UCLouvain

Faculté de droit et de criminologie

The Paris Agreement and its adequacy to address climate change

Auteur :
Laurent Chattaway

Promoteur:
Philippe Gautier

Année académique 2018-2019

Master en droit
DROI2M
Finalité Etat et Europe

Plagiat et erreur méthodologique grave

Le plagiat, fût-il de texte non soumis à droit d'auteur, entraîne l'application de la section 7 des articles 87 à 90 du règlement général des études et des examens.

Le plagiat consiste à utiliser des idées, un texte ou une œuvre, même partiellement, sans en mentionner précisément le nom de l'auteur et la source au moment et à l'endroit exact de chaque utilisation*.

En outre, la reproduction littérale de passages d'une œuvre sans les placer entre guillemets, quand bien même l'auteur et la source de cette œuvre seraient mentionnés, constitue une erreur méthodologique grave pouvant entraîner l'échec.

* A ce sujet, voy. notamment **http://www.uclouvain.be/plagiat**.

LOUVAIN-LA-NEUVE | BRUXELLES | MONS | TOURNAI | CHARLEROI | NAMUR
Place Montesquieu, 2 bte L2.07.01, 1348 Louvain-la-Neuve, Belgique | **www.uclouvain.be/drt**

"*Ce n'est pas seulement de la dignité de l'homme dont il s'agit, mais de sa survie*".[1]

"*Ce sont les pauvres et les plus vulnérables et les plus faibles, notamment les enfants qui souffrent les premiers de la dégradation de l'environnement*".[2]

"*Everything that exists is One, and this One is merely named by different words*".[3]

The Paris Agreement and its adequacy to address climate change

[1] E. MACRON, *Discours sur le pacte mondial de l'environnement,* Paris, 24 juin 2017, retrieved on https://www.youtube.com/watch?v=piHgQ0Sq9Yw.
[2] J.P. VAN YPERSELE, « Préface » *in* PAPE FRANÇOIS, *Laudato Si,* Namur, Editions Jesuites, 2015, p. 8.
[3] L. TOLSTOY, *Letter to Gandhi,* retrieved on https://www.deslettres.fr/lettre-de-leon-tolstoi-a-gandhi-il-ny-a-quune-solution-celle-de-la-reconnaissance-de-la-loi-damour-et-du-refus-de-toute-violence/.
It is seldom known that both men exchanged a correspondence at the end of Tolstoy's life. Tolsoty's ideas on non-violence inspired Gandhi for his political actions.

Introduction

Climate change is currently one of the most urgent threats to human kind. According to a large majority of scientists,[4] the continued increase of greenhouse gases (GHG) emissions could potentially cause environmental damage and social disruption of unprecedented dimensions.[5] In light of those circumstances, humanity must act coherently and concretely to achieve the objective of preventing global warming.

The following thesis explores how the Paris Agreement is a milestone in such a process.
The first part is devoted to presenting climate change as a scientific phenomenon induced by human factors and some of its - many - dramatic consequences. It then presents the framework of international climate law before the Paris agreement, namely the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and the 1997 Kyoto Protocol (KP).
The second part is about the 2015 Paris Agreement (PA) itself, analysing first the negotiations process, then its legal content, as well as its spectacular outcome and uncertain future. Almost every State on Earth signed it and it entered into force with unprecedented speed.[6] On the other hand, its effectiveness to limit climate change appears questionable.
How to implement the Paris Agreement within society is examined in the third part. We will try to establish how the objective of the Paris Agreement to contain climate change to 2°C could be fulfilled. We will put forward the role of jurisprudence in such a matter: the symbolic role of jurisprudence, including cases dealt with by international courts and tribunals, as well as national cases. We will also present a few promising examples of ways in which society could adapt to climate change. In particular we will explore the role of local government, as well as our conception of nature and the environment.

[4] W. RIPPLE, C. WOLF, *et al.*, *World Scientists' Warning to Humanity: A Second Notice, Appeal from 15, 364 scientists from 184 countries*, p. 2
retrieved on https://academic.oup.com/bioscience/article/67/12/1026/4605229.
[5] J. K. HEALY, "Local initiatives", *in* M. GERRARD (dir.), *Global Climate Change and US law,* Washington, American Bar Association, 2017, p. 421.
[6] Syria and Nicaragua are the only two countries that did not sign the Agreement.

Part I: global warming: a well-studied issue

This part contains three chapters. The first one is about global warming itself, its causes and consequences: "A global challenge. A physical threat which can touch in a deadly manner anyone on Earth. Which we will eradicate with success only if each and every country and people act together in a concerted way."[7] The two others chapters present the framework of international environmental law before the 2015 Paris Agreement: the 1992 United Nations Framework Convention on Climate Change (UNFCCC) in Chapter II and the 1997 Kyoto Protocol (KP) in Chapter III.

Chapter I: Global warming

Global warming can be defined by the rise of temperatures induced by the emissions of GHG. Since 1860 and in particular since the 1980's, temperatures have risen almost everywhere on Earth, most notably in the high latitudes of the Northern Hemisphere. Between 1906 and 2005 the world has gained almost 0.7 °C. Landmasses are warming up quicker than oceans.[8] Mankind's influence on global climate change is "real and growing".[9] The effects of global warming can be seen everywhere, most notably in Arctic and Antarctic, where a spectacular rise of temperatures occurred. Its consequences will be dreadful and generalised: according to the International Panel on Climate Change (IPCC), a 2°C global warming is the threshold not to be exceeded.[10]

In Section I of this chapter, we will see the variations of climate throughout history, and why global warming is unprecedented because of its speed and amplitude.

In Section II, we shall present the link between GHG emissions and global warming, taking note of the recent trends in the matter.

In Section III, we will present some of the potentially devastating consequences of global warming.

---

[7] F. CERUTTI, « Le réchauffement de la planète et les générations futures », *Pouvoirs*, 2008, p. 108-109.

[8] IPCC, *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers,* Cambridge, Cambridge University Press, 2013, retrieved on https://www.ipcc.ch/reports/, p. 2.

[9] Y. KERBRAT, S. MALJEAN-DUBOIS, *et al.*, "Conférence internationale de Paris sur le climat en décembre 2015 : comment construire un accord évolutif dans le temps ? ", *J.D.I.*, 2015, p. 10.

[10] *Ibidem.*

Section I: Historical perspective on climate variations

Global-scale observations of the climate system began in the mid-19th century, with more comprehensive observations available for the period 1950 onwards. On the basis of reconstruction, it is possible to trace climate variations back hundreds to millions of years ago. Together, they provide a comprehensive view of the variability in the atmosphere, oceans and land surfaces.[11]

Climate has indeed varied throughout history. Reconstructions can show periods during the Medieval Climate Anomaly (years 950 to 1250 – a small-scale warming that happened during the Middle Ages). Some regions were then as warm as in the late 20th century. But these regionally warm periods did not occur as coherently across regions as global warming in the late 20th century.[12]

The French historian E. Le Roy Ladurie showed how climate variations had affected human societies in the past. The Medieval Climate Anomaly, as well as the Little Ice Age, a cooling of global climate between 1500 and 1850, had direct consequences for societies and populations, most notably if they were poor or politically disorganized - typically in a time of war for instance. [13] Climate variations had an influence or indirectly induced poor harvests, famines, revolutions. [14] However, some realities impact human societies even more than climate such as culture, religion, economy and science: climate acts more as a catalysis in a global set of factors.[15]

But even though climate has varied in the past, global warming as we experience it today is unprecedented. Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. In the Northern Hemisphere, 1983–2012 was likely the warmest 30-year period of the last 1400 years.[16] Global warming is now speeding up: since the beginning of temperatures records, 9 of the 10 hottest years happened… in the last 10 years.[17]

In France for instance, since 1860, mountain ice and glaciers have been melting, for the first time since the beginning of the Little Ice Age. From that date onwards, warming has not stopped, temperatures rising continuously except for a period of cooling between the 1950's

[11] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,* p. 4.
[12] *Ibidem,* p. 5.
[13] E. LE ROY LADURIE, *Naissance de l'histoire du climat,* Paris, Hermann Editeurs, 2013, p. 13.
[14] *Ibidem*.
[15] E. LE ROY LADURIE, *Disettes et révolutions 1740-1860,* Paris, Fayard, 2006, p. 50.
[16] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,* p. 5.
[17] *Ibidem.*

and 1970's.[18] In 1976, an exceptional drought was recorded throughout Europe (such an event has only been recorded since then in 2018). Trends in France are as follows: 12°C in the 1940's-1950's, 12.2 °C between 1980 and 1990, 12.7 °C 1990-2000 and 13°C from 2000 to 2010.[19] 1°C more in less than a century (in France), and it is going on: the World Weather Organisation confirms that "average global temperature has exploded all records in 2015, with 0.76°C over the average for 1961-1990".[20] The XXIst century has 15 of the 16 hottest years since the beginning of the records. The period 2011-2015 confirms this and is the hottest that has ever been recorded.[21] Similar patterns can be observed everywhere in Europe and the world.[22] Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unseen, over decades to millennia.[23] There is some reason to worry.

Section II: CO2, ppm concentration and global warming

Let us present the links between CO2 concentration and global warming, the current trends thereof and what should be done in this regard.

(i) Greenhouse gases emissions (GHG) and global warming

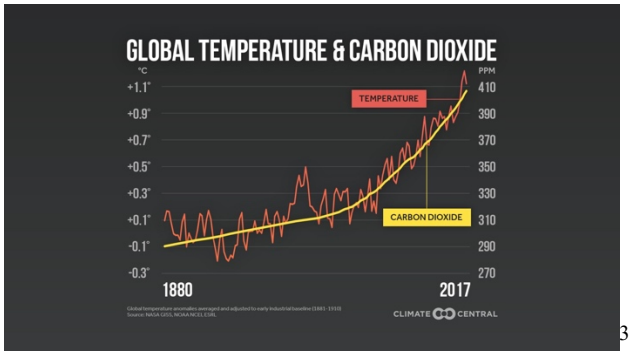
The demographic explosion of the XXth century and the industrial revolution since the mid-XVIIIth century resulted in a massive increase in CO2 and other GHG emissions, causing climate change.[24] There is a linear relationship between GHG emissions and the rise of temperature. Thus, according to the IPCC, "it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century".[25] GHG emissions stem from burning fossil fuels, deforestation and agricultural production. [26] There are also flares that burn at large extraction sites around the world, releasing methane, a green-house gas whose impact is 23 times that of CO2.[27]

The atmospheric concentrations of carbon dioxide, methane, and nitrous oxide increased to levels unprecedented in at least the last 800,000 years. Carbon dioxide concentrations have

[18] E. LE ROY LADURIE, *Le Réchauffement de 1860 à nos jours,* Paris, Fayard, 2009, p. 15-19.
[19] *Ibidem,* p. 318-319.
[20] WORLD METEOROLOGICAL ORGANISATION, *Press Release,* 25 January 2016, retrieved on https://public.wmo.int/en/media/press-release.
[21] *Ibidem.*
[22] W. RIPPLE, C. WOLF, *et al.*, *op. cit.,* p. 2.
[23] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,* p. 4.
[24] M. DUTU, "Climate Change and Human Rights: Emergence of a New Fundamental Right to Proper Climate", *in* A. MICHELOT (dir.), *Justice climatique, enjeux et perspectives, Climate justice, Challenges and Perspectives,* Bruxelles, Bruylant, 2017, p. 313.
[25] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,* p. 17.
[26] W. RIPPLE, C. WOLF, *et al.*, *op. cit.,* p. 1.
[27] V. CABANES, *Rights for Planet Earth, End to Crimes Against Nature,* Dehradun, Natraj Publisher, 2018, p. 32-33.

increased by 40% since pre-industrial times.[28] According to the IPCC, the mean rates of increase in atmospheric concentrations over the past century are unprecedented in the last 22,000 years. [29]

More alarming still is the fact that most aspects of climate change will persist for many centuries: surface temperatures will remain elevated for many centuries, even after a complete cessation of net anthropogenic CO2 emissions. [30] Note the sharp increase in CO2 emissions since the middle of the XXth century.



[31]

Figure 1: Correlation between CO2 and rise of global temperature

(*ii) Trends in GHG emissions*

In spite of this alarming situation, total anthropogenic GHG emissions have continued to increase over 1970 to 2010.[32] About half of cumulative anthropogenic CO2 emissions between 1750 and 2010 have occurred in the last 40 years.[33] Emissions are 61 % higher than the levels of 1990 (reference year for the 2001 Kyoto Protocol), and of course, far over the objectives of the Protocol (see below Chapter on the Kyoto Protocol).[34]

Even though total GHG emissions are increasing, the growth in total global emissions in 2015 and 2016 is the slowest since the early 1990s, except for years – between 2008 and 2010 - of global economic recession.[35]

---

[28] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,* p. 13.
[29] *Ibidem.*
[30] *Ibidem* p. 27. See as well the complete 2013 report: IPCC, *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* Cambridge University Press, Cambridge, 2013, retrieved on https://www.ipcc.ch/reports/.
[31] https://www.climatecentral.org/gallery/interactives.
[32] IPCC, *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers,* Cambridge, Cambridge University Press, 2014, retrieved on https://www.ipcc.ch/reports/ p. 6.
[33] *Ibidem* p. 8. See the technical summary as well, retrieved on https://www.ipcc.ch/reports/.
[34] B. LAVILLE, "Contraindre les états et les éléments, le pari fou de l'Accord de Paris"*, E.E.I.,* 2016, p. 19.
[35] UNEP, *The Emissions Gap Report,* Nairobi, United Nations Environment Programme, 2017 retrieved on https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf, p. 3.

(iii) What should be done

A 2°C global warming is the limit defined by the IPCC over which consequences would become exponential and lead to a complete disruption of the climate system. Humanity could even face extinction.[36]

In order to contain global warming to 2°C (with a 66 percent chance), humanity must not exceed a concentration of 450 parts per million (ppm) of CO2 in the atmosphere.[37] By 2011, this CO2 ppm concentration had already reached… 410 ppm.[38] This should be compared to pre-industrial levels of concentrations of 280 ppm.[39] To remain within the limit of 2°C, GHG emissions should be reduced from 40 percent to 70 percent in 2050, compared to the levels of 1990.[40]

However, albeit the slow-down in GHG emissions, projected emissions under current policies are still far from achieving this objective.[41] Projected GHG reductions schemes only accounts for one third of the necessary emissions reductions.[42] Current scenarios would therefore place us on track for a 3.7 °C to 4.8 °C global warming by 2100 compared to pre-industrial levels.[43] In other words, that means exceeding 450 ppm concentration by 2030 and reaching CO2 concentration levels between 750 and more than 1300 ppm CO2 by 2100.[44] So even if States respect to the letter their current engagement of emissions reductions, the CO2 levels compatible with a 2°C scenario would already be reached by 2030.[45]

There is therefore a need to act massively and concretely.

[36] W. RIPPLE, C. WOLF, *et al.*, *op. cit.,* p. 1.
[37] IPCC, *Climate Change 2014: Mitigation of Climate Change, op cit.,* p. 8.
[38] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,* p. 27.
[39] R. HOPKINS, *The transition companion,* Cambridge, Greenbooks, 2011, p. 32.
[40] Y. KERBRAT, S. MALJEAN-DUBOIS, *et al.*, "Conférence internationale de Paris…", *op. cit.*, p. 10.
[41] UNEP, *The emissions gap report, op. cit.,* p. 9.
[42] *Ibidem,* p. 6.
[43] IPCC, *Climate Change 2014: Mitigation of Climate Change, op cit.,* p. 8.
[44] *Ibidem.*
[45] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris : fin de la crise du multilatéralisme climatique ou évolution en clair-obscur ? ", *R.J.E.,* 2016, p. 30.

Section III: Global warming and its consequences

When it comes to consequences, the first thing to note about global warming is that it is not a linear process: the consequences are exponential. If humanity reaches certain tipping points (such as the melting of ice caps and of the permafrost above a 2°C warming), the impact on human livelihoods and species survival will be catastrophic.[46]

Many are now – rightly - fretful about these alarming consequences. These range from extreme weather events to sea level rising, from ice melting to ocean acidification, from disastrous consequences for ecosystems to reduced availability of food, crops and water. Again, there might be some reason to worry.

(i) Extreme weather events

Changes in the form of extreme weather and climate events have been observed since about 1950, such as the increasing frequency of heat waves in large parts of Europe, Asia and Australia.[47] Over the past two decades, extreme rainfall events have affected about 300 million people on average every year. With climate change, such extreme episodes of rainfall are expected to increase in frequency.[48] To make matters even worse, the intensity of storms is likely to escalate. One example of this is the 2013 typhoon Hayan which reached the speed of 380 km/hour (unmatched in the history of meteorological records since 1880).[49]

(ii) Ice melting in mountain and polar caps

Over the last two decades, the Greenland and Antarctic ice sheets have been losing mass, glaciers have continued to shrink massively and Arctic sea ice has continued to decrease in extent.[50] Arctic summer sea ice retreat was unprecedented in at least the last 1,450 years. [51] A nearly ice-free Arctic Ocean in September before mid-century is likely. [52]

[46] B. L. PEREZ-HENRIQUEZ, "The problem of climate change. Challenges and opportunities in carbon governance", *in* A. BUMPUS, C. OKEREKE, *et al.* (dir.), *Carbon Governance, Climate Change and Business Transformation*, New York, Routledge, 2015, p. 27.
[47] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,* p. 5.
[48] WORLD BANK, *Uncharted Waters, The New Economics of Water Scarcity and Variability,* Washington, WorldBank, 2017, retrieved on https://openknowledge.worldbank.org/handle/10986/28096, p. 1.
[49] V. CABANE, *op. cit.,* p. 37.
[50] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,* p. 9.
[51] *Ibidem.*
[52] *Ibidem,* p. 25.

(iii) Sea level rise

More alarming still, ice melting induces dire consequences for human societies: the rising of sea level. The rate of sea level rise since the mid-19th century is unprecedented since two millennia. Over the period ranging from 1901 to 2010, global mean sea level rose by 0.19 m.[53] During the last interglacial period (129,000 to 116,000 years ago) the sea was between 5 and 10 m higher than present. But this previous change in sea level happened over several thousand years. [54] The difference with what is happening now, just as for ice melting, is the alarming celerity of the process. If for instance the Greenland ice sheet were to melt completely the sea level rise would rise by 7m. If the same fate happened to the Antarctic ice-sheet, the likely rise would be 50m.[55] There is therefore a clear risk of flooding for low-lying areas. This includes the densely populated regions of Netherlands, Flanders, Florida, the Nile delta, the Chinese plains, the Mekong, Brahmapootra and Ganga deltas… This would jeopardise millions of lives.[56] In Bangladesh, for instance, it is thought that 20 million people will have to move due to climatic reasons by 2030. Boha island the largest island of Bangladesh, had already shrunk by half by 2005, forcing the displacement of 500 000 people.[57]

(iv) Ocean acidification

Another dramatic consequence of climate change is the threat on marine ecosystems, coral reefs and small crustaceans. Because of CO2 absorption by the ocean, oceans and sea waters become acid. Ocean acidification poses substantial risks to marine ecosystems, in particular coral reefs and fisheries: as a consequence of water being more acid, coral reefs and small crustaceans could indeed no longer form their shell, leading to their complete extinction.[58]

(v) Impact on ecosystems and animal species

Many species and systems are subject to very high risks with an additional warming of 2°C.[59] A large part of both terrestrial and freshwater species faces extinction under projected climate

[53] IPCC, *Climate Change 2013*, *Summary for Policy makers, op. cit.,*p. 11.
[54] *Ibidem.*
[55] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for policymakers*, Cambridge, Cambridge University Press, 2014, retrieved on https://www.ipcc.ch/reports/ p. 12.
[56]*Ibidem* p. 13. See as well: IPCC, *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,* Geneva, IPCC, 2014, retrieved on https://www.ipcc.ch/reports/.
[57] V. CABANE, *op. cit.,* p. 37.
[58] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.,* p. 17.
[59] *Ibidem*, p. 12.

change, especially as climate change interacts with other stress factors, such as habitat modification or invasive species.[60] Another factor is the clearing of peat wetland and forests, releasing huge quantities of methane in the atmosphere. The CO2 emissions of Indonesia are consequently as high as those of Russia, because the country has indulged in that behaviour to make place for palm oil crops.[61]

(vi) Impact on human habitats: water availability

Climate change over the 21st century is projected to critically reduce surface water and groundwater resources in dry subtropical regions. In presently dry regions, drought frequency will likely increase by the end of the 21st century.[62] This reduction of water availability will go hand-in-hand with increase of demand. Projections suggest that by 2050, global demand for water will increase by 30–50 percent.[63] Many regions that are likely to see the highest rates of population growth by 2050 are already the most water-stressed and impoverished. For instance in India, it is estimated that fresh water availability will plummet by 50 percent.[64] Whereas floods are spectacular weather events that cause sensational damage, droughts are "misery in slow motion" with deeper and longer-lasting impacts.[65] Furthermore, adapting to rainfall variability is often much more challenging than accommodating long-term trends because of the unpredictable duration of a deviation.[66] Again, in already vulnerable societies, millions are endangered.

(vii) Impact on human habitats: food availability

For the major crops (wheat, rice, and maize), climate change without adaptation is projected to negatively impact production.[67] For example, between 2001 and 2013, enough calories to feed 81 million people every day were lost to dry shocks each year. This is sufficient food to feed an entire country the size of Germany or Turkey.[68] The rise in temperatures is also causing intense droughts throughout the world, leading to dramatic famines. In 2011, 250,000 people

[60] *Ibidem*, p.15.
[61] N. ROBISON, « Impedimenta: leveraging to overcome business as usual & the quagmire of peat" *in* A. MICHELOT, *op. cit.,* p. 40-42.
[62] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.,* p. 14.
[63] WORLD BANK, *op. cit.,* p. 9-14.
[64] D. AMIRANTE, "Facing climate change: institutional policies and liability instruments in India" *in* A. MICHELOT, *op. cit.,* p. 108.
[65] WORLD BANK, *op. cit.,* p. 1.
[66] *Ibidem,* p. 9-14.
[67] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.*, p. 18.
[68] WORLD BANK, *op. cit.,* p. 25.

died of hunger and thirst in Somalia, half of them children. 60 million countries of the Horn of Africa have been affected by a famine, in a drought of a magnitude termed by the UN as "never seen before".[69] In 2013, a drought deprived Russia of 30 percent of its cereal production.[70] If extreme weather events and their projected consequences on food availability will go on, how many will then perish?

(viii) Impact on human habitats: migration

Climate change over the 21st century is projected to increase displacement of people. Displacement risk increases when populations lacking resources for planned migration experience higher exposure to extreme weather events, particularly in developing countries.[71] Another problem is that climate change related refugees are not treated as such in international law. There is indeed no current recognition of migration related to climate change.[72]

To conclude climate change is dramatic in its magnitude as well as in its consequences: melting ice and rising sea-levels; ocean acidification and stress on animal ecosystems; plummeting water and food availability; climate refugees. All of these are already happening. Yet what is being done?

Each State could see it as a national disaster, rather than a collective responsibility. Effective mitigation (reducing GHG emissions) will not be achieved if individual powers further their own interests. Climate change has the characteristics of a problem requiring collective action at global scale.[73] The example of the ozone layer is similar in some respects: States quickly understood that it was a collective challenge and even exceeded the experts' recommendations.[74] So let us turn to the collective solution implemented by the international community to contain climate change.

[69] V. CABANE, *op. cit.,* p. 33-34.
[70] *Ibidem.*
[71] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.*, p. 20.
[72] J. MCADAM, *Climate Change, Forced Migration and International Law,* Oxford, Oxford University Press, 2012, p. 103.
[73] IPCC, *Climate Change 2014: Mitigation of Climate Change, op cit.,* p. 5.
[74] N. ROBISON, « Impedimenta: leveraging…" *in* A. MICHELOT, *op. cit.,* p. 40-42.

Chapter II: the UNFCCC

In this chapter, we will present the 1992 United Nations Framework Convention on Climate Change (UNFCCC). We shall first explain the context of its ratification (Section I), then the distinction established between Annex I and non-Annex I countries (Section II) and finally present a key instrument of the UNFCCC, the Conferences of Parties (Section III).

Section I: Context and Ratification

(i) Context

The UNFCCC finds its root in the modern ecology movement when environmental protection became a political cause after the emerging awareness of pollution's devastating effects.[75] The first international declaration about the environment was signed in Stockholm in 1972. The discovery of the erosion of the ozone layer led to the adoption of the 1985 Vienna Convention and the 1987 Montreal Protocol on the Control of Substances that Deplete the Ozone Layer.[76] Global warming became a priority on the international political agenda with the 1992 Earth Summit held in Rio.[77] Stemming from the Rio declaration and the success of the Montreal Protocol, the 1992 UNFCCC was drafted. It sought to stabilise the concentration of anthropogenic CO2 in the atmosphere and provided the original structure for the international climate change regime. Two decades later, this remains its main legavy, for both the 1997 Kyoto Protocol and the 2015 Paris Agreement stem directly from it. [78]

(ii) Objectives

With the 1992 UNFCCC a core of objectives were put forth. One of them is enshrined in Article 2, "to stabilise the concentration of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".[79] Then comes the principle of common but differentiated responsibility, laid out in Article 3.1.[80] It means the UNFCCC emphasises not only different contributions to global warming, but also different capabilities with respect to mitigation and adaptation. Because they were both the historic polluters and possessors of financial and technological means, industrialised countries took a

[75] F. FRANCIONI, C. BAKKER "The evolution of the global environmental system: trends and prospects in the EU and the US" *in* C. BAKKER, F. FRANCIONI (dir.), *The EU, the US and Global Climate Governance,* Burlington, Ashgate, 2014, p. 9.
[76] *Ibidem*, p. 12.
[77] *Ibidem,* p. 13.
[78] J. DEPLEDGE, F. YAMIN, *The International Climate Change Regime, a Guide to Rules, Institutions, Procedures*, Cambridge, Cambridge University Press, 2004, p. 119.
[79] F. FRANCIONI, C. BAKKER "The evolution…" *in* C. BAKKER, F. FRANCIONI (dir.), *op. cit.*, p. 20.
[80] M. CAO, "Climate Justice: A Chinese Perspective", *in* A. MICHELOT (dir.), *op. cit.,* p. 78-79.

higher burden of responsibility burden under the system of the UNFCCC,[81] both for mitigation (emissions reduction) and for adaptation (financial and technological transfer).[82] But the Convention also took capability into account: should a State evolve rapidly, therefore so would its obligation with respect to climate change.[83] This would eventually be replicated in the 2015 Paris Agreement. Another principle is the principle of precaution, meaning that scientific uncertainty should not be used as a mean to delay or postpone any action to mitigate global warming.[84] There is also the principle of sustainable development in Article 3.4 stating countries have a right to promote economic development, whilst still taking into account sustainability and environmental factors.[85] The final principle is encapsulated in Article 3.5. It is called the principle of international cooperation and concerns the need for a supportive open and international economic system. That does not mean however, that this principle would require a liberal economy altogether. Rather, it underscores the need for the fairness of the global international economic system in order to allow developing countries' sustainable development.

Section II: Mitigation and the distinction between Annex I and Annex II countries

(i) Different categories of countries

In line with the principle of common but differentiated responsibility, the UNFCCC recognises several categories of countries. They are mainly divided between Annex I and Annex II. Annex I comprises countries of the OECD as well as economies in transition (EIT's), from the former Soviet bloc. [86] Annex II comprises countries only from the OECD. Parties not listed in Annex I are referred to as "non-Annex I parties".

The obligations for each category of country varies. Non-Annex I countries are subject only to the general commitments applicable to all parties.[87] Annex I parties have obligations related to mitigation and reporting.[88] Annex II parties have additional commitments with respect to financial assistance and technology transfer.[89]

[81] F. FERREIRA, C. VOIGT, "Differentiation in the Paris Agreement", *Climate Law,* 2016, p. 59.
[82] M. MOLINER-DUBOST, "Justice, équité et reponsabilité commune mais différenciée dans les négociations climatiques post 2020" *in* A. MICHELOT (dir.), *op. cit.,* p. 278.
[83] D. BODANSKY, J. BRUNNÉE, *et al., International Climate Change Law,* Oxford, Oxford University Press, 2017, p. 128.
[84] *Ibidem*.
[85] *Ibidem,* p. 129.
[86] Art. 4.6 and Art. 4.9 of the 1992 United Nations Framework Convention Climate Change.
[87] Art. 4.1, 5, 6, 12.1 of the 1992 United Nations Framework Convention Climate Change.
[88] Art. 4.2 and Art. 12.2 of the 1992 United Nations Framework Convention Climate Change.
[89] Art. 4.3-4.5 of the 1992 United Nations Framework Convention Climate Change.

The distinction between Annex I and non-Annex I countries is not always in line with the difference between developing and developed countries: neither Israel nor South Africa is listed in Annex I, but Turkey is.[90] Furthermore, revising the lists of countries in each annex proved almost impossible: save a few minor exceptions, no revision was ever enacted, despite Chile, Mexico and South Korea joining the OECD and China becoming the top emitter of GHG. In particular, Kazakhstan in 1999 tried to join the list of Annex I countries, but emerging countries blocked its accession, fearing a dangerous precedent.[91]

(ii) Approach to mitigation

Mitigation consists in reducing GHG concentration. In light of the success of the Montreal Protocol (related to the Ozone Layer) and its top down approach, many countries wanted to reproduce it in the UNFCCC, and establish a target for each party. But the US and Japan pushed for a bottom-up system of pledge-and review in which each State's pledge would be nationally determined.[92] The UNFCCC became a hybrid of both these approaches: Article 4.1 enshrines a bottom-up approach, requiring each State to determine a national policy to curb emissions, whereas Article 4.2 is a top-down model establishing internationally determined emissions targets. Annex I countries should return to 1990 levels of emissions by 2000. This is formulated in non-binding term (and proved for that matter utterly ineffective).[93] As we will see, the Kyoto Protocol reflected a top-down approach, whereas the agreements signed after 2010 - in Copenhagen, Cancun and most of all the Paris Agreement - reflect a bottom-up approach.

Section III: The Conference of Parties (COP)

(i) COP and legally binding character

As for the legally binding character, the UNFCCC took a similar approach as the Paris Agreement two decades later, by distinguishing between "the legal form of the overall instrument and the legal character of its constituent provisions".[94] A tool that is widely used in international environmental law, conventions are largely procedural, devising a scheme for negotiations, so that substantive obligations are adopted later on.[95] The UNFCCC lays out a

[90] UNFCCC, *Report of the Conference of the Parties on its fifth session, held at Bonn from 25 October to 5 November 1999,* FCCC/CP/1999/6/Add.1, 2 February 2000,
retrieved on https://unfccc.int/sites/default/files/resource/docs/cop5/06a01.pdf.
[91] *Ibidem.*
[92] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 120.
[93] *Ibidem.*
[94] *Ibidem*, p. 119.
[95] Y. KERBRAT, S. MALJEAN-DUBOIS, *et al.*, "Conférence internationale de Paris…", *op. cit.*, p. 15

general framework of general principles and provides a forum for future negotiations (the COP). These COP then serve to define the obligations' content more precisely as well as the commitments to prevent climate change. In other words, the COP produce secondary law so as to complete the lacunar dispositions in the convention.[96] Notable climate COP include the 1997 COP3 which adopted the Kyoto Protocol, the 2001 COP7 which adopted the Marrakesh Accords, the 2009 COP15 for the Copenhagen Accord and of course the 2015 COP21 for the Paris Agreement. The decisions taken during COP are not legally binding as such (except when acting under express authority given by the UNFCCC, for example to define methodologies for calculating national emissions of GHG). To create new legal obligations, the COP have to adopt a protocol or amendment to the Convention (such as the Kyoto Protocol), which then requires acceptance by the States to enter into force.[97]

(ii) COP and rule of procedures

Interestingly, the UNFCC provides that COP shall adopt the rules of procedures by consensus (Article 7.3). 25 years after its entry into force, adopting these rules of procedure proved nightmarishly impossible. There was a disagreement about the COP's voting rule, whether voting is by consensus or fixed at a two-thirds majority. Because it was impossible to vote on them, the rules of procedure were therefore never adopted. The COP hence continues to operate under draft rules of procedures and require consensus to adopt every decision.[98] As one can easily imagine, obtaining a consensus from more than 190 parties every time is quite a challenge… The COP's efficiency is thus largely undermined.[99]

(iii) Outcome

Ultimately, the proof was in the pudding. At the Rio conference, the UNFCCC was signed by 154 countries and is now ratified by 197 parties. It reflects a delicate compromise: avoiding legally binding targets (opposed by the US), it limits the obligation of developing countries and requires that they be provided with financial and technical assistance. [100] As a framework convention, the UNFCCC aims to create a flexible system of governance for the climate change

[96] Y. KERBRAT, S. MALJEAN-DUBOIS, *et al.*, "Conférence internationale de Paris…", *op. cit.*, p. 15
[97] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,*p. 142-143.
[98] *Ibidem.*
[99] *Ibidem.*
[100] *Ibidem*, p. 158.

problem (by the means of COP, adoption of protocols and amendments). But for much of its existence, however, the UN climate regime has in practice been quite rigid.[101]

For instance, the principles articulated in Article 3 became sacrosanct as did the categorisation of countries in Annexes I and II. Moreover, the requirement that decisions be made by consensus in the absence of agreed rules of procedures led to policy gridlocks.[102] Nevertheless, the UNFCCC laid a basis for further action, paving the way for the Kyoto Protocol and the Paris Agreement.[103]

Chapter III: The Kyoto Protocol

In this chapter we will explore the first instrument designed under the 1992 UNFCCC to curb GHG emissions, namely the 1997 Kyoto Protocol (KP). We will see first that it was a legally binding commitment and will discuss the opportunity of its approach to mitigation (Section I). We will also present a few mechanisms devised under Kyoto (Section II), the differentiation established between countries (Section III), as well as the influence such a conception had on the Protocol's results (Section IV).

Section I: Legally binding commitment with a defined aim

(i) Legally binding aspects

The 1997 Kyoto Protocol supplements the UNFCCC by establishing legally binding and quantitative emissions targets for Annex I parties. The Kyoto negotiations focused only on Annex I country emissions.[104] The other binding obligations of the KP were also limited to Annex I countries, such as the "obligation to establish a national system for the estimation of GHG emissions by sources and removals by sinks",[105] the informational requirements in relation to annual inventories and national communications,[106] and the expert review process.[107] Parties could submit their mitigation targets themselves.

[101] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 142-143.
[102] *Ibidem.*
[103] *Ibidem.*
[104] *Ibidem,*p. 160.
[105] Art. 5 of the 1997 Kyoto Protocol.
[106] Art. 7 of the 1997 Kyoto Protocol.
[107] Art. 8 of the 1997 Kyoto Protocol.

(ii) Comparison with the Paris Agreement

It is interesting to compare the targets of the KP with the equivalent in the Paris Agreement, the Nationally Determined Contributions (NDC). Both of these were nationally determined. But in the Kyoto Protocol the targets were subject of intensive negotiation among Annex I parties whereas in Paris, multilateral negotiation of NDC was never proposed. NDC are established at the national level and are not an object of international negotiation. In Kyoto the targets of key countries and groups changed over the course of the conference as a result of negotiation with other parties. The outcome was stronger than initially proposed. But this strong objective was never fulfilled, as many countries dropped out of the KP (see outcome section of this chapter). It led scholars to believe it was better to let countries define commitments themselves, as was done in the Paris Agreement.

We can also observe the difference with the Paris negotiations. While the legally binding character of the KP was rather straightforward, the same cannot be said of the Paris Agreement: it remained deeply contentious. According to D. Bodansky, this contrast is due to the scope of both instruments. The KP was to be applied only for Annex I countries, whereas the Paris Agreement involved all the parties of the UNFCCC. Developing countries were much less willing to accept legally binding targets than developed States.[108]

Finally, the KP is considered a top-down agreement because the targets were set for quantified emissions limitation and reduction objectives within specified time frames.[109]

Section II: Mechanisms devised under Kyoto

Three market-based mechanism were created offering States additional means to meet their targets: International Emissions Trading (IET), Clean Development Mechanisms (CDM) and Joint Implementation (JI). These three mechanisms were designed to enable emission reductions to occur in the cheapest locations across the globe.[110] All three mechanisms draw on the standard solution for the "tragedy of the commons": privatise the commons and trade the resulting property rights. Anecdotally some environmentalists denounced carbon trading and compared it with the sale of indulgences by the Catholic church. Indeed, some have argued that these new property rights will be acquired by "those who have the most power to appropriate them and the most financial interest in doing so."[111]

[108] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 161-163.
[109] *Ibidem.*
[110] C. HEPBURN, "Carbon Trading: A Review of the Kyoto Mechanisms", *Annu. Rev. Environ.,* 2007, p. 375.
[111] *Ibidem*, p. 379.

(i) International Emission Trading (IET)

The first mechanism, emissions trading, can occur between countries with binding targets, so that countries can meet their domestic targets by purchasing credits from other countries that have exceeded their targets.[112] The Kyoto Protocol requires the transferring party to deduct the transferred units of pollution from its assigned amount before the acquiring party can add the transfer.[113]

The major result of IET was the EU emissions scheme, the biggest market of this kind. In total the EU emission trading scheme covers around 45 percent of the EU GHG emissions.[114] Studies suggest that CO2 emissions were reduced by "an amount that was probably larger than 50 million tons and less than 200 million tons." These achievements, however, are simply too modest when compared with the magnitude of the challenge.[115]

The Kyoto emissions trading system also provided the impetus for the creation of emissions trading schemes at the national level by countries like Kazakhstan, New Zealand and South Korea and at the subnational level in Australia, the US and Canada.[116] China also launched its trading emissions scheme in 2017.[117]

(ii) Clean Development Mechanisms (CDM)

The CDM allows Annex I parties to undertake or invest in project activities in non-Annex I countries and to use the reductions of this project towards compliance with their own Kyoto emissions targets. [118]

These projects are assessed against approved methodologies, or it would be all too easy to cheat and fabricate CO2 reduction schemes. Therefore, if the project is novel and employs a methodology that has not yet been approved by the CDM Executive Board (CDM EB), further cost and delay are involved in submitting the methodology for approval. The Project Design Document must then be validated by a Designated Operational Entity, which assesses whether the project passes the crucial additionality criteria.[119] Indeed, if the reductions would have occurred anyway - because it had already been planned that emissions should be reduced –

[112] F. FRANCIONI, C. BAKKER "The evolution…" *in* C. BAKKER, F. FRANCIONI (dir.), *op. cit.*, p. 21.
[113] Art. 3.2, 3.5 and 17 of the 1997 Kyoto Protocol.
[114] *Ibidem.*
[115] C. HEPBURN, "Carbon… ", *op. cit.,* 2007, p. 385.
[116] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 192.
[117] *Ibidem.*
[118] Art. 12 of the 1997 Kyoto Protocol.
[119] C. HEPBURN, "Carbon… ", *op. cit.,* 2007, p. 38.

then the project is naturally not a CDM.[120] That is why Article 12.5 requires that reductions from CDM projects be certified internationally.[121] Nevertheless, many studies over the years have questioned the extent to which CDM projects have resulted in emissions reduction that are truly additional.

On the one hand, the UNFCCC announced in 2006 that the CDM were expected to reduce CO2 emissions by one million tons. In the short-term however, emission reduction projects have been concentrated in relatively few countries – China and India - and been focused on non-CO2 gases, in particular on HFC-23 from refrigerant manufacturing.[122]

Additionally, the CDM presents two major failures. First, just like the EU ETS, the CDM does not address the crucial long-term need to reduce CO2 emissions from the energy sector. The spectacular rise of China as a major coal emitter between 2000 and 2015 is a good example thereof. Second, CDM contribute very little to sustainable development in the poorest countries. Projects in Africa constitute only a tiny percentage of the total.[123]

(iii) Joint Implementation (JI)

The Joint Implementation mechanism allows Annex I countries to invest in an emissions reduction project in any other Annex I country as an alternative to reducing emissions domestically.[124] It functions in the same manner as CDM, except JI occur only in Annex I countries whereas CDM are located in developing countries. JI is enshrined in Article 6 of KP, also with the same requirement of additionality as the CDM: "provided such emissions reductions or enhanced removals are "additional" to any that would have otherwise occurred.[125] That means before implementing a JI project, one must prove that the emission reduction would not have occurred anyway without the JI. JI have therefore similar processes and institutions to the CDM. Sellers of emissions reduction units are primarily from Russia and Eastern Europe, whereas the buyers are primarily Western European countries with tighter.[126] Again, just like the CDM, the limited international oversight as well as transparency of JI activities has led many to question their environmental integrity[127].

[120] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 184.
[121] Art. 12 of the 1997 Kyoto Protocol.
[122] C. HEPBURN, "Carbon… ", *op. cit.,* 2007, p. 385.
[123] *Ibidem.*
[124] F. FRANCIONI, C. BAKKER "The evolution…" *in* C. BAKKER, F. FRANCIONI (dir.), *op. cit.*, p. 21.
[125] Art. 6 of the 1997 Kyoto Protocol.
[126] C. HEPBURN, "Carbon… ", *op. cit.,* 2007, p. 382.
[127] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 181.

As a conclusion on flexibility mechanisms, current carbon markets represent a very small and highly imperfect step. Indeed, one of the most pressing challenges in climate policy over the next decade, as outlined in Part II about the Paris Agreement, is to "increase the scope of emissions trading to cover more countries, more sectors, and over longer time periods". [128] This is to ensure that the level of emissions reduction is indeed increased year after year. "Ultimately, caps must be tightened to improve environmental effectiveness, and allowances must be auctioned to address serious inefficiencies in allocation and important issues of fairness." [129] So flexible mechanisms currently have some serious problems, but they are a basis for effective climate policy, especially if the caps were to be more ambitious. However, their basic premise is that climate change is simply a "market failure".[130] The common good of the atmosphere should be "privatised".[131] Although interesting, their result is rather insufficient for now, and they do not directly hinder the very use of fossil fuels and other high GHG.[132]

Section III: Common but Differentiated Responsibilities (CDR)

In general, the KP took the approach to differentiation even further than in the Convention. Its priority would be to "strengthen the commitments" of Annex I parties. Accordingly, the KP created a strict "binary" differentiation system. Only Annex I parties assumed legally binding mitigation commitments, whereas as non-Annex I countries had no obligations whatsoever.[133] This sharp differentiation between countries with respect to mitigation obligation proved increasingly controversial over time. The US rejection of the KP and the dropping out of many developed countries can be traced back to that (see following section). [134] Additionally, the distinction between Annex I and non-Annex I was too rigid, as was said in the previous chapter on the UNFCCC. It proved almost impossible for any given non-Annex I country to be included in Annex I and thus to have binding targets.[135]

[128] C. HEPBURN, "Carbon… ", *op. cit.,* 2007, p. 388-389.
[129] C. HEPBURN, "Carbon… ", *op. cit.,* 2007, p. 388-389.
[130] *Ibidem.*
[131] C. HEPBURN, "Carbon… ", *op. cit.,* 2007, p. 388-389.
[132] *Ibidem.*
[133] F. FERREIRA, C. VOIGT, "Differentiation…", *op. cit.*, p. 61.
[134] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 164.
[135] S. MALJEAN-DUBOIS, M. WEMAËRE, "L'accord à conclure à Paris en décembre 2015 : une opportunité pour « dé » fragmenter la gouvernance internationale du climat ? ", *R.J.E.,* 2015, pp. 649 – 671.

Section IV: Kyoto results and future

(i) Results

Kyoto was a strange phenomenon. It took 2 years to negotiate, another 8 years to enter into force, and it took 7 years for another second commitment to be negotiated, the latter of a duration of only 8 years.[136] From its very inception, the KP was very difficult to negotiate. Many of its key provision required further negotiation, most notably on reporting, review and market mechanisms. [137] Hence many States' unwillingness to ratify the protocol until these had been resolved. It was completed only in 2001 with the adoption of the Marrakesh Accords, which served as the KP's rule-book.[138] In between, the United States had dropped out a few months after George W. Bush became president: they never ratified it.

The protocol entered into force in 2005 with the ratification of Russia. Under the Kyoto Protocol, 37 industrialised States and the EU finally made binding commitments to reduce GHG emissions by an average 5 per cent against 1990 levels.[139]

The Protocol's first commitment period ranged from 2005 to 2012. Its implementation varied among its signatories: the EU has unilaterally decided to go beyond, setting a target of 20 per cent reduction by 2020 compared with 1990 levels.[140] In total, the 37 and EU Annex I countries accounted for 39 percent of global GHG emissions in 2010. Excluding Canada (which abandoned its obligations in 2007 and withdrew for good in 2012), the remaining 36 countries were in full compliance with their first commitment periods targets.[141] So from that point of view, Kyoto was definitely a success. Nonetheless, this contrasts with major setbacks: the US dropping out in 2001, the late ratification by Australia in 2007 and the withdrawal of Canada in 2012. As a conclusion, we could say that international binding commitments are indeed successful in reducing climate change, but only if States commit to them and maintain that commitment.

[136] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 206.
[137] *Ibidem* p. 160.
[138] *Ibidem.*
[139] B. LAVILLE, "Contraindre…"*, op. cit,.*p. 15.
[140] F. FRANCIONI, C. BAKKER "The evolution…" *in* C. BAKKER, F. FRANCIONI (dir.), *op. cit.*, p. 21-25.
[141] These countries are Australia Austria Belgium Denmark Finland France Germany Greece Hungary Ireland Iceland Italy Japan Luxemburg New Zealand Netherlands Norway Portugal Spain Sweden Switzerland the United Kingdom and Turkey.

(ii) Future of the Protocol: second commitment period and Doha Amendment

The Protocol's second commitment period ranges from 2012 to 2020. Its details were not worked out until the 2012 Doha Amendment (negotiated at the COP in that same city). Disagreement raged, regarding the length of the commitment (finally agreed from 2012 to 2020, year when the 2015 Paris Agreement begins). [142] Collective targets were set at 18 percent below 1990.[143] But these same commitments are insufficient as Russia, Ukraine, Belarus, Kazakhstan and Japan announced they would not take commitments under the KP's second period.[144]

Additionally, the 2012 Doha amendment is yet to enter into force.[145] It will do so when 144 parties have deposited their instrument of acceptance,[146] but so far only 127 countries have.[147] That is why some parties provided for a provisional application of the Doha Amendment (a.k.a. the KP's second commitment period).[148] Consequently, only a few Annex B countries (the EU, Australia, Iceland, Liechtenstein, Monaco, Norway and Switzerland) actually adopted targets for the second commitment period. This only covers 11.8 percent of global GHG, a small proportion of global GHG emissions.[149]

To conclude, the Doha Amendment does not offer any clarity on the survival of the KP after 2020. Doubtless the near universal support for the Paris Agreement will make it redundant.[150] The development of the KP's second commitment period strongly influenced the Paris Agreement negotiations. This is what we will now explore in Part II Chapter I.

[142] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 203.
[143] S. MALJEAN-DUBOIS, M. WEMAËRE, "L'accord…", *op. cit.,* p. 649 – 671.
[144] *Ibidem.*
[145] *Ibidem.*
[146] Article 1 Section A,B,C 2012 Doha Amendment to the Kyoto Protocol, UNFCCC Decision 1/CMP.8
[147] https://unfccc.int/process/the-kyoto-protocol/the-doha-amendment.
[148] 2012 Doha Amendment to the Kyoto Protocol, UNFCCC Decision 1/CMP.8, §5 and §6.
[149] M. MOLINER-DUBOST, "Justice,…" *in* A. MICHELOT (dir.), *op. cit.,* p. 278.
[150] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,*p. 204-205.

Part II: The Paris Agreement

This part will be devoted to the analysis of the Paris Agreement. In its first chapter, we will present its context and negotiations. The second chapter is a legal analysis of the Paris Agreement's content. In the third chapter, we shall observe its strengths and weaknesses.

Chapter I: Negotiations

In the following chapter, we will see how the future of the Kyoto Protocol influenced the negotiations for the Paris Agreement (Section I) as well as the negotiation at Copenhagen and at subsequent COP (Section II).

Section I: Another Agreement post Kyoto

(i) Lead up to another Agreement

After 2007, considerable uncertainty followed the KP's first commitment period. There was a necessity to negotiate a post 2012 agreement both more ambitious and more inclusive than the KP. But it was unknown whether the outcome of these negotiations would supplant or complement the KP, in particular since the US were not a part of the Protocol. Ultimately, negotiations would lead to new agreement supplanting the KP, even if the Protocol was extended until 2020.

Negotiations for the post-Kyoto period followed two parallel processes. The first was the «Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol» («AWG-KP process »), put in place at the 2005 Montreal Conference. The second was the 2007 Bali Action plan which launched a parallel working called «Ad-Hoc Working Group on Long-term Cooperative Action under the Convention («AWG-LCA»).[151] The latter AWG-LCA was to prevail over the Kyoto Protocol AWG-KP negotiation process.

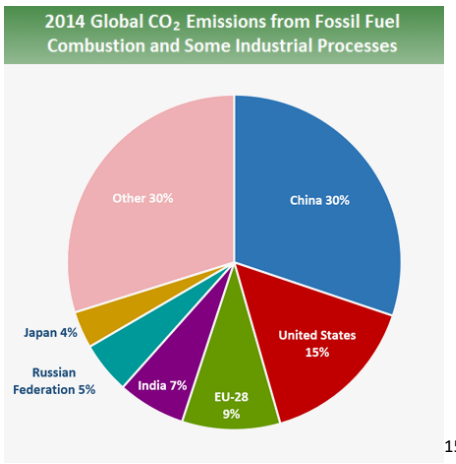
(ii) Reasons for abandoning the Kyoto framework

The distinction between Annex I and Annex II countries had indeed become increasingly obsolete. Chinese and other emerging countries' emissions – such as India, Indonesia Brazil,

[151] UNFCCC, *Rapport de la treizième session de la Conférence des Parties tenue à Bali du 3 au 15 décembre*, FCCC/CP/2007/6/Add.1, 14 March 2008,
retrieved on https://unfccc.int/resource/docs/2007/cop13/fre/06a01f.pdf.

Mexico- skyrocketed.[152] In 1990 when the UNFCCC negotiations began, the share of developed countries' global emissions was at about 70 percent. Developing country emissions doubled in between– they now account for almost 60 percent of global emissions.[153] In 1990 US emissions were roughly double those of China, but by 2014, the situation had reversed, with Chinese emissions roughly doubling those of the US.[154]

That is why the US were adamant that a new framework other than the Kyoto Protocol should be negotiated. Therefore, despite emerging countries' attachment to negotiate under the KP Second commitment period,[155] the US point of view prevailed. The more inclusive framework of the UNFCCC (2008 Bali Action plan) was chosen over the AWG-LCA to conduce the Copenhagen conference. It eventually led to the Paris Agreement.[156] The graph below shows the substantial share of developing countries' GHG emissions just before the Paris conference in 2014.[157]



158

Figure 2: share of global CO2 emissions by country in 2014

[152] M. MOLINER-DUBOST, "Justice,…" *in* A. MICHELOT (dir.), *op. cit.,* p. 279.

[153] IEA, *CO2 Emissions from Fuel Combustion: Key CO2 Emissions Trends,* Paris, International Energy Agency, 2016, retrieved on https://emis.vito.be/sites/emis.vito.be/files/articles/3331/2016/CO2EmissionsfromFuelCombustion_Highlights_2016.pdf, Figure 4.

[154] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p.354; However, let us note the approach of Kyoto was not irrelevant. Historically, Annex I countries' cumulative emissions between 1850 and 2012 were about 2.4 times those of non-Annex I countries. And developed countries per capita GHG emissions remain incomparably higher than those of most developing countries...

[155] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 24.

[156] *Ibidem*, p. 23.

[157] ANDRES (R.J.), BODEN (T.A.), MARLAND (G.), *National CO2 Emissions from Fossil-Fuel Burning, Cement Manufacture, and Gas Flaring: 1751-2014*, Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, 2017.

[158] R. J. ANDRES, T.A. BODEN *et al., National CO2 Emissions from Fossil-Fuel Burning, Cement Manufacture, and Gas Flaring: 1751-2014*, Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, 2017.

Section II: COP from Copenhagen to Paris

(i) Copenhagen

The result of the Bali Action Plan was the Copenhagen Agreement, raising many hopes throughout the world. In contrast, it was a resounding failure. The "new era for climate" consisted in a vague political engagement, sadly amounting to no more than 3 pages. Roughly negotiated -because of the ludicrous COP's rules by consensus[159]- and refused by some members of the COP, it was ultimately discarded.[160] A failure indeed.

The 2009 Copenhagen conference was nonetheless a milestone in the sense that neither China nor the US, representing 40 per cent of all emissions were willing to accept three major elements of Kyoto (namely the sanctions when engagements were not respected, the market-based mechanisms and binding reduction targets). Therefore, States Parties adopted a bottom-up approach, with the goal of maintaining global warming under 2°C (see Part I Chapter I). [161]

In Copenhagen, States additionally agreed upon the idea to create a Green Fund, so as to finance adaptation to global warming. The Green Fund would collect 100 billion a year to help adapt to global warming, have legal personality and be administered by the World Bank.[162]

(ii) Cancun, Durban, Doha

At the 2010 Cancun conference, a lot of energy was devoted to re-establishing dialogue and the exact limits of the Green Climate Fund. An important part of the discussion was also the creation of a registry so that developing countries could detail their voluntary plans. The objective of a 1.5°C to 2°C limitation was also validated.[163]

At the 2011 Durban conference, the parties finally agreed to extend the KP for a second commitment period (2012-2020). The EU struck a deal with developing countries that they would accept an extension of Kyoto for a second period if the subsequent agreement in 2015 would be applicable to all.[164] Negotiations also followed suit for the 2008 Bali Action Plan: parties at the UNFCCC would elaborate a protocol or other legal instrument applicable to all parties.[165]

---

[159] See Part I Chapter II.

[160] S. LAVALLÉE, "Le principe des responsabilités communes mais différenciées à Rio, Kyoto et Copenhague. Essai sur la responsabilité de protéger le climat", *Études Internationales*, 2010, p. 51-78.

[161] M. MOLINER-DUBOST, "Justice,…" *in* A. MICHELOT (dir.), *op. cit.,* p. 281.

[162] *Ibidem*, p. 283.

[163] UNFCCC, *Les accords de Cancún: Résultats des travaux du Groupe de travail spécial de l'action concertée à long terme au titre de la Convention*, FCCC/CP/2010/7/Add.1, 15 March 2011, retrieved on https://unfccc.int/resource/docs/2010/cop16/fre/07a01f.pdf, p. 2.

[164] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 203.

[165] Y. KERBRAT, S. MALJEAN-DUBOIS, *et al.*, "Conférence internationale de Paris…", *op. cit.*, p. 10.

At the Doha conference in 2012, the Parties agreed on the details of an extension of the Kyoto Protocol for a second commitment period (see above). The conference also cleared the fact that a new treaty should be set up by 2015, and enter into force by 2020, to replace the Kyoto Protocol.[166] So the Doha Amendment was rightly deemed a "climate bridge", as it served both for the continuation of Kyoto (2012-2020), and for the negotiation path for another instrument after the termination of Kyoto post-2020.[167]

(iii) Just before Paris: Warsaw and Lima

Further progress was made at the 2013 COP19 in Warsaw: governments agreed to communicate their respective contributions towards the agreement to be negotiated in 2015.[168] The concept Nationally Determined Contributions (NDC) was also adopted. It would ensure that each country determines their effort and contributions themselves.[169]

At the 2014 COP20 in Lima, three interesting developments were adopted. The first one is that the NDC would be reviewed and that they should progress: there is a threshold of 2 °C, and every State determines to which degree it will contribute to it. The only binding characteristic is that each NDC should be a progress compared to the one beforehand. [170] NDC were made public in November 2015 and the UNFCCC secretariat aggregated them to calculate its global value for GHG reductions.[171] The good news was that almost every State had sent in due time its contributions. The bad news is that those contributions put together sends the world on a path for a 3°C-4°C global warming rather than 2°C.[172] A bit more ambition would be quite welcome.

The second idea adopted in Lima was differentiation « in light of different national circumstances ». It was the first time that such a definition was coined. The same phrasing would be used in the Paris Agreement. The principle of common but differentiated responsibility as enshrined in the Kyoto Protocol (with Annex I and non-Annex I countries) was abolished.[173] Officials therefore included emerging countries in the negotiations process, and perhaps that made the success of the Paris Conference.[174] There was indeed a general understanding that climate change could only be tackled if key States were on board, most

[166] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 23-25.
[167] Art. 20 of the 1997 Kyoto Protocol.
[168] F. FRANCIONI, C. BAKKER "The evolution…" *in* C. BAKKER, F. FRANCIONI (dir.), *op. cit.*, p. 22.
[169] D. BODANSKY, "Reflections on the Paris Conference", *Opinio Juris*, 15 December 2015, retrieved on http://opiniojuris.org/2015/12/15/reflections-on-the-paris-conference/.
[170] M. MOLINER-DUBOST, "Justice,…" *in* A. MICHELOT (dir.), *op. cit.,* p. 281.
[171] B. LAVILLE, "Contraindre…"*, op. cit.*, p. 16.
[172] *Ibidem.*
[173] M. MOLINER-DUBOST, "Justice,…" *in* A. MICHELOT (dir.), *op. cit.,* p. 281.
[174] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 22.

notably the United States and China. On the other hand, it is undeniable that States' contributions to the problem differ substantively.[175] Consequently, to avoid causing a stalemate, the concept of differentiation "in light of different national circumstances" was adopted, which we will explain below in Chapter II.

Thirdly, in terms of finance, the Lima declaration recognised "complementary support by other parties", indicating that developing countries could contribute as well.[176] After having traced back the genesis of the Paris Agreement, let us now present its legal content.

Chapter II: Mechanisms devised in the Paris Agreement

We will develop this chapter in several sections, each relating to a key feature of the Paris Agreement. Section I dwells upon general principles encompassing the Agreement in its entirety: its application to every Member State, the threshold not to be trespassed, the mere composition of what is called the Paris Agreement. Section II explores the extent to which the Agreement is binding or not. Section III and IV present the differentiation concept adopted at COP21 in Paris. Section V is about the ambition cycle and its revision. Adaptation and loss and damages are presented in Section VI and VII.

Section I: General principles applicable to the whole of the Agreement

(i) Rationae personae

The biggest distinction with the Kyoto Protocol is that the Paris Agreement is up to signature and ratification for every State in the world. There is an extension of the *rationae personae* field. So the Kyoto Protocol's binary distinction was completely abandoned, saved for a few provisions on mitigation, finance and transparency, as we will see below. Perhaps the fact all States in the world have the same obligations – although "in light of different national circumstances"- explains the rapid entry into force of the Paris Agreement.[177]

(ii) Aim of the Agreement

Article 2 of the 2015 PA provides that the average rise of temperature should be contained well below 2°C compared to preindustrial levels and that efforts should be maintained to limit global

[175] F. FERREIRA, C. VOIGT, "Differentiation…", *op. cit.*, p. 62.
[176] *Ibidem,* p. 64.
[177] A. SOETE, "Het Paris Agreement : one giant leap for mankind, one small step for climate", *M.E.R.,* 2016, p.129.

warming to 1.5 °C. That was the objective of the most vulnerable countries to climate change, thanks to the Marshall Islands who handily led the coalition for highest possible ambition.[178] Paragraph 17 of the Decision recognises with lucidity the amount of efforts to maintain global warming to 2°C. Scientists have all put forward that the next 15 years are crucial to reach that goal.[179] The objective of 1.5 °C in Article 4 of the Treaty is deemed unreachable by many.[180] Paragraphs 13, 14, 15, 16, 19, 20 also make clear that NDC should be published as soon as possible.[181] In paragraph 21 of the Decision, "The IPCCC should publish a report in 2019 on the consequences of a 1.5°C global warming".[182]

(iii) Progression and highest possible ambition

The Agreement contains two new principles, one of "progression" and the other of "highest possible ambition". Each party commits to progressively undertaking more ambitious efforts over time ("progression" contained in Article 3), as well as having an NDC that is the "highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances" (Article 4).[183] Article 4.3 establishes a standard of conduct for each party — or duty of care—to strive to attain its highest possible ambition in a manner that reflects its common responsibilities, respective capabilities, and national circumstances.[184] These two principles are connected to another central aspect of the agreement: the logic of regular preparation of successive contributions, defined in Article 14 (see section V).[185]

(iv) Ratification and compliance

After the Agreement had been signed, the ratification period began on the 22nd April 2016. The Agreement entered into force on November 4th 2016, when 55 States representing 55 percent of GHG emissions had ratified it (Article 21).[186] Needless to say this was a swift process,

[178] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 29.
[179] B. LAVILLE, "Contraindre…"*, op. cit.*, p. 18.
[180] *Ibidem.*
[181] *Ibidem.*
[182] *Ibidem.*
[183] Art. 3 and 4 of the 2015 Paris Agreement.
[184] C. VOIGT, 'The Paris Agreement: What is the Standard of Conduct for Parties?', *Q.I.L.*, 2016, p. 17-28.
[185] Art. 24 of the 2015 Paris Agreement.
[186] S. LAVALLEE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 25.

especially compared to the lethargic process of previous climate change treaties. To this date, 185 countries out of the 197 Parties to the UNFCCC ratified the treaty.[187]

There is no compliance mechanism whatsoever in the Agreement (see Chapter III). The transparency formula -the concept used by States to submit nationally determined contributions- was sometimes deemed to establish a compliance mechanism. But it was an option that was not even present in the negotiation text, and even less the international constitution of a tribunal for Climate Justice. The Agreement contains "more facilitative tools that punitive ones".[188]

(v) The Treaty and the Decision

What is called the Paris Agreement is in fact two-fold. There is the Treaty itself (or Agreement) and the Decision. The Decision is a legal act of the 1992 UNFCCC but has no binding effect, although it can be used to interpret the Paris Agreement. [189] The Decision comes to complete the Treaty on a great number of points. It is even more important than the Agreement itself (22 pages out of 39 in the French version). So on a legal point of view, the treaty and the decision should be read and interpreted together in light of each other.[190]

Two essential chapters are only encapsulated in the Decision and not in the Treaty. One is about indispensable measures before 2020 (chapter IV of the Decision). The other is the recognition of non-State actors in paragraph 134, which was also a very important element of COP21.[191] Their absence of the Treaty itself was regretted by the scientific community (see below Chapter III). The same can be said of paragraph 137, stating that emissions reduction should be incentivised by carbon pricing, the only way, according to economists, to reach the 2°C objective.[192] Finally the Decision in its Article 9 paragraph 3 tries to give credit to the Copenhagen promise to deliver 100 million dollars to the Green Fund.[193]

[187] https://unfccc.int/process/the-paris-agreement/status-of-ratification. Notable exceptions include Iran, Iraq, Turkey and the Russian Federation.
[188] A. SOETE, "Het Paris Agreement…", *op. cit.*, p. 131.
[189] B. LAVILLE, "Contraindre…"*, op. cit.*, p. 18.
[190] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 25.
[191] B. LAVILLE, "Contraindre…"*, op. cit.*, p. 18.
[192] *Ibidem.*
[193] *Ibidem.*

Section II: Legally binding character

The Paris Agreement contains both provisions framed in mandatory terms with precise normative content (hard law) and others formulated in advisory terms (soft law). Some are also are contextual and descriptive.[194]

The "hard-law" mandatory provisions include preparing a NDC every five years and putting it into place.[195] States also have to declare their contribution to an expert committee in the UNFCCC.[196] Funding for developed countries is an obligation, but the 100 billion are not part of the Treaty itself.[197] Finally, a global emission evaluation is enshrined in Article 14 for 2023, then periodically every 5 years, from 2025[198] (see Section V). This relatively light package of binding obligations stems from the reluctance of emerging countries as well as the US unenthusiastic response to new obligations.[199]

As for the other provisions, many are framed as wishes and recommendations. For example, peaking of emissions should happen "as soon as possible". Carbon neutrality is not evoked, but CO2 concentrations should decrease in the middle of the XXIth century, because of absorption by carbon sinks.[200] There is no binding measures for carbon sinks: parties should take measures to conserve them, notably forests.[201] As for adaptation, Article 7 is written conditionally and as a recommendation.[202] All of this is regrettable according to the scientific community (again, see chapter III of the present part), especially when compared to what climate change and its devasting consequences would bring to human societies: mayhem.

As for the Decision going along the Paris Agreement, the UNFCCC generally does not authorise the COP to make legally binding decisions, except for COP decisions on inventory methodologies phrased in mandatory terms (see Part I chapter II).[203] Henceforth, the COP21 Decision about the Paris Agreement does not create legal obligations for States except paragraph 25 which provides "that Parties shall submit' future NDC 9–12 months in advance of the relevant COP".[204]

[194] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 213.
[195] Art. 3 and 4-2°and 3° of the 2012 Paris Agreement.
[196] Art. 3- 8°, 12° and 13°of the 2012 Paris Agreement.
[197] Art. 9-1 of the 2012 Paris Agreement.
[198] Art. 14 of the 2012 Paris Agreement.
[199] A. SOETE, "Het Paris Agreement…", *op. cit.*, p. 129.
[200] Art. 4-1 of the 2012 Paris Agreement.
[201] Art. 5-1 of the 2012 Paris Agreement.
[202] Art. 7 of the 2012 Paris Agreement.
[203] Art. 4.1(a) of the 1992 United Nations Framework Convention Climate Change.
[204] D. BODANSKY, "Legal Character of the Paris Agreement" *R.E.C.I.E.L.,* 2016, p. 148.

Concerning justiciability (whether these norms can be applied by courts and tribunals), the legally binding character of a norm does not depend on whether there is any court or tribunal to apply it.[205] In other words, the norms in the Paris Agreement would be binding even if there would not be any courts to apply them.[206] Ultimately the issue of the legally binding character is thus distinct of that of justiciability.[207] However, other conditions must be fulfilled in order for these provisions to be applied by courts and tribunals: whether a particular provision is individualised enough (the bearer of the obligation should be identified), whether it is framed in mandatory terms ("shall") etc. As such, three categories of provisions can be distinguished in the Paris Agreement: soft law, hard law and non-law.[208] The hard law provisions are legally binding, the bearer of the obligation is identified, and they are framed in mandatory terms. Therefore they could be invokable in front a national court.[209] This is particularly interesting for climate change litigation to reduce a State's GHG emissions (see Part III chapter I).

Why was the legally binding character such an important issue for some States (the EU), while others were rather reluctant (the US and emerging countries)? First, because some believed it would make the Paris Agreement more effective. It is true that binding force might promote effectiveness in several ways, even in the absence of judicial application or enforcement.[210] But, as was said when we compared the merits of targets negotiations under the KP and under the Paris Agreement (see Part I Chapter III), it might have caused fewer States to participate or to put forward weaker NDC.[211]

Section III: Differentiation and mitigation

Article 2.2 provides, just as in Lima, that the Agreement "will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances". The qualifier "in the light of different national circumstances" allows for different parameters to intervene, past, present and future emissions,

[205] D. BODANSKY, "Legal Character of the Paris Agreement" *R.E.C.I.E.L.,* 2016, p. 143.
[206] *Ibidem.*
[207] *Ibidem* p. 148.
[208] J. DEPLEDGE, F. YAMIN, *op.cit.,* p. 213.
[209] *Ibidem.*
[210] D. BODANSKY, "Legal Character…" *op. cit.*, p. 149.
[211] *Ibidem.*

as well as financial and technical aspect (energy for instance).[212] The Paris Agreement therefore continues the approach of the Convention but is also more nuanced.[213]

Many of the obligations will apply to all Parties.[214] The absence of annexes and definitions of "developed" and "developing" allow countries to move towards greater mitigation ambition over time without the need to "graduate" from one category to the other,[215] which was one of the KP's big problems.

In order to meet their long-term temperature goals, parties are subject to binding obligations of conduct. The most significant is encapsulated in Article 2 which reads: "Each Party shall prepare, communicate and maintain successive NDC […] Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions". The first part of the sentence applies to each Party, thus creating individual obligations.[216]

On target types, Article 4.4 stipulates that developed countries should continue to take the lead by undertaking economy-wide absolute targets, while developing countries are to assume economy-wide targets when their circumstances allow for such a target.[217] When communicating their NDC, parties are required to provide the information necessary for clarity, transparency and understanding. These are phrased with the term "shall", meaning they are mandatory (see above).[218]

Section IV: Other areas of differentiation

Finance is where differentiation is expressed more explicitly, whereas transparency provisions under Article 13 of the Paris Agreement are arguably where provisions for developed and developing countries converge most significantly. Because the purpose of transparency provisions is to increase, countries cannot plead for less stringent obligations.[219]

Financial support is perhaps the area where differentiation between developed and developing countries is most explicit in the Paris Agreement. Article 3 recognises the need to support developing countries. Articles 4.5 and 7.13 state that "support shall be provided" to developing countries for their mitigation and adaptation actions. It does not condition any developing

[212] L. RAJAMANI, *Differentiation in a 2015 Climate Agreement*, Arlington, Center for Climate and Energy Solutions, 2015, p. 2.
[213] T. DELEUIL, "The common but differentiated responsibilities principles: Changes in continuity after the Durban Conference of the Parties", *R.E.C.I.E.L.,* 2012, p. 271–281.
[214] D. BODANSKY, "Legal Character…" *op. cit.*, p. 142-150.
[215] F. FERREIRA, C. VOIGT, "Differentiation…", *op. cit.*, p. 67.
[216] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,*p. 231.
[217] Art. 4.4 of the 2015 Paris Agreement.
[218] Art. 4.8 of the 2015 Paris Agreement.
[219] F. FERREIRA, C. VOIGT, "Differentiation…", *op. cit.*, p.70.

countries' action to receive such a support. Rather, as Article 4.5 makes clear, enhanced support for developing countries will allow for higher ambition in their actions. Read together, Articles 3, 4.5, and 7.13 establish a strong link between support and the degree of effectiveness and ambition in developing countries' actions, without exempting them from fulfilling their obligations under the Agreement, which is again a strong progress compared to Kyoto.

On the supply of finance, Article 9 offers the most clear-cut form of differentiation. Article 9.1 reaffirms developed countries' collective legally binding commitments under the Convention to provide financial resources to developing countries, whereas support from other parties is voluntary (Article 9.2).[220]

As a conclusion on differentiation, it can safely be stated that the Paris Agreement was quite a success. Every country -with the notable exception of the US under the Trump administration- has indeed agreed upon this soft and flexible definition of differentiation. It enforces new and stronger obligations on developed countries, while also including developing countries in the effort-sharing. The Paris Agreement uses differentiation as a "means for enhancing, rather than stalling, ambition". [221] Instead of setting countries apart, the Paris Agreement makes clear that differentiation, in particular in financial support, is here to bring both developed and developing countries closer to their obligations.[222] The burden rests upon every nation on Earth.

Section V: Ambition cycle

The Paris Agreement establishes a common transparency framework, in which parties take stock every five years of their collective progress.[223] Even though a second Kyoto commitment period was officially launched (pending the Doha Amendment's entry into force),[224] negotiations have also contributed to solve a major issue, namely what to do with emissions situated between 2015 and 2020. As said before, the NDC are for now far from being sufficient to maintain global warming to a 2°C threshold.[225] That is why a strong impetus and a flexible dynamic is needed for the Agreement. Under its regime, NDC are to be reviewed every 5 years.[226] That had been difficult to negotiate because some developing countries and the US deemed it an interference in their domestic affairs. [227]

[220] F. FERREIRA, C. VOIGT, "Differentiation…", *op. cit.*, p. 74.
[221] *Ibidem.*
[222] *Ibidem.*
[223] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 210.
[224] See part I, chapter III, section IV.
[225] Y. KERBRAT, S. MALJEAN-DUBOIS, *et al.*, "Conférence internationale de Paris…", *op. cit.*, p. 13-15.
[226] *Ibidem.*
[227] *Ibidem* p. 18.

Key dates for the ambition cycle are 2018, 2020 and 2023. Paragraph 20 of the decision stipulates that States will revise progressively their NDC, and this before 2020. A facilitative dialogue will be set forth for 2018.[228] That will be supported by the principle of highest possible ambition applicable to NDC for the States.[229] 2020 is when new or updated NDC should be submitted. 2023 is the year in the Paris Agreement when these NDC will be reviewed to increase mitigation. In that respect the 2018, the COP24 at Katowice lacked an explicit call upon States to step up their ambition (see below).

In 2017, there has been extensive consultations with Parties on the organisation of the Facilitative Dialogue with a view to report their findings to the 2017 COP23.[230] Indeed, the outcome of the Facilitative Dialogue and the 2020 submission of new or updated NDC are likely to determine whether it will be feasible to bridge the emissions gap by 2030.[231]

Section VI: Market-based approaches (Art. 6)

As discussed above, market-based approaches were a central feature of the Kyoto Protocol, but it was unclear whether States would agree to implement them in the Paris Agreement. Some countries such as Bolivia strongly opposed it.[232] Article 6 provides for two market-based mechanisms, even though the word "market" is not used. First Article 6.2 recognises that "parties may engage in cooperative approaches to achieve their NDC, involving the use of internationally transferred mitigation outcome". Second Article 6.4 establishes a new mechanism to "promote the mitigation of GHG emissions while fostering sustainable development". These have sometimes been deemed the "Clean Development Mechanism of the Paris Agreement"[233] (which were already explained in Part I Chapter III about Kyoto).

Section VII: Adaptation (Art. 7)

Adaptation consists in the fact, for developing countries to receive funds to adapt to climate change.[234] Most developing countries have long argued for "parity between mitigation and adaptation in the climate regime".[235] They sought to include strong provisions on adaptation but had limited success. Parties "shall" engage in adaptation planning and implementation of

[228] Decision § 20 of the 2015 Paris Agreement.
[229] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 30.
[230] UNEP, *The emissions gap report, op. cit.*, p. 2.
[231] *Ibidem.*
[232] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 236.
[233] *Ibidem*, p. 237.
[234] M. MOLINER-DUBOST, "Justice,…" *in* A. MICHELOT (dir.), *op. cit.,* p. 285.
[235] *Ibidem.*

adaptation actions. Parties are nudged to submit and update adaptation communications, so as to "identify priorities and needs", and to "strengthen cooperation and adaptation".[236] The other provisions on adaptation do not provide mandatory recommendations, merely context and shared understandings.[237]

Section VIII: Loss and damages (Art. 8)

The mechanism of loss and damages of the developing countries evoked at the 2013 Warsaw Conference is enshrined in Article 8 of the Paris Agreement. This is not the same thing as adaptation, because this mechanism will intervene precisely when adaptation will not be sufficient, when the effects of climate change will already be felt.[238] The reason for its presence in the Agreement is the fact most vulnerable developing countries had made it a precondition to accept the Paris Agreement. That is also why these countries insisted on the goal of 1.5 °C: when the damage is felt, they could claim reparation more rapidly to historically responsible emitters of GHG. However, in exchange for agreeing to this, the US insisted to add paragraph 52 of the decision, stating "Article 8 does not involve or provide a basis for any liability or compensation". It thereby removed any possibility for loss and damages, and severely reduced climate justice potential.[239] A clever move. Some of the areas of cooperation and facilitation identified in Article 8 are in fact prevention of damages (early warning systems, emergency preparedness and risk assessment).[240] Although Article 8 is arguably of greater symbolic importance than substantive significance, it is important: it expressly brings the issue of loss and damages within the framework of the Paris Agreement.[241]

Section IX: Oversight and compliance mechanisms

The Paris Agreement establishes a soft oversight system to ensure effective implementation of its provisions. Along with the rules related to NDC they form the "top-down part of the Agreement".[242]

The Agreement's transparency framework is the main mechanism to hold States accountable for doing what they say they will do. Because they are no binding obligations as such, as to the content of the NDC (contrary to their establishment and their transparency, which are binding),

[236] Art. 7 of the 2015 Paris Agreement.
[237] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,*p. 238.
[238] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 34.
[239] *Ibidem.*
[240] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 239.
[241] *Ibidem.*
[242] *Ibidem,*p. 242.

the reasoning is that peer pressure and transparency is the best way to make States comply with the Paris Agreement.[243] Towards this end, all parties are requested to provide twice a year a national inventory report of mitigations contributions.[244] However, there is some doubt that peer pressure alone can actually suffice to implement the goal of the Paris Agreement.

The example of Canada is symbolic: in 2007, the country simply chose not to comply with its Kyoto obligations anymore, leading its GHG emissions to surge.[245] But it is also true that, contrary to the KP, the system devised under the Paris Agreement encompasses every country on Earth (including the US, since the decision of Trump administration to withdraw will only take effect after 2020).

Article 15 implements for its part a mechanism to facilitate implementation and promote compliance, but this skeletal provisions provides only minimal guidance as to how it will work.[246] The only certain thing is that the Paris Agreement will not recreate a Kyoto-like compliance committee with an enforcement branch and serious consequences for non-compliance.[247]

So there is no sanction mechanism as such in the Paris Agreement. However, nothing prevents individuals to file complaints against their own States for failing to reduce their emissions. There is now a string of cases in that direction, most notably in the US, in Pakistan and the Netherlands (see Part III chapter I on the role of caselaw). The fact some of the provisions in the Paris Agreement can be qualified as soft law does not preclude a tribunal to use it for interpretative purpose.[248] Additionally, a judge could base its decision, when assessing the responsibility of a State to reduce GHG emissions on the Oslo principles and the principle of precaution[249] - precisely what happened in the *Urgenda* case analysed below.

As a conclusion, we can outline that climate change law lacks compulsory compliance mechanisms and institutional structures. Since the earliest days of the UNFCCC and the international climate change regime, no party has actually used traditional dispute settlement procedures to correct non-compliance.[250] There is no international monitoring body to assess settlements in the Paris Agreement.

---

[243] *Ibidem.*
[244] Art. 13.7 of the 2015 Paris Agreement.
[245] S. LAVALLEE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 33.
[246] Art. 15 of the 2015 Paris Agreement.
[247] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 246.
[248] B. LAVILLE, "Contraindre…"*, op. cit.,* p.18-22.
[249] *Ibidem*. The Oslo principles are accessible on https://globaljustice.yale.edu/sites/default/files/files/LES%20PRINCIPES%20D'OSLO%20correction%20de%20correction%20de%20correction.pdf.
[250] J. DEPLEDGE, F. YAMIN, *op.cit.,* p. 379.

Chapter III: The Paris Agreement, an uncertain future for global outreach?

In this chapter we will see how the Paris Agreement can be truly considered a success (Section I) but that there are quite a few setbacks and disappointments as there is still a considerable gap between the Agreement's targets and current emissions trends (Section II).

Section I: Ratification and outcome

This section will present the many reasons to hope and will compare the texts of Kyoto, Copenhagen and Paris.

(i) A success?

The Paris Agreement can be considered a success, because an agreement applicable to all was found between all Members of the UN. 150 heads of States attended the conference and reached a common treaty, "a considerable achievement in multilateral diplomacy".[251] The objective of giving a future to the UNFCCC commitments was therefore fulfilled.[252] As D. Bodansky puts it: "The adoption within the space of a year of the Paris Agreement, the 2016 Kigali Amendment to the Montreal Protocol to address HFC and the 2016 ICAO global market-based measures to address aviation emissions and the Paris Agreement's extraordinarily rapid entry into force represent a step change in the international effort to address climate change."[253] The Paris Agreement was signed by every country on Earth -save 2- and entered into force within a year. It also bridges the divide between developed and developing countries.

But in June 2017, President Donald Trump announced that the United States of America intended to withdraw from the Paris Agreement and would cease implementation of the NDC. Despite this, the earliest this withdrawal could take effect is in 2020, four years after the Paris Agreement's entry into force, and after a second US presidential election. Moreover, the impact of current and upcoming action by subnational and non-State actors in the US may also be significant (see below part III chapter II).[254]

Recent developments include the COP24 in November 2018 in Katowice Poland. Ending a 3 year-round of negotiation, the COP24 adopted rules and procedures to implement the Paris Agreement – known as the Paris Rulebook - most notably on mitigation, transparency, adaptation, finance and periodic stockage. The Parties were unable to agree on the market-

[251] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,*p. 209.
[252] B. LAVILLE, "Contraindre…"*, op. cit.,* p. 15.
[253] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 361.
[254] UNEP, *The emissions gap report, op. cit.*, p. 23.

based approach of Article 6 of the Paris Agreement and they deferred it to COP25. The adoption of the rulebook was allegedly a major milestone in the implementation of the Paris Agreement. However, the COP failed to deliver any explicit call upon the Parties to step up the ambitions for their NDC. This leaves doubts on the feasibility of the Paris Agreement, although the adoption of the rulebook was adopted to facilitate its implementation is an encouraging sign.[255]

The major accomplishment of Katowice was indeed the Paris Rulebook. This included provisions on how to account for emissions mitigations. Voluntarily cooperation is promoted for Parties in implementing their NDC, including through the use of market-based approach. These approaches failed to be adopted however. Provisions related to transparency were also adapted and detailed, providing a common procedure for every country as to transparency. Despite the expectations of developing nations, each country will go through the same procedure for accountability of its GHG reduction. That was a major goal for the US diplomacy. Finally, the compliance mechanism laid out in the Paris Agreement consists of an expert-based committee that is "facilitative" in nature and is to function in a "transparent, non-adversarial and non-punitive" manner. Rules of procedure for this committee were adopted, notably how the consideration of an issue by the committee can be adopted and how the committee can take a decision.[256]

(ii) Comparing Kyoto, Copenhagen and Paris

The Kyoto Protocol seems to have been moulded by the dominant paradigm of time: it prescribed a legally binding top-down architecture, consisting of quantitative targets and timetables. The Copenhagen Accord was in many respects its utter opposite: a political agreement built around bottom-up pledges giving States tremendous flexibility.

Both had their shortcomings: the KP arguably tried to do too much too soon: by imposing legally binding targets, it attracted relatively little participation. The Copenhagen Accord tried on the contrary to attract universal participation by giving States flexibility, but its ambitions were clearly insufficient.[257]

The Paris Agreement, by contrast, represents a hybrid of both approaches: it is a legally binding instrument with loose and general elements, and combines bottom-up NDC with internationally

[255] CENTER FOR CLIMATE AND ENERGY SOLUTIONS, *Outcomes of the UN Climate Change Conference in Katowice*, Arlington, Center for Climate and Energy Solutions, 2018,
retrieved on https://www.c2es.org/site/assets/uploads/2018/12/cop-24-katowice-summary.pdf, p. 2.
[256] *Ibidem*, p. 4.
[257] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 354.

negotiated rules to promote ambition and accountability.[258] It incorporated legally binding instrument with multilateral rules to promote ambition and oversight.[259] Perhaps this is the way to go to attract both broader participation and ensure the implementation of emissions goals.

But the main critic about the Paris Agreement is the gigantic gap between its objective and the way to implement it. However impressive the Agreement, it indeed "falls short of putting the world on a pathway to reasonably limit climate change to below 2 degrees, much less 1.5 degrees".[260] In that regard, according to S. Lavallee and S. Maljean-Dubois, "the Paris Agreement is more a milestone in climatic diplomacy era, which is characteristically very uncertain, rather than a full accomplishment".[261] That is what we will explore in the upcoming section.

Section II: Critics and aftermath: bridging the considerable gap between current emission trajectories and 2°C or 1.5°C scenarios

A. Soete compares therefore the Paris Agreement to a card castle. The basis is laid, but largely remains to be built after 2020, knowing that non-acceptance of the Agreement by emerging or developed countries will lead to the whole structure collapsing.[262]

Humankind has already rejected 531 gigatons of GHG in the atmosphere since the beginning of the industrial revolution. To stay in line with a 2°C warming, total cumulate emissions should not go over 1000 to 3000 gigatons. That means humanity -mainly western countries, China and Japan in fact- have already used half of the carbon limit. If they go unstopped, emissions will reach 1000 gigatons in 20 or 30 years.[263] To have a chance of maintaining the 2°C scenarios, emissions should decrease of 10 percent by decades, reaching a 40 to 70 percent reduction in between 2010 and 2050.[264] Is this feasible?

The noble and inspiring objectives of the UNFCCC and the Kyoto Protocol did not prevent GHG emissions from booming.[265] So 27 years after the UNFCCC and 14 years after the Kyoto Protocol's entry into force, emissions are almost… 50 percent higher than in 1990. Yet the 2015 Paris Agreement sets a more modest goal, calling for a peaking of global emissions as soon as possible and at unspecified levels – knowing experts and scientists call for a peaking

[258] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 351.
[259] *Ibidem*, p. 353.
[260] *Ibidem,* p. 361.
[261] S. LAVALLÉE, S. MALJEAN-DUBOIS, "L'Accord de Paris…", *op. cit.*, p. 19.
[262] A. SOETE, "Het Paris Agreement…", *op. cit.,* p. 129.
[263] See the yearly reviews: J. BETAILLE (J.), C. COLARD-FABREGOULE *et al.*, "Environnement et droit de l'homme", *JEDH,* 2015, pp. 519-547 ; *JEDH,* 2016, p. 496-521.
[264] *Ibidem.*
[265] UNEP, *The emissions gap report, op. cit.*, p. 3.

of emissions by 2020 the latest.[266] Will this demanding effort ever be fulfilled? One might call it curing a terminal cancer with light doses of homeopathy.

And here is a rather pessimistic note: the limit to this method of bottom-up national contributions is clear. NDC so far submitted (56-57 GtCO2 to date) are very inferior to the 2°C objective, let alone 1.5°C. And the first binding commitment gathering is only in 8 years, in 2023, even though many countries wanted to revalue higher emissions before 2020, making use of the facilitation dialogue in 2018 – which did not exactly happen in Katowice.[267] Passing from the Kyoto top-down method to that of Paris might be very good to attract more countries. But what can be done when the contributions submitted with this bottom-up approach are insufficient?

To take another example, the concept of carbon neutrality is not in the Agreement, but simply mentioned in the decision without any binding character or incentivising.[268] So is emission peaking, which is vaguely referred to as "happening as soon as possible". Many scientists therefore lament the outcome of the Paris conference. According to J. Rockström: "we need total decarbonisation from 2050 onwards, minimum 75 percent. We cannot take the risk of going on burning fossil fuel, while trying to capture CO2 in giant carbon sinks. Also NDC should be revised every 3 years, not 5 years."[269] S. Kallbekken notes that the objective of 40-70 percent reduction or 70-90 percent reduction has disappeared, which means that "when States targets will be into force, the objective of 1.5 degrees might not be reachable anymore".[270] And for J. Rogelj, "We must reach a peak of emissions in 2020. Going beyond that would mean we would have to withdraw carbon from the atmosphere on a massive scale."[271] Additionally, many NGO demanded oil, gas and coal reserves to be left underground, which was not even evoked. Neither is there a mention of renewable energies, even though 100 percent of renewable energy is a feasible objective (only the EU has an objective in that respect), nor to cease subvention to fossil fuel energies (5300 billion dollars in total).[272]

It is nonetheless encouraging to note that the NDC presented by parties in Paris agreement cover indeed 99 percent of all global emissions.[273] And even if the divide between soft law and

[266] UNEP, *The emissions gap report, op. cit.*, p. 3
[267] B. LAVILLE, "Contraindre…"*, op. cit.*, p. 20
[268] *Ibidem*
[269] *Ibidem,* p. 21
[270] *Ibidem*
[271] *Ibidem*
[272] IMF, *How Large Are Global Energy Subsidies ?*, Washington, International Monetary Fund, 2015 retrieved https://www.imf.org/en/Publications/WP/Issues/2016/12/31/How-Large-Are-Global-Energy-Subsidies-42940
[273] UNFCCC, *Aggregate effect of the intended nationally determined contributions an update, Synthesis Report by the Secretariat*, FCCC/CP/2015/7, October 30 2015,

hard law is quite blurred,[274] it is also worth noting that NDC implementation will make global GHG emissions sizably lower than in pre-Paris trajectories.[275] Moreover, average per capita emissions are expected to decline because of the effect of NDC. And the UNFCCC secretariat additionally indicates a clear and increasing trend towards taking national actions to address climate change, and on national political agenda.[276] These are encouraging signs. But at the same time, it is all very clear: much more needs to be done.

Along with D. Bondansky, we can say that "climate change law is as much as a reflection as a driver for political will. It can facilitate but rarely force States to act. It thus depends on the desires of States and individuals to fight climate change. If there is a will, international climate change law can provide the way by organizing international cooperation setting standards and encouraging actions by States and non-State actors".[277]

In other words, to fulfil the aim of the Paris Agreement and maintain global warming below 2°C, cities, regions, business and civil society will have to be at the forefront and take the lead. That is what we will explore in Part III. Before we begin however, let us remind the reader that, given the catastrophic consequences climate change will result in, we cannot take the risk: stronger ambition is needed. The words of Churchill very much apply to climate change: "Nothing to offer but blood, toil, tears and sweat".

retrieved on https://unfccc.int/resource/docs/2015/cop21/eng/07.pdf.

[274] L. BOISSON DE CHAZOURNES, "One Swallow Does Not a Summer Make, but Might the Paris Agreement on Climate Change a Better Future Create?", *EJIL*, 2016, pp. 253-254.

[275] UNFCCC, *Aggregate effect… op. cit,* FCCC/CP/2015/7.

[276] *Ibidem.*

[277] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 361.

Part III: Future perspectives: Implementing the Paris Agreement within society?

This part is dedicated to understanding how adapting to climate change and implementing the Paris Agreement could lead to societal shifts in a short period of time. To express it more directly: what solutions are there to implement the Paris Agreement, to limit climate change to a 2°C global warming? We will present first the role of courts and tribunals (Chapter I), then societal response to climate change (Chapter II). As an opening to a new perspective, we will finish by the emergence of rights for nature (Chapter III). Before that however, we would like to outline both the emergency of action, and the very injustice of climate change.

It is indeed cruel that risks are unevenly distributed and are generally greater for disadvantaged people and communities.[278] The most impacted countries on the planet are among the poorest: the Democratic Republic of the Congo, Cambodia, Chad, Burkina Faso, Bangladesh, Sierra Leone and Guinea Bissau. [279] In other words, countries which least contributed to global warming will endure the worst of its consequences.[280] At the same time, let us remind the reader that between 1850 and 2003, 82 percent of emissions were produced by 7 countries: the US, the UK, Russia, Canada, Germany, Japan and France.[281] Climate justice might be in order. To quote *Laudato Si,* "We are not aware anymore that some are grounded in appalling poverty, without any way out, while others just do not know what to do with their wealth, showing it with disgusting vanity and leaving behind such a level of profligacy that it would annihilate the whole planet if it were generalised." [282]

Such is the case of small and peaceful country at the heart of Europe: Belgium. Belgium is one of the worst countries regarding ecological performances. Its ecological performances have the rare privilege of only being surpassed by nations such as Qatar, Singapore or the United States.[283] Belgium lies therefore in the top-ten worst countries of ecological footprint per inhabitant: if every human being lived like the Belgians, we would need the equivalent of 4.3 planet Earth.[284] The reasons for this are amongst others the density of buildings, the abundance of roads, the ecological footprint of agriculture, as well as a clear lack of enforcement of ecological policies.[285]

---

[278] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.,* p. 12.
[279] M. MOLINER-DUBOST, "Justice,…" *in* A. MICHELOT (dir.), *op. cit.,* p. 284-286.
[280] *Ibidem.*
[281] *Ibidem.*
[282] PAPE FRANÇOIS, *op. cit.*, p. 85.
[283] WWF, *Living Planet, Report 2014,* Gland, WWF, 2014,
retrieved on http://d2akrl9rvxl3z3.cloudfront.net/downloads/lpr2014_rapport_vf_web.pdf, p. 35.
[284] *Ibidem.*
[285] *Ibidem.*

Motor vehicles should be banned (and not encouraged such as for company cars), public and active transport enforced, renewable energies promoted, vegetarian lifestyle encouraged and fuel boilers banned.[286] Yet, despite this appalling performance, politicians simply trampled on the calls for higher ambitions during the Climate Marches. This example not only illustrates the short-terms views of part of the political class. It also shows that changing laws will not suffice. We must change our general conceptions and individual behaviours. We will now try to understand what can be done through courts and tribunals.

Chapter I: Adjudicating climate change

We will use a three-pronged approach to understand the adjudication of climate change and the role courts have to play in the matter. There is of course the symbolic role of jurisprudence (Section I). Then we will see caselaw produced by international (Section II) and domestic jurisdictions (Section III).

Section I: Establishing the symbolic role of jurisprudence in climate change

Litigation could become a major force for action governance.[287] In general, law embodies a "thicket of agreements among the members of society and between them and their government". Litigation comes to test whether particular actions or inactions are "compatible with those agreements".[288] Growing despair because of inaction has led local NGO, local states and local governance to pursue meaningful GHG reduction through courts. Litigation could be a tool to bridge the considerable gap between expected emission rising and the goal of the Paris Agreement.[289]

(i) Legal theory

In theory of law, critical legal studies present legal reasoning as a conflict between the law and the sense of justice the judge has regarding a certain case: "A tension between the objectivity of what the law prescribes and the outcome the judge wants to bring out conforming to his sense of justice".[290] Therefore jurisprudence and caselaw can be used to enforce political ideas

[286] S. DEVILLERS, "Nous consommons 6,3 fois ce que la Belgique fournit", *La Libre Belgique,7 August 2016,* retrieved on http://www.lalibre.be/actu/planete/nous-consommons-6-3-fois-ce-que-la-belgique-fournit-57a777ee35704fe6c1d2910c.
[287] UNEP, *The Status of Climate Change Litigation,* Nairobi, United Nations Environment Programme and Sabin Center for Climate Change Law at Columbia Law School, 2017, retrieved on http://columbiaclimatelaw.com/files/2017/05/Burger-Gundlach-2017-05-UN-Envt-CC-Litigation.pdf, p. 8.
[288] *Ibidem.*
[289] Emissions should level off by 2015-2020 and decline to no more than a third of those levels by 2100.
[290] R. J. COOMBE, "Critical Legal Studies", *Yale Law Review*, 1998, p. 455-488.

by using the cloak of authority vested by the law. [291] Yet traditionally, courts and tribunals have played a comparatively modest role in the development and implementation of international environmental law.[292]

(ii) Politics, media and lobbying

Specifically, courts may shape political and media view regarding climate change.[293] All the more interesting, knowing how heavy lobbying by the energy industry can influence public opinion. In the USA, in 2005, 40 percent of people did not believe climate change was of human origin, and similar attitudes can be traced back in Australia too.[294] Moreover the more exposure to climate sceptic media -the US Fox News- the less the public would believe that humanity could have an impact on climate change.[295]

Courts can play a role in shifting general attitudes and it is interesting to understand how. Additionally, courts are themselves influenced by shifts in public opinion.[296] For instance, in the 2007 case *Massachusetts v. EPA* -analysed hereunder- the Supreme Court of the United States (SCOTUS) made use of a certain language. As a result, climate scepticism was whence forth seen as a political choice, rather than as scientific position.[297] Another example is the case *Utility Air Regulatory Group v. EPA*.[298] In that matter, it was striking to see that Justices reproduced in their opinions what was said in Congress' bipartisan politics.[299]

In fact, courts play a role in three different ways. Firstly, litigation alone does not suffice and does not play a significant role, unless it is backed by a broader grassroots campaign. Secondly, successful litigation definitely gives legitimacy to this grassroots campaign. A positive ruling can have a galvanising effect.[300] Finally, bringing a case before courts and tribunals allows for a more direct comprehension of a threat sometimes perceived as lying far ahead: « Bringing it to a court room makes it all understandable ».[301] So even if unsuccessful, climate change can help raise public awareness and give climate change damages a human face.[302]

---

[291] R. J. COOMBE, "Critical Legal Studies", *Yale Law Review*, 1998, p. 455-488.
[292] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 283.
[293] H. OSOFOSKY, J. PEEL, *Climate Change Litigation, Regulatory Pathways to Cleaner Energy,* Cambridge, Cambridge University Press, 2015, p. 221.
[294] *Ibidem,* p. 255.
[295] *Ibidem,* p. 233.
[296] *Ibidem.*
[297] *Ibidem,* p. 235.
[298] US Supreme Court, January 19 2016, *Utility Air Regulatory Group v. Environmental Protection Agency.*
[299] H. OSOFOSKY, J. PEEL, *op. cit.,* p. 243.
[300] *Ibidem,* p. 316.
[301] *Ibidem,* p. 237-238.
[302] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 287.

(iii) Influence of caselaw in the US

The case *Massachusetts v. EPA* is a good example thereof. The SCOTUS firmly approved the scientific arguments laid out by the plaintiff. It was satisfied that the petitioners had a direct interest to the case, because of potential risks: the rising sea-level will harm and continue to harm the state of Massachusetts.[303] It also stated that climate change had become an immense problem and endorsed an associated view of scientific data,[304] thereby refuting the defendants' claim that the impacts at state and local levels were too speculative.[305]

(iv) Influence of caselaw in India

It comes as no surprise that the Indian Supreme Court played an enormous role in crafting environmental law. In this country, the judiciary traditionally plays an important role in the law creation process and is a well-respected institution. For instance, it enlarged the *locus standi* related to environmental matters, thereby broadening access to court.[306] NGO and poorer segments of society have used abundantly Public Interest Environmental Legislation. It enabled courts to shape environmental legislation and to help local government in doing so.[307] In order to address such demands, the government created the 2010 National Green Tribunal of India.[308] The Tribunal played a considerable role in improving environmental standards in India.[309] In the case *Indian council of Environmental Action v. MoEFCC,* the tribunal ordered companies to cease production of refrigerant gases.[310] In *Recourts on its own motion v. State of Himashal Pradesh,* the Tribunal put in place restriction to traffic circulation as well as a reforestation program.[311] It did not however produce -yet- any decisions to mitigate the contribution to climate change and GHG emissions, but a case is pending (see below).

(v) Influence on the corporate sector

The influence of litigation on corporate response to climate change remains difficult to evaluate.[312] The sector has a crucial role to play, since big companies in the energy sector are

[303] H. M. OSOFSKY, "The intersection of scale, science and law in Massachusetts v. EPA" *in* W. BURNS, H. OSOFSKY (dir.), *Adjudicating Climate Change: State, National and International Approaches*, Cambridge, Cambridge University Press, 2009, p. 136-137.
[304] *Ibidem*.
[305] *Ibidem*.
[306] D. AMIRANTE, "Facing climate change :…" *in* A. MICHELOT (dir.), *op. cit.,* p. 130.
[307] *Ibidem,* p. 132.
[308] *Ibidem.*
[309] C. HUGLO, *Le contentieux climatique : une révolution judiciaire mondiale,* Bruxelles, Bruylant, 2018, p. 60.
[310] National Green Tribunal, March 17 2015, *Indian council of Environmental Action v. MoEFCC.*
[311] National Green Tribunal, May 9 2016, *In Re courts on its own motion v. State of Himashal Pradesh and others*
[312] H. OSOFOSKY, J. PEEL, *op. cit.,* p. 182.

responsible for over 70 percent of the emission system.[313] However courts can shift societal norms. An example thereof is that both HSBC and Deustsch Bank refused to fund Australian coal mining, because CO2 emissions and ocean acidification endanger the Great Reef Barer.[314] In other respects, law firms know how to go into the field of litigation. They can therefore develop regulatory, litigation and tort liability departments associated with climate change caselaw.[315]

(vi) Obstacles

There are however significant challenges to courts regulating climate change. Because of separation of powers, courts may not be the proper place to address such litigation.[316] More often than not, they might rule that the executive or legislative powers might be more competent to address the issue (see *Urgenda* case below).[317] Still, it is absolutely certain that courts have a crucial role in framing public discourse about science and climate change.[318] However, courts can only enforce the law, a law often devised to protect the interest of polluters. [319]

There is also the question of *locus standi* for citizens who want to challenge the reality of climate change.[320] The issue of standing is also of particular concern when it comes to climate change, as the petitioner must necessarily ask for an individualised interest to pursue the case. Litigants have put forward, for instance, that climate change already produces damages, and even though the damage lies in the future, it is already certain.[321] Some American judges have validated this approach, most notably in *Massachusetts v. EPA* and in *Juliana v. United States*.[322]

Given the considerable challenge, one can hope courts will play an active role. We will therefore present what has or could been done in front of international and then domestic courts.

---

[313] H. OSOFOSKY, J. PEEL, *op. cit.,* p. 182.
[314] *Ibidem,* p. 235.
[315] *Ibidem*, p. 216.
[316] *Ibidem,* p. 268-269.
[317] L. BERGKAMP, "A Dutch Court's 'Revolutionary' Climate Policy Judgment: The Perversion of Judicial Power, the State's Duties of Care, and Science", *JEEPL,* 2015, p. 241-263.
[318] H. OSOFOSKY, J. PEEL, *op. cit.,* p. 248.
[319] *Ibidem.*
[320] *Ibidem*, p. 269.
[321] C. HUGLO, *op. cit,,* p. 211.
[322] US Supreme Court, April 2 2007, *Massachusetts et al. v. Environmental Protection Agency;* US district court of Oregon, November 10 2016, *Juliana v. United States.*

Section II: Supranational courts

How could supranational courts intervene in the matter of climate change? Courts have so far been relatively discreet in international environmental law. The reason is twofold. Firstly, few States accept the compulsory jurisdiction of the International Court of Justice (ICJ). Secondly a link of causality between particular GHG emissions and specific human rights or other international obligations infringements is difficult to prove. Bringing a matter to an international court would not necessarily cause States to reduce emissions. International courts appear to be a second-best option, [323] in contrast to litigation in national courts explored in section III.

(i) The International Court of Justice (ICJ)

Palau and a number of Island States proposed in 2012 that the General Assembly request an advisory opinion from the ICJ regarding the responsibilities of States under international law. This would ensure GHG emitting activities in a certain State does not damage other States.[324] However it failed as the request had not been inscribed at the agenda of the 66th session of the General Assembly.[325]

We should also mention that the island State of Tuvalu has threatened to launch lawsuit against the US and Australia before the ICJ for withdrawing or not ratifying the Kyoto Protocol. Ultimately this threat was not carried out, particularly due to the absence of a declaration from the US on the acceptance of compulsory jurisdiction.[326]

This however does not mean that the ICJ could not potentially play a bigger role. "With regard to climate disputes between two or more States, questions of applicability of international norms could arise that either directly or indirectly deal with the normative dimensions of climate change".[327] For instance neither the UNFCCC nor the Paris Agreement defines who is responsible for bearing the costs of climate change.[328]

The PA does contain the recognition to avert loss and damages associated with climate change Article 8). But parties resorted to multilateral means (the Warsaw International Mechanism for

[323] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 290.
[324] D. KYSAR, *Climate Change and the International Court of Justice*, New Haven, Yale Center for Environmental Law & Policy, Public Law Research Paper No. 315, 2013 retrieved on http://dx.doi.org/10.2139/ssrn.2309943.
[325] United Nations General Assembly, 66th meeting, September 22 2011, New York, UN doc *A/66/PV.16.*
[326] S. BECK, BURLESON, "Inside the System, Outside the Box: Palau's Pursuit of Climate Justice and Security at the United Nations", *Transnational Environmental Law*, 2014, p. 17–29.
[327] C. VOIGT, "The Potential Roles of the icj in Climate Change Related Claims", *in* D. FARBER, M. PEETERS, (dir.), *Climate Law Encyclopaedia, Vol. I Climate Change Law,* Cheltenham, Edward Elgar, 2016, p. 153.
[328] A. OKAMATSU, "Problems and Prospects of International Legal Disputes on Climate Change", *J.E.L.L.,* 2007, p. 267.

Loss and Damage), as a cooperative and facilitative basis. Paragraph 52 of the decision explicitly excludes Article 8 as a basis for a liability or compensation. Articles 2 and 4.1, setting out global goals in terms of temperature and mitigation action imply however a due diligence standard and a duty of care.[329]

The court could hence be asked to clarify the content of substantive obligations, such as the ones mentioned above or the obligation to submit Nationally Determined Contributions. States might also have an interest in an authoritative legal statement about another State's substantive obligations.[330]

According to C. Voight, though, the Could "could and perhaps should do more". [331] Defining this primary substantial State obligation can be traced back in the Paris Agreement or the UNFCCC. However, treaties obligations often demand additional interpretation. That is why the ICJ could provide an authoritative statement to define the content of such an obligation.[332] A further role could be to define the very standard of due diligence, clarifying what it implies and what should be avoided.[333] Alternatively it could be demonstrated that countries' obligations not to cause serious harm through the emissions of greenhouse gases is an obligation *erga omnes*.[334] But D. Bodansky warns that the potential benefits of an advisory opinion do not justify the risks of a ruling that complicates efforts to reach a political solution. Such a ruling could lessen pressure on States to change their behaviour by letting them off the hook legally.[335]

[329] C. VOIGT, "The Potential Roles…" *in* D. FARBER, M. PEETERS, (dir.), *op. cit.*, p. 157.
[330] *Ibidem,* p. 154.
[331] *Ibidem,* p. 163.
[332] *Ibidem.*
[333] *Ibidem.*
[334] A. STRAUSS, "Climate Change Litigation: Opening the door to the International Court of Justice", *in* W. BURNS, H. OSOFSKY (dir.), *op. cit.*, p. 347.
[335] D. BODANSKY, Ask the Experts Show: climate change and International Law, PBS, 10 August 2012, retrieved on http://www.pbs.org/wnet/need-to-know/uncategorized/ask-the-experts/14420/.

(ii) Climate change and human rights

It is "beyond debate" that adverse effects of climate change will threaten a range of human rights, including the right to food, water, life, health and housing.[336] Mary Robinson former UN High Commissioner for Human Rights has called climate change the "greatest threat to human rights in the twenty first century".[337] The Human Rights Council has adopted a series of resolutions to alert States to the inter-connections between human rights and climate change and to remind them of their obligation under human rights instruments.[338]

But international climate change instruments such as the Paris Agreement seem difficult to enforce in front of human rights regional courts. That is because the human rights approach "defines obligations States owe to individuals whereas international environmental law focuses primarily on obligations that States owe to one another".[339] International climate law is often more a political compromise between States at COP.[340] Serious hurdles arise in terms of establishing a scope of binding obligations because of the soft languages held in the treaties, jurisdictions and causation.[341] Furthermore, the Paris Agreement formulation carefully circumscribes the reference to human rights. It recommends that States "respect, promote and consider human rights" but is silent with respect to whether they should take human rights considerations into account in determining the ambition, scope and scale of their action.[342]

Finally, one of the main challenges to litigation in front of human rights bodies is the link of causality.[343] Because of the dire need for the threat to be addressed, it falls beyond doubt that strong measures should be undertaken. But establishing sufficient links of causality between specific emissions and a damage is a difficult task. Indeed, while traditional pollutions pose a direct threat both to the environment and to a human group, this is not the case with climate change. One might explain that a certain change in the environment causes a damage. But he

---

[336] OHCHR, *Understanding Human Rights and Climate Change: Submission of the Office of the High Commissioner for Human Rights to the 21st Conference of the Parties to the United Nations framework Convention on Climate Change*, Geneva,
Office of the High Commissioner for Human Rights, 26 November 2015 retrieved on https://www.ohchr.org/Documents/Issues/ClimateChange/COP21.pdf.

[337] Report of the Special Rapporteur, *On the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment*, 1 February 2016 A/HRC/RES/31/52.

[338] Resolution adopted by the Human Rights Council, *Human rights and climate change*, 1 July 2016, A/HRC/RES/32/33.

[339] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 299.

[340] *Ibidem.*

[341] *Ibidem*, p. 300.

[342] *Ibidem*, p. 227-228.

[343] A. GOURITIN, "La jurisprudence de la Cour Européenne des Droits de l'Homme sur les obligations positives en matière environnementale peut-elle s'appliquer aux changements climatique ?", *in* C. COLARD-FABREGOULE, C. COURNIL (dir.), *Les changements climatiques et le défis du droit, actes de la journée d'étude du 24 mars 2009,* Bruxelles, Bruylant, 2010, p. 268.

would then have to prove that this change was indeed induced by climate change, and that is not easy.[344] In this respect, see below the German case *Peruvian Moutain guide Saul Luciano Liuvya v. RWE* explored in section III.

(iii) Climate change in front of the Inter-American Court of Human Rights (IACHR)

In this respect, we should mention the Inuit petition in front of the IACHR, which sought to contest the politics led by the US with regards to curbing GHG emissions. It sought to use regional human rights recognised by the American Convention, (invoking in particular the right to culture, life, health, shelter, use of lands and use of personal goods). It ultimately proved disappointing as the Court failed to recognise a direct link of causation between US emissions and the Inuit people's damages.[345]

(iv) Climate change in front of the European Court of Human Rights (ECHR)

Plaintiffs in front of the ECHR could argue that climate change and GHG emissions infringe their human rights. States can indeed be condemned because of potential threats to human rights, for their passivity and the insufficiency of their action.[346] The State can also be liable if it fails to adopt an adequate legislative framework concerning dangerous activities and risks they represent.[347] For instance, in *Guerra v. Italy*, the Court ruled that the State failed to provide the petitioners with information about a factory pollution.[348]

Still, according to L. Ramajanvi, climate change litigation based on adaptation, and not mitigation may have a better chance of obtaining success. Indeed, if a State failed to pose the necessary measure to adapt its economy and lifestyle to CO2 reduction, then it directly encroaches upon the right to health, life and other fundamental rights.[349]

So far, no case involving climate change has been adjudicate by the ECHR. The ECHR jurisprudence on environmental matters rests upon 3 articles.[350] Those are first Article 2 and the right to life: in *Oneryildiz v. Turkey* the Court reminded that positive obligations could indeed stem from Article 2 when environmental threats caused a risk to human life.[351] Then

---

[344] A. GOURITIN, "La jurisprudence…", *in* C. COLARD-FABREGOULE, C. COURNIL (dir.), *op. cit.,* p. 268.
[345] Inter-American Commission on Human Rights, December 7 2005, *Inuit Petition: "Seeking relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States".*
[346] European Court of Human Rights, *Guerra and others v. Italy*, February 19 1998; *Taskin v. Turkey*, November 10 2004; *Fadeiva v. Russia* May 9 2005.
[347] European Court of Human Rights, November 30 2004, *Oneryildiz v. Turkey.*
[348] European Court of Human Rights, February 19 1998, *Guerra and others v. Italy*.
[349] D. AMIRANTE, "Facing climate change :…" *in* A. MICHELOT (dir.), *op. cit.,* p. 135-137.
[350] A. GOURITIN, "La jurisprudence…", *in* C. COLARD-FABREGOULE, C. COURNIL (dir.), *op. cit.,* p. 270.
[351] European Court of Human Rights, November 30 2004, *Oneryildiz v. Turkey* §69.

Article 3 and the prevention of bad and inhumane treatments: in *Valasinas v. Lithuania* it reminded that these risks to the environment must reach a certain gravity.[352] And finally Article 8 and the right to private life: in *Taskin v. Turkey*, the Court adjudicated that a damage to the environment could have a detrimental effect upon the private life and home of an individual.[353] Potentially, if one could prove that an environmental threat caused risks to human life, bad or inhumane treatment or infringements to private and family life and that they were induced by climate change, then the Court may deliver a ruling. For now, however, this remains a purely speculative -yet not impossible- matter.

As a conclusion to this section, we can already outline that climate change in front of international bodies seems so far uncertain. Litigation in front of national courts might prove more fruitful.

[352] European Court of Human Rights, July 24 2001, *Valasinas v. Lithuania.*
[353] European Court of Human Rights, November 10 2004, *Taskin v. Turkey*.

Section III: Climate change in front of national courts

Climate change in front of national courts can be broken down into four categories. There are cases seeking higher mitigation measures from the State. Then litigation to evaluate an environmental impact. There is also litigation to take into account certain fundamental rights - human rights- as well as litigation about climatic science itself.[354] We will begin by studying the Dutch case *Urgenda*, belonging to the category of seeking higher mitigation measures from the State. This case is exemplary of its kind, as it was the first ruling to find that a State had an obligation to mitigate its GHG emissions. We will first present some the *Urgenda* case's many features. We will then examine each of the 4 categories one after the other, joining together the second and the fourth one. We will conclude this section by a few considerations about the future of climate change litigation.

(i) Urgenda case

Urgenda Foundation v. The State of the Netherlands is a 2015 case where a Dutch Court ruled that the government 20 percent emission reduction target breached its duty of care to take mitigation measures. It ruled the government should adopt at least a 25 percent GHG reduction from their level of 1990.[355] This case is quite remarkable since the court directly ordered the government to take stronger climate action.

The court declared that: "The possibility of damage to persons, including the present and future generations is so great and concrete that, given its duty of care, the State must make an adequate contribution, greater than its current contribution, to avoid a dangerous climate change".[356] The court's order was grounded on the State's duty to offer protection against dangerous climate change.

A remarkable aspect of the court's judgment in the *Urgenda* case is how the court construed the State's duty of care. *Urgenda*'s claims against the State are based on Dutch civil law, an extra-contractual liability statute. Under Dutch law (as in Belgium), the State is not immune from liability under this statute, and it is accepted that the State may even be liable in its capacity as sovereign policy-maker.[357] The international commitments, in particular the reduction target of 25–40% for Annex I countries agreed under the UNFCCC in 2010 in Cancun, may play a role in defining the government's duties under Article 162.[358]

[354] C. HUGLO, *op. cit,* p. 88-89.
[355] District Court of the Hague, June 24 2015, *Urgenda foundation v. Kingdom of the Netherlands.*
[356] *Ibidem.*
[357] L. BERGKAMP, "A Dutch Court's…", *op. cit.*, p. 244.
[358] District Court of the Hague, June 24 2015, *Urgenda foundation v. Kingdom of the Netherlands*, §4.63.

Another question that arose in this case was whether the Court and the judiciary power could effectively adjudicate against the State in such a matter. That prompted the court to explore the separation of powers doctrine in some detail. The Court dismissed the State's arguments, pointing out that Dutch law did not have a full separation of powers between the executive and the judicial functions.[359]According to the court, the policy and economic consequences, including the "adverse effects on the competitiveness of Dutch industry", of the 25 percent reduction sought by *Urgenda*, are not a barrier to adjudication.[360] According to some authors, however, the Court's ruling is a breach to the separation of powers. Courts never had had the power to review the government's action like that, and, as a result thereof, the liability of the State under the laws of The Netherlands has become "uncertain and unpredictable".[361]

In the *Urgenda* case, the court based the State's liability on the State's "social responsibility". The Court found that the breach was not found on an international legal principle or obligation, but these were examined to evaluate the State's duty of care.[362]

Human rights were also an interesting discussion, in particular Article 2 (right to life) and Article 8 (right to respect for private and family life) of the ECHR. The Dutch State rejected the claim that those rights were infringed, saying that: "In this respect it should be noted that the ECHR permits requests from potential victims. Such individuals may be destined to undergo a violation of their rights. In this instance, the applicant must produce plausible and conclusive evidence of a violation from which he or she would personally suffer the effects. In environmental litigation, there has already been an occasion where the ECHR could have ruled on the potential victim status. However, climate change presents serious challenges to the establishment of the causal link between the damage caused and the injury suffered."[363] The Court ruled that these are relevant to determine whether the State met its duty of care. It found that the State was liable for it had breached this duty.

According to the court, an emission reduction of 25 to 40% by 2020 does not involve disproportionate cost. Therefore, on cost grounds, there is no reason not to pursue an ambitious policy. The court concluded that the State's current less ambitious reduction policy is not an adequate alternative to the 25–40% reduction policy. The *Urgenda* decision was later confirmed by the Court of Appeal.[364]

---

[359] District Court of the Hague, June 24 2015, *Urgenda foundation v. Kingdom of the Netherlands*, §4.98.
[360] L. BERGKAMP, "A Dutch Court's…", *op. cit.*, p. 245.
[361] *Ibidem*, p. 249.
[362] District Court of the Hague, June 24 2015, *Urgenda foundation v. Kingdom of the Netherlands.*
[363] *Ibidem.*
[364] Hague Court of Appeal, October 9 2018, *Urgenda foundation v. Kingdom of the Netherlands.*

According to Bergkamp, "The criteria used by the *Urgenda* court may make sense when applied to duties to prevent a certain, immediate, clear danger of serious personal injury or property damage. They become an anomaly, however, when applied to the State's duties to protect against possible, long-term, multi-causal risks and hazards that necessitate difficult trade-offs and political debate and decision."[365]

As Tabeau and Cournil put it, the perspective of such a case could far exceed the scope of 2020 and the Netherlands.[366] This decision of the District Court of The Hague was a "turning point for climate justice".[367] It could indeed inspire and galvanise other individuals or private parties to undertake legal actions in their own countries (as it already did, see below).[368] In a move of unprecedented audacity, the judge singled out the State as an individual liable to climate justice. The judge acknowledged a sufficient causal link between the GHG emissions of the Netherlands, global climate change and its impacts on the Dutch climate.[369]

(ii) Litigation seeking higher mitigation measures from the State

Given the far-reaching political implications, domestic courts were traditionally reluctant to find that international law requires government to reduce national emissions. However, since a few years, an important flow of climate-change related domestic litigation has been recorded on both sides of the Atlantic.[370] What is the role of national courts in implementing climate change policy? If national courts implement international norms with sufficient regularity, they can help shape future conduct, prohibiting certain behaviours and allowing others. Judicial attitudes therefore play a key role in determining the domestic impact of international environmental law (such as the Paris agreement) and help explain why, the practice of courts varies considerably from country to country.[371] That depends on whether the courts take a monist or dualistic view of treaty law, and whether the treaty has direct or indirect effect. Lack of direct effect certainly places limitations upon the ability of national courts to apply international environmental law. However, while the lack of direct effect is "a constraining factor, it does not appear to present an insurmountable barrier".[372] Indeed, the issue of standing

[365] L. BERGKAMP, "A Dutch Court's…", *op. cit.*, p. 253.
[366] C. COURNIL, A.-S. TABAU, "New Perspectives for Climate Justice: District Court of The Hague, 24 June 2015, Urgenda Foundation versus the Netherlands", *JEEPL,* 2015, p. 222.
[367] *Ibidem*, p. 225.
[368] *Ibidem.*
[369] District Court of the Hague, June 24 2015, *Urgenda foundation v. Kingdom of the Netherlands*, §4.90.
[370] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 288.
[371] D. BODANSKY, J. BRUNNÉE, "The Role of National Courts in the Field of International Environmental Law", *R.E.C.I.E.L,* 1998, p. 11-20.
[372] *Ibidem*, p. 17.

appears to be the most significant obstacle to the implementation of international environmental law by domestic courts. International norms (for instance the Paris Agreement) generally create rights and obligations for the State, not the individual. This can significantly restrict the ability of litigants to invoke these norms in actions against the government (see above in Section I the issue of standing in front of the American judges).[373] Hereunder, we will see a string of cases developed in many countries around the worlds.

In *Leghari v. Federation of Pakistan* in September 2015 the Lahore High Court of Pakistan responded favourably to the complaint of a young student whose parents are farmers and found that the government had made no progress in implementing the National Climate Policy and framework. It held that this failure violated citizen's human rights and ordered the establishment of a commission to oversee implementation of the governments adaptation plan.[374] We can see in this case that international obligations can be taken into account by national courts and tribunals: in *Legahri,* these were the right to life and to private property,[375] as well as principles of sustainable development and precaution.[376]

In *Juliana v. United States*, the petitioners asked the government to put into practice their fundamental rights. They sought a decision recognising that the government had violated their fundamental rights by failing to implement a massive GHG reduction scheme. Referring to an evolutive interpretation of the 5th Amendment, the judge recognised that a stable climatic system was necessary.[377] An appeal was to be heard in June 2019. Despite this encouraging outcome, it should be noted that the case will likely fail if presented in front of the Supreme Court, as it has already expressed unanimously that courts cannot assess appropriate levels of pollutions.[378]

The New Zealand case *Thomson v. Minister for Climate Change Issue*s challenges the adequacy of the country's NDC, which were alleged to fall short of the emissions reductions required by New Zealand's climate change legislation. In November 2017, the Court ruled that the government should have indeed revised its Nationally Determined Contribution according to the latest science (the fifth IPCC report). Shortly after that, elections were held that led to the victory of a government promoting carbon neutrality by 2050.[379] Interestingly, the tribunal considered that courts and tribunals (the judicial power) should not consider climate change

[373] D. BODANSKY, J. BRUNNÉE, "The Role…", *op. cit.,* p. 17.
[374] Lahore High Courts, Courts Orders, September 14 2015, *Ashar Leghari v. Federation of Pakistan.*
[375] C. HUGLO, *op. cit,* p. 180-181.
[376] Lahore High Courts, Courts Orders, September 14 2015, *Ashar Leghari v. Federation of Pakistan.*
[377] US district court of Oregon, November 10 2016, *Juliana v. United States.*
[378] UNEP, *The Status of Climate Change Litigation, op. cit.,* p. 8.
[379] *Ibidem,* p. 17.

polity as a "no go area" under the pretext that the State had already committed to international obligations. Climate change being a complex and evolutionary science, tribunals should consider the latest science available (the 5th IPCC report in that case).[380]

In Switzerland, 420 *Klimaseniorinnen*[381] seized the constitutional court in October 2016 to force the Swiss government to reduce GHG emissions. The petition sought to put national emissions on the pathway to a 2°C scenario. They made constitutional arguments similar to those in *Urgenda* (see above with the State's duty of care), with reference to the Paris Agreement.[382] They have put forward that their demographic group will be particularly vulnerable to climate change and its effects and tried to regulate several sectors so as to reach a threshold of emissions of 25 percent.[383] The Federal Department for Transport rejected the petition. The *Klimaseniorinnen* filed an appeal against the decision, but ultimately lost the case in front of the Federal Administrative Court.[384] An appeal was subsequently introduced in front of the Swiss Supreme Court and is still pending.

In Colombia, in *Demanda Generaciones Futuras v. Minambiente*, the Supreme Court spectacularly acknowledged the responsibility of the government in failing to stop the deforestation of the Amazon forest, which caused a threat to the right to life, health and water.[385] It ordered that the government should elaborate a short and long-term action plan to preserve the forest. It should also be noted that the Court recognized rights for the Amazon basin. It was the first time that such rights were recognized for a hydrographic basin.[386]

In Norway, in the case *Greenpeace Nordic & Nature and Youth c. Norway,* petitioners sought a ruling recognising the government had violated their rights by granting an access to oil fields (after having ratified the Paris Agreement). The tribunal, although it recognised that there was a right to a clean environment, deemed that the government did not violate any of the relevant right by granting the license. The petitioners appealed the decision and a judgement should be given by the end of 2019.[387]

---

[380] High court of New Zealand, November 10 2015, *Thomson v. Minister for Climate Change Issues.*
[381] Literally known as "the climate grannies".
[382] Federal Administrative Court of Switzerland, November 27 2018, *Verein KlimaSeniorinnen Schweiz et al. v. Federal Department of the Environment, Transport, Energy and Communications.*
[383] *Ibidem.*
[384] Translation accessible online on: https://klimaseniorinnen.ch/wp-content/uploads/2019/02/Judgment-FAC-2018-11-28-KlimaSeniorinnen-English.pdf.
[385] Supreme Court of Colombia, May 4 2018, *Demanda Generaciones Futuras v. Minambiente.*
[386] *Ibidem.*
[387] Oslo District Court, January 4 2018, *Greenpeace Nordic Ass'N and Nature and Youth v. Ministry of Petroleum and energy.*

Other pending cases include the Irish case *Friends of the Irish Environment v. Ireland*, where environmentalist sued the government for its climatic inaction in a similar fashion as to *Urgenda*.[388] The judgement was heard in January 2019 and should be delivered in the upcoming months. In France, the case *Notre Affaire A Tous*, introduced at the end of 2018 tried to establish similar results.[389] In *Pandey v. India*, a 9-year old introduced a similar case, invoking the doctrine of public trust and India's commitments under the Paris Agreement.[390] The petition cited *Urgenda v. the Netherlands, Leghari v. Pakistan* and *Juliana v. United States*.

Finally, in Belgium, the case *VZW Klimatzaak v. Kingdom of Belgium* is still pending and largely resembles the *Urgenda* case.[391] The ruling should be delivered at the end of 2019. Given the huge implications of the Marches for Climate and the spectacular failure of the political class to act thereupon, it comes as no surprise that the case receives quite a bit of attention. These are likely elements to be considered in the ruling.

This string of case law, successful in some cases, unsuccessful in others can possibly lead to the development of an international state liability about climate change, and on the obligation to have common policies on climate.[392] In front of national courts, international norms have been used for interpretative purpose. For example, in the *Leghari* case in Pakistan, principles of sustainable development and precaution were put forward. In the *Urgenda* case, it was the international 2°C threshold temperature that was used to find that government had breached its duty of care (see below). But in many cases national law is more useful as it establishes more precise obligation than international law.[393] An example of this is the Canadian case *Friends of the Earth v. Canada*: the court found that the issue of whether Canada had violated the Kyoto Protocol was a political question. It concluded that it had no role to play reviewing the reasonableness of the government's response to Canada's Kyoto commitment.[394]

[388] High Court of Ireland, November 21 2017, *Friends of the Irish Environment CLG v. Fingal Country Council.*
[389] Administrative Court of Paris, December 17 2018, *Notre affaire à tous v. France.*
[390] National Green Tribunal, March 25 2017 *Pandey v. India.*
[391] Court of First Instance Brussels, *VZW Klimaatzaak v. Kingdom of Belgium et al.*
[392] C. HUGLO, *op. cit,* p. 60.
[393] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 288.
[394] Federal Court of Appeal, October 15 2009, *Friends of the Earth v. Canada*.

(iii) Litigation seeking to evaluate environmental impacts and about climate science

Other cases sought to establish that particular emitters have proximately caused them particular injuries.[395] But no court has yet found that particular GHG emissions relate causally to particular adverse climate change impacts (see above about the hurdles to litigation in front of international courts). Liability was therefore not established, because attribution of the particular harm is difficult. That is quite a pitfall for the future of climate justice.

For instance, in November 2015, a Peruvian farmer filed a claim for damages in a German court against RWE, Germany's largest electricity producer. He alleged that RWE, by emitting substantial volumes of GHG, had cause the melting of mountain glaciers, particularly a lake located above his house, which has experienced a 30- fold volumetric increase since 1975.[396] The court dismissed the claim, noting that there was no "linear causal chain" linked between RWE's emissions to the dangers and costs described by the farmer as resulting from melting glaciers.[397] That is the problem with cases against companies: that they often time fail because of issues of proof.[398] Some cases therefore try to establish liability, not for particular emissions linked to particular damages, but for failure to adapt. *Conservation Law Foundation v. ExxonMobil* was recently filed in the federal district court in Boston. The plaintiffs summarised their chief concerns about a petroleum products distribution operated by ExxonMobil in this way: "ExxonMobil's failure to adapt the Everett Terminal to increased precipitation, rising sea levels and storm surges of increasing frequency and magnitude puts the facility, the public health, and the environment at great risk because a significant storm surge, rise in sea level, and/ or extreme rainfall event may flood the facility and release solid and hazardous wastes into the Island End River, Mystic River, and directly onto the city streets of Everett.".[399] The case is still pending and could serve as a blueprint to that type of liability claim.

Similarly, South Africa's High Court was asked to determine whether "relevant" climate change considerations should be taken into account for a coal power-plant, that was to operate until 2060. The court held that such considerations are relevant and that their absence from the environmental review of the project made its approval unlawful. The court cited several reasons, including South Africa's commitments under the Paris Agreement.[400] Because the review of the Minister of Environmental Affairs to authorise the power plant ignored climate

[395] UNEP, *The Status of Climate Change Litigation, op. cit.,* p. 19-20.
[396] Regional Court Essen, December 15 2016, *Peruvian Moutain guide Saul Luciano Liuvya v. RWE.*
[397] *Ibidem.*
[398] C. HUGLO, *op. cit.,* p. 219-221.
[399] US district court of Massachussets, March 14 2019, *Conservation Law Foundation v. ExxonMobil Corp.*
[400] High Court of South Africa, March 8 2017, *Earthlife Africa Johannesburg v. Minister of environmental affairs and others.*

change, the court held it to be legally invalid.[401] This case will likely have significance: not only has the court declared that the climate change factors were "relevant" to environmental reviews but South Africa's commitments under the Paris Agreement created a substantive obstacle to authorise a power plant with adverse climate impacts.[402]

(iv) Litigation to take into account certain fundamental rights

We have already acknowledged the link between climate change and human rights in the above section about international courts. Petitioners in front of national courts have also made use of similar arguments. In the Nigerian case *Gbemre v. Shell,* the plaintiffs showed they would suffer risks of death and personal injury from the impacts of climate change. They also claimed a violation of their civil and political rights to life, dignity and personal security, as well as a violation of the right to privacy and family life.[403] Those views were endorsed by the court.

In *Greenpeace Southeast Asia et al.*, environmentalists and Filipino citizens filed a petition with the Philippine Commission on Human Rights against 50 corporations known as "Carbon Majors," responsible for a cumulative 21.71% of the anthropogenic GHG emitted from 1751 to 2010.[404] The NGO alleged that by emitting such massive amounts of CO2, the companies had violated the human rights of Filipinos, because of climate change and ocean acidification. The petitioners asked the Court to emit a recommendation to the attention of legislators concerning the adoption of GHG reduction measures.[405] As of April 2019, the Commission was still holding hearings in that regard.[406]

(v) The future of climate change litigation?

As a conclusion on climate change litigation, let us conclude: "Though we are still in the early days of global warming litigation, these lawsuits are having a significant impact on the legal and political climate. In response to a good deal of popular and academic discussion suggesting that those most responsible for the global warming problem be held legally accountable, corporations on the carbon sector are becoming concerned about the extent of their potential

[401] High Court of South Africa, March 8 2017, *Earthlife Africa Johannesburg v. Minister of environmental affairs and others.*
[402] UNEP, *The Status of Climate Change Litigation, op. cit.,* p. 38.
[403] Federal Court of Nigeria, November 30 2005, *Gbemre v. Shell Petroleum Development company of Nigeria LTD et al.*
[404] Philippines Convention on Human Rights, December 5 2015, *In re Greenpeace Southeast Asia and Others.*
[405] C. HUGLO, *op. cit.,* p. 61.
[406] http://www.greenpeace.org/seasia/ph/multimedia/videos/6th-Climate-Change--Human-Rights-Public-Hearing-Part-3-of-3/.

legal liability".[407] So even if domestic action fails, litigation may indirectly build pressure for legislative and policy action. In the US for instance, the dismissal of the *Connecticut v. AEP* complaint on political question grounds put the spotlight on the political branches of government for a solution.[408] Climate change litigation also ripples through the private sector, receiving the attention of industries that have a potential for liability. Corporations speak openly about the emerging litigation risk from climate change.[409] These cases are not necessarily ruled at the advantage of climate change litigators, but just the act of preparing, announcing filing advocating and forcing a response has an impact.[410] Climate change litigation therefore empowers civil society to shape the agenda in ways not allowed by formal negotiations.[411] Below is a table of climate change litigation throughout the world.[412] It is likely litigation – whether successful or not - will continue to increase.

International Court of Justice 1		
Inter-American Commission on Human Rights		1
United Nations Framework Convention on Climate Change 1		
Africa	Nigeria	1
South Africa 1		
Asia Pacific	Australia	80
New Zealand 16		
	India	2
Micronesia 1		
	Philippines	1
Pakistan 2		
Europe	(Court of Justice of the EU)	40
United Kingdom 49		
	Spain	13
Belgium 1		
	Germany	3
Norway 1		
	Switzerland	1
Austria 1		
	Czech Republic	1
France 4		

[407] A. STRAUSS, "Climate Change…", *in* W. BURNS, H. OSOFSKY (dir.), *op. cit.*, p. 335.
[408] US 2nd Cir., June 20 2011, *Connecticut v. American Electric Power.* See D. HUNTER, "The Implications of Climate Change Litigation: Litigations for International Environmental Law-Making" *in* W. BURNS, H. OSOFSKY (dir.), *op. cit.*, p. 372.
[409] *Ibidem.*
[410] *Ibidem*, p. 358.
[411] *Ibidem,* p. 370.
[412] UNEP, *The Status of Climate Change Litigation, op. cit.,* p. 11. To access a worldwide continuously upadted chart of climate change litigation, see the very interesting search engine by the Sabin Center at Columbia Law School, available at http://wordpress2.ei.columbia.edu/climate- change-litigation/.

	Ireland	1
Netherlands 1		
	Sweden	1
Ukraine 2		
America and Carribean	Colombia	1
United States of America 654		
	Canada	13
**The numbers shown here reflect our tally of climate change cases across jurisdictions as of March 2017. It is possible that these numbers omit one or more cases that have already been filed or decided.*		

Figure 3: Climate change litigation throughout the world

Chapter II: Acting locally, path to power

In this chapter, we will try to outline which elements, at society level could actually enforce the goal of the Paris Agreement to contain climate change below 2°C. We will first examine why acting at the subnational level is so relevant (Section I). That is particularly true at the level of a city, particularly in the case of Brussels (Section II), but also through individual actions and behavioural changes (Section III) and initiatives by the private sector (Section IV).

Section I: A case for action at the subnational level

A way to implement the Paris Agreement is through a bottom-up approach, a grass-root campaign within society. As most political leaders respond to pressure, scientists, media influencers and citizens must insist that their governments take imperative action to current and future generation. A wave of organised grassroots efforts can overcome opposition and compel political leaders to do the right thing.[413]

That is particularly true as enhanced pre-2020 mitigation action is more urgent than ever: studies indicate that holding the increase in global average temperature well below 2°C above pre-industrial levels, and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, requires that global greenhouse gas emissions peak before 2020.[414] Comparing these scenarios with the current NDC projections shows a large discrepancy.[415] Subnational actors could help wedging the considerable gap between current NDC projections and what is needed to limit temperature increase to 1.5-2°C. [416] And the Paris Agreement itself recognises the importance of such an approach. The Lima to Paris Action Agenda (LPAA) and its associated NAZCA (recording the actions by sub- and non-State actors) listed more than 12 500 commitments in 2017 (compared to 10,000 in 2015).[417] This comes from more than 2000 cities, a roughly equal number of private companies and more than 230 from civil society organisations.[418]

This could even substitute climate change negotiations if the inter-governmental process were to falter (especially since the US withdrew under the Trump Administration).[419] For example, a number of US new initiatives driven by subnational and non-State actors, (We Are Still In, Climate Mayors, the US Climate Alliance and so forth) have the potential to make up for the

[413] W. RIPPLE, C. WOLF, *et al.*, *op. cit.,* p. 1.
[414] UNEP, *The emissions gap report, op. cit.*, p. 3.
[415] *Ibidem*, p. 17.
[416] *Ibidem.*
[417] *Ibidem*, p. 25.
[418] NAZCA stands for the Non-State Actor Zone for Climate Action.
[419] D. BODANSKY, J. BRUNNÉE, *et al., op. cit.,* p. 259.

withdrawal. In that connexion, Jerry Brown, governor of California, announced the reunion in San Francisco in September 2018 of a Climate Summit with non-State actors. [420] Similarly 18 American cities have announced their carbon neutrality by 2050.[421] However, even though the withdrawal of the US may be short-term, and even have little effects on US emissions, the withdrawal of financial support to UNFCCC secretariat and the Green Climate Fund does pose a greater risk.[422] That is also the position of the Emission Gap Report: "Actions by subnational and non-State actors have the potential to reinforce each other and could make the Paris Agreement more robust". [423]Acting at the subnational level is more crucial than ever.

Section II: Action at the city level

(i) Cities and their potential

As we said, local governance action is essential to tackle climate change. That is particularly true when it comes to cities. The global trend of urbanisation correlates with higher consumption of energy and GHG emissions. According to the International Energy Agency estimates, cities account for more than 70 percent of global CO2 emissions.[424]. As of 2011, more than 52% of global population lived in urban areas. By 2050, this share will have risen to 69%.[425]

Despite their huge environmental impact, cities can act very efficiently: investing in mass transit, thereby reducing reliance on cars; adopting building codes that encourage energy efficiency and waste management; enacting zoning laws to create mixed-used districts and reduce urban sprawl. [426] Agreement is also easier to reach at the local level, where people's interest and values often tend to be more homogeneous.[427]

Under the Mayor's Climate Protection Agreement, for example, the mayors of more than a thousand US cities – a total of nearly ninety million people - pledged to meet or beat the Kyoto Protocol's emissions target in their communities.[428] At the global level the C40 Cities Climate Leadership Group to reduce GHG emissions at the local level is a network of more than 80

[420] UNEP, *The emissions gap report, op. cit.*, p. 23.
[421] B. LAVILLE, "Contraindre…"*, op. cit.*, p. 21-22.
[422] K. LITI-MBEVA, R. MAKOMERE, "Squaring the Circle: Development Prospects Within the Paris Agreement", *C.C.L.R.*, 2018, p. 38.
[423] UNEP, *The emissions gap report, op. cit.*, p. 25.
[424] IEA, *World Energy Outlook 2008,* Paris, International Energy Agency 2008 retrieved on https://webstore.iea.org, p. 180.
[425] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.,* p. 25.
[426] J. K. HEALY, "Local…", *in* M. GERRARD (dir.), *op. cit.*, p. 427.
[427] D. BODANSKY, J. BRUNNEE, *et al., op. cit.,* p. 281.
[428] http://www.usmayors.org/mayors-climate-protection-center/.

megacities representing 600 million people.[429] In Vancouver, the municipal council decided to plant 150 000 fruit trees on its boulevards and in its parks until 2020. Chicago also promoted several tree-planting initiatives for both the public and private sectors that have resulted in a 3 percent increase in tree canopy coverage since 1994.[430] In Portland, per capita CO2 emissions have dropped 12.5 percent below 1990 levels due in part to the construction of new rail transportations systems.[431] The city also introduced streetcars to promote efficient alternative energy consuming. Between 1990 and 2000, there was a 10 percent increase of travel of foot and bicycle. Other energy saving measures taken by Portland include the replacement of all city traffic lights with highly efficient LED bulbs. The city also required that 10 percent of its energy should come from renewable sources, a goal met in 2005.[432]Another inspiring example is the California Bay Area. San Francisco, Oakland and Berkeley have announced in 2004 the goal of reducing the city's GHG emissions by 20 percent below 1990 levels by 2012. San Francisco fosters just like Portland alternatives modes of transportation with cycling and walking paths, and provides ride-sharing alternatives for those who prefer to drive. The city issued 100 million in revenue bonds to provide grants to develop solar energy solutions[433] In that respect, California's regulations have often served as a model for other states and US federal regulation.[434]

As most core constituents of US cities are democrats, perhaps they act in mere opposition to the Trump administration's withdrawal from the Paris Agreement.[435] But in fact, the politics of local climate change may be driven by powerful advocacy networks whose origins lie outside of the cities in which they operate.[436] The next two decades thus present a "window of opportunity for mitigation in urban areas". [437] They are expected to be most effective when policy instruments are bundled together: infrastructure and urban planning are strongly interlinked and so are patterns of land use, transport choice, housing, and behaviour.[438]

---

[429] https://www.c40.org.
[430] J. K. HEALY, "Local…", *in* M. GERRARD (dir.), *op. cit.*, p. 429.
[431] *Ibidem*, p. 425.
[432] *Ibidem*, p. 430.
[433] *Ibidem*, p. 438.
[434] D. VOGEL, "Trading Up and Governing Across: Transnational Governance and Environmental Protection", *J.E.P.P.*, 1997, p. 556.
[435] K. TRISOLINI, J. ZASLOFF, "Cities, land use and the Global Commons" *in* W. BURNS, H. OSOFSKY (dir.), *op. cit.*, p. 80.
[436] *Ibidem*, p. 94.
[437] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.,* p. 25.
[438] *Ibidem.*

(ii) A concrete example: case study of Brussels

The same can be said about Brussels, where government authorities should use tools to foster effective GHG emissions. A study concerning GHG illustrates that a reduction of 80 to 95% of territorial GHG is theoretically possible by 2050.[439] That implies a strong enhancement of reduction policies, a reduction of 4 to 7 percent every year and a strong collaboration between regions (because of the indirect emissions in Brussels).[440]

Let us first consider the case of Belgium. At the European level, in October 2004, the European Council agreed that GHG emissions should be reduced by 40 percent in 2030, compared to the level observed in 1990.[441] The Council also agreed to reduce the emissions in a long-term goal, an 85-90 percent by 2050, compared to 1990.[442] The other objective is 27 percent of renewable energies and an improvement of energy efficiency of 27 percent by 2030.[443]

At the regional level, the government of Brussels has promised to enact by 2025 a 30 percent GHG emissions below 1990 levels. Because of the burden sharing in Belgium, Brussels must reduce its emissions by 8.8 percent by 2020. Brussels should fulfil its 2020 objective, but much more effort is needed to reach its 2025 objective.[444]

The choice to reduce emissions by 80 or 90 percent implies radical changes in the way society is organised. Changes should be therefore laid out in the appropriate framework by public authorities, most notably on territorial planification.[445]

Firstly, the biggest share of GHG emissions in Brussels comes from buildings. It is indispensable to reach full-performance for the entirety of the building sector. Renovation rates should be improved, collective housing promoted and fuel boilers replaced by 2050.[446]

The transport sector is another major problem to be tackled. [447] More than 600 000 people come daily for work or other reasons. A strong increase and development of public transport is an utmost priority. Parking development at the capital's entrance would force them to take public transport of the bike. Car-pooling, home working and active transport (by foot, bicycle and

---

[439] REGION BRUXELLOISE, *Scénario bas carbone à l'horizon 2050 pour la région bruxelloise,* Bruxelles, Bruxelles-Environnement, 2017, p. 16.
[440] *Ibidem.*
[441] https://ec.europa.eu/priorities/energy-union-and-climate_fr.
[442] http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/119175.pdf.
[443] ec.europa.eu/programmes/horizon2020/em/what-horizon-2020.
[444] REGION BRUXELLOISE, *Plan régional air-climat-énergie,* Bruxelles, Bruxelles Environnement, 2016.
[445] REGION BRUXELLOISE, *Scénario bas carbone à l'horizon 2050 pour la région bruxelloise, op. cit.,* p.20. On how the administrative and political framework of Brussels could be improved and simplified, see: H. DUMONT, "La sixième réforme de l'état ou l'art de ne pas choisir ?", *J.T.,* 2015, p. 493-500.
[446] REGION BRUXELLOISE, *Scénario bas carbone à l'horizon 2050 pour la région bruxelloise, op. cit.,* p. 10-11.
[447] *Ibidem.* See as well: REGION BRUXELLOISE, *Plan iris 2, diagnostic d'un défi pour Bruxelles-Capitale,* Bruxelles, Bruxelles Mobilité, 2015.

others) should be promoted. Electrification of the public fleet can be enacted. Finally, rail and fluvial transport should be encouraged for merchandise transportation, as well as electric lorries. [448]

As for energy, the majority is produced outside Brussels. The share of renewable energy should be increased, and demand for energy reduced by 20 to 30 percent. Since 39 percent of Brussels territory is covered in roofs,[449] solar panels represent a strong source for renewable energy. [450] Additionally, local and seasonal food should be promoted, such as in the "GoodFood" strategy. Vegetal proteins rather than animal ones should be consumed and ideally 80 percent of food should come from Belgium.[451] Consumption in general should be reduced and the frequency of replacement diminished. Circular economy and reuse should be promoted. Planned obsolescence should be banned as well as fashion trend and the constant -and absurd- need to replace.[452]

These are not the only solutions, but could constitute a major blueprint for policy. There are moreover many co-benefits to adopting a more sustainable lifestyle: green energy becomes less costly for households and companies, health improves with dwindling pollution, jobs are created because of circular economy. [453] One might ask: what are we waiting for?

Section III: Individual and behavioural changes

After having briefly presented what can be done at the city level, let us now delve into individual and behavioural changes. The Paris Agreement, even at the EU level, will hardly be enforceable if changes do not trickle from bottom-up initiatives and citizens behaviour. [454] Psychologists explained that consumption choices are mainly "socially influenced" (not ecologically): peer-behaviour, trends and marketing guide our decisions. Pure awareness of the planet's boundaries is often not enough to turn towards "sustainable behaviour in an every-day decision-making process".[455] That is why it is crucial to lead by example by a few simple gestures such as sticking to a diet of seasonal and regional vegetables with little meat; go for

[448] REGION BRUXELLOISE, *Plan régional air-climat-énergie,* Bruxelles, Bruxelles Environnement, 2016.
[449] REGION BRUXELLOISE, *Projet de plan régional nature en région Bruxelles-Capitale,* Bruxelles, Bruxelles-Environnement, 2013.
[450] *Ibidem.*
[451] *Ibidem.* See as well: REGION BRUXELLOISE, *Stratégie Good Food : vers un système alimentaire durable en Région Bruxelles-Capitale,* Bruxelles, Bruxelles-Environnement, 2015.
[452] *Ibidem.*
[453] *Ibidem.*
[454] S. CASSOTA, "The Paris Agreement in Logic of Multi-Regulatory Governance: A Step Forward to a New Concept of Global Progressive Adaptive-Mitigation?", *EEELR*, 2016, p. 211.
[455] R. DAS, R. SCHWARZ, *Sustainable lifestyle in Germany and India,* Berlin, Germanwatch, 2018, retrieved on www.germanwatch.org/en/151, p. 6.

renewable energy if possible and efficient appliances; use public transport or car pool as much as possible, bike or walk short distances; improve waste management: refuse, reduce, reuse, re- and upcycle; and remain at a largely sustainable consumption level by avoiding fast-fashion and newer models.[456]

Responsibility enriches our life by giving purpose to our existence. In that respect the findings of the Emission Gap Report are inspiring: technologies and institutional innovations are indeed available to bridge the emissions gap by 2030 at a reasonable cost.[457] In other words, technological means are already well-known in order to mitigate GHG emissions and to prevent global warming from happening on a devasting scale. The "only" step forward should come from citizens willing to change their behaviour and implement it in their lifestyle.[458] As more that 15 000 scientists from every country write in a common appeal: "It is also time to re-examine and change our individual behaviours, to drastically diminish our *per capita* consumption of fossil fuels, meat, and other resources". [459]

Change is however not limited to individual action. Platforms of like-minded peers and awareness-raising movements are essential parts of that strategy. Examples of such citizen empowerment are neighbourhood communities for urban gardening; repair cafés;[460] local economies of shorter supply chains;[461] citizens investing in local energy companies;[462] and co-living on commons and sustainable conditions, fostered by city planning and/or public support of individual initiatives.[463]

Until 2050, society will have to implement tremendous changes in its way of thinking, of being, of producing, in order to meet the challenge. Acting in a group of empowered citizens seems to be the best way forward. The transition to a low-carbon society entails going from a linear approach to consumption, with indefinite resource depletion, to a cyclical approach, where nature resources are no more exhausted to meet our needs.[464] What better way to start than collective action? To put it in Hopkins's words: "Our current way of doing things is unravelling community, pushing biosphere to the edge of collapse and leading to growing fragmentation

[456] R. DAS, R. SCHWARZ, *op. cit.*, p. 24.
[457] UNEP, *The emissions gap report, op. cit.*, p. 2.
[458] *Ibidem.*
[459] W. RIPPLE, C. WOLF, *et al.*, *op. cit.,* p. 1.
[460] R. DAS, R. SCHWARZ, *op. cit.*, p. 26.
[461] R. HOPKINS, *The transition companion, op. cit.,* p. 32.
[462] *Ibidem,* p. 66.
[463] R. DAS, R. SCHWARZ, *op. cit.*, p. 27.
[464] O. DE SCHUTTER "Préface" *in* R. HOPKINS, *Ils changent le monde, 1001 initiatives de transition écologique*, Paris Le Seuil, 2014, p. 1.

disempowerment and isolation".[465] By contrast, citizens empowerment in local initiatives result in immediate gains: stronger resilience, stronger enterprising spirit, stronger economic and social integration.[466] Economic transition thus comes to fulfil a need for human togetherness. It increases the well-being, the self-esteem and the connectedness of those who are involved… as well as their common capacity to hope and believe in society and its future.[467] In these times of growing populism, what better answer to the cynics claiming it is already too late to act? Transition will not happen from one day to the next, but its fundamental idea is that local action has the power to change the world.[468] Fundamental to the realisation of the Paris Agreement are individual behaviour changes and collective action by citizens empowerment. This is a parallel to Amartya Sen's approach to human rights, according to which civil and political rights, on the one hand, and social, economic and cultural rights on the other simply go hand-in-hand. Freedom is each individual's capability to act in his community,[469] and that is precisely the aim and purpose of local initiatives and economic transition: the empowerment of citizens.

Section IV: Decarbonising the economy by the private sector

This collective action is not limited to civil society. It can also come from the private sector. We will see in this section that action by the private sector should go hand-in-hand and be promoted by public policies.

(i) Initiatives by the private sector

Private governance can exert significant authority through network effects, public opinion, and peer pressure. If most firms on a particular sector agree on a common standard, other firms may feel the need to conform. A company can act on the transportation of its employees: in 2000, 76 percent of workers drove alone to work.[470] A company can also act on energy efficiency and fundamental efficiency options as to how space is occupied, as well as to invest in renewable energy supply patterns.[471]

Several businesses have therefore undertaken collective action in order to tackle climate change governance. There are mechanisms such as the Verified Carbon Standard (VCS) or the

[465] R. HOPKINS, *The transition companion, op. cit.,* p. 66.
[466] R. HOPKINS, *Ils changent le monde, op. cit.,* p. 56.
[467] R. HOPKINS, *The transition companion, op. cit.,* p. 40.
[468] R. HOPKINS, *Ils changent le monde, op. cit.,* p. 21.
[469] A. SEN, *Developmentrs as Freedom,* Oxford, Oxford University Press, 1999.
[470] D. FARBER, M. PEETERS, "Introduction" *in* D. FARBER, M. PEETERS, (dir.), *op cit.,* p. 71.
[471] *Ibidem*, p. 73.

International Emissions Trading Association.[472] In the private sector, the initiative RE100, for 100 percent of renewable energies gathers 53 companies. Among them are Google, BMW and Coca-Cola Enterprises. Toyota promised to produce only hybrid or electric cars by 2050 and Danone announced its carbon neutrality in 2030.[473] The financial sector has also 1000 investors engaged, representing 30 000 billion dollars.[474]

We can also underscore the inspiring example of the International Civil Aviation Organisation (ICAO). In October 2010, the ICAO Assembly adopted a resolution, setting goals to improve average fuel efficiency by 2 percent annually and to achieve carbon neutral growth starting in 2020. It made civil aviation the first sector to adopt global emissions goal.[475]

Finally, movements try to influence private governance. For instance, the Carbon Disclosure Project works directly with companies to get them to disclose their emissions.[476] Another example thereof is the fossil fuel divestment movement. The divestment movement uses a range of strategies to encourage investors to divest their holdings of fossil fuel stocks in favour of climate-neutral alternatives.[477] So yes indeed, we can see that private governance and corporate social responsibility has an important role to play. Effective government action must back up such actions.

(ii) Effective government action

Initiatives by public authorities are crucial to force and to encourage the private sector to adopt low GHG behaviours. Decarbonising the economy through public policy includes reducing the amount of energy consumption, switching over from fossil fuel to less carbon intensive fuels, and capturing carbon from fossil energy consumption.[478] The latter is also called carbon dioxide removal. This refers to a cluster of technologies, practices and approaches that remove and sequester carbon dioxide from the atmosphere, via land use, forestry or industry.[479]

---

[472] H. VAN ASSELT, *The Fragmentation of Global Climate Governance. Consequences and Management of Regime Interactions,* Cheltenham, Edward Elgar 2014.
[473] B. LAVILLE, "Contraindre…"*, op. cit.,* p. 21-22.
[474] *Ibidem.*
[475] ICAO, *Consolidated Statement of Continuing ICAO Policies and Practices Related to Environmental Protection – Climate Change,* International Civil Aviation Organisation, Resolution A37-19, 8 October 2010, §4-6, retrieved on https://www.icao.int/Meetings/a38/Documents/WP/wp034_en.pdf, §4-6.
[476] http://www.cdp.net/en.
[477] J. AYLING (J.), N. GUNNINGHAM, "Non-State Governance and Climate Policy: The fossil fuel Divestment Movement", *Australian National University, RegNet Research Paper Series,* 2015, No. 98, retrieved on https://www.researchgate.net/publication/324659201_Non-State_Governance_and_Climate_Policy_The_Fossil_Fuel_Divestment_Movement.
[478] B. DICZFALUSY, "What does a post-carbon economy look like?", *in* A. BUMPUS, C. OKEREKE, *et al.* (dir.), *op. cit.*, p. 13-14.
[479] UNEP, *The emissions gap report, op. cit.*, p. 58.

Governments can devise new mechanisms for emissions reduction by companies. This includes emissions trading schemes, pressure to seek disclosure of emissions, implicit prices on carbon, etc.[480] Revising our economy also means ensuring prices and taxation take into account the real environmental costs of our consumption patterns.[481]

The main tool of effective government action as to business climate change governance is in fact consistency. There is a need for a long-term plan, in order for business innovators to draw up their plans in a consistent manner.[482] In that respect, carbon pricing will only be efficient if companies are protected from concurrence, at least in the first months.[483]

Several countries have introduced carbon taxes or tax deductions for low-emission investments.[484] In 2008, the UK passed the Climate Change Act, which requires the country to cut GHG emissions by 80 percent by 2050, compared to 1990. The act is legally binding (the UK was the first country in the world to do so). The government can be taken to court if it does not provide sufficient effort to reduce GHG. The fact that the government must be thinking 15 years ahead help give a form of certainty to the market.[485]

The reader may draw a parallel with the special law on climate in Belgium, whose adoption would have endorsed similar policies in the country.[486] The project was rejected. Ironically enough, some Flemish parties staunchly opposed voting pro-climate policies, in the name of "eco-realism". One might wonder what they were talking about, as their region lies well below sea-level and is therefore most threatened by climate change. Realists indeed.

Another example of public policy is the success of the EU Emissions Trading Scheme. It inspired many others around the world because it established GHG emissions caps at the lowest cost possible – despite its shortcomings (see Part I Chapter III Section II).[487] California for instance also enacted an ambitious emissions trading program.[488]

---

[480] A. BUMPUS, C. OKEREKE, *et al.* "Carbon governance, climate change and business transformation" *in* A. BUMPUS, C. OKEREKE, *et al.* (dir.), *op. cit.*, p. 3.
[481] W. RIPPLE, C. WOLF, *et al.*, *op. cit.,* p. 1.
[482] B. L. PEREZ-HENRIQUEZ, "The problem…", *in* A. BUMPUS, C. OKEREKE, *et al.* (dir.), *op. cit.*, p. 49.
[483] B. LAVILLE, "Contraindre…"*, op. cit.,* p. 22.
[484] A. RAINE, M. SOCORRO-MANGUIAT, "Strengthening National Legal Frameworks to Implement the Paris Agreement", *C.C.L.R.,* 2018, p. 21.
[485] A. BUMPUS, C. OKEREKE, *et al.* "Carbon governance, climate change and…" *in* A. BUMPUS, C. OKEREKE, *et al.* (dir.), *op. cit.*, p. 5.
[486] Full version of The Special Law on Climate can be found on University Saint-Louis Brussels's website: http://www.circ.usaintlouis.be/loi-climat-de-luniversite-a-la-chambre/.
[487] M. HOLWERDA, M. ROGGENKAMP, *et al., Essential EU Climate Law,* Cheltenham, Edgar Elgar, 2015, p. 74
[488] WORLD BANK, ECOFYS, *States and Trends of Carbon Pricing,* Washington, World Bank 2015, retrieved on http://documents.worldbank.org/curated/en/636161467995665933/State-and-trends-of-carbon-pricing-2015, p. 10.

Let us outline the same conclusion as for Section III on behavioural changes. The biggest obstacles to a resilient post-carbon future are social and political rather than technological and financial.[489] We must develop an economic paradigm focused on well-being and resilience rather than unsustainable consumption of energy and resources.[490] Changing our views and our conceptions may also be in order when it comes to nature and our environment themselves. That is what we will explore in the next chapter.

Chapter III: A call for action and a new conception for nature

So the answer is clear. Delaying mitigation efforts beyond those in place today through 2030 is estimated to "substantially increase the difficulty of the transition to low longer-term emissions".[491] Mitigation scenarios reaching about 450 to about 500 ppm CO2 concentration by 2100 are necessary to maintain climate change below 2°C with a 66 percent chance. The scenarios show "reduced costs for achieving air quality and energy security objectives, with significant co-benefits for human health and ecosystem impacts".[492]

There are encouraging signs that a global energy transition is underway. Numbers show that, in recent years global CO2 energy-related emissions did not grow further - the first time since the industrial revolution, without an economic crisis.[493] Investments in renewable energies continue to dominate new investments in the energy system worldwide. At the same time the use of coal is declining.[494] Yet one of the key tasks of ongoing climate negotiations is doubtlesly to establish an "ambition mechanism", so as to continuously raise ambitions and close the remaining gap between the countries' emissions reduction targets and the global limit for temperature rise. We now know that it is necessary to act on our level, subnational, cities, individuals and business alike. For that to happen, perhaps it is also time to cease seeing man as the centre of a systems of law, and to attribute rights to nature as well. The present chapter is by no mean an exhaustive presentation on the subject, it rather ends this thesis by presenting a broader conclusion.

Rights for nature is one the gigantic challenge and negotiation for our century. That man must be in relation with nature, "not in a spirit of conquest, but in adaptation and care".[495] The first

[489] J. WISEMAN, T. EDWARDS, "Post-carbon economy transition strategy" *in* A. BUMPUS, C. OKEREKE, *et al.* (dir.), *op. cit.*, p. 217-220.
[490] *Ibidem.*
[491] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.,* p. 10.
[492] *Ibidem*, p. 16.
[493] C. BALS, J. BURCK *et al.*, *Climate Change Performance Index, Results 2018,* Berlin, Germanwatch, 2018, retrieved on www.climate-change-performance-index.org, p. 3.
[494] *Ibidem.*
[495] B. LAVILLE, "Contraindre…"*, op. cit.,* p. 21.

occurrence of such an idea was Christopher Stone's article *Rights of Nature* where the author asked himself whether trees should have *locus standi*. He recognised that his question might be unthinkable but went on to hold "that throughout legal history, each successive extension of rights to some new entity has been firstly thought of as unthinkable". [496] Among a plethora of examples, the Constitution of Ecuador now has a chapter devoted to the rights of nature, and an Argentinean court has granted *habeas corpus* to a Sumatran orang-utan.[497] In India, the state of Uttarakhand recognised rights to the Yamuna river and to the Gangotri and the Yamunotri glaciers.[498] The aforementioned Colombian case *Demanda Generaciones Futuras v. Minambiente* recognised rights to the Amazon hydrographic basin.

A common feature of these instruments is the recognition that environmental resources need to be considered as "global public goods not subject to individual appropriation" and that "their protection is in the interest of all people".[499] This is very interesting when put in relation to the Descartes' conception of nature that emerged in the XVIIth century. In *Fabula Mundi,* he explains the origin of the world, in a manner devoid of any divine intervention. The world can be explained as it is, without any sanctity to nature. Man is in a "position of creator". In this story lies the premise that one day man will be able to comprehend entirely how nature works and functions, and, hence, to actually copy, reproduce and improve the functioning of nature… Which is, to some extent, the case today. Nature is nothing else than a certain amount of matter, its laws can be explained and understood, its behaviour reproduced. It can be mastered so as to better serve men.[500]

But we now see the dangers and even the sheer absurdity of such a conception of nature and its implication for humankind's relationship. Not only because of rising GHG emissions, ice melting, sea-level rise and ecosystem disappearing at an alarming rate – labelled by the scientific community as "the sixth mass extinction of species". Seeing mankind as separated from nature whence it originated threatens its very survival. Nature cannot be reduced to a "corpse which we would examine as in an autopsy to know how it functions".[501] As the Native American Chief Seattle puts it: "You must teach your children that the ground beneath their feet is the ashes of their grandparents. In order that they may respect the Earth, teach them that the Earth is full of the life of our ancestors. You must teach your children what we have taught

[496] R.-M. LYSTER, *Climate Justice and Disaster Law,* Cambridge, Cambridge University Press, 2015, p. 373-374.
[497] *Ibidem.*
[498] V. CABANES, *op. cit.,* p. 175. These are all sacred grounds in Hinduism.
[499] F. FRANCIONI, C. BAKKER "The evolution…" *in* C. BAKKER, F. FRANCIONI (dir.), *op. cit.*, p. 13.
[500] F. OST, *La nature hors la loi, l'écologie à l'épreuve du droit,* Paris, La Découverte, 1995, p. 36.
[501] *Ibidem.*

ours: that the Earth is our mother. Everything that affects the Earth affects the sons of the Earth. When men spit on the ground, they spit on themselves. We know this: Earth does not belong to man. Man belongs to the Earth. Man has not woven the net of life: he is just a thread in it. Everything he does to this net, he does to himself. What befalls the Earth will befall the sons of the Earth".[502]

By considering things only through the material point of view, human beings themselves could be reduced to objects in a "disenchanted world", a broken alliance between man and cosmos.[503] This conception leads to a deadlock and there might be an alternative: giving rights to nature, by rejecting the dualism between mankind and the rest of the world.[504] According to Valerie Cabane, recognising the legally binding character of the rights of nature in our systems of law is essential to change the way we interact with the living. Concrete realisations of the rights of nature are for now symbolic. Yet they are telling on how the law could evolve.[505] As C. Larrère puts it: "Different ways of apprehending ethical globality of Anthropocene are not necessarily mutually exclusive. Global ethics should accommodate respect for nature and consequences of our technical actions, so that applying judicial rules also benefits to nature".[506]

That point of view is interestingly rather close to the Pope's in *Laudato Si*. He outlines the spiritual and ethical roots of the environmental crisis, and the sheer absurdity of our current way of living. If humankind declares itself autonomous and cut aloof from Earth that sustains it, the very foundation of its existence collapses.[507] The Pope puts forward the concept of integral ecology, where finding a solution to the environmental crisis goes hand-in-hand with building a fairer society on the global scale. [508]

This is also in line with the IPCC recommendations: "Climate policy intersects with other societal goals creating the possibility of co-benefits or adverse side-effects. These intersections, if well-managed, can strengthen the basis for undertaking climate action. Mitigation and adaptation can positively or negatively influence the achievement of other societal goals, such as those related to human health, food security, biodiversity, local environmental quality, energy access, livelihoods, and equitable sustainable development; and vice versa, policies toward other societal goals can influence the achievement of mitigation and adaptation." [509]

---

[502] SEATTLE CHIEF, *Letter,* retrieved on http://www.csun.edu/~vcpsy00h/seattle.htm.
[503] F. OST, *op. cit.*, p. 148-149.
[504] *Ibidem,* p. 161.
[505] V. CABANES, *op. cit.,* p. 175.
[506] C. LARRÈRE, "L'éthique de l'anthropocène" *in* A. EUZEN, B. LAVILLE (B.), *et al.* (dir.), *Quelles solutions face au changement climatique?*, Paris, éd. du CNRS, 2015.
[507] PAPE FRANÇOIS, *op. cit.*, p. 104-106.
[508] *Ibidem*, p. 121.
[509] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability.*, *op. cit.,* p. 5.

We would then say, before concluding this thesis, that finding a solution to climate change and to the ecological crisis is not only a matter of action. It is also and perhaps most importantly about changing our conceptions, changing the way we interact with one another and changing our very view of nature and our environment.

Conclusion

In this thesis, we tried to explore in detail the legal architecture of the Paris Agreement, its context and the potentials consequences for society when it will adapt to implement its goal.
In Part I Chapter I, we reminded what climate change is, its direct and linear relationship with GHG emissions, as well as many of its potentially devasting consequences, some of them already happening. The answer is clear: we have no choice but to act. In Chapter II and III we analysed the international legal context before the Paris Agreement: first the UNFCCC, the scheme it laid out and the substantive obligations defined later on by the successive COP; later the Kyoto Protocol and its heavy, top-down, binding approach which ultimately, amongst other reasons, led to its failure because of States' insufficient participation.
In Part II we explored in depth the Paris Agreement. Chapter I explained what kind of negotiation occurred in the lead-up to COP21 in Paris. Consequences for the Paris Agreement were crucial: containing global warming between 1.5 and 2 °C; another concept of differentiation; and a hybrid between a bottom-up and a top-down approach, knowing that the former seems to ensure broader participation than the latter. Chapter II was a legal analysis of the Paris Agreement's content. We examined the legally binding character of the instrument, its scope and general provisions, its approach to differentiation, mitigation, adaptation and loss and damages. There was also the question of transparency and compliance mechanisms. These raise considerable question concerning the feasibility of the Agreement, along with the considerable gap between the goal of the Paris Agreement on the one hand and current emission trends on the other. These shortcomings and the fact it was nonetheless a considerable diplomatic and political success were outlined in Chapter III.
Finally, Part III was devoted to understanding how our modern society can adapt to the goal of the Paris Agreement, in other words implementing the measures to ensure its very survival. We observed in Chapter I the role courts and tribunals could and already play in the matter, underscoring the symbolic scope and impact of jurisprudence, then questioning the adequacy of international courts in adjudicating climate change.

Domestic jurisdictions seem better equipped for this issue in particular with the formidable wave of domestic climate change litigation going on in many nations of the world. There is good reason to have hope.

In Chapter II, we pointed out that international negotiations alone cannot suffice to prevent soaring GHG emissions and devasting climate change. Non-State actors and civil society have a pivotal role to play in safeguarding the subsidence of future generations. Subnational governments and city authorities; individuals and platforms of empowered citizens; companies and businesses: all must act hand in hand, as it is crystal-clear that much more needs to be done. Again, despite the gigantic efforts to accomplish, there is ground for hope.

But hope can only be sustained if our conceptions evolve. That was what Chapter III evoked, giving general implications for our conceptions of the environment. We must cease to think that we are separated from our environment, we must step out of this man-centred vision established in the XVIIth century. It is imperative that we establish a new vision for nature and its rights. We must acknowledge the relationships between humankind and nature.

So yes, climate change might be the most considerable challenge of our time, imperilling the very existence of our specie on Earth. That might well happen if we are unable to change our societies and our way of thinking. And it is indeed uncertain whether the Paris Agreement is adequate enough to tackle such an issue.

Yet we believe, with hope, that rising awareness and collective actions of empowered citizens, which in time will reflect upon the laws and rules that governments enact, shall finally make things right again. That is only possible if each and every one of us asks oneself the question: "What can I do?"

To end this thesis, let us quote André Malraux:

"The divine part of the human being is its aptitude to question the order of the world in order to make it better-off".

BIBLIOGRAPHY

LEGISLATION

Treaties
1992 United Nations Framework Convention Climate Change.
1997 Kyoto Protocol.
2012 Doha Amendment to the Kyoto Protocol, UNFCCC Decision 1/CMP.8.
2015 Paris Agreement.

UN Resolutions
Resolution adopted by the Human Rights Council, *Human rights and climate change*, 1 July 2016, A/HRC/RES/32/33.
Report of the Special Rapporteur, *On the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment*, 1 February 2016 A/HRC/RES/31/52.

DOCTRINE

Articles

AYLING (J.), GUNNINGHAM (N.) "Non-State Governance and Climate Policy: The fossil fuel Divestment Movement", *Australian National University, RegNet Research Paper Series,* 2015, No. 98, retrieved on https://www.researchgate.net/publication/324659201_Non-State_Governance_and_Climate_Policy_The_Fossil_Fuel_Divestment_Movement.

BECK (S.), BURLESON (E.), "Inside the System, Outside the Box: Palau's Pursuit of Climate Justice and Security at the United Nations", *Transnational Environmental Law*, 2014, p. 17–29.

BERGKAMP (L.), "A Dutch Court's 'Revolutionary' Climate Policy Judgment: The Perversion of Judicial Power, the State's Duties of Care, and Science", *JEEPL,* 2015, p. 241-263.
.
BETAILLE (J.), COLARD-FABREGOULE (C.), COURNIL (C.), GOURITIN (A.), POMADE (A.), "Environnement et droit de l'homme", *JEDH,* 2015, p. 519-547.

BETAILLE (J.), COLARD-FABREGOULE (C.), COURNIL (C.), GOURITIN (A.), POMADE (A.), "Environnement et droit de l'homme", *JEDH,* 2016, p. 496-521.

BODANSKY (D.), "Legal Character of the Paris Agreement" *R.E.C.I.E.L.,* 2016, P. 142-150.

BODANSKY (D.), BRUNNÉE (J.), "The Role of National Courts in the Field of International Environmental Law", *R.E.C.I.E.L,* 1998, p. 11-20.

BOISSON DE CHAZOURNES (L.) , "One Swallow Does Not a Summer Make, but Might the Paris Agreement on Climate Change a Better Future Create?", *EJIL*, 2016, p. 253-256.

CASSOTA (S.), "The Paris Agreement in Logic of Multi-Regulatory Governance: A Step Forward to a New Concept of Global Progressive Adaptive-Mitigation?", *EEELR*, 2016, p. 196-212.

CERUTTI (F.), « Le réchauffement de la planète et les générations futures », *Pouvoirs*, 2008, p. 107-122.

CHENEVIERE (C.), NIHOUL (P.), "Les règles européennes visant à lutter contre le réchauffement climatique", *JDE,* 2009, p. 125-131.

COOMBE (R.) "Critical Legal Studies", *Yale Law Review*, 1998, p. 455-488.

COURNIL (C.), TABAU (A.-S.), "New Perspectives for Climate Justice: District Court of The Hague, 24 June 2015, Urgenda Foundation versus the Netherlands", *JEEPL,* 2015, p. 221-240.
DELEUIL (T.), "The common but differentiated responsibilities principles: Changes in continuity after the Durban Conference of the Parties", *R.E.C.I.E.L.,* 2012, p. 271–28.

DUMONT (H.), "La sixième réforme de l'état ou l'art de ne pas choisir ?", *J.T.,* 2015, p. 493-500.

FERREIRA (F.), VOIGT (C.), "Differentiation in the Paris Agreement", *Climate Law,* 2016, p. 58-74.

HEPBURN (C.), "Carbon Trading: A Review of the Kyoto Mechanisms", *Annu. Rev. Environ.,* 2007, p. 375–93.

KERBRAT (Y.), MALJEAN-DUBOIS (S.), WEMAËRE (M.), "Conférence internationale de Paris sur le climat en décembre 2015 : comment construire un accord évolutif dans le temps ? ", *J.D.I.*, 2015, p. 10-27.

KYSAR (D.), *Climate Change and the International Court of Justice*, New Haven, Yale Center for Environmental Law & Policy, Public Law Research Paper No. 315, 2013 retrieved on http://dx.doi.org/10.2139/ssrn.2309943.

LAVALLÉE (S.), "Le principe des responsabilités communes mais différenciées à Rio, Kyoto et Copenhague. Essai sur la responsabilité de protéger le climat", *Études Internationales*, 2010, p. 51-78.

LAVALLÉE (S.), MALJEAN-DUBOIS (S.), "L'Accord de Paris : fin de la crise du multilatéralisme climatique ou évolution en clair-obscur ? ", *R.J.E.,* 2016, p. 19-36.

LAVILLE (B.), "Contraindre les états et les éléments, le pari fou de l'Accord de Paris"*, E.E.I.,* 2016, p. 15-22.

LITI -MBEVA (K.), MAKOMERE (R.), "Squaring the Circle: Development Prospects Within the Paris Agreement", *C.C.L.R.*, 2018, p. 31-40.

MALJEAN-DUBOIS (S.), WEMAËRE (M.), "L'accord à conclure à Paris en décembre 2015 : une opportunité pour « dé » fragmenter la gouvernance internationale du climat ? ", *R.J.E.,* 2015, p. 649 – 671.

OKAMATSU (A.) "Problems and Prospects of International Legal Disputes on Climate Change", *J.E.L.L.,* 2007, p. 266-277.

RAINE (A.), SOCORRO-MANGUIAT (M.), "Strengthening National Legal Frameworks to Implement the Paris Agreement", *C.C.L.R.,* 2018, p. 15-22.

SOETE (A.), "Het Paris Agreement : one giant leap for mankind, one small step for climate", *M.E.R.,* 2016, p. 125-136.

VOGEL (D.), "Trading Up and Governing Across: Transnational Governance and Environmental Protection", *J.E.P.P.*, 1997, p. 556-571.

VOIGT (C.), 'The Paris Agreement: What is the Standard of Conduct for Parties?', *Q.I.L.*, 2016, p. 17-28.

Books

BODANSKY (D.), BRUNNÉE (J.), RAJAMANI (L.), *International Climate Change Law,* Oxford, Oxford University Press, 2017.

CABANES (V.), *Rights for Planet Earth, End to Crimes Against Nature,* Dehradun, Natraj Publisher, 2018.

DEPLEDGE (J.), YAMIN (F.), *The International Climate Change Regime, a Guide to Rules, Institutions, Procedures*, Cambridge, Cambridge University Press, 2004.

HOLWERDA (M.), ROGGENKAMP (M.), WOERDMAN (E.), *Essential EU Climate Law,* Cheltenham, Edgar Elgar, 2015.

HOPKINS (R.), *Ils changent le monde, 1001 initiatives de transition écologique*, Paris Le Seuil, 2014.

HOPKINS (R.), *The transition companion,* Cambridge, Greenbooks, 2011.

HUGLO (C.), *Le contentieux climatique : une révolution judiciaire mondiale,* Bruxelles, Bruylant, 2018.

LE ROY LADURIE (E.), *Disettes et révolutions 1740-1860,* Paris, Fayard, 2006.

LE ROY LADURIE (E.), *Le Réchauffement de 1860 à nos jours,* Paris, Fayard, 2009.

LE ROY LADURIE (E.), *Naissance de l'histoire du climat,* Paris, Hermann Editeurs, 2013.

LYSTER (R.-M.), *Climate Justice and Disaster Law,* Cambridge, Cambridge University Press, 2015.

MCADAM (J.), *Climate Change, Forced Migration and International Law,* Oxford, Oxford University Press, 2012.

OSOFOSKY (H.), PEEL (J.), *Climate Change Litigation, Regulatory Pathways to Cleaner Energy,* Cambridge, Cambridge University Press, 2015.

OST (F.), *La nature hors la loi, l'écologie à l'épreuve du droit,* Paris, La Découverte, 1995.
PAPE FRANÇOIS, *Laudato Si,* Namur, Editions Jesuites, 2015.

SEN (A.), *Development as Freedom,* Oxford, Oxford University Press, 1999.

VAN ASSELT (H.), *The Fragmentation of Global Climate Governance. Consequences and Management of Regime Interactions,* Cheltenham, Edward Elgar 2014.

Collective books

BAKKER (C.), FRANCIONI (F.) (under the direction of), *The EU, the US and Global Climate Governance,* Burlington, Ashgate, 2014.

BUMPUS (A.), OKEREKE (C.), PEREZ HENRIQUEZ (B.), TANSEY (J.) (under the direction of), *Carbon Governance, Climate Change and Business Transformation*, New York, Routledge, 2015.

BURNS (W.), OSOFSKY (H.) (under the direction of), *Adjudicating Climate Change: State, National and International Approaches*, Cambridge, Cambridge University Press, 2009.

COLARD-FABREGOULE (C.), COURNIL (C.) (under the direction of), *Les changements climatiques et le défis du droit, actes de la journée d'étude du 24 mars 2009,* Bruxelles, Bruylant, 2010.

EUZEN (A.), LAVILLE (B.), THIÉBAULT (S.) (under the direction of), *Quelles solutions face au changement climatique?*, Paris, éd. du CNRS, 2015.

FARBER (D.), PEETERS (M.), (under the direction of), *Climate Law Encyclopaedia, Vol. I Climate Change Law,* Cheltenham, Edward Elgar, 2016.

GERRARD (M.) (under the direction of), *Global Climate Change and US law,* Washington, American Bar Association, 2017.

MICHELOT (A.) (under the direction of), *Justice climatique, enjeux et perspectives, Climate justice, Challenges and Perspectives,* Bruxelles, Bruylant, 2017.

Regional Plans

REGION BRUXELLOISE, *Projet de plan régional nature en région Bruxelles-Capitale,* Bruxelles, Bruxelles-Environnement, 2013.

REGION BRUXELLOISE, *Plan iris 2, diagnostic d'un défi pour Bruxelles-Capitale,* Bruxelles, Bruxelles Mobilité, 2015.

REGION BRUXELLOISE, *Stratégie Good Food : vers un système alimentaire durable en Région Bruxelles-Capitale,* Bruxelles, Bruxelles-Environnement, 2015.

REGION BRUXELLOISE, *Plan régional air-climat-énergie,* Bruxelles, Bruxelles Environnement, 2016.

REGION BRUXELLOISE, *Scénario bas carbone à l'horizon 2050 pour la région bruxelloise,* Bruxelles, Bruxelles-Environnement, 2017.

UN Reports

IEA, *World Energy Outlook 2008,* Paris, International Energy Agency 2008 retrieved on https://webstore.iea.org.

IEA, *CO2 Emissions from Fuel Combustion: Key CO2 Emissions Trends,* Paris, International Energy Agency, 2016, retrieved on https://emis.vito.be/sites/emis.vito.be/files/articles/3331/2016/CO2EmissionsfromFuelCombustion_Highlights_2016.pdf.

IMF, *How Large Are Global Energy Subsidies ?*, Washington, International Monetary Fund, 2015 retrieved on https://www.imf.org/en/Publications/WP/Issues/2016/12/31/How-Large-Are-Global-Energy-Subsidies-42940.

OHCHR, *Understanding Human Rights and Climate Change: Submission of the Office of the High Commissioner for Human Rights to the 21st Conference of the Parties to the United Nations framework Convention on Climate Change*, Geneva,
Office of the High Commissioner for Human Rights, 26 November 2015 retrieved on https://www.ohchr.org/Documents/Issues/ClimateChange/COP21.pdf.

UNEP, *The Emissions Gap Report,* Nairobi, United Nations Environment Programme, 2017 retrieved on https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf.

UNEP, *The Status of Climate Change Litigation,* Nairobi, United Nations Environment Programme and Sabin Center for Climate Change Law at Columbia Law School, 2017, retrieved on http://columbiaclimatelaw.com/files/2017/05/Burger-Gundlach-2017-05-UN-Envt-CC-Litigation.pdf.

WORLD BANK, *Uncharted Waters, The New Economics of Water Scarcity and Variability,* Washington, WorldBank, 2017, retrieved on https://openknowledge.worldbank.org/handle/10986/28096.

WORLD BANK, ECOFYS, *States and Trends of Carbon Pricing,* Washington, World Bank 2015, retrieved on http://documents.worldbank.org/curated/en/636161467995665933/State-and-trends-of-carbon-pricing-2015.

IPCC Reports

IPCC, *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* Cambridge University Press, Cambridge, 2013, retrieved on https://www.ipcc.ch/reports/.

IPCC, *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers,* Cambridge, Cambridge University Press, 2013, retrieved on https://www.ipcc.ch/reports/.

IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for policymakers*, Cambridge, Cambridge University Press, 2014, retrieved on https://www.ipcc.ch/reports/.

IPCC, *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers,* Cambridge, Cambridge University Press, 2014, retrieved on https://www.ipcc.ch/reports/.

IPCC, *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers, Technical Summary,* Cambridge, Cambridge University Press, 2014, retrieved on https://www.ipcc.ch/reports/.

IPCC, *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,* Geneva, IPCC, 2014, retrieved on https://www.ipcc.ch/reports/.

NGO Reports

BALS (C.), BURCK (J.), HÖHNE (N.), MARTEN (F)., *Climate Change Performance Index, Results 2018,* Berlin, Germanwatch, 2018, retrieved on www.climate-change-performance-index.org.

CENTER FOR CLIMATE AND ENERGY SOLUTIONS, *Outcomes of the UN Climate Change Conference in Katowice*, Arlington, Center for Climate and Energy Solutions, 2018, retrieved on https://www.c2es.org/site/assets/uploads/2018/12/cop-24-katowice-summary.pdf
DAS (R.), SCHWARZ (R.), *Sustainable lifestyle in Germany and India,* Berlin, Germanwatch, 2018, retrieved on www.germanwatch.org/en/15172.

RAJAMANI (L.), *Differentiation in a 2015 Climate Agreement*, Arlington, Center for Climate and Energy Solutions, 2015, p. 1-6.

WWF, *Living Planet, Report 2014,* Gland, WWF, 2014, retrieved on http://d2akrl9rvxl3z3.cloudfront.net/downloads/lpr2014_rapport_vf_web.pdf.

UNFCCC Declarations

UNFCCC, *Report of the Conference of the Parties on its fifth session, held at Bonn from 25 October to 5 November 1999,* FCCC/CP/1999/6/Add.1, February 2 2000, retrieved on https://unfccc.int/sites/default/files/resource/docs/cop5/06a01.pdf.

UNFCCC, *Rapport de la treizième session de la Conférence des Parties tenue à Bali du 3 au 15 décembre*, FCCC/CP/2007/6/Add.1, March 14 2008, retrieved on https://unfccc.int/resource/docs/2007/cop13/fre/06a01f.pdf.

UNFCCC, *Les accords de Cancún: Résultats des travaux du Groupe de travail spécial de l'action concertée à long terme au titre de la Convention*, FCCC/CP/2010/7/Add.1, March 15 2011, retrieved on https://unfccc.int/resource/docs/2010/cop16/fre/07a01f.pdf.

UNFCCC, *Report of the Conference of the Parties on its fifth session, held at Bonn from 25 October to 5 November 1999,* FCCC/CP/1999/6/Add.1, 2 February 2000, retrieved on https://unfccc.int/sites/default/files/resource/docs/cop5/06a01.pdf.

UNFCCC, *Aggregate effect of the intended nationally determined contributions an update, Synthesis Report by the Secretariat*, FCCC/CP/2015/7, October 30 2015, retrieved on https://unfccc.int/resource/docs/2015/cop21/eng/07.pdf.

Newspaper articles

DEVILLERS (S.), "Nous consommons 6,3 fois ce que la Belgique fournit", *La Libre Belgique,7 August 2016,* retrieved on http://www.lalibre.be/actu/planete/nous-consommons-6-3-fois-ce-que-la-belgique-fournit-57a777ee35704fe6c1d2910c.

RILEY (T.), "Just 100 companies responsible for 71 percent of global emissions", *The Guardian,* 10 July 2017, retrieved on https://www.theguardian.com/sustainable-business/2017/jul/10/100-fossil-fuel-companies-investors-responsible-71-global-emissions-cdp-study-climate-change.

VADJOUX (P.), " La finalité humaine et écologique de l'économie doit déterminer les politiques et les réformes ", *Le Monde,* 27 mai 2016, retrieved on http://www.lemonde.fr/idees/article/2016/05/10/la-finalite-humaine-et-ecologique-de-l-economie-doit-determiner-les-politiques-et-les reformes_4916655_3232.html#ppVkHJ6DoTMzQmbh.99.

Websites

https://unfccc.int/process/the-paris-agreement/status-of-ratification.
https://unfccc.int/process/the-kyoto-protocol/the-doha-amendment.
http://www.circ.usaintlouis.be/loi-climat-de-luniversite-a-la-chambre/.
http://www.bastamag.net/Menaces-par-le-rechauffement-de-plus-en-plus-de-villes-et-leurs-habitants.
http://www.basta.net.
http://www.climatelaw.org.
http://germanwatch.org/en/publications.
http://www.climatelawgovernance.org/knowledge-resources-and-tools/?search=climate-justice-resources.
http://www.climate.be/vanyp.
http://www.my2050.be.
http://www.prdd.brussels/documents.
http://mobilite-mobiliteit.brussels/fr/priorites-generales.
http://urbanisme.irisnet.be/lesreglesdujeu/les-plans-strategiques/le-prdd.
http://cait .wri.org/equity.
http://climateactiontracker.org/methodology/85/Comparability-of -effort.html.
http://ec.europa.eu/priorities/energy-union-and-climate_fr.
http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/119175.pdf.
http://www.usmayors.org/mayors-climate-protection-center/.
http://ec.europa.eu/programmes/horizon2020/em/what-horizon-2020.
http://www.cdp.net/en.
http://www.icao.int/environmental-protection/Pages.
http://www.greenpeace.org/seasia/ph/press/releases/First-national-human-rights-investigation-into-climate-change-impacts-proceeds-despite-opposition-from-fossil-fuel-companies/.
http://climatecasechart.com.
https://globaljustice.yale.edu/sites/default/files/files/LES%20PRINCIPES%20D'OSLO%20correction%20de%20correction%20de%20correction.pdf.
https://www.climatecentral.org/gallery/interactives.
https://www.c40.org.

Other

ANDRES (R.J.), BODEN (T.A.), MARLAND (G.), *National CO2 Emissions from Fossil-Fuel Burning, Cement Manufacture, and Gas Flaring: 1751-2014*, Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, 2017.

BODANSKY (D.), Ask the Experts Show: climate change and International Law, PBS, 10 August 2012, retrieved on http://www.pbs.org/wnet/need-to-know/uncategorized/ask-the-experts/14420/.

BODANSKY (D.), "Reflections on the Paris Conference", *Opinio Juris*, 15 December 2015, retrieved on http://opiniojuris.org/2015/12/15/reflections-on-the-paris-conference/.

ICAO, *Consolidated Statement of Continuing ICAO Policies and Practices Related to Environmental Protection – Climate Change,* International Civil Aviation Organisation, Resolution A37-19, 8 October 2010, §4-6, retrieved on https://www.icao.int/Meetings/a38/Documents/WP/wp034_en.pdf.

MACRON (E.)*, Discours sur le pacte mondial de l'environnement,* Paris, 24 juin 2017, retrieved on https://www.youtube.com/watch?v=piHgQ0Sq9Yw.

RIPPLE (W.), WOLF (C.), NEWSOME (T.), *World Scientists' Warning to Humanity: A Second Notice, Appeal form 15, 364 scientists from 184 countries*,
retrieved on https://academic.oup.com/bioscience/article/67/12/1026/4605229.

SEATTLE CHIEF, *Letter,* retrieved on http://www.csun.edu/~vcpsy00h/seattle.htm.

TOLSTOY (L.), *Letter to Gandhi,* retrieved on https://www.deslettres.fr/lettre-de-leon-tolstoi-a-gandhi-il-ny-a-quune-solution-celle-de-la-reconnaissance-de-la-loi-damour-et-du-refus-de-toute-violence/.

WORLD METEOROLOGICAL ORGANISATION, *Press Release,* 25 January 2016, retrieved on https://public.wmo.int/en/media/press-release.

JURISPRUDENCE

International bodies

United Nations General Assembly, 66th meeting, September 22 2011, New York, UN doc A/66/PV.16.

Regional Courts

European Court of Human Rights, February 19 1998, *Guerra and others v. Italy.*

European Court of Human Rights, November 10 2004, *Taskin v. Turkey.*

European Court of Human Rights, May 9 2005, *Fadeiva v. Russia.*

European Court of Human Rights, July 24 2001, *Valasinas v. Lithuania.*

European Court of Human Rights, November 30 2004, *Oneryildiz v. Turkey.*

Inter-American Commission on Human Rights, December 7 2005, *Inuit Petition: "Seeking relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States".*

National courts by country

Belgium

Court of First Instance Brussels, *VZW Klimaatzaak v. Kingdom of Belgium et al.*

Canada

Federal Court of Appeal, October 15 2009, *Friends of the Earth v. Canada*.

Colombia

Supreme Court of Colombia, May 4 2018, *Demanda Generaciones Futuras v. Minambiente.*

France

Administrative Court of Paris, December 17 2018, *Notre affaire à tous v. France.*

Germany

Regional Court Essen, December 15 2016, *Peruvian Moutain guide Saul Luciano Liuvya v. RWE.*

India

National Green Tribunal, March 17 2015, *Indian council of Environmental Action v. MoEFCC.*
National Green Tribunal, May 9 2016, *In Re courts on its own motion v. State of Himashal Pradesh and others.*
National Green Tribunal, March 25 2017 *Pandey v. India.*

Ireland

High Court of Ireland, November 21 2017, *Friends of the Irish Environment CLG v. Fingal Country Council.*

Netherlands
District Court of the Hague, June 24 2015, *Urgenda foundation v. Kingdom of the Netherlands.*
Hague Court of Appeal, October 9 2018, *Urgenda foundation v. Kingdom of the Netherlands.*

New-Zealand
High court of New Zealand, November 10 2015, *Thomson v. Minister for Climate Change Issues.*

Nigeria
Federal Court of Nigeria, November 30 2005, *Gbemre v. Shell Petroleum Development company of Nigeria LTD et al.*

Norway
Oslo District Court, January 4 2018, *Greenpeace Nordic Ass'N and Nature and Youth v. Ministry of Petroleum and energy.*

Pakistan
Lahore High Court, Courts Orders, September 14 2015, *Ashar Leghari v. Federation of Pakistan.*

Philippines
Philippines Convention on Human Rights, December 5 2015, *In re Greenpeace Southeast Asia and Others.*

Switzerland
Federal Administrative Court of Switzerland, November 27 2018, *Verein KlimaSeniorinnen Schweiz et al. v. Federal Department of the Environment, Transport, Energy and Communications.*

South Africa
High Court of South Africa, March 8 2017, *Earthlife Africa Johannesburg v. Minister of environmental affairs and others.*

US
US Supreme Court, April 2 2007, *Massachusetts et al. v. Environmental Protection Agency.*
US Supreme Court, January 19 2016, *Utility Air Regulatory Group v. Environmental Protection Agency.*
US 2nd Cir., June 20 2011, *Connecticut v. American Electric Power.*
US district court of Oregon, November 10 2016, *Juliana v. United States.*
US district court of Massachussets, March 14 2019, *Conservation Law Foundation v. ExxonMobil Corp.*

TABLE OF CONTENT