligations originate from the necessity and from the will of the international community, in this case the COP, to limit climate change and prevent further damage to human life, the climate regime does not contain specific obligations regarding the protection and violation of the right to health, nor precise measures for the adaptation of the public health sector to what can undoubtedly be considered a public health emergency. As it has been widely demonstrated through this work, climate change is a public health stressor for two main reasons. First and foremost, it negatively impacts the health of individuals, depriving them of the environmental, social and economic conditions fundamental for their wellbeing; secondly, it undermines the determinants of healthcare, making it less available, affordable, accessible and of lower quality. Clearly, these two conditions inevitably interfere with people's ability to fully enjoy their right to health.

Since the climate regime has yet to properly address, from the legal perspective, the health consequences of climate change, a prompt response must come from the public health sector. Therefore, this chapter will deal with the programmes and initiatives adopted by organisations in the health sector, specifically WHO, aimed at protecting people's health and their rights from climate change. As it will be discussed, the response from WHO is primarily focused on adaptation and resilience, thus before proceeding it is necessary to better delineate these concepts. Resilience is described by IPCC as the 'capacity of a social-ecological system to cope with a hazardous event or disturbance, responding or reorganizing in ways that maintain its essential function, identity, and structure, while also maintaining the capacity for adaptation, learning and transformation'[616]. Accordingly, IPCC has defined adaptation as 'the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects'[617]. What is more, when planning adaptation, governments must take into account the system's adaptive capacity, which is understood as 'the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or

[616] IPCC, AR4 2007
[617] Ibid.

to cope with the consequences'[618]. Similarly to vulnerability, the adaptive capacity is determined by several factors, and especially for the health sector, this capacity is heavily influenced by the economic status of a country, its political stability, the quality of infrastructures and the accessibility to technology[619]. It is indeed impossible to think of adaptation of the health system leaving out the country's financial capabilities, the political will to invest in the sector and the technical capacities: as it has been affirmed at the end of chapter 1, the precarious condition of many healthcare systems is mainly due to the negligence of State leaders combined with scarce technical and financial resources. The same, obviously, happens with adaptation: Smit and Pilifosova logically conclude that the highest adaptation capacity is registered among the wealthiest States, while the poorest countries possess the lowest capacity to adapt , despite being the most in need[620]. Accordingly, the more information and skills are widespread within a society, the highest its adaptive capacity will be[621] and, is it easy to understand how information and education are crucial in the health sector. Therefore, considering the lack of action from the climate regime, it is fundamental that the response coming from the public health sector addresses all these factors, particularly regarding information and awareness spreading as well as adequate financing.

It is unanimously accepted that the role of public health is 'fulfilling society's interest in assuring conditions in which people can be healthy'[622], however is it clear that climate change represents a major obstacle to this function, therefore it is crucial for the precise survival of the concept of public health that the most effective response comes first and foremost from this sector. Adaptation is classified as a form of *secondary prevention,* aimed at forecasting and predicting possible challenges in order to promptly respond[623]. Such prevention is usually carried, for any health-related issue, in three steps: assessment, with data collecting and analysis, policy development and assurance, which connect people with clinical services[624]. Nevertheless, as Levy and Patz argue, this strategy is neither sufficient nor efficient to adapt the system to climate change, due to its multi-sectoral nature[625]. Therefore, they suggest, first

[618] Ibid.
[619] Marco Grasso, *Justice in Funding Adaptation under the International Climate Change Regime,* Springer (2010), p. 22
[620] Barry Smit and Olga Pilifosova, 'From Adaptation to Adaptive Capacity and Vulnerability Reduction', in *Climate Change, Adaptive Capacity and Development*, Joel B Smith, Richard J T Klein and Saleemul Huq (eds.), Imperial College Press, August 2003, pp. 12-13, available at: https://doi.org/10.1142/p298
[621] Ibid.
[622] Levy and Patz, op. cit., p. 267
[623] Ivi.
[624] Ibid., p. 268
[625] Ivi.

and foremost, the integration of climate science within public health, as the data collected for instance by the IPCC and WMO on future temperature increase, sea level rise and possible extreme weather events may be used to forecast the specific sector that needs to be strengthened[626]. The ability to predict a future harm and consequently strengthen a system is called *preparedness*, which depends on the level of vulnerability of the system (public health) to the harm (natural disasters, heatwaves, epidemics). Wiley explains that, at least theoretically, preparedness should be the starting point of adaptation, rather than the final aim[627]. According to her, in order to properly adapt to climate change, public health systems, from the city level to the national one, should have precise characteristics. First, an efficient public health system should be able to identify risks caused by climate change and understand how they are connected to other health-related risks; second, it should adopt the 'all hazards' approach, being able to address any adverse consequence with the adequate technology and staff; third, it should increase the resilience of individuals as well as of the community; fourth, it should capitalise the potential co-benefits deriving from adaptation; finally, it should be built on cross-sectoral partnerships, as both subjects, health and climate change, require expertise in multiple disciplines and cannot be addressed individually[628].

Due to the complexity of the matter and to the high expertise necessary to achieve an appropriate outcome, the most adequate response should come from WHO, as it has the authority as well as the possibility, both political and financial, to advocate for cooperation and involve State leaders, other organisations and NGOs in a common effort that will benefit every field. States have the obligation to grant and protect every individual's right to the highest attainable standard of health, however this obligation is extended towards the whole community, as well as the right to health cannot be considered merely an individual right, but a right concerning the community at every level: subnational, national, regional and international. Thereby, it is only through WHO, the promotor of public health, that this right can be ensured despite the obstacles posed by climate challenge. Nonetheless, as anticipated in chapter 1, WHO has never adopted a human rights approach to public health, never really integrating the right to health, and the consequent obligation deriving from it, into its policies. Moreover, it is useful to remind that the only legally binding instruments negotiated by the Organisation (the International Health Regulations and the Framework Convention on Tobacco

[626] Ibid.

[627] Lindsay F. Wiley, 'Moving Global Health Law Upstream: A Critical Appraisal of Global Health Law as a Tool for Health Adaptation to Climate Change', *22 Georgetown International Environmental Law Review 439 (2010),* available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1864187

[628] Ibid.

Control) do not take into account neither the environment, nor climate change; more specifically, like it has been remarked, the environment is usually excluded from health treaties or merely considered as one of the several determinants of health[629].

Since the environment and climate change are neglected by global health law, and health is systematically overlooked by climate law, it is evident that an effective and valid response to the issue will not be feasible until these two branches are finally connected. The following paragraphs will show the attempts of WHO to address the health emergency caused by climate change, though without never resorting to international law to properly bind States to comply with their obligations.

4.1 WHO Resolution WHA61.19: A Global Mandate For Climate Change And Health

In chapter one, WHO has been defined as the most prominent global public health agency, thus playing a major role in shaping public health policies and strategies; more precisely, its Constitution[630] has given it the authority of promoting global health and of coordinating health-related initiatives to achieve it. Therefore, accordingly to its role, WHO has been showing important leadership on climate change, particularly since 2008, when through resolution WHA61.19 it officially recognised climate change as a health issue[631]. The resolution was preceded by and based on the Report by the Secretariat on 'Climate change and health', issued on 20 March of the same year[632]. In the report, the Secretariat identified climate change as a threat for public health security and affirmed that 'the health sector, at international, national and subnational level has responsibility, political leverage […] to protect the public from climate related threats to health'[633]. Profoundly destabilised by the adverse effects of climate change, in order to provide a rapid and efficient response, the public health sector needs to be strengthened, especially the capacity to deal with public health emergencies, such as those caused by extreme weather events and infectious diseases pandemics[634]. For these reasons, following the suggestions of the Secretariat, the WHA adopted the resolution which, *de facto,*

[629] De Vido, op. cit.
[630] See chapter 1, paragraph 1.1
[631] World Health Organisation, Sixty-First World Assembly, Resolution WHA61.19, 24th May 2008.
Available at: https://www.who.int/docs/default-source/climate-change/climate-change-and-health-resolution-wha-61-19.pdf?sfvrsn=63295783_2
[632] WHO, Report by the Secretariat, Document A61/14, 20th March 2008.
Available at: https://apps.who.int/gb/archive/pdf_files/A61/A61_14-en.pdf
[633] Ibid.
[634] Ibid.

established a global mandate for climate change and health. Considering the strain that climate change was already posing on public health and that such strain may jeopardise the achievement of the Millennium Development Goals, it is possible to identify the objectives which WHO has prioritised in its fight to climate change: first and foremost, cooperation with and between member states, improvement of the adaptive capacity of the most vulnerable states and, quite logically, promotion of further investment in the health sector[635]. In addition, WHO has reaffirmed the importance of fostering cross-disciplinary partnerships: after the AR4 IPCC report, it was clear that climate change was to be faced with a cross-disciplinary approach and that an effective result could be achieved only through a global and comprehensive effort[636].

It was in 2008, thus, that climate change law and health law finally became interconnected, with WHO taking the first step and recognising that 'the responsibility for protecting lives and well-being ultimately falls on the health sector'[637]. However, whereas climate change law was primarily concerned with mitigation, even the earliest responses from WHO were aimed at building adaptive capacity. This can be attributed to three main reasons. First, the extreme urgency for adaptation in the public health system emerged as the mitigation projects approved by the different mechanisms of the Convention (GEF and Adaptation Fund) rarely featured global health benefits in their objectives, nor limiting the impacts on the health sector, arguably favouring others, such as energy, transportation and the industrial sector[638]; second, quite obviously, adaptation was deemed to be the most efficient way for limiting climate change impacts on public health[639]; third, Wiley explains that strategies for adaptation to climate change are similar to the strategies normally adopted in the health field to face any type of health emergency, thereby more familiar to WHO and to health experts in general[640]. Furthermore, since adaptation to climate change and public health were already deeply interrelated, coordination between these two fields needed to be strengthened, for it is possible to gain benefits on both sides: as Kaloga pointed, this integration and cooperation may achieve better and quicker results, especially at the advantage of the most vulnerable populations, than

[635] WHO, Resolution WHA61.19
[636] Ibid.
[637] Onzivu, op. cit., p. 357
[638] Lauren Cullum, 'An Analysis of the International Climate Change Adaptation Regime and its Response to Global Public Health Concerns', *UCLA Journal of Environmental Law and Policy, 37(2), (2019),* p. 205-206, available at: https://escholarship.org/uc/item/2mg130mq
[639] Ivi.
[640] Lindsay F. Wiley, 'Healthy Planet, Healthy People: Integrating Global Health into the International Response to Climate Change', *J. of Env't L. & Litig*. *24*2 (2009), p. 221

the previous attempts from the international community[641]. On this note, the incorporation of health advocates within the climate regime is fundamental, as their contribution would only enhance the adaptation strategies elaborated, that at least thus far, have been planned and monitored mainly by environmental scientists and policy makers, without considering the more 'human' aspects of the issue, the fact that climate change is depriving people of their right to health and, consequently, of their wellbeing. For this reason, starting from resolution WHA61.19, WHO has been working with agencies and bodies which, in different ways, deal with climate change and adaptation: the World Meteorological Organisation, the United Nations Development Program and United Nations Environment Program[642]. Nevertheless, for several years the role of WHO within the climate regime remained marginal and it was only after 2015 that its involvement became fundamental. Supporting the previous meetings of COP that eventually led to the Paris Agreement, WHO began the process of integrating health in climate policies[643] and, after COP21 in Paris, helped by the Government of France and Morocco, it hosted the Second Global Conference On Health And Climate[644]. For the first time, WHO was able to gather together governmental representatives, health experts, practitioners, NGOs and environmental scientists in order to 'build healthier societies'[645]. Besides serving as global platform to engage with civil society to further promote action in both fields, the Conference had precise targets, which recalled those set in 2008: to provide guidance in the adaptation sector, to enhance the co-benefits achieved by adaptation, to monitor the progresses made in every country and, last but not least, to encourage further investments, for instance as mentioned in chapter 3, by calculating the economic losses that States would face without adopting mitigation and adaptation plans[646]. Accordingly, a major target set by WHO in 2016 was to facilitate the participation of health stakeholders and private companies to the GFC, so as to 'scale up programmes on health resilience to climate change'[647].

The more active role played by WHO within the climate regime brought to the establishment of health coalitions, namely the *Global Climate and Health Alliance the Medical Society,* the

[641] Alpha O. Kaloga et al., 'Making the Adaptation Fund Work for the Most Vulnerable: Assessing Progress in the Adaptation Fund' , *Germanwatch, Practical Action & Brot für die Welt, (Dec. 2010*), https://germanwatch.org/sites/germanwatch.org/files/publication/3511.pdf [https://perma.cc/8SSR-SLHT].
[642] Onzivu, *op. cit*., p. 358
[643] Ivi.
[644] World Health Organization II Global Conference on Health and Climate Change, *Building Healthier Societies through implementation of the Paris Agreement,* Paris 7-8 July 2016. Available at: https://www.who.int/globalchange/conferences/2nd-global-climate-conf-scope-and-purpose.pdf?ua=1
[645] Ibid.
[646] See chapter 3, paragraph 3.3
[647] WHO, II Global Conference on Health and Climate Change.

Consortium on Climate and Health and the *Global Green and Healthy Hospitals*[648], which promote, support, but first and foremost, spread awareness on the nexus between climate change and health damage. For the GFC accepts voluntary donations also from private entities, it is fundamental that information and education are provided and available to all, in order to collect as much funding as possible to direct to healthcare infrastructure; on this note, WHO has encouraged health-related organisations and foundation to make the first move in financing and proposing adaptation plans for the health sector: for instance, the UK Wellcome Trust was the first biomedical foundation to explicitly addressing climate change as a health issue, through the programme *Our Planet, Our Health* which collects funds online[649].

More recently, WHO has issued a review on health in the Nationally Determined Contributions to the Paris Agreement[650], which were submitted by the Parities during the latest COP in December 2019. As the cooperation between WHO and UNFCCC grows, it is not surprising that the Organisation has been attempting to integrate health within the NDCs and, consequently, within the scope of the Paris Agreement: it is noteworthy to recall that the Agreement is deemed as the greatest health treaty[651] and one of the main instruments to finally place health at the centre of the climate discourse. This review has been redacted with three precise objectives. First, to provide a detailed and accurate overview on whether and how health is prioritised by States in their NDCs; second, to provide recommendation on how to promote health adopting specific measures in the public health sector; third, it highlights that, to be efficient, the inclusion of health in the NDCs has to be tailored to a country's needs and circumstances, thus a general and comprehensive approach would be pointless[652].

Generally, it is possible to affirm that early WHO response to climate change has been focusing primarily on raising awareness so as to gather more funding to finance better and effective adaptation. As its relevance within the climate regime grew, new initiatives have been promoted and, in cooperation with COP and the Convention, WHO has been the main, if not the only, actor to protect people's right to the highest attainable standard of health. In the following paragraphs, the most relevant programs and policies led by WHO will be discussed.

---

[648] Onzivu, op. cit., p. 359

[649] Sharmila Devi, 'Wellcome Trust launches Our Planet, Our Health initiative', *The Lancet 386(10000):1227 (*26 Sep 2015), DOI: 10.1016/S0140-6736(15)00316-5

[650] WHO, 'WHO Review: Health in the Nationally Determined Contributions', WHO team on Public Health, Environmental and Social Determinants of Health, Geneva, December 2019. Available at: https://www.who.int/publications/i/item/who-review-health-in-the-ndcs

[651] See chap. 3, par. 3.3.4

[652] WHO, 'WHO Review: Health in the Nationally Determined Contributions'.

4.2 'Health In All Policies': Cooperation And Integration

The approach adopted by WHO in delineating adaptation policies to climate change can be included in the broader framework of the 'health in all policies' (HiAP). Health in All Policies is 'an approach to public policies across sectors that systematically takes into account the health implications of decisions, seeks synergies, and avoids harmful health impacts in order to improve population health and health equity'[653] which was theorised during the Eighth Global Conference on Health Promotion in Helsinki in 2013. This approach builds on health-related rights and obligations which are usually neglected by Governments while delineating policies in other sectors, mainly in favour of economic and political gains. It is well recognised that, in most sectors, for instance the energy, transport and industrial ones, States tend to overlook their obligations towards the health right of individuals and of the entire community, negatively affecting people's wellbeing, therefore HiAP aims at strengthening the Governments' accountability for this impacts at all levels of policy-making[654]. Clearly, public policies, even when not directly related to health, can influence the determinants of health, meaning the economic and social status of people and, particularly the environment in which they live. Therefore, in order to protect the right to health and everything it entails, as well as enhancing the co-benefits of including health in every aspect of decision making, this approach draws from several principles: legitimacy, taking into account the existing right and obligation under international law, transparency, participation, collaboration and sustainability, for 'the policies aimed at meeting the needs of present generations do not compromise the needs of future generations'[655]. The first step to achieve health in all policies is the development of intersectoral policy structures, involving representatives of the health sector in the negotiations and delineation of the other policies[656], so as to establish the basis for communication and exchange of information.

In light of this, it is not difficult to understand why the HiAP was adopted by WHO for delineating the adaptation strategies to climate change: a multisectoral and transboundary issue can be solved only with a complex and comprehensive approach.

---

[653] WHO, Health in all policies: Helsinki statement. Framework for country action, Geneva 23 April 2014. ISBN: 978 92 4 150690 8. Available at: https://www.who.int/publications/i/item/9789241506908

[654] Ibid.

[655] Ibid.

[656] Kristine Belesova , Ilan Kelman , Roger Boyd, *Governance through Economic Paradigms: Addressing Climate Change by Accounting for Health, Politics and Governance (ISSN: 2183–2463) 2016, Volume 4, Issue 4*, Pages 87–96 DOI: 10.17645/pag.v4i4.729

4.2.1 National Adaptation Plans

In implementing art. 4.9 of the Convention, taking full account of the specific needs of the least developed countries, COP7 in Marrakech, in 2001, established National Adaptation Plans For Action (NAPAs)[657], with the aim of identifying the priority activities that better respond to their most urgent adaptation necessities[658]. Since the least developed countries have the highest level of vulnerability and the lowest adaptive capacity, the initiatives stemmed from NAPAs are mainly short term adaptation strategies that may be feasible for temporarily minimise the adverse effects of climate change on several sectors, for instance the coastal areas, the degradation of some ecosystems or the impacts on crop fields[659], however short-term plans are definitely not appropriate to for the health system which requires a more elaborated and complex response. Thus, although NAPAs reached significant outcomes in the afore-mentioned sectors, for what concerns health Osman-Elasha and Downing argue that they represent a starting point and a mere tool to insert climate change adaptation within the domestic health policies of least developed countries[660].

Therefore, it was clear that a more adequate solution was needed, a solution that would link the urgency for adaptation of less developed countries and small island states to the multisectoral nature of healthcare systems. This solution was finally found in Cancun in 2010, where COP established the Cancun Adaptation Framework: while it does not set legally binding measures, it still lays the foundations for a programme to enhance the adaptation strategies of every country through National Adaptation Plans [661]. Assisted by The UNFCCC Least Developed Country Expert Group (LEG), the primary scope of NAPs is to 'reduce vulnerability to current effects and future climate change-related risks' and 'facilitate the mainstreaming of climate change adaptation into development planning and other strategies within all relevant sectors and at local to national scales of governance'[662]. Furthermore, COP agreed that NAPs should be country-driven, transparent, not prescriptive and, most importantly, gender sensitive[663].

[657] Kulovesi et al, op. cit., p. 211
[658] Ivi.
[659] Ivi.
[660] Balgis Osman-Elasha and Thomas E Downing, Lessons learned in preparing national adaptation programmes of action in Eastern and Southern Africa. *European Capacity Building Initiative (ECBI) Policy analysis report.* Oxford (2007)
[661] Kulovesi et al, op. cit., p. 107
[662] David O. Kronlid, *Climate Change Adaptation and Human Capabilities,* Palgrave Macmillan, New York (2014), p. 123
[663] Ibid. p. 124

In 2010, WHO had indeed noted that while the majority of countries (95%) did recognise health as a sector negatively impacted by climate change, only 11% had included health adaptation in their submitted NAPAs[664]. On this basis, WHO relied on the support provided by the LEG and elaborated the Guidance to Protect Health From Climate Change Through Health Adaptation Planning[665] , with the precise aim to 'strengthen health systems to protect health from climate variability and change' and to achieve the goal of 'healthy people in healthy communities'[666]. Following this guide, countries should introduce health in their national adaptation plans, in what WHO has labelled as H-NAPs. As vulnerability to climate change is influenced by different factors and the quality of healthcare provided depends on the determinants of health, which are of political, economic and social nature, before delineating a NAP each state has to conduct a detailed and multi-sectoral vulnerability assessment, in order to better figure which aspects of the health sector need to be prioritised[667]. Moreover, in order to be efficient, HNAPs have to follow the general rules for NAPs: country-driven, based on scientifically proved evidence, not interfering with already existing programmes and not damaging the development of the Country[668]. In particular, WHO expects health adaptation plans to be coherently integrated in the general NAPs in accordance with the 'health in all policies' principle, therefore, in shaping adaptation plans for every other sector, such as the industrial and the energetical one, States should always consider the impacts, both positive and negative, that they will have on the healthcare system.[669] On this note, in order to better identify all the actors and the stakeholders involved in the process, Bowen et al. proposed a multi-layered governance network composed of four elements: socio-capital, non-state based actors, informal networks and bridging organisations[670]; social capital and bridging organisation are particularly significant because they create a link between other State activities on climate change, such mitigation, and adaptation. For instance, the adoption of multilateral environmental agreements and the implementation of initiatives promoted by international

[664] Ivi.
[665] Ivi.
[666] WHO, *WHO Guidance To Protect Health From Climate Change Through Health Adaptation Planning,* Geneva 2014, available at: https://www.who.int/globalchange/publications/guidance-health-adaptation-planning/en/
[667] Ibid.
[668] Ibid.
[669] Ibid.
[670] Kristie L. Ebi, and Elena Villalobos Prats, 'Health in National Climate Change Adaptation Planning', *Annals of Global Health*., *81(3),* (May-Jun 2015); pp. 418, available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4697129/?report=printable#bib14

actors create 'enabling conditions for norms and behaviours that will support greater awareness of and actions to reduce the risks of climate change'[671].

The final step in the planning of adaptation in the health system is the establishment of monitoring and reviewing mechanism to assess progress and weaknesses. When evaluating the effectiveness of a HNAP, one should take into account how the adverse effects of climate change have been predicted and which sector has been given priority, the ratio of available financial, technical and human resources allocated to the plan and what aspects need to be strengthened or changed, starting from the composition of the health ministry[672]. The first action to actually monitor the progress of these plans is to collect data on climate related deaths and disaggregate these data by geographical location, age and gender, so as to identify, within the population, the groups most vulnerable to specific hazards and build a response that it is efficient for that kind of hazard[673]; obviously, even within the same country there exist more vulnerable areas to extreme weather events, as well as regions with a climate that favours the proliferation of infectious diseases compared to others; similarly, as it has been illustrated in chapter 2, some adverse effects of climate change impact more on women than men, while undoubtedly the elderly are the more affected by heatwaves and consequent heat strokes. Therefore, while HNAPs should be coherent with NAPs and self-reinforcing, following national strategies, one should consider the variety of population, climate and wealth in different areas of the same State, which certainly influence the final outcome of the broader strategy. For this reason, monitoring trends in the frequency of natural disasters and spread of epidemics, or keeping track of urbanisation and the availability of clean water and food is a key function to ensure the effectiveness of the plans. Unsurprisingly, this task should not be difficult as in most of the cases monitoring these variations requires the same instruments that the health sector has already been using to assess the distribution of vector borne diseases, malnutrition and chronic illnesses across a population; thus, by constantly controlling variation in these factors, through early warning systems and quantitative and qualitative indicators, the public health sector should be able to expand surveillance in the most vulnerable areas, acting preventively precisely to reduce their vulnerability[674]. Nevertheless, the monitoring system still needs to be adjusted to the challenge posed by climate change, particularly by delineating specific thresholds on whose basis the effectiveness of HNAPs can be assessed, especially in

[671] Ivi.
[672] Ibid., p. 420
[673] Ibid., p. 421
[674] WHO, *WHO Guidance To Protect Health From Climate Change Through Health Adaptation Planning,*

relation to the already existing health measures, which have to be combined with the climate-related initiatives[675]. Finally, States are called to periodically report the collected data and include these reports into the NAPs framework, 'highlighting the potential health risks of climate variability and change, and the opportunities for proactively managing these risks to reduce the current and projected burden of climate-sensitive health outcomes'[676] in order to make this information available and accessible to everyone outside the public health sector.

Once the health adaptation plan has been organised, they must be implemented. For a complete and correct implementation, Wiley suggests that three elements are required. First, the healthcare system needs to be strengthened, meaning that it must be accessible, available and of quality for everyone, providing vaccines, clean water and treatments without discrimination[677]. It is impossible to apply an adaptation plan to a system which already presents fallacies and shortcomings, thus before elaborating an adaptation strategy the state leaders and health ministries should ensure that their public health system functions adequately. Second, directly related to the first point, the human resources and the health workers need to be trained and educated specifically to deal with climate change effects as while the symptoms of a particular disease may be the same, their cause and thus their treatment may be different if they are influenced by climate related factors[678]; third, there are still health sectors which have been neglected and which need further research, which is possible only through a complete engagement by governments, regional authorities and international organisations[679].

The HNAPs can be considered the meeting point of WHO and UNFCCC, where the Organisation is providing support to the Convention in integrating health within the national adaptation plans, which are usually designed by environmental scientists who tend to neglect the impacts on the health sector. Accordingly, Cullum points that after the Cancun adaptation framework in 2010, about 35 health adaptation projects have been introduced into the national adaptation plans, the more significant were adopted by Kenya, Brazil and Burkina Faso, countries that are reportedly in a vulnerable position, both geographically and economically[680]. The role played by WHO in shaping these plans is not to be overlooked and their success is due to the strict collaboration between national and local authorities, UNFCCC and NGOs, which the Organisation has always encouraged and promoted, even before the climate emergency.

[675] Ibid.
[676] Ibid.
[677] Ibid.
[678] Ibid.
[679] Ibid.
[680] Cullum, op. cit., p. 216

4.2.2 WHO UNFCCC Health and Climate Change Country Profile Project

One of the main outcomes of the Second Global Conference On Health And Climate is the commitment by both WHO and the COP to constantly monitor the progress that each country is making with their adaptation and mitigation plans to protect health from climate change. Such commitment was formalised through WHO UNFCCC Health and Climate Change Country Profile Project, which not only reports each step taken by a country to strengthen and adapt its health sector to climate change, but serves to raise awareness and as a forum where countries can learn from each other[681]. These profiles are proper 'snapshots of the climate hazards and expected health impacts of climate change'[682] that states are facing, which illustrate the measures, policies and laws adopted by the government and summarise the priority areas of intervention for future action and planning.

The project is composed of four-year cycles: every four years States are called to submit their report. The first cycle, started in 2015 involved more than 50 States, while for the second, started in 2019, only 3 reports are available to date: Solomon Islands, Tuvalu and United Arab Emirates[683]. Whereas the high expectations from WHO, which had estimated that by 2021 more than 100 countries would join the project, are definitely not being met, one must take into account that the outbreak of the Coronavirus pandemic has seriously damaged the health systems of basically any country. Although states cannot and should not neglect or postpone the fight to climate change for it is an extremely urgent matter and it is their obligation to protect their citizens from its effects, it is also understandable that in such critical times, Governments have been giving priority to provide an effective response to Covid and to equip their public health systems to better face the pandemic.

Each profile is delineated through the collaboration of WHO, UNFCCC, health ministry and the national meteorological agencies, which all together contribute to the creation of a precise and accurate description of the State's situation. The first section contains a general background of the country, with its geographical location, its level of economic development and total expenditure on public health: basically this first part highlights the resources possessed and thus the potential for action. A more detailed description of the hazards to which the state is more exposed is provided in section two: while the majority of the reports indicates temperature

[681] Nick Watts, Markus Amann, Nigel Arnell *et al.,* The 2018 report of the Lancet Countdown on health and climate change: shaping the health of nations for centuries to come*, The Lancet 392,* (November 2018), available at: DOI: 10.1016/S0140-6736(18)32594-7
[682] Ibid.
[683] Ibid.

increase and heatwaves among the major health concerns, it is interesting to notice the differences between various countries; for instance, the Solomon islands are extremely vulnerable to sea-level rise and their main concern is about food and water security[684], whereas in their report of 2015, the United States included hurricanes, wildfires and outdoor pollution as the primary stressor of their health system[685]. The report is usually closed with the current measures adopted to protect health from climate change, meaning all the norms, rules and policies applied to the health sector as well as to any related sector that somehow may produce benefits for public health[686].

As a relatively new project, there is still much to adjust and to improve, for instance Onzivu suggests the introduction of a section in which states can enlist the major constraints and obstacles that they are encountering and ask for a specific support and aid to both UNFCCC and WHO[687]. Nevertheless, the Health and Climate Change Country Profile Project is another point of contact between public health institutions and climate regime and therefore fundamental for the realisation of the global mandate started by WHO.

4.2.3 Nairobi Work Programme On Impacts, Vulnerability And Adaptation To Climate Change

The Nairobi Work Programme is a mechanism of the Convention established at COP11 in 2005, through decision 2/CP.11[688]. The primary scope of the Programme is to assist all parties, but mainly the most vulnerable, to better understand the concept of adaptation and to guide them in the development of more effective adaptation plans, taking into account the scientific, economic and social aspects of the issue and by promoting the cooperation with other relevant organisations and the civil society[689]. For its role, first of its kind, it is considered the starting point of the paradigm shift from mitigation to adaptation that was finally achieved in Paris ten years later. In addition, the NWP has nowadays considered a global mechanism[690] and improves 'the flow of information between global health experts and relevant UNFCCC bodies'[691].

[684] Ibid.
[685] Ibid.
[686] Ibid.
[687] Onzivu, op. cit. p. 363
[688] UNFCCC, Action taken by the Conference of the Parties at its eleventh session. Decision 2/CP.11 FCCC/CP/2005/5/Add.1. Available at: https://unfccc.int/documents/4249#beg
[689] Ibid.
[690] Cullum, op. cit., p. 217
[691] Ivi.

In 2008, in Trinidad, the UNFCCC Expert Meeting Group noticed the lack of research and collaboration in the area of adaptation to adverse health effects of climate change, thus in 2016 the NWP received the mandate to further investigate on the subject[692]. Having acknowledged that 'a number of challenges, particularly with regard to awareness and education, as well as planning, capacity and financial mechanisms continue to limit action on the ground'[693], the Secretariat established a five-step process that eventually led to the 10th Focal Point Forum of the NWP[694]. The first step consisted of a mapping exercise to contact health experts and institutions and connect them with bodies of the UNFCCC, so as they can work together and identify the most critical issues related to climate change[695]. Accordingly, the Secretariat has received submissions from Parties to the Convention as well as relevant organisations, which were mainly focused on the change of geographical distribution of diseases, new health threats and the decrease of work productivity due to excessive heat[696]. These submissions were widely discussed at the 10th Focal Point Forum at COP22 in Marrakech, on 9 November 2016, where Parties to the Conventions and organisations, such as WHO, attempted to frame a strategy to build a resilient health system by advocating for a more 'intersectoral action and a multilevel governance'[697].

Generally, the approach adopted by the NWP to improve adaptation strategies is called 'knowledge-to-action methodology'[698]. For the major obstacle to adaptation is the lack of information, because States and organisation tend to think in terms of mitigation, the Programme has the mandate to spread awareness and educate on the co-benefits that may result from effective adaptation in the health sector. In particular, the main focus of the programme is on the Small island states and on the developed states, which have insufficient means to build adaptive capacity, starting precisely from information. For this reason, accordingly to the provisions of the Convention which urges developed States to support less developed countries, the knowledge-to-action methodology calls the Parties to exchange information from one Party to another, encouraging the flow of knowledge from the broadest international sphere to the

[692] Ibid., p. 218
[693] UNFCCC, Human health and adaptation: understanding climate impacts on health and opportunities for action Synthesis paper by the secretariat, 3 March 2017. Available at: https://unfccc.int/sites/default/files/resource/docs/2017/sbsta/eng/02.pdf
[694] UNFCCC, 10th Focal Point Forum of the Nairobi Work Programme: Health and Adaptation, Marrakech 09 November 2016, summary of the event available at: https://unfccc.int/process-and-meetings/conferences/past-conferences/marrakech-climate-change-conference-november-2016/sbsta-45
[695] Ibid.
[696] Ibid.
[697] UNFCCC, Human health and adaptation: understanding climate impacts on health and opportunities for action
[698] Ibid.

subnational one[699]: it is in fact fundamental that the adaptation strategies and the allocation of technical and financial resources are uniform and coherent throughout the whole nation to avoid inequities, thus representatives of subnational authorities are urged to participate in this exchange, so as to close information and technological gaps. As it has been discussed in chapter 3, at the core of Paris Agreement there is the necessity for technical, financial and information sharing, considered fundamental for the correct implementation of the Agreement, therefore the NWP can be deemed as another mechanism of the Convention which serves to favour and support the treaty.

Despite the intentions, the issue of adaptation in the health sector has not been addressed since the 10th focal point forum in 2016[700], where the Secretariat had indeed denounced the absence of action in the field. The latest report of the Secretariat issued 27 May 2020[701], in preparation for the Fifty-second session of the Subsidiary Body for Scientific and Technological Advice, scheduled in Bonn for 4-12 October 2020, contains the future activities and initiatives planned for the years 2020-2021, aimed at expanding education and knowledge through collaboration and partnerships in several areas, such as the agricultural and energy sector, but it appears that the health sector has not, once again, been included in the plans, despite the pandemic that the whole world is facing has highlighted the severe weaknesses of many healthcare systems and exacerbated the strain on public health already caused by climate change.

4.3 Towards an acceptable level of health for all?

As widely discussed above, integrating health into adaptation plans at the international and national level is absolutely necessary, however it is not sufficient to protect the wellbeing of individuals and their right to the highest attainable standard of health. Several scholars in the public health field, such as Gostin and Wiley, have argued that an adequate and effective response to climate change may come only from a strengthened, resilient and efficient health sector, which must be improved in any area. Accordingly, during the seventy-second WHO Assembly in April 2019, the director general in its report affirmed that a transformation of the health sector is needed in order to address the challenges in health, environment and climate change and that this transformation must occur 'using a public health framework enabled and

[699] Ibid.
[700] Cullum, op. cit., p. 213
[701] UNFCCC, Progress in implementing activities under the Nairobi work programme on impacts, vulnerability and adaptation to climate change, Report by the secretariat, FCCC/SBSTA/2020/INF.1, issued on 27 May 2020, available at: https://unfccc.int/sites/default/files/resource/sbsta2020_inf01.pdf

supported by adequate governance mechanisms and high-level political will'[702], with an action focused on 'the upstream determinants of health and the environment'[703]. Starting from the determinants of health, WHO has delineated its thirteenth General Programme Of Work 2019-2023, which has three strategic priorities: achieving universal health coverage, addressing health emergencies and promoting healthier populations[704]. On this note, WHO has explicitly remarked that the main obstacle to the fulfilling of the these priorities is, unsurprisingly, the lack of 'adequate capacity in public health'[705] and the absence of preparedness in the health sector, deriving from the failure of Governments to implement precise and effective measures to strengthen the health system, therefore the first step to take is the arrangement of 'appropriate governance and essential institutional architecture'[706].

From these words, it appears that there exist several fallacies in the public health system, fallacies that are primarily imputable to the scarce engagement of governments in promoting health policies in all sectors, overlooking the importance of multisectoral and international cooperation, which *de facto* corresponds to a violation of their obligation of assuring the conditions in which people can be healthy[707]. As a matter of fact, individuals depend on the ability of the government to ensure the provision of socio-economic foundations for healthy, productive and fulfilling life[708] and by failing to do so, Governments certainly are not respecting nor fulfilling their right to the health. On this basis, it is evident that it is impossible for a State to elaborate a proper response to climate change, which affects individuals' possibilities to live a healthy life, without first building a solid, resilient and functional health system that provides at least the basic healthcare services.

While climate change is certainly a public health stressor, the major obstacle to the realisation of global health and universal health coverage is still the inequal distribution of wealth among countries. As health is determined by socioeconomic factors, the upstream determinants of health, it would be impossible to ensure an equal level, let alone the highest attainable, of health without first attempting at reducing inequality and poverty. Climate change does indeed undermine the social determinants of health, but, recalling the discussion on vulnerability in

[702] WHO, Seventy-second WHA, *Health, Environment And Climate Change, Report By Director-General*, Geneva 19 April 2019, available at:
[703] Ibid.
[704] WHO, Seventy-first World Health Assembly Resolution WHA71.1, *Thirteenth General Programme Of Work 2019–2023*, Geneva 25 May 2018, available at:
https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf
[705] Ibid.
[706] Ibid.
[707] Gostin, op. cit., p. 414.
[708] Ivi.

chapter 2, it has been demonstrated that the most vulnerable subjects, those who are the most affected by climate change, are also those in the most precarious socio-economic conditions, who are not granted sufficient legal protection and live in poverty. This creates a vicious cycle, as poverty generates vulnerability and ill-health while, at the same time, ill-health increases vulnerability that eventually leads to poverty. Being developing countries the most impacted by climate change and the most in need of effective adaptative measures, it can be concluded that, although the governments are to be held accountable for their lack of political will to seriously engage in public health reforms, the major constraint to functional adaptation plans is definitely represented by the lack of financial resources to invest in the sector, which is a consequence of their low-income status. Therefore, while it is essential that WHO continues its cooperation with UNFCCC to develop adaptation plans involving 'health in all policies', it is also important that, simultaneously, as the international body in charge of securing people's health, it adopts the reforms necessary to provide accessible, available and affordable healthcare services to the most vulnerable subjects. These reforms are planned following the three strategic priorities set by WHO in 2018 and will be focused on the achievement of an acceptable level of health for all and on building healthier populations, under the principle known as *one world, one health*.

4.3.1 Global health and Universal Healthcare Coverage

It has been previously assessed that climate change is a transnational and multisectoral phenomenon that impacts different fields and areas and thus contributes to the exacerbation of already existing transboundary threats to health, namely migration, armed conflict and terrorism[709]. For this reason, Wiley explains that international health law is in continuous evolution, as legal scholars and policymakers are attempting to elaborate policies and regulations that encompass all these issues[710]. As advocated also by Gostin and Taylor[711], she highlights the urgency of a transition from international health law to global health law, a field which emerged at the end of the 90s, precisely when the whole international community became aware of the challenges ahead[712]. Accordingly, Gostin affirms that global health should be

[709] Lindsay Wiley, op. cit.,
[710] Ibid.
[711] Lawrence O. Gostin & Allyn L. Taylor, 'Global Health Law: A Definition and Grand Challenges', *Public Health Ethics, Volume 1, Issue 1,* April 2008*,* p. 57 https://doi.org/10.1093/phe/phn005
[712] In 'Moving Global Health Law Upstream' Wiley explains that Global health law was first introduced in the 'New Dehli Declaration On Global Health Law' during the International Conference On Global Health Law in new Delhi in 1997 and that, later, in 1999 David Fidler acknowledged the necessity to address the international law on public health through the perspective of global health law.

considered a priority by national and international leaders when designing future measures in every sector, taking into account the needs and weaknesses of every population and subgroup[713], so as to finally achieve 'global health with justice'[714]; this clearly would represent a step forward, as he suggests a deeper connection between global health law and international law, which have been operating mostly in parallel ways. For instance, Fidler argues that environmental law, in particular everything deriving from UNFCCC, has 'the potential to assure healthy living conditions'[715].

The foundations of global health lie, undoubtedly, on the upstream determinants of health. The importance of these factors has been proclaimed by WHO in its Marmot report of 2008, which highlighted how the health of individuals is deeply influenced by the conditions in which they are born, live and work[716]. In addition, in 2011 world leaders adopted the Rio Declaration on the social Determinants Of Health and committed to implement policies that would aim at 'reorienting health systems toward reducing inequities'[717], however as Gostin points, this declaration did not establish new norms to support the social determinants of health in low-income countries[718]. The fact that WHO remarked the role played by the determinants of health in the same year when it launched its global mandate on health and climate change only demonstrates how health, environment and vulnerability are interconnected; as a matter of fact, Farmer *et al*. explain that socio-economic factors like education, income, employment, gender and ethnicity are all linked to other risk factors (downstream determinants), focusing mainly on smoking, air pollution and environmental degradation[719], which are obviously all related to climate change. Measures on the social determinants of health are also prescribed by the report of the director-general of 2018, in the strategic objective 1, which aims at 'scaling up action on health determinants for health protection and improvement in the 2030 agenda for sustainable development'[720] and in the strategic objective 2, whose scope is ' a cross-sectoral action on the determinants of health', for many environmental factors lie outside the direct control of the health sector[721].

[713] Gostin, op. cit, p. 417
[714] Ivi.
[715] Fidler, op. cit.
[716] Ivi.
[717] Ibid., p. 418
[718] Ivi.
[719] Paul Farmer *et al., Reimagining Global Health,* California University Press (2013), p. 9
[720] WHO, Seventy-second WHA, Health, Environment And Climate Change
[721] Ibid.

Due the complex correlation and the numerous possible combinations among these elements, it may appear not easy to formulate policies that effectively embrace all the health issues that may affect the people most exposed to these hazards and that are more subjected to inequality. There exists in fact the tendency to confuse the needs of the most vulnerable groups with the needs of the developed and wealthy countries[722]. Indeed, while some are demanding innovative and technologic solutions to mitigate and adapt to climate change, to contain the spread of pandemics and to reduce non-communicable diseases, many are still suffering from the lack of basic healthcare services that alone would significantly improve the living conditions of millions of people. 'Assuring the health of all people, not only the well-off, but also the disadvantaged'[723] should be the first priority of global health, according to Gostin. In order to achieve this target, universal health coverage is needed.

The universal health coverage (UHC) can be deemed as the evolution of the concept of universal primary healthcare advocated by the Alma Ata declaration of 1978, widely examined in chapter 1[724], and, precisely in occasion of its 40th anniversary, WHO declared that 'moving towards UHC is a political choice with important social and economic benefits'[725]. Obviously, these benefits would be shared mainly by the less wealthy communities, who still face consistent barriers in accessing primary health services, such as clean water and food, clean air, adequate sanitation and immunisation. These barriers are of different nature: economic, geographical, epidemiological or cultural[726] and therefore the engagement of the government is necessary precisely to overcome these obstacles and grant an equal access to primary, secondary and tertiary healthcare services. The services that UHC aims at providing include both material resources such functional hospitals, clinics, nursing homes and essential machineries and medicines, but also human resources, namely appropriately instructed doctors, nurses and health workers[727]. In order to achieve these goals, a comprehensive and inclusive planning is crucial, as the measures adopted not only need to be effective, but also sustainable over the long term; thereby, Gostin affirms that the essential condition for this project is a honest, transparent and responsible governance, which is accountable for the health and the needs of the population[728].

[722] Farmer *et al.*, p. 3
[723] Gostin, op. cit., p. 423
[724] See chapter 1, paragraph 1.1.3
[725] WHO, Thirteenth General Programme Of Work 2019–2023
[726] Farmer et al., p. 11
[727] Gostin, op. cit., p. 424
[728] Ivi.

Furthermore, UHC happens to be among the Sustainable Development Goals, representing target 3.8, which, according to the indicators calculated by WHO experts, to be fully reached by 2030, essential healthcare services will have to be provided to at least 1 billion more people, the majority of them belonging to the most marginalised groups[729]. Certainly, it is an ambitious objective, though if realised, it would deeply contribute to the creation of healthier populations, which, in turn, would improve the resilience of the public health system, from all threats and, undoubtedly from climate change.

4.3.2 Building a resilient health system

A resilient health system is a fundamental element in the broad framework of global health, as well as absolutely necessary to grant universal health coverage to everyone. As a matter of fact, universal health coverage can be achieved only through a resilient health system, which is able to face any health emergency and which can easily be adapted to the needs of every community. It is unlikely that adaptation policies to climate change will be effective, at the national and the international level, if the health system which is supposed to implement them is not adequately equipped and prepared. Therefore, one of the primary strategic priorities of WHO is 'to build and sustain resilient, regional and global capacities required to keep the world safe from epidemics and other health emergencies'[730], using UHC as the main tool.

Under the demand of States to receive instructions on how to improve their health systems, in 2015 WHO issued the Operational Framework For Building Climate Resilient Health Systems, in order to provide 'guidance for health systems and public health programming to increase their capacity for protecting health in an unstable and changing climate'[731]. First and foremost, a clear understanding of what is meant by *climate resilient health system* is necessary: WHO considers resilient a health system one 'that is capable to anticipate, respond to, cope with, recover from and adapt to climate-related shocks and stress, so as to bring sustained improvements in population health'[732]; moreover, it is once again highlighted how this capability is heavily dependent on multisectoral cooperation, specifying that the health sector needs to expand its sphere of influence, as the responsibility, hence the obligation, to protect people's health and to ensure that they are not exposed to unbearable risks, falls on the health

[729] UN, The 17 Goals For Sustainable Development, available at: https://sdgs.un.org/goals
[730] Gostin, op. cit., p. 418
[731] WHO, Operational framework for building climate resilient health systems, Geneva, 10 June 2015, available at: https://www.who.int/publications/i/item/operational-framework-for-building-climate-resilient-health-systems
[732] Ibid.

system[733]. Thereby, it is evident that, similarly to adaptation, building a resilient health system is an extremely complex process that requires political will and adequate resources. In its operational framework, WHO has indeed identified ten key components which, if implemented by States, should enhance the resilience of their healthcare systems.

Unsurprisingly, the first and the most important component is leadership and governance. At the basis of any reform and policy. As repeatedly stressed, any reform is based on the actual willingness of the government to engage and, in addition, to promote such reforms in any related sector, supporting cooperation and communication. Accordingly, WHO has enlisted the main steps that a Government should take so as to fulfil their obligation to protect the health of its population by creating the necessary conditions to build a resilient health system: inclusive policies that reduce economic and social inequality, institutional mechanisms that monitor the compliance with climate change related responsibilities, community inclusion and transparency, emergency policy and planning, and finally legal and regulatory bodies aimed at ensuring the full realisation of the right to health[734]. In particular, among the main suggestions it is possible to find the implementation of effective HNAPs, agreements between the health ministries and national stakeholders and, of course, the representation and inclusion of the health sector within the most relevant bodies of the climate regime, especially at the international level, recommending an proactive participation in COPs[735].

The remainder components, which include health and climate research, vulnerability and adaptation assessment, education of health workforce, risk monitoring and early warning, emergency preparedness and management, are all focused on practical measures deriving by scientific researches and assessments, placing the scientific community, both national and global, at the core of this project[736]. Nevertheless, there are two more components that require the direct intervention of the Government; the first is the management of the determinants of health, for which states should adopt regulatory policies to protect population against socio-economic hazards that may compromise their well-being and regularly conduct health impact assessments for policy and programmes in other sectors[737]; the second, which corresponds to the final key component identified, is climate and health financing: Governments, but also private stakeholders, are called to increase their investments in the health sector to improve the available resources necessary to conduct the research required by the above mentioned

[733] Ibid.
[734] Ibid.
[735] Ibid.
[736] Ibid.
[737] Ibid.

components, to build disaster-resilient infrastructures, appropriately train health personnel, to develop or import treatments and vaccines and, obviously, to replace the facilities damaged or destructed by extreme weather events[738]. Whereas it is important that each States employs its financial resources to strengthen its public health system, one should never forget that States Parties to the Convention are legally bound to provide economic support to the low-income countries so as to help their process of adaptation: although it is not explicitly mentioned that these funds should be directed first and foremost to the less developed states' health systems, it would be the most logical decision. As it will be discussed in the following paragraphs, it appears that for many Governments this choice is not so obvious.

Despite the detailed guidance offered by WHO, this operational framework is yet to be applied in the majority of countries and the reason lies precisely in the first discussed component analysed, meaning leadership and governance: to achieve a resilient public health system, radical reforms in the economic and social spheres are needed, and often times, the countries lack the economic resources or the political stability, or even both[739]. It is not surprising that, until now, the most solid mechanism to enhance health care systems was elaborated in the United States, whose Centers For Disease Control And Prevention (CDC) created the BRACE Framework[740]. BRACE stands for 'building resilience against climate change effects' and it is based on the social determinants of health, vulnerability assessment and evidence-based public health intervention[741]. It consists of 5 steps which do not differ much from the guidelines offered by WHO: anticipate climate impacts and assessing vulnerabilities, project the disease burden, assess public health interventions, develop and implement a climate and health adaptation plan, evaluate impact and improve quality of activities[742]. Since they are broad framed steps, scholars like Levy[743] and Cullum[744] suggest that the BRACE model could be easily applied to any country, depending on its specific needs, provide a perfect example of what WHO has defined as transnational cooperation and learning.

4.4 Current limits and challenges in adapting public health to climate change

[738] Ibid.
[739] Mark Pelling, *Adaptation to Climate Change: From resilience to transformation*, Routledge (2011), p. 111
[740] Jeremy J. Hess et al., An Evidence Based Public Health Approach To Climate Change Adaptation, *Environmental Health Perspective 122 (November 2014)*, p. 1184
[741] Ibid.
[742] Jill Krueger and Colleen Healy Boufides, *Public Health Sector's Challenge And Responses*, in *Climate Change, Public Health, and the Law,* burger and Gundlach eds, Cambridge University Press (2018), p. 53
[743] Levy and Patz, *op. cit*., p. 246
[744] Cullum, op. cit., p. 227

The previous paragraphs have illustrated the different programmes, recommendations and initiatives which aim at providing an adequate public health response to the adverse effects of climate change, through adaptation and resilience. It is evident that, despite the efforts from WHO, there is still a long road ahead to the full realisation of these objective. The limits of the current system are, one may say, similarly evident and, although some of them have been already addressed throughout this work, it is useful to discuss them separately in order to be able to draw a conclusion.

4.4.1 The underinvestment in the health sector and the impossibility of overcoming health inequality

The lack of funding in the health sector and, in general, the reluctance of richer countries to financial support adaptation strategies has been addressed several times, for example in chapter 3. Hesselman & Toebes argue that not only is climate funding scarce, considering the amount of financial resources available to the richest countries, but the health sector is not sufficiently represented within the climate project funding[745]: it has been estimated that, of all the financial resources allocated to climate, only 1.4 % is directed to the health sector[746]. In fact, despite the existence of different financial mechanisms, with the Green Climate Fund accepting voluntary donations from private and non-state actors, the health sector continues to be severely neglected.

Small island developing States have raised this issue multiple times during COPs and especially during the negotiations for the Paris Agreement, demanding a greater engagement from the industrialised countries in helping the more vulnerable states in need of financial support. Nevertheless, industrialised countries continue to appear reluctant to participate into the climate funding because, as Schipper suggests, financing adaptation activities is somehow considered an implicit admission of responsibility for having caused climate change[747]. Therefore, quite unsurprisingly the lack of financial resources is imputable to the unwillingness of States to recognise their responsibilities. This generates another vicious circle: developed states do not comply with their obligations to financially support less developed states deriving from the Convention and reaffirmed by the Paris Agreement and, in turn, low income countries,

[745] Marlies Hesselman and Brigit Toebes, 'Adopting New International Health Instruments – What Can We Learn From the FCTC?', international journal of health policy and management, Volume 7, Issue 3, (March 2018), p. 265, doi: 10.15171/IJHPM.2017.78

[746] Ivi.

[747] E. Lisa F. Schipper, 'Conceptual History of Adaptation in the UNFCCC Process', *15 Rev. of European Comparative & Int'l Env'l L. 82, 83* (17 May 2006), available at: https://doi.org/10.1111/j.1467-9388.2006.00501.x

without these contributions, do not possess the economic and technical resources to respect their obligations to implement adaptation plans and, in particular, to provide their populations with an effective, resilient and working health care system, which grants access to everyone with the most basic facilities and protects them from the effects of climate change. Basically, by not being able to adapt their health systems to the adverse health of climate change, some countries fail to respect, protect and fulfil the right to health of their people. However, this failure does not generate from their unwillingness to do so, but rather from the richer countries to allocate their resources within the climate funds. On this note, Gostin refers to the mutual responsibility approach, which does place ' a primary duty on States to meet their inhabitants health needs'[748] but, at the same time, 'creates a residual duty on the international community to assist[…] '[749] the most vulnerable countries.

In addition, it is note-worthy that, even outside the climate regime, the public health sector suffers from lack of sustainable and appropriate funding[750]. For instance, Gostin argues that the WHO itself disposes of resources which are 'wholly incommensurate with the global health challenges it faces'[751]. More specifically, there exists insufficient financing for research on the diseases which typically affect the poorest areas of the world, and thus are not considered a concern nor a threat for the more developed countries[752]; this is perfectly summarised by the so called *10/90 gap,* the concept that describes how only 10% of the financial resources are direct to the research of health issues concerning the 90% of the global population[753]. Obviously, this aggravates the already existing health inequalities, which are further exacerbated by health stressors like climate change. While it is certain that health heavily depends on the socio-economic status, this dependence can definitely be read in the opposite way: the health status deeply influences the ability to study and work, thus determining the socio-economic condition of an individual. Therefore, health inequalities are both the cause and consequence of social, economic and political inequalities, which, as it has been assessed, climate change exacerbates. In order to overcome these inequality and to ensure the condition for 'healthy people living in

[748] Gostin, op. cit., p. 432
[749] Ivi
[750] Wiley, op. cit.
[751] Gostin, op. cit., p. 433
[752] Joyce Addo-Atua et al, 'Global health research partnerships in the context of the Sustainable Development Goals (SDGs)', *Research in Social and Administrative Pharmacy* (2020) available at: https://doi.org/10.1016/j.sapharm.2020.08.015
[753] Ibid.

healthy communities'[754] the first step is definitely increase the financial investment in the health sector.

4.4.2 The WHO 'soft power' and the lack of an enforcement body

The role of WHO is certainly crucial in formulating and promoting programmes aimed at building a resilient health system, as well as providing guidance and leadership in their implementation. By doing so, the Organisation fully complies with its duty to protect and grant the highest attainable standard of health for everyone. This duty is associated with extensive normative powers which are exercised by its Assembly, authorised by art.2 of the Constitution to adopt agreements, regulations and conventions[755]. The law-making power of WHO is described a 'extraordinary' by Gostin, for it imposes affirmative obligations on sovereign states[756], however, regardless of this power he notes that modern international health law is 'extremely thin'[757]. As a matter of fact, WHO has rarely used its authority to negotiate binding treaties and agreements, preferring a *soft power* approach to make recommendations concerning international health[758]. WHO thus tends to use its soft power to create standards usually established and approved by the scientific, ethical and human rights community[759] and, while these standard are normally accepted by Member States and often times integrated in their domestic legislation, they do no not generate binding obligations.

Therefore, it would not be correct to affirm that WHO lacks the normative power to impose duty on States, as its Constitution clearly provides it, but, at least until now, it has chosen not to resort to it. This definitely represents a major issue if one introduces climate change in the picture and if one considers it as the greatest public health emergency, like it has been done for the entirety of this work. It is evident that all the limits and shortcomings of the climate change regime related to health and the consequent little consideration given to the health sector are caused by the absence of precise obligations that bind States to promptly act for the safeguard of public health and in protection of the right to health. Filling this void is definitely a responsibility that falls on WHO, as the main vanguard of the right to health. Nonetheless, not only did it not use its normative power to produce legally binding provisions that oblige States to implement mitigation and adaptation measures in their health systems, but neither it insisted

[754] Gostin, op. cit., p. 432
[755] WHO Constitution, art. 2
[756] Gostin, op. cit., p. 109
[757] Ivi.
[758] Devi Sridhar et al., 'The Normative Authority of the World Health Organization', *Public Health Volume 129, Issue 7*, (July 2015) Pages 854-863
[759] Ibid.

nor demanded for a more clear and less vague language in the Paris Agreement explicitly referring to the States' obligations towards the right to health[760].

Thus, despite its proactive engagement with the climate regime in the past ten years and the leadership assumed in promoting health programmes and in guiding member states through their adaptation plans, it cannot be conclude that the World Health Organisation is using the maximum of its resources to ensure the highest attainable standard of health. On this note, Onzivu suggests the establishment of an advisory body committee on health and climate change, in order to better integrate WHO normative power and leadership on global health within the climate regime[761]; this body should be provided with a broad and clear mandate on global health and climate change[762], so as to implement an advisory agenda set by WHO, which is exactly what is currently missing. Similarly, he proposes that a technical body on climate and health, supervised by WHO, should be introduced within the UNFCCC[763]: according to him, this would be the only way to address sectoral challenges and to 'provide a pathway to engagement of other sectors to achieve an integrated functional international climate legal regime'[764] which is capable of protecting global health.

4.4.3 The necessity of a UN Framework Convention on Global Health

In the light of the numerous challenges ahead of the public health system, it is clear that some reforms are extremely necessary. The Joint Action And Learning Initiative On National And Global Responsibilities For Health (JALI), a coalition or civil society and academics including Gostin and Friedman have proposed a new deal for global health in order to change the architecture of the system and to enhance the mutual responsibility for health[765]; following the example of the UNFCCC, which *de facto* created a new regime on climate change, they suggest the establishment of a UN Framework Convention on Global Health[766]. From their view, this Convention would be helpful in reframing the governance for global health, reinforcing its major weaknesses.

---

[760] Cullum, op. cit., p. 220
[761] Onzivu, op., cit, p. 365
[762] Ivi.
[763] Ibid, p. 364
[764] Ivi.
[765] Lawrence O. Gostin, Eric A. Friedman et al., 'The Joint Action and Learning Initiative: towards a global agreement on national and global responsibilities for health' *PLoS Med 8: e1001031*, (2011), Available at: http://dx.doi.org/10.1371/journal.pmed.1001031
[766] Ibid.

First and foremost, it would integrate the right to health within the global health system, by delineating the normative obligations related to the right to health, especially concerning the most vulnerable subjects, and it would enlarge the basis for its justiciability[767]. In particular, 'a framework convention would facilitate the use of domestic judicial systems for enforcement'[768], allowing the civil society to start litigation for the right to health in their national courts. As a result, compliance with the right to health would be increased and States' violation of the treaty could be even assessed by an international body that accepts individual or groups complaints[769]. Moreover, bearing in mind the absence of functional domestic provisions that integrate health and climate policies, this convention may be the starting point for systematic domestic legal reforms which implement climate change law and preserve health[770].

Second, it would impose precise national and international duties on states to ensure the health of their inhabitants and, on the richer states, to assist low-income countries[771]. Third, new and efficient mechanism for financing would be established, specifically directed to the health sector and to its areas that are in more urgent need: epidemics control, water sanification and non-communicable disease monitoring[772]. For instance, Friedman assumes that countries may be more propense to invest in their domestic health sectors if they are actually bound by international law[773]. Last, but not least, good and transparent governance would be at the core of this new framework, with an equal and fair participation in the decision-making and a clear accountability mechanism[774].

Obviously, it is useful to look also at the possible downsides. The major obstacle to a framework convention on global health would be definitely represented, undoubtedly, by the reluctance of States to commit to specific international obligations, especially concerning human rights[775]; the risk of noncompliance, generating the so called 'empty promises' that

[767] Lawrence O. Gostin, Eric A. Friedman et al., 'The next WHO Director-General's highest priority: a Global Treaty on the Human Right to Health', the lancet Vol 4, (December 2016), p. 890 available at: http://dx.doi.org/10.1016/S2214-109X(16)30219-4
[768] Ibid.
[769] Ibid.
[770] Onzivu, op. cit., p. 366
[771] Ivi.
[772] Ivi.
[773] Ibid, p. 367
[774] Ivi.
[775] Gostin and Friedman, op. cit., p. 892

States make when ratifying a treaty just to gain international prestige and recognition[776], may be very high. Moreover, one should consider the costs and time required to negotiate such a broad and complex agreement, which may be detracted from more concrete and immediate actions and programmes[777]. Finally, due to the evident economic, social and health inequalities, there might be the possibility of a polarisation of the convention, where developing and developed countries may not be able to put aside their differences and to reach compromises.

Despite the downsides, a UN Framework Convention on global health appears to be the most feasible solution. Now more than ever, as the world is managing a major health emergency, these points seem valid, especially if presented with the precise scope to build a global health system with justice and aimed at reducing the above discussed health inequalities which make the several challenges that the public health system has to face, first of all the climate crisis. Finally, this Convention may represent the meeting point of human rights law and global health law, which, for the first time, would eventually be combined in a legally binding treaty.

Conclusion

This last chapter has considered the response provided by the global health sector to climate change and, what has emerged from this analysis can be summarised in three points.

There is inconsistency within the approaches adopted by the two regimes taken into account. Whereas climate change law is mainly focused on mitigation, the primary scope of global health is building adaptive capacity and resilience. Clearly, this resulted in an insufficient and inadequate coordination of projects and regulations, especially at the expenses of the more vulnerable countries.

The leadership in guiding adaptation and resilience plans has undoubtedly been assumed by WHO, whose duty consists precisely in the safeguard of global health and in ensuring the realisation of the right to health for all. It is undeniable that since its direct engagement with the climate regime in 2008, significant steps forward have been made, particularly concerning the national adaptation plans that numerous countries are implementing. By setting goals such as *health in all policies* and universal health coverage, WHO is slowly improving the public health sector and reinforcing it, to better adapt to climate change. Nevertheless, it has been reluctant to use its law making power to negotiate treaties that integrate health and climate change, imposing direct and precise obligation on States, above all on adaptation measures.

[776] The concept of empty promises related to international treaties on human rights is explained by Emilie M Hafner-Burton and Tsutsui Kiyoteru in 'Human Rights in a Globalizing World: The Paradox of Empty Promises.' *American Journal of Sociology 110, no. 5* (2005): 1373-411. doi:10.1086/428442.

[777] Gostin and Friedman, op. cit., p. 892

Finally, the absence of legally binding regulations leads to the underrepresentation of health within the climate regime and consequently to the underinvestment in the sector, which prevents low-income countries to develop and implement adaptation plans in protection of the health of their inhabitants.

The conclusion for this part is somehow drawn from what has emerged at the end of the first chapter: at the basis of health inequalities and the major health threats which affect primarily the poorest regions, lies the aversion of wealthy states to respect their international commitments, mainly the financial ones.

CONCLUSIONS

"We have to give climate change a human face – it is not all about 'sinks,' 'emission trading schemes' and technology. Climate change is about people, children, families and … our relationship with the world around us. "

Sheila Watt-Cloutier

Chair, Inuit Circumpolar Conference, November 2006

The aim of this thesis was to demonstrate that international law has yet to provide an appropriate legal instrument that protects the right to health from the damages caused by climate change.

To achieve this aim, it was necessary to first delineate the legal framework of the right to health, whose vanguard is the World Health Organisation. Similarly, art. 12 of ICESCR and its general comment n. 14 extensively illustrate all the aspects of this rights as well as the obligations that it entails; in particular, it is noteworthy that states have the obligation to use all the available resources, financial and political, to allow their inhabitants to lead a life at the highest attainable standard of health. Furthermore, States are legally bound to protect, respect and fulfil the human right to health.

Healthcare is a fundamental component of the right to health. To fulfil their obligations, States are also bound to provide available, accessible, affordable and quality healthcare to everyone with no discrimination. The discourse concerning public health should be considered in relation to the social determinants of health: given that health is not a static concept, but influenced by socio-economic factors such as gender, ethnicity and wealth, it is crucial that States ensure an equal access to primary healthcare to the more disadvantaged individuals who, for these factors, are usually deprived of the essential health services.

Under this premises, the correlation between climate change and human health is quite immediate to understand. Since it is too late to prevent air pollution, global warming, extreme weather events, infectious diseases and mental disorders, they need to be treated. However, managing this complex and transboundary public health emergency is not easy at all, especially for developing countries which do not possess the resources to improve their health system and better cope with these threats. Their inability to cope with similar hazards is due to their vulnerability, a concept illustrated in chapter two. After having analysed and compared the definition of vulnerability within the climate regime and within human rights law, it was possible to assess, supporting the view proposed by Humphreys and Nifosi-Sutton, that vulnerable subjects are more susceptible to harm and hazards because they lack sufficient legal

protection compared to other people. This inequality is reflected in the above mentioned socio-economic factors that determine health, and from this it was possible to conclude that health inequalities, vulnerability and lack of legal entitlements are profoundly interrelated. Not surprisingly, the IPCC, WHO and international law all identify as vulnerable subjects, thus more exposed to harm and in need of specific protection, the same groups: women, children, indigenous people and people living in poverty.

What has been noted is the incongruence of recognising climate change as a threat for human kind and potentially fatal for these vulnerable groups, without establishing appropriate mechanism to regulate such threat. As a matter of facts, despite relatively recent as a branch of international law, climate law has produced three landmark treaties, which have shaped and delineated the way of managing the environmental crisis. First and foremost, the UNFCCC has imposed binding obligations on industrialised states to significantly reduce their emissions and financially assist the less developed countries, according to their common but differentiated responsibilities. This concept can be considered the core of climate law as it seems fair to hold accountable for climate change the states which share the highest level of emissions and require them to assist the other countries in mitigating the effects of a crisis for which they are not responsible. Nevertheless, with time, industrialised states began to resent the idea of differentiated responsibilities, becoming reluctant to the idea of having to reduce their emissions by more compared to others and, in particular, to invest their funds in the mitigation and adaptation plans of the low-income countries.

The ongoing contrast between developed and developing States is clearly reflected in the content and in the language of the Paris Agreement. The negotiation process of this treaty was nothing but an attempt to accommodate the requests and the immovable position of the wealthiest States, obviously led by The United States. The decision not to include clear obligations of emission reductions, a precise amount of funding directed to adaptation plans in the health sector, even the use of modal rather than imperative verbs were all influenced by the US unwillingness to commit to further obligations and to allocate more of its finance to Green Climate Fund. The concession made to Small Island Developing States by including a vague reference to human rights in the non-binding preamble, *de facto* not imposing any obligation towards human rights, was considered sufficient to secure the approval of developing states and, more importantly, to secure the ratification of industrialised countries, the US first and foremost. One could not be blamed for considering quite ironical the fact that, after having practically drafted the most important environmental treaty of the century trying to

accommodate the requests of one country, the same country decided to withdraw from the agreement.

Irony aside, the greatest shortcoming of the Paris Agreement is that it did not manage to satisfy the requests that developing states had been advancing since the negotiations for the Framework Convention, once again failing to furnish explicit and valid international legal instruments to protect human rights and the health of people, and to hold States accountable for the damage that their activity has caused. Nonetheless, *the Urgenda vs the Netherlands* sentence from the Dutch Supreme Court has proved that it is actually possible to recognise a State responsible for having violated its inhabitants' human rights and, consequently, to oblige it to reduce its excessive emissions for they do cause harm to people and to other countries.

As the right to health remains unprotected from climate change at the international level, WHO has assumed the leadership in guiding and supporting adaptation plans which prioritise the reinforcement of the health care system, so as to build a resilient public health system which can respond to climate change with preparedness and expertise. The Organisation has indeed been collaborating with UNFCCC and other bodies to implement programmes which combine public health and climate change, involving national ministries and NGOs. However, what has emerged from the reports of WHO as well as the available literature from Gostin, Wiley and Onzivu, is that no matter how well-planned and coordinated these adaptation strategies are, they still will be pointless and inefficient if applied to a public health system which is based on significant inequalities and inadequately funded. Put in simpler words, to have any chances to minimise the health losses and damages caused by climate change, it is first necessary to radically reform the global health system. Clearly, this is not an easy task, as it requires first and foremost the political will from States to actively engage, starting from providing more funds than the scarce 1.4% allocated to the health sector and by adopting policies that actually protect and respect people's health. On this note, Gostin and Friedman have proposed a UN Framework Convention On Global Health, following the example of the convention on climate change, with the scope of creating a proper global health regime with the appropriate obligations, responsibilities and compliance system. Obviously, especially during a pandemic that has brought many health systems to the collapse, the prospect of a legal framework on global health appears to be providential. What has to be borne in mind, however, is that in the end, everything depends essentially and solely on the States' (more precisely, the wealthy States) propension to cooperate and to commit themselves to further obligations, which tend to be regarded as limits to their sovereignty. The reduction of poverty and inequality, which are at the base of malnutrition and illness, has been on the global agenda for decades, as well as

universal health coverage and primary healthcare (according to the Alma Ata Declaration of 1978, it was supposed to be achieved by the year 2000), nevertheless these targets are far from being reached.

Therefore, coming to the end of this discussion, one may argue that it would be a too simplistic conclusion to shift the blame on to the climate change law for the unequal, unfunded and unequipped global health system, unable to protect, respect and fulfil the right to health of every individual. At the basis of these fallacies, lays the reluctance of sovereign States to comply with their obligations under international law, generating from a system that they established long before climate change became a global issue. What can and should, instead, be imputable to climate change law is having missed the possibility to introduce new norms that may definitely contribute to the reduction of some of the inequalities suffered by the most vulnerable and pave the way for a healthier society.

BIBLIOGRAPHY

Books

Akhtar, R. and Palagiano, C., *Climate Change and Air Pollution: The Impact on Human Health in Developed and Developing Countries,* 2018. Cham*:* Springer

Benoît, M., *The International Law on Climate Change,* 2018. London: Cambridge University Press

Bodansky, D., Brunnée, J., and Rajamani, L., *International Climate Change Law,* 2017. Oxford: Oxford University Press

Bodansky, D., *The Art and Craft of International Environmental Law,* 2010. Harvard: Harvard University Press.

Bole, T., and Bonderson, W., *Rights To Health Care*, 1991. London: Kluwer

Brinks, D., M., *Courting Social Justice: Judicial Enforcement of Social and Economic Rights in the Developing World*, 2008. Cambridge: Cambridge University Press

Butler, C., *Climate Change And Global Health*, 2014. London: CAB International

Chapman, A. R., *Global Health, Human Rights, And The Challenge Of Neoliberal Policies,* 2016. Cambridge: Cambridge University Press.

Cranston, M., *Political Theory and the Rights of Man,* 1967. London: Macmillan

Craven, M., *The International Covenant On Economic Social And Cultural Rights: A Perspective On Its Development*, 1995. Oxford: Clarendon Press

Daniels, N., *Just Health: Meeting Health Needs Fairly*, 2008. Cambridge: Cambridge University Press

Epstein, P., and Ferber, D., *Changing Planet, Changing Health: How the Climate Crisis Threatens Our Health and What We Can Do about It,* 2009 . Los Angeles*:* University of California Press

Farmer, P. et al., *Reimagining Global Health: An Introduction*, 2013. Los Angeles: University of California Press

Frumkin, H., *Environmental health: From global to local*, 2010. San Francisco: Jossey Bass,

Fuenzalida-Puelma, H., *Right to Health in the Americas: A Comparative Constitutional Study,* 1989. Pan American Health Organization

Gostin, L. O. *Global Health Law*, 2014. London: Harvard University Press Cambridge

Grasso M., *Justice in Funding Adaptation under the International Climate Change Regime,* 2010. London: Springer

Griffin, J., *On Human Right*s, 2008. Oxford: Oxford University Press.

Gruskin, S. and Tarantola, D., *The Oxford Textbook Of Public Health,* 2004. Oxford: Oxford University Press

Harrighton, J., and Stuttaford, M., *Global Health and Human Rights Legal and Philosophical Perspectives*, 2010. Oxford: Routledge

Hickey, S. and Mitlin, D., *Rights-Based Approaches To Development: Exploring The Potentials And Pitfalls*, 2010. Sterling: Kumarin Press

Hollo, E., Kulovesi K., and Mehling, M, *Climate Change and the Law,* 2013. Dordrecht: Springer Science+Business Media

Humphreys, S., and Robinson, M., *Human Rights And Climate Change*, 2009. London: Cambridge University Press

Knox J. and Pejan, R., *The Human Right to a Healthy Environment*, 2018. Cambridge: Cambridge University Press

Kronlid, D. O., *Climate Change Adaptation and Human Capabilities,* 2014. New York*:* Palgrave Macmillan

Krueger, J. and Boufides, C. H., *Public Health Sector's Challenge And Responses*, in *Climate Change, Public Health, and the Law,* 2018. Burger and Gundlach eds. Cambridge: Cambridge University Press

Lauren, P., *The Evolution Of International Human Rights: Visions Seen,* 2011. Philadelphia: University Of Pennsylvania Press

Lemery, J.and Auerbach, P., *Enviromedics: The Impact of Climate Change on Human Health,* 2017. Lanham: Rowman & Littlefield

Levy, B. S., and Patz, J. A., *Climate Change and Public Health,* 2015. London: Oxford University Press

Lomborg B., *How much have global problems cost the World?* , 2013. Cambridge: Cambridge University Press

MacDonald, T., *Third World Health: Hostage to First World wealth*, 2005. Oxford: Radcliffe Publishing

Mann J., et al., *Health And Human Rights, A Reader*, 1999. New York: Routledge,

Mechler, R and Surminski, S, *Loss and Damage from Climate Change*, 2019. Springer International Publishing

Momtaz, S. and Asaduzzaman, M., *Climate Change Impacts and Women's Livelihood,* 2020 London: Routledge

Morsink, J., *The Universal Declaration of Human Rights: Origins*, *Drafting And Intent,* 1999. Philadelphia: University Of Pennsylvania.

Nifosi-Sutton, I. , *The Protection of Vulnerable Groups under International Human Rights Law,* 2017. New York: Routledge

Okowa, P. N., *State Responsibility for Transboundary Air Pollution in International Law*, 2010. London: Oxford University Press

on human health, comfort and performance (3rd ed.), 2014. London: Taylor & Francis

Onzivu W., in *Climate Change, Public Health, and the Law,* 2018*,* Burger, M. and Gundlach, J.(eds), London: Cambridge University Press

Parsons, K., *Human thermal environments. The effects of hot, moderate and cold temperatures*

Pelling, M. *Adaptation to Climate Change: From resilience to transformation*, 2010 London: Routledge

Pinkerton, K. and Rom*,* W., *Global Climate Change and Public Health, 2014.* New York: Springer Science + Business Media.

Richardson, B., *et al*., *Climate Law and Developing Countries: Legal and Policy Challenges for the World Economy,* 2009. Cheltenham: Edward Elgar

Rom, W.M., *Environmental Policy And Public Health*, 2012. San Francisco: John Wiley And Sons.

Sands, P., *Principles of International Environmental Law* , 2003. Cambridge: Cambridge University Press

Shue, H., *Basic Rights, Subsistence, Affluence And Us Foreign Policy,* 1980. Princeton: Princeton University Press (1980)

Smit, B. and Pilifosova, O., 'From Adaptation to Adaptive Capacity and Vulnerability Reduction', in *Climate Change, Adaptive Capacity and Development*, 2003, Smith, J. B., Klein, T.and Huq, S. (eds.). London: Imperial College Press

Sunstein, C., *The Second Bill of Rights: FDR's Unfinished Revolution and Why We Need It More Than Ever*, 2004. New York: Basic Books.

Tobin, J., *The Right To Health In International Law,* 2012. Oxford: Oxford University Press

Toebes, B., *The Right To Health As A Human Right In International Law*, 1999. Amsterdam: Intersentia

Verheyen, R., *Climate Change Damage And International Law*, 2005. Leiden: Martinus Nijhoff.

Yamin, F., and Depledge, J., *The International Climate Change Regime,* 2009. Cambridge: Cambridge University Press

Zuniga, J. *et al*., *Advancing The Human Right To Health,* 2013. Oxford: Oxford University Press

Zuniga, J., Marks, S., *Advancing The Human Right To Health, 2013.* Oxford: Oxford University Press.

Articles

Addo-Atua, J. et al, 'Global health research partnerships in the context of the Sustainable Development Goals (SDGs)', *Research in Social and Administrative Pharmacy* (August 2020). Available at: https://doi.org/10.1016/j.sapharm.2020.08.015 (Accessed 09/09/2020)

Adger, N., Kelly, P.M. 'Social Vulnerability to Climate Change and the Architecture of Entitlements' *Mitigation and Adaptation Strategies for Global Change Volume 4,* (1999), pp: 253-266. Available at: https://doi.org/10.1023/A:1009601904210. (Accessed: 06/05/2020).

Amann, M. et al, 'The 2019 report of The Lancet Countdown on health and climate change', *The Lancet*, *Volume 394, Issue 10211*, (November 2019), pp: 1836-78. Available at: https://doi.org/10.1016/S0140-6736(19)32596-6. (Accessed: 25/01/2020).

Anderson, B., Dominici, F. et al. 'Heat-related emergency hospitalizations for respiratory diseases in the Medicare population', *American Journal Of Respiratory And Critical Care Medicine, Volume 187, Issue 10*, pp: 1098–1103 (May 2013). Available at: doi: 10.1164/rccm.201211-1969OC (accessed 28/04/2020)

Andrei, S. *et al*., 'Non-economic loss and damage caused by climatic stressors in selected coastal districts of Bangladesh', *Bangladesh Centre for Advanced Studies*. Supported by the Asian Development Bank. http://www.icccad.net/wp-content/uploads/2016/02/ADB-Study-on-Non-Economic-Losses-and-Damages-Report_Final-Version-Reduce d-File-Size.compressed1.pdf

Andresen, S. and Agrawala, S., 'Leaders, Pushers and Laggards in the Making of the Climate Regime', *Global Environmental Change Volume 12, Issue 1* (2002). pp: 41-51. https://doi.org/10.1016/S0959-3780(01)00023-1. (Accessed: 24/07/2020)

Belesova, K., Kelman, I., Boyd, R., Governance through Economic Paradigms: Addressing Climate Change by Accounting for Health, *Politics and Governance, Volume 4, Issue 4*, (December 2016), pp: 87–96. Available at: 10.17645/pag.v4i4.729. (Accessed: 19/06/2020)

Bodansky, D. 'The Legal Character of the Paris Agreement', *Review of European, Comparative and International Environmental Law, Volume 25, Issue 2*, (June 2016), pp: 142-150. Available at: https://doi.org/10.1111/reel.12154. (Accessed: 02/05/2020).

Bohle, H., Downing, T. E. and Watts, M., 'Climate change and social vulnerability', *Global Environmental Change, Volume 4, Issue 1*, (March 1994), pp 37-48. Available at: https://doi.org/10.1016/0959-3780(94)90020-5. (Accessed 01/06/2020)

Boyd, E., James, R. A., *et al*, 'A typology of loss and damage perspectives', *Nature Climate Change volume 7* (2017), pp. 723–729. Available at: https://doi.org/10.1038/nclimate3389 (Accessed: 03/06/2020)

Boyle, A. E., 'State Responsibility and International Liability for Injurious Consequences of Acts Not Prohibited by International Law: A Necessary Distinction?' *The International and Comparative Law Quarterly Vol. 39, Issue 1* (January 1990*),* pp: 1-26. Available at: https://www.jstor.org/stable/760317 (Accessed: 15/05/2020)

Bracking, S., 'The Anti-Politics Of Climate Finance: The Creation And Performativity Of The Green Climate Fund', *Antipode, Volume 47, Issue 2* (October 2014), pp: 281-302. Available at: https://doi.org/10.1111/anti.12123. (accessed: 07/09/2020).

Brunnée, J., 'COPing with Consent: Law Making under Multilateral Environmental Agreements', *Leiden Journal of International Law Volume 15, Issue 1,* (March 2002), pp: 1-52. Available at: https://doi.org/10.1017/S0922156502000018. (accessed: 18/05/2020)

Burkett, M., 'Loss and Damage', *Climate Law Volume 4, Issue 2* (July 2014), pp: 119-130. Available at: https://brill.com/view/journals/clla/4/1-2/article-p119_10.xml (Accessed: 21/07/2020)

Chambers, R., 'Vulnerability, coping and policy', *IDS Bulletin*, Volume 20, Issue 2, (1989) pp:1-7. Available at: https://doi.org/10.1111/j.1759-5436.1989.mp20002001.x. (Accessed: 10/05/2020)

Churchill, R and Khaliq, U., 'The Collective Complaints System of the European Social Charter: An Effective Mechanism for Ensuring Compliance with Economic and Social Rights?' *European Journal Of International Law, Volume 15, Issue 3* (2004*),* pp: 417-456. Available at: http://www.ejil.org/pdfs/15/3/358.pdf. (accessed: 16/04/2020).

Contini, D. and Costabile, F., 'Does Air Pollution Influence COVID-19 Outbreaks?' , *Atmosphere, Volume 11, Issue 4* (April 2020). Available at: https://doi.org/10.3390/atmos11040377 (accessed: 02/05/2020)

Cullum, L., 'An Analysis of the International Climate Change Adaptation Regime and its Response to Global Public Health Concerns', *UCLA Journal of Environmental Law and Policy, Volume 37, issue 2, (2019),* pp: 191-228, available at: https://escholarship.org/uc/item/2mg130mq (Accessed: 22/07/2020)

Das, P. and Horton, R., 'Pollution, health, and the planet: time for decisive action' , *The Lancet*, *Volume 391, Issue 10119* (February 2018), pp: 401-512. Available at: https://www.thelancet.com/journals/lancet/issue/vol391no10119/PIIS0140-6736(18)X0005-1. (accessed: 12/03/2020).

David P. Fidler, 'Global Health Jurisprudence: A Time Of Reckoning', *Articles by Maurer Faculty. 141*, (2008), pp: 393-421. Available at: https://www.repository.law.indiana.edu/facpub/141/. (Accessed: 01/08/2020)

De Vido, S., 'A Quest for an Eco-Centric Approach to International Law: The COVID-19 Pandemic as Game Changer', forthcoming.

Devi, S. 'Wellcome Trust launches Our Planet, Our Health initiative', *The Lancet, Volume 386, Issue 10000 (*26 Sep 2015). Available at: 10.1016/S0140-6736(15)00316-5. (Accessed: 27/08/2020)

Dominici, F. et al, 'Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study', *Medrxiv : The Preprint Server For Health Sciences,(* April 2020). Available at: 10.1101/2020.04.05.20054502. (Accessed: 28/04/2020)

Dubois, M., Spencer, T. and Wemaere, M., 'The Legal Form of the Paris Climate Agreement: a Comprehensive Assessment of Options', *Carbon & Climate Law Review* , Vol. 9, Issue 1, (2015), pp 64-88, available at: http://www.jstor.com/stable/43859674 (Accessed: 28/05/2020)

Durojaye, E., 'The approaches of the African Commission to the right to health under the African Charter' , *Law Democracy & Development Volume 17*, (2013), pp: 393-418. Available at: http://dx.doi.org/10.4314/ldd.v17i1. (accessed: 14/04/2020).

F¨ussel, H., 'Vulnerability in Climate Change Research: A Comprehensive Conceptual Framework', *Breslauer Symposium, Volume 6* (2005). Available at: https://escholarship.org/uc/item/8993z6nm

Fankhauser, S., Dietz, S. and Gradwell, P., 'Non-economic losses in the context of the UNFCCC work programme on loss and damage (policy paper)'. *Economics and Policy, Grantham Research Institute on Climate Change and the Environment*. London School of Economics—Centre for Climate Change (2014). Available at: https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2014/02/Fankhauser-Dietz-Gradwell-Loss-Damage-final.pdf

GBD Chronic Respiratory Disease Collaborators, 'Prevalence and attributable health burden of chronic respiratory diseases, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017', *Lancet Respir Med 2020; volume 8,* DOI: https://doi.org/10.1016/S2213-2600(20)30105-3 . (Accessed: 28/06/20).

Gething P. et al. 'Climate change and the global malaria recession'. *Nature, Volume 465* (2010), pp: 342–346. Available at: 10.1038/nature09098. (accessed: 16/05/2020).

Glendon, M. A., 'The Forgotten Crucible: The Latin American Influence On The Universal Human Rights Idea' *Harvard Human Rights Journal, Issue 16 (2003*), pp. 27-40. Available at: https://www.corteidh.or.cr/tablas/25400.pdf. (Accessed: 18/06/2020)

Gostin, L. O. and Taylor, A., 'Global Health Law: A Definition and Grand Challenges', *Public Health Ethics, Volume 1, Issue 1,* (April 2008)*,* pp: 53-63. Available at: https://doi.org/10.1093/phe/phn005. (Accessed: 01/08/2020)

Gostin, L., Friedman, E. et al., 'The next WHO Director-General's highest priority: a Global Treaty on the Human Right to Health', *The Lancet, Volume 4, Issue 12*, (October 2016). Available at: http://dx.doi.org/10.1016/S2214-109X(16)30219-4. (Accessed: 22/07/2020)

Gostin, L., Friedman, E. et al., 'The Joint Action and Learning Initiative: towards a global agreement on national and global responsibilities for health' *PLoS Med, Volume 8, Issue 5 (May 2011)* Available at: http://dx.doi.org/10.1371/journal.pmed.1001031 (Accessed: 22/07/2020)

Hafner-Burton, E. and Kiyoteru, T. , 'Human Rights in a Globalizing World: The Paradox of Empty Promises.' *American Journal of Sociology Volume 110, Issue 5* (2005), pp: 1373-411. Available at: doi:10.1086/428442. (Accessed: 26/01/2020)

Heredia, N. et al., 'The right to health: what model for Latin America', *The Lancet*, *Volume 385, Issue 9975,* (April 2015). Available at: https://doi.org/10.1016/S0140-6736(14)61493-8. (accessed: 14/04/2020).

Hess, J. et al., 'An Evidence Based Public Health Approach To Climate Change Adaptation', *Environmental Health Perspective, Volume 122, Issue 11* (November 2014), pp: 1176-1185. Available at: 10.1289/ehp.1307396. (Accessed: 08/07/2020)

Hesselman, M., and Toebes, B., 'Adopting New International Health Instruments – What Can We Learn From the FCTC?', *International Journal Of Health Policy And Management*, Vol. 7, Issue 3, (2018), pp: 264-268. doi: 10.15171/IJHPM.2017.78 (Accessed: 19/04/2020)

John H. Knox et al. 'Climate change impacts on crop productivity in Africa and South Asia'. *Environmental Research Letters, Volume 7, Issue 3* (December 2012). Available at: 10.1088/1748-9326/7/3/034032. (Accessed: 30/04/2020)

Johnston F. H. et al. 'Estimated global mortality attributable to smoke from landscape fires'. *Environmental Health Perspectives, Volume 120, Issue 5 (*2012), pp: 695-701. Available at: https://dx.doi.org/10.1289%2Fehp.1104422. (accessed: 15/05/2020)

Kaloga, A. et al., 'Making the Adaptation Fund Work for the Most Vulnerable: Assessing Progress in the Adaptation Fund' , *Germanwatch, Practical Action & Brot für die Welt, (Dec. 2010*). Available at: www.germanwatch.org/de/2553. (Accessed: 03/06/2020)

Katz, R. and S. Kornblet, 'Comparative Analysis of National Legislation in Support of the Revised International Health Regulations: Potential Models for Implementation in the United Sates', *American Journal of Public Health, Volume 100*, *Issue 2*(2010), pp: 2347–53. Available at: 10.2105/AJPH.2009.180414. (Accessed: 04/06/2020).

Kessler, R. et al. 'Mental Illness and Suicidality after Hurricane Katrina.' *Bulletin of the World Health Organization*, available at: http://www.who.int/bulletin/volumes/84/10/06-033019.pdf.

Kinney, E., and Clark, B. A., 'Provisions for Health and Health Care in the Constitutions of the Countries of the World', " *Cornell International Law Journal*, *Volume 37, Issue 2* (2004) Available at: http://scholarship.law.cornell.edu/cilj/vol37/iss2/2. (accessed: 16/04/2020).

Kjellstrom, T., et al, 'Public health impact of global heating due to climate change: Potential effects on chronic non-communicable disease'. *International Journal of Public Health*, *Volume 55, Issue 2*, (April 2010) pp: 97-103 (accessed 28/04/2020)

Lin, K et al, 'Environmental factors on the SARS epidemic: air temperature, passage of time and multiplicative effect of hospital infection.' *Epidemiology & Infection, volume 134 , issue 2 (*June 2006*), pp: 223–230,*. https://doi.org/10.1017/S0950268805005054 (Accessed 28/04/20)

Löschel, A. and Zhang, Z., X., 'The Economic and Environmental Implications of the US Repudiation of the Kyoto Protocol and the Subsequent Deals in Bonn and Marrakech', *Weltwirtschaftliches Archiv*, *Volume 138, Issue 4*,(December 2002), pp: 711-746. Available at: https://doi.org/10.1007/BF027076592002. (Accessed: 07/09/2020).

Lougarre, C., 'What Does the Right to Health Mean?: The Interpretation of Article 11 of the European Social Charter by the European Committee of Social Rights.' *Netherlands Quarterly of Human Rights, Volume 33, Issue 3* (September 2015). Available at: doi:10.1177/016934411503300304. (accessed: 16/04/2020).

Mace, M. and Verheyen, R., 'Loss, Damage and Responsibility after COP21: All Options Open for the Paris Agreement'. *RECIEL Volume25, Issue 2* (July 2016), pp: 197-214. Available at: doi:10.1111/reel.12172 (accessed: 03/06/2020)

Mayer, B., 'The relevance of the no-harm principle to climate change law and politics', *Asia Pacific Journal of Environmental Law, Volume 19, Issue 79,* (September 2016), pp: 79–104. Available at: https://doi.org/10.4337/apjel.2016.01.04. (Accessed: 04/09/2020)

Mayer, B., 'The State of the Netherlands v. *Urgenda* Foundation: Ruling of the Court of Appeal of The Hague (9 October 2018)', *Transnational Environmental Law, Volume 8, Issue 1* (March 2019), pp. 167-192. Available at: doi:10.1017/S2047102519000049.(Accessed: 28/06/2020).

Minas, S. and Bowman, M., 'Post-Paris/Post Trump: The Green Climate Fund And Climate Finance Governance In The Eye Of The Storm?', *Transnational Law Institute Think! Paper 75/2017*.

Morrissey, J. & Oliver-Smith, A., 'Perspectives on non- economic loss and damage understanding values at risk from climate change'. Report by the Loss and Damage in Vulnerable Countries Initiative (2013). Available at: http://loss-and-damage.net/download/7308.pdf

Müller, B. and Gomez-Echeverri, L., 'The Financial Mechanism of the UNFCCC: A Brief History*' , European Capacity Building Initiative (*April 2009). Available at: https://climatestrategies.org/wp-content/uploads/2009/04/rfm-compendium.pdf

O'Brien, K., et al. 'Why different interpretations of vulnerability matter in climate change discourses', *Climate Policy, Volume 7*, *Issue 1* (2007), pp: 73–88. Available at: https://www.tandfonline.com/doi/abs/10.1080/14693062.2007.9685639. (Accessed: 07/05/2020)

Ogden, N. H., 'Climate change and vector-borne diseases of public health significance', *FEMS Microbiology Letters*, Volume 364, Issue 19, (October 2017). https://doi.org/10.1093/femsle/fnx186. (accessed: 16/05/2020)

Osman-Elasha, B. and Downing, T., 'Lessons Learned In Preparing National Adaptation Programmes Of Action In Eastern And Southern Africa'. *European Capacity Building Initiative (ECBI) Policy analysis report.* Oxford (2007)

Pan American Health Organization, Public health capacity in Latin America and the Caribbean: assessment and strengthening, Washington, D.C, PAHO (2007), p.9

Park, J.E., 'Effects of temperature, humidity, and diurnal temperature range on influenza incidence in a temperate region' , *Influenza Other Respir. Viruses, Volume 14, Issue 1,* pp: 11–18, (2020). https://doi.org/10.1111/irv.12682. (Accessed: 17/07/2020)

Porter J.R. et al. 'Food security and food production systems'. In Intergovernmental Panel on Climate Change, Working Group II. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Geneva: IPCC, 2014. Available at: http://ipccwg2.gov/AR5/images/uploads/WGIIAR5-Chap7_FGDall.pdf.

Qiu, S and MacNaughton, G., 'Mechanisms of Accountability for the Realization of the Right to Health in China', *Health and Human Rights Journal*, *Volume 19, Issue 1*, (June 2017), pp: 279-292. Available at: https://cdn2.sph.harvard.edu/wpcontent/uploads/sites/13/2017/06/MacNaughton.pdf. (accessed: 02/05/2020).

Rajamani, L., 'Ambition and Differentiation in the 2015 Paris Agreement: Interpretative Possibilities and Underlying Politics' *International and Comparative Law Quarterly, volume 65, issue 2,* (2016)*,* pp.493-501. (Accessed: 06/06/2020)

Rajamani, L., 'The Increasing Currency and Relevance of Rights-based Perspectives in the International Negotiations on Climate Change", *Journal of Environmental Law*, *volume 22, Issue 3,* (2010), pp.391-429. Available at: https://www.jstor.org/stable/44248747. (Accessed: 18/05/2020)

Rajamani, L., 'The Principle of Common but Differentiated Responsibility and the Balance of Commitments under the Climate Regime', *RECIEL Volume 9, issue 2*, (December 2002), pp. 120-131. Available at: https://doi.org/10.1111/1467-9388.00243. (Accessed: 19/05/2020)

Romanin Jacur, F., 'The Kyoto Protocol's compliance mechanism', in Michael Faure (ed), *Elgar Encyclopedia of Environmental Law* (2015), pp. 239–250. Available at: https://doi.org/10.4337/9781783477616.I.20. (Accessed: 02/06/2020).

Ruger, J. 'Normative Foundations of Global Health Law', *Georgetown Law Journal, Volume 96, Issue 2*, (2008), pp: 423-443. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3988830. (Accessed: 01/08/2020)

Ruger, J., 'Toward A Theory Of A Right To Health: Capability And Incompletely Theorized Agreements', *Yale JL & Human., Volume 18, Issue 2,* (2006). Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4190169/. (Accessed: 18/06/2020).

Ruiz-Chiriboga, O., 'The American Convention and the Protocol of San Salvador: Two IntertwinedTreaties - Non-Enforceability of Economic, Social and Cultural Rights in the

Inter-American System', *Netherlands Quarterly of Human Rights*, *Volume 31, Issue 2* (October 2011), pp: 156-183. Available at: 10.2139/ssrn.1940559. (Accessed: 17/04/2020)

S. Katrina Perehudof, 'Health, Human Rights & National Constitutions' , WHO (July 31, 2008)

Schipper, F., 'Conceptual History of Adaptation in the UNFCCC Process'*, 15 Rev. of European Comparative & Int'l Env'l L. 82, 83* (May 2006) available at: https://doi.org/10.1111/j.1467-9388.2006.00501.x (Accessed: 03/06/2020)

Sharma, J. and Ravindranath, N., 'Applying IPCC 2014 framework for hazard-specific vulnerability assessment under climate change' *Environmental Research Community, Volume 1, Issue 5*, (June 2019). Available: https://iopscience.iop.org/article/10.1088/2515-7620/ab24ed. (Accessed: 06/05/2020).

Smith, K.,et al. 'Millions dead: How do we know and what does it mean? Methods used in the comparative risk assessment of household air pollution'. *Annual Review of Public Health*, *Volume 35* (2014), pp. 185–206. Available at: https://doi.org/10.1146/annurev-publhealth-032013-182356. (accessed: 15/05/20).

Sridhar, D. et al., 'The Normative Authority of the World Health Organization', *Public Health Volume 129, Issue 7*, (July 2015), pp: 854-863, available at: https://doi.org/10.1016/j.puhe.2015.05.002 (Accessed: 12/07/2020)

Sunstein, C., 'Incompletely Theorized Agreements' *Harvard Law Review Volume 108*, *Issue 7*, (1995), pp. 1733-72. Available at: doi:10.2307/1341816. (accessed: 02/07/2020).

Todd Stern, 'The Paris Agreement and Its Future', *Brookings,* Paper 5 (October 2018)

Verplanken, B. and Roy, D. 'My worries are rational, climate change is not: Habitual ecological worrying is an adaptive response', *PLoS One, Volume 8, Issue 9* (September 2013). Available at: https://doi.org/10.1371/journal.pone.0074708. (Accessed: 30/04/2020).

Verschuuren, J., '*The State of the Netherlands v Urgenda Foundation*: The Hague Court of Appeal upholds judgment requiring the Netherlands to further reduce its greenhouse gas emissions', *RECIEL, Volume 28, Issue 1* (April 2019), pp.94-98. Available at: https://doi.org/10.1111/reel.12280. (accessed: 28/06/2020).

Wang, C. et al., 'A novel coronavirus outbreak of global health concern', *The Lancet Volume 395, Issue 10223*, (February 2020), pp: 470–473. Available at: https://doi.org/10.1016/S0140-6736(20)30185-9. (Accessed: 28/04/2020)

Watts, M., 'Entitlements or empowerment', Review of African Political Economy, *Volume 8, Issue 51*, (1991), pp 9-26. Available at: https://doi.org/10.1080/03056249108703903. (Accessed: 01/06/2020).

Watts, N. *et al.,* 'The 2018 Report Of The Lancet Countdown On Health And Climate Change: Shaping The Health Of Nations For Centuries To Come'*, The Lancet, Volume 392, issue 10163,* (November 2018), pp: 2479-2514. Available at: DOI: 10.1016/S0140-6736(18)32594-7. (Accessed: 04/05/2020)

Wewerinke-Singh, M., and Doebbler, C., 'The Paris Agreement: Some Critical Reflections on Process and Substance', *The University of New South Wales Law Journal*, *Volume 39, Issue 4,* (November 2016). Available at: https://ssrn.com/abstract=2884196. (Accessed: 06/06/2020)

Wheeler, T. and Von Braun, J. 'Climate change impacts on global food security' *Science, Volume 134, Issue 508* (2013). Available at: 10.1126/science.1239402. (Accessed: 11/03/2020).

Wiley, L. F., 'Healthy Planet, Healthy People: Integrating Global Health into the International Response to Climate Change', *J. Entl. L. & Litig volume 24* (October 2009). Available at: https://scholarship.law.georgetown.edu/facpub/17/. (Accessed: 23/07/2020)

Yamin, A. E., 'The Right To Health In Latin America: The Challenges Of Constructing Fair Limits', *University of Pennsylvania Journal of International Law,* Volume 49, *Issue 3* (2019), pp: 695-734. Available at: https://scholarship.law.upenn.edu/jil/vol40/iss3/4. (Accessed: 28/04/2020).

Yamin, A., 'The Right to Health Under International Law and Its Relevance to the United States', *American Journal of Public Health Volume 95*, *Issue 7,* (July 2005) pp. 1156-1161. Available at: https://doi.org/10.2105/AJPH.2004.055111. (accessed: 17/04/2020).

Yamin, A., 'The Right to Health in Latin America: The Challenges of Constructing Fair Limits', *U. Pa. J. Int'l L., Volume 49, Issue 3,* (2019), pp: 695-734. Available at: https://scholarship.law.upenn.edu/jil/vol40/iss3/4. (accessed: 14/04/2020).

Yamineva, Y., 'Climate Finance in the Paris Outcome: Why Do Today What You Can Put Off Till Tomorrow?' *Review of European Community and International Environmental Law, volume 25, issue* 2, (July 2016), pp: 174-185. Available at: https://doi.org/10.1111/reel.12160. (accessed: 24/07/2020)

International treaties

CEDAW General Recommendation No. 24: Article 12 of the Convention (Women and Health), adopted in 1999, available at: https://www.refworld.org/docid/453882a73.html.

Kyoto Protocol to the United Nations Framework Convention on Climate Change, adopted in Kyoto, 1997. Available at: https://unfccc.int/sites/default/files/resource/docs/cop3/l07a01.pdf

UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment No. 14, 'The Right to the Highest Attainable Standard of Health, UN Doc. E/C.12/2000/4, August 11, 2000. Available at: https://www.refworld.org/pdfid/4538838d0.pdf

UN Convention on the Elimination of All Forms of Discrimination against Women, adopted in New York, 1979. Available at: https://www.ohchr.org/en/professionalinterest/pages/cedaw.aspx

UN Declaration on the Rights of Indigenous Peoples, adopted in 2007.Available at: https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

UN International Covenant on Economic, Social and Cultural Rights, adopted in 1966. Available at: https://www.ohchr.org/en/professionalinterest/pages/cescr.aspx

UN Paris Agreement, adopted in Paris, 2015. Available at: https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf

UN Rio Declaration On Environment And Development, adopted in 1992, available at: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf

United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992. Available at: https://unfccc.int/resource/docs/convkp/conveng.pdf

WHO, International Health Regulations, adopted in 2005. Available at: https://www.who.int/ihr/publications/9789241580496/en/

WHO Documents

International Conference on Primary Health Care, Declaration of Alma-Ata, 1972. Available at: https://www.who.int/publications/almaata_declaration_en.pdf?ua=1, art. 1

WHO, Seventy-second WHA, *Health, Environment And Climate Change, Report By Director-General*, Geneva 19 April 2019.

WHO, 'Dengue and severe dengue', available at: https://www.who.int/health-topics/dengue-and-severe-dengue#tab=tab_2

WHO, 'Russian Federation Health system review', Health Systems in Transition, Vol. 13 No. 7 (2011)

WHO, 'WHO Review: Health in the Nationally Determined Contributions', WHO team on Public Health, Environmental and Social Determinants of Health, Geneva, December 2019. Available at: https://www.who.int/publications/i/item/who-review-health-in-the-ndcs

WHO, Commission on Social Determinants of Health. 'Closing the Gap in a Generation: Health equity through action on the social determinants of health'. Available at: http://www.who.int/social_determinants/enExternal Web Site Policy

WHO, Comprehensive mental health action plan 2013-2020-2030, available at: https://www.who.int/mental_health/action_plan_2013/en/

WHO, Constitution of the World Health Organization.. New York, 1948. Available at: https://www.who.int/governance/eb/who_constitution_en.pdf

WHO, Fifty-Fifth World Health Assembly, Resolution WHA55.17, 18 May 2002, 'Dengue fever and dengue haemorrhagic fever prevention and control'

WHO, Health in all policies: Helsinki statement. Framework for country action, Geneva 23 April 2014. Available at: https://www.who.int/publications/i/item/9789241506908

WHO, II Global Conference on Health and Climate Change, *Building Healthier Societies through implementation of the Paris Agreement,* Paris 7-8 July 2016. Available at: https://www.who.int/globalchange/conferences/2nd-global-climate-conf-scope-and-purpose.pdf?ua=1

WHO, Investing in Health for Africa (2010), available at: https://www.who.int/pmnch/media/membernews/2011/investing_health_africa_eng.pdf

WHO, Malaria: policy making process. Available at: https://www.who.int/malaria/policy/en/

WHO, Mental Health in Emergencies, available at: https://www.who.int/en/news-room/fact-sheets/detail/mental-health-in-emergencies

WHO, Operational framework for building climate resilient health systems, Geneva, 10 June 2015, available at: https://www.who.int/publications/i/item/operational-framework-for-building-climate-resilient-health-systems

WHO, Resolution WHA65/6 on Comprehensive implementation plan on maternal, infant and young child nutrition (21–26 May 2012), available at: https://www.who.int/nutrition/publications/CIP_document/en/

WHO, Seventy-first World Health Assembly Resolution WHA71.1, *Thirteenth General Programme Of Work 2019–2023*, Geneva 25 May 2018, available at: https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf

WHO, *WHO Guidance To Protect Health From Climate Change Through Health Adaptation Planning,* Geneva 2014, available at: https://www.who.int/globalchange/publications/guidance-health-adaptation-planning/en/

WHO's COP-24 Special Report: *Health And Climate Change* (2018), available at: https://unfccc.int/news/who-health-benefits-far-outweigh-costs-of-meeting-paris-goals

World Malaria Report 2017. Geneva 2017. Available at: https://www.who.int/docs/default-source/documents/world-malaria-report-2017.pdf?sfvrsn=8b7b573a_0

Other UN Documents:

Commission On Human Rights, Report of the Special Rapporteur, Dainius Pūras, available at: https://undocs.org/A/HRC/44/48

Commission On Human Rights, Report of the Special Rapporteur, Paul Hunt (13 February 2003) available at: https://documents-dds-ny.un.org/doc/UNDOC/GEN/G03/109/79/PDF/G0310979.pdf?OpenElement,

Food and Agriculture Organization. Rome Declaration on World Food Security, 1996. http://www.fao.org/docrep/003/w3613e/w3613e00.HTM.

Green Climate Fund, Status of Pledges and Contributions made to the Green Climate Fund, Status date: 31 July 2020, available at: https://www.greenclimate.fund/sites/default/files/document/status-pledges-irm_1.pdf

ILC, 'Draft Articles on State Responsibility for Internationally Wrongful Acts', Report of the International Law Commission, 53rd session'', General Assembly, Official Records, 56th session, Suppl. No. 10, UN Doc. A/56/10. Available on /http://www.un.org/law/ilcS

Office of the United Nations High Commissioner for Human Rights, 'End-of-Mission Statement on China, by Professor Philip Alston, United Nations Special Rapporteur on extreme poverty and human rights' (August 23, 2016). Available at http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=20402&LangID=E.

OHCHR, *Understanding human rights and climate change,* https://www.ohchr.org/Documents/Issues/ClimateChange/COP21.pdf

Prevention of Transboundary Harm from Hazardous Activities, draft articles adopted by the International Law Commission, UN Doc A/56/10, (2001). https://legal.un.org/ilc/texts/instruments/english/commentaries/9_7_2001.pdf

UN Commission on Human Rights, Resolution 2002/31 available at: https://www.ohchr.org/en/issues/health/pages/srrighthealthindex.aspx

UN, Department of Economic and Social Affairs, Indigenous Peoples. https://www.un.org/development/desa/indigenouspeoples/about-us.html

UN, The 17 Goals For Sustainable Development, available at: https://sdgs.un.org/goals

UN, United Nations Decade of Action on Nutrition 2016–2025*,* available at: https://www.un.org/nutrition/about/mid-term-review-un-decade-action-nutrition

UNFCCC decision 1/CP.16, Green Climate Fund, (FCCC/CP/2010/7/Add.1 15 March 2011) https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17

UNFCCC Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015, Decision 1/CP.21. Available at: https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf

UNFCCC, 10th Focal Point Forum of the Nairobi Work Programme: Health and Adaptation, Marrakech 09 November 2016, summary of the event available at: https://unfccc.int/process-and-meetings/conferences/past-conferences/marrakech-climate-change-conference-november-2016/sbsta-45

UNFCCC, Action taken by the Conference of the Parties at its eleventh session. Decision 2/CP.11FCCC/CP/2005/5/Add.1. Available at: https://unfccc.int/documents/4249#beg

UNFCCC, Decision 2/CP.19, Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts (UN Doc.FCCC/CP/2013/10/Add.1, 31 January 2014). Available at: https://unfccc.int/sites/default/files/resource/docs/2013/cop19/eng/10a01.pdf

UNFCCC, Human health and adaptation: understanding climate impacts on health and opportunities for action Synthesis paper by the secretariat, 3 March 2017. Available at: https://unfccc.int/sites/default/files/resource/docs/2017/sbsta/eng/02.pdf

UNFCCC, *Organizational Matters: Adoption of Rules and Procedures*, FCCC/CP/1996/2, (22 May 1996). Available at: https://unfccc.int/sites/default/files/resource/02_0.pdf

UNFCCC, Progress in implementing activities under the Nairobi work programme on impacts, vulnerability and adaptation to climate change, Report by the secretariat, FCCC/SBSTA/2020/INF.1, issued on 27 May 2020, available at: https://unfccc.int/sites/default/files/resource/sbsta2020_inf01.pdf

UNFCCC, The Kyoto Protocol Mechanisms, https://unfccc.int/process/thekyotoprotocol/mechanisms/emissions-trading

UNFCCC, The Paris Agreement is a Health Agreement, May, 2018, available at: https://unfccc.int/news/the-paris-agreement-is-a-health-agreement-who

UNOHCHR, 'Bachelet welcomes top court's landmark decision to protect human rights from climate change', available at: https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25450&LangID=E

World Commission on Environment and Development, *Our Common Future (1987),* available at: https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

Regional Treaties And Charters:

ACHPR/Res.141 (XXXXIIII) 08: Resolution on Access to Health and needed Medicines in Africa. Available at: https://www.globalhealthrights.org/wp-content/uploads/2013/10/Resolution-on-Access-to-Health-and-Needed-Medicines-in-Africa.pdf

Additional Protocol to the European Social Charter Providing for a System of Collective Complaints, Strasbourg 1995. Available at: https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/128

African Commission on Human and Peoples' Rights, African Charter on Human and Peoples' Rights (1981) available at: https://www.achpr.org/legalinstruments/detail?id=49#:~:text=The%20African%20Charter%20on%20Human,freedoms%20in%20the%20African%20continent.

Council of Europe, 'Collected Travaux Préparatoires of the European Social Charter, Volume I (1953–1954)' Available at: https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016806c1c47

Council of Europe, European Social Charter. Strasbourg, 1961. Available at: https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/035

Organization of American States, Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social, and Cultural Rights "Protocol of San Salvador", 17 November1988, OAS Doc. OAS/Ser.L/V/I.4 rev. 13

Organization of American States, American Convention on Human Rights, 22 November 1969, 1144 UNTS 123. available at: https://www.oas.org/dil/treaties_B-32_American_Convention_on_Human_Righ

Protocol To The African Charter On Human And Peoples' Rights On The Rights Of Women In Africa, available at: https://www.un.org/en/africa/osaa/pdf/au/protocol_rights_women_africa_2003.pdf

The Right To Health And The European Social Charter, Information document prepared by the secretariat of the ESC, March 2009.

National Constitutions And Laws:

Constitution of Cuba, adopted in 1976 as amended in 2019. Available at: http://extwprlegs1.fao.org/docs/pdf/cub184086E.pdf,

Constitution of Ethiopia, adopted in 1994, available at: https://www.wipo.int/edocs/lexdocs/laws/en/et/et007en.pdf

Constitution of Honduras, adopted 1982, amended 1991. Available at: http://constitutionnet.org/sites/default/files/Honduras%20Constitution.pdf

Constitution of South Africa, adopted in 1996, as amended in 2003. Available at: https://www.justice.gov.za/legislation/constitution/SAConstitution-web-eng.pdf

Constitution of the Russian Federation, adopted in 1993. Available at: http://constitution.garant.ru/english

Federal constitution of Brazil, adopted in 1988. Available at : https://www.globalhealthrights.org/wp-content/uploads/2013/09/Brazil-constitution-English.pdf

Pan-American Health Organization, Health in Americas (Brazil) available at: https://www.paho.org/salud-en-las-americas-2017/?p=4246

Pan-American Health Organization, Health in Americas (Cuba), available at https://www.paho.org/salud-en-las-americas-2017/?p=4251

Pan-American Health Organization, Health in Americas (Honduras) available at https://www.paho.org/salud-en-las-americas-2017/?p=4280

People's Republic Of China Environmental Protection Law (2015). Available at http://www.gov.cn/xinwen/2014-04/25/content_2666328.htm.

People's Republic Of China Labour Law ,1995. Available at http://www.china.org.cn/english/government/207405.htm

Women's Rights Protection Law (2005). Available at: http://www.china.org.cn/english/government/207405.htm (English).

Cases:

Court of Appeal of The Hague (CA), The State of the Netherlands (Ministry of Infrastructure and the Environment) v. Urgenda Foundation, C/09/456689 / HA ZA 13-1396, 9 Oct. 2018, available at: https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:GHDHA:2018:2610

Free Legal Assistance Group And Ors V Zaire (Communication NO. 25/89, 47/90, 56/91, 100/93) [1995] ACHPR 9; (11 October 1995) available at: http://hrlibrary.umn.edu/africa/comcases/25-89_47-90_56-91_100-93.html

Social Economic Rights Action Centre and another v Nigeria, Communication No. 155/96) [2001] ACHPR 34; (27 October 2001). Full judgment available at: https://africanlii.org/afu/judgment/african-commission-human-and-peoples-rights/2001/34

Supreme Court Of The Netherlands Civil Division, The State Of The Netherlands (Ministry Of Economic Affairs And Climate Policy), V. Urgenda Foundation 19/00135 20 December 2019. Available at: https://www.urgenda.nl/wp-content/uploads/ENG-Dutch-Supreme-Court-Urgenda-v-Netherlands-20-12-2019.pdf

The Permanent Court Of International Justice, Case Concerning The Factory At Chorzow, https://www.icj-cij.org/files/permanent-court-ofinternationaljustice/serie_A/A_09/28_Usine_de_Chorzow_Competence_Arret.pdf

The Trail Smelter arbitration, the United States v. Canada, 1938 and 1941, RIAA vol. 3, pp. 1905-1982, https://legal.un.org/riaa/cases/vol_III/1905-1982.pdf

Other documents:

Agency for Healthcare Research and Quality. The National Healthcare Disparities Report. Washington, DC: US Department of Health and Human Services; 2003. Available at: http://www.ahrq.gov/qual/nhdr03/nhdrsum03

Dhaka Ministerial Declaration Of The Climate Vulnerable Forum, adopted in Dhaka on 14 November 2011, available at: https://daraint.org/wp-content/uploads/2011/11/Dhaka.Declaration.pdf

Dr Margaret Chan Director-General of the World Health Organization, 'Return to Alma-Ata' 15 September 2008, available at: https://www.who.int/dg/20080915/en/

IPCC, 2007: *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds).

IPCC, 2012: *Intergovernmental Panel on Climate Change Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* (Eds: Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley). Cambridge University Press.

IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland

Male' Declaration on the Human Dimension of Global Climate Change, adopted on 14 November 2007, Available at: http://www.ciel.org/Publications/Male_Declaration_Nov07.pdf

Millennium Development Goals (MDG) Africa Steering Group, Achieving the Millennium Development Goals in Africa: Recommendations of the MDG Africa Steering Group, June 2008 (New York: UN Department of Public Information, 2008), 30– 31.

Save the Children, State of the World's Mothers Report, 2012. Available at : https://www.savethechildren.org/content/dam/usa/reports/advocacy/sowm/sowm-2012.pdf

The World Meteorological Association, *Global Data-processing and Forecasting System,* available at: https://public.wmo.int/en/programmes/global-data-processing-and-forecasting-system

World Bank, World Bank Atlas Method, available at: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups