INTERNATIONAL LEGAL REGIME ON CLIMATE CHANGE AND ITS IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT GOALS AND THE ENERGY SECTOR.

BY
PROFESSOR MUHAMMED TAWFIQ LADAN (Ph.D)
DEPARTMENT OF PUBLIC LAW, FACULTY OF LAW,
AHMADU BELLO UNIVERSITY, ZARIA, KADUNA STATE, NIGERIA.

RESEARCH WORKING PAPER SERIES NO. 12
JANUARY – JUNE 2016
Introduction

The Paris Agreement\(^1\) on climate change\(^2\) is the newest,\(^3\) inclusive\(^4\) and most ambitious\(^5\) international agreement to combat the complex problem of climate change, adopted on 12\(^{th}\) December 2015\(^6\) at the 21\(^{st}\) Conference of the Parties\(^7\) (COP 21) to the United Nations Framework Convention on Climate Change (UNFCCC).\(^8\)

---

1. Adopted on 12 December 2015 in Paris as an Annex to the Paris COP 21 decision and as an outcome on climate action with legal force under the UNFCC applicable to all the 196 parties, including the European Union. See UNFCC COP 21 session, Paris, Decision, December 12, 2015/FCCC/CP/2015/L.9/paras 1-5 at p.2.
2. ‘Climate’ refers to weather conditions prevailing on a regional or global level in the long term. Long term weather conditions are the effect of meteorological processes that are influenced by factors such as temperature, wind, precipitation and humidity. Thus climate change means a change of average daily weather on a lasting basis. A changing climate is not an abnormal development as such. The earth has gone through several climatic periods caused by natural events like volcanic eruptions or changes in sun exposure. However, the global warming humankind faces today is to a large extent manmade. Due to industrialization in the last centuries, the concentration of carbon dioxide (CO\(_2\)) and other gases in the atmosphere has reached a level that leads to the so-called greenhouse effect: solar radiation gets reflected from the earth’s surface but cannot fully escape the atmosphere because it is re-reflected by the gas molecules. Put simply, the more of these greenhouse gases (GHGs) are emitted, the more solar radiation will ‘stay’ at the earth’s surface and consequently, heat it up. Although GHGs occur naturally in the atmosphere, human industrial activities have substantially increased their levels. (for further analysis, see Edwin W, Martha R and Marijin H (Eds): Essential EU climate Law (2015) Edward Elgar Publishing, Cheltenham, UK/Northampton, MA, USA, at pp.11-12.
3. Adopted in Paris, France on 12\(^{th}\) December 2015 and signed by a record number of 175 parties to the UNFCC including the EU on the opening day of 22 April 2016 in New York. This is consistent with paragraphs 2-3 of the Paris COP 21 decision, op cit.
4. It brought together 196 parties to the UNFCC (195 countries from both developed, developing and least developed blocs and the EU) to agree to the terms of the historic, universal pact that sets the world on a course to a zero carbon resilient, prosperous and fair future. While the Agreement is not enough by itself to solve the complex problem of climate change, it places us clearly on the path to a truly global solution. Building on the foundation of national climate plans from 187 countries, submitted prior to the 2015 climate negotiations, the Paris Agreement is a reflection of the remarkable momentum from governments, cities, companies, civil society groups, the academia and the media that complement the global will to act that has grown over the years. See David W and Jennifer M et al (2015): ‘the Paris Agreement: Turning point for a climate solution? World Resources Institute – http://www.wri.org/print/43669 - accessed on 15 December 2015, pp1-10
5. It sets landmark goals for taking action on climate change, aiming to keep temperature rise to well below 2 degrees Celsius (3.6 degrees F). Remarkably, to achieve this, countries agreed to reduce emissions rapidly to reach net-zero greenhouse gas (GHG) emissions in the second half of the 21\(^{st}\) century, taking into account equity, sustainable development and poverty reduction. (see Articles 2 and 14 of the Paris Agreement, 2015).
7. The COP is the supreme body of the UNFCC, consisting of representatives of all parties to the UNFCC (196 states including the EU) and meets regularly for sessions. The COP periodically reviews the implementation of the UNFCC and takes decisions necessary to promote an effective implementation of the treaty (Article 7(2) of the UNFCC). The yearly meetings take place in different cities and they are consecutively numbered, the first of UNFCC parties was held in Berlin, Germany in 1995 and is referred to as COP 1, while COP 21 took place in Paris, France in 2015.
8. The UNFCC was negotiated and adopted at the Rio-de-Janeiro Earth Summit in 1992 and entered into force on 21 March 1994. As at April 2016, it has near universal membership. The 196 countries including the EU that have ratified the convention are called parties to the convention. Preventing dangerous human interference with the climate system is the ultimate aim of the UNFCC. It recognized the complex problem of climate change, sets out lefty but specific goal, puts the onus on developed countries to lead the way on climate action, directs new funds to climate change activities in developing countries, keeps tabs on the problem and what’s being done about it, charts the beginnings of a path to strike a balance between economic development and environmental sustainability, and kicks off formal consideration of adaptation to climate change. The UNFCC covers all GHGs that are not controlled by the Montreal Protocol, particularly, carbon dioxide, methane, nitrous oxide and
With clearer available scientific evidence and better understanding, various stakeholders have now recognized that climate change is a complex problem, which although environmental in nature, has consequences for all spheres of existence on our planet. It either impacts on, or is impacted by, global issues, including poverty, economic development, population growth, sustainable development and natural resource management. It is not surprising then, that solutions come from all disciplines and fields of research and development.

At the very heart of the responses to climate change, however, lies the need to reduce emissions.

Recognizing that climate change represents an urgent and potentially irreversible threat to human societies and the planet, and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas (GHG) emissions.
emissions,\textsuperscript{14} in order to achieve the ultimate objective\textsuperscript{15} of the UNFCC, the COP 21 in Paris decided to adopt\textsuperscript{16} the Paris Agreement as one of the most remarkable outcomes\textsuperscript{17} of the two week long\textsuperscript{18} Paris climate negotiations.\textsuperscript{19}

Destined to become a legally binding agreement,\textsuperscript{20} separate from the COP 21 Decision,\textsuperscript{21} the Paris Agreement recorded a historic figure, on April 22, 2016 in New York, of 175 signatories on a single opening day.\textsuperscript{22} This is by far the largest number of countries ever to sign an international agreement on a single day.\textsuperscript{23}

Putting the first universal climate change treaty in context,\textsuperscript{24} the Paris Agreement is expected to come into force,\textsuperscript{25} upon ratification, from the year 2020, replacing the existing Kyoto Protocol under which only developed countries have binding emission reduction targets.\textsuperscript{26} The Paris Agreement is all encompassing, with legal obligations on all countries to report and account for their mitigation actions.\textsuperscript{27} It offers clear direction with long term goals and signals; a commitment to return regularly to make climate action stronger; a response to the impact of extreme climate events on the most vulnerable group; the transparency needed to ensure action takes place and; finance, capacity building and technology to enable real change.\textsuperscript{28} It offers a new type of international cooperation where developed and developing countries are united in a

\textsuperscript{14} See preamble to COP 21 decision, UNFCC, Paris December 12, 2015.
\textsuperscript{15} See Article 2 of the UNFCC.
\textsuperscript{16} As an Annex to the COP 21 Decision.
\textsuperscript{17} The remarkable Paris outcome: the COP 21 Decision and its Annex Paris Agreement.
\textsuperscript{18} From November 30 to December 12, 2015.
\textsuperscript{19} Negotiations conducted under the UNFCC represented a culmination of years of negotiations that were formally put in place in 2011 in Durban, South Africa.
\textsuperscript{20} Upon entry into force by 2020
\textsuperscript{21} COP 21 Decision is a decision under the UNFCC and does not require ratification or acceptance, as it is not a separate legal instrument. It supplements and complements the Paris Agreement itself.
\textsuperscript{22} April 22, 2016
\textsuperscript{23} A historic figure that goes beyond the previous record of 119 signatories on an opening day, held by the UN convention on the Law of the Sea, signed in Montego Bay in 1982.
\textsuperscript{24} The Paris Agreement is fundamentally different from the Kyoto Protocol because of its universal participation while Kyoto succeeded in reducing GHG in some developed countries, it only had binding targets for a few countries. By contrast, the Paris Agreement includes every country and thus has to accommodate the different development stages of those countries. The targets themselves are not binding but all countries are obliged to prepare, communicate and maintain their targets and pursue domestic measures to achieve them.
\textsuperscript{25} By 2020 and will constitute the heart of the international legal regime on climate change with respect to the post 2020 period.
\textsuperscript{26} Following the principle of ‘common but differentiated’, the obligations of the parties regarding emission limitation vary. The binding GHG targets for industrialized nations must be seen in conjunction with the Kyoto commitment periods. For the first commitment period, lasting from 2008 to 2012, the Netherlands, for example, was obliged to cut emissions by 8%, which means that the total amount of emitted GHGs had to be 8% less than the total amount emitted in the base year 1990. The second commitment period started in 2013 with the overall target of an 18% reduction compared to the 1990 levels by 2020. (see Article 1(C) of the Doha Amendment to the Kyoto Protocol amending Article 3(1) of the Kyoto Protocol). Like emitters like the Russian federation and Japan decided to no longer take on binding emission targets. But the EU decided to go for a reduction of 30% by 2020.
\textsuperscript{27} See Articles 4, 7 and 2 read together.
\textsuperscript{28} Paris Agreement, Articles 2-9
common legal framework, and all are involved and engaged contributors.\textsuperscript{29} It reflects the growing recognition that climate action offers tremendous opportunities and benefits, and that climate impacts can be tackled effectively, with the unity of purpose that has brought us to this moment.\textsuperscript{30}

With respect to the Paris climate negotiations itself, it is clear that it was the failure of the COP 15 in Copenhagen\textsuperscript{31} in 2009 to conclude the negotiations initiated in Bali\textsuperscript{32} that resulted in parties ultimately hitting the reset button in Durban\textsuperscript{33} with an eye toward negotiating a new post 2020 climate change regime by 2015 in Paris. Notwithstanding the Doha\textsuperscript{34} Amendment to the Kyoto Protocol adopted in 2012, COP 19 in 2013 adopted key decisions\textsuperscript{35} including decision on further advancing the Durban platform. In 2014, COP 20 held in Lima,\textsuperscript{36} concluded with the adoption of the ‘Lima call for climate action’,\textsuperscript{37} or document inviting all parties to the UNFCC to communicate their intended national contributions\textsuperscript{38} to post – 2020 climate action well before the Paris conference in 2015.

Obviously, the French presidency of the Paris Climate Negotiations learned from past failures\textsuperscript{39} such as the Copenhagen COP in 2009. It resisted throughout the two weeks, the temptation to shift to a negotiation process, sometimes referred to as the ‘friends of the chair’, that would have excluded all but a few negotiating blocs and parties considered to be key to a successful outcome. Instead, the French presidency ensured

\textsuperscript{29}Ibid, Articles 4, 10-12.
\textsuperscript{30}Ibid, preamble and Article 2.
\textsuperscript{31}In 2009, COP 15 in Copenhagen, Denmark, set out to reach a new climate agreement for the post – Kyoto period that would commit developed and developing countries, but ended in failure. The conference did result in the Copenhagen Accord, a non-binding document that mentions the 2°C target, establishes the Green Climate fund, and agrees to a goal to provide climate finance, from ‘a wide variety of sources’, worth US Dollars 100 billion per year to developing countries by 2020. Countries made voluntary mitigation pledges for the period up to 2020. However, the current pledges are insufficient to meet the 2°C target, and would lead to a projected 3.7°C global warming.
\textsuperscript{32}At COP 13, in 2007 parties agreed on the Bali, Indonesia Road Map, which charted the way towards a post 2012 outcome in two work streams.
\textsuperscript{33}Durban, South Africa: In 2011, COP 17 resolved to conclude a new agreement by 2015, to enter into force in 2020. This agreement should be legally binding and applicable to all parties, prepared by the Ad Hoc Working Group on the Durban Platform for Enhance Action. COP 17 established a technology mechanism to facilitate technology development and transfer.
\textsuperscript{34}Doha, Qatar: In 2012, COP 18 agreed on a second commitment period (2013-2020) for the Kyoto Protocol. However, it affects only 14% of global emissions because only EU member states, other European countries and Australia have assumed commitments, while the USA, Russia and Japan have not. The Doha amendment has no yet entered into force, as only 23 of 144 parties have ratified it so far.
\textsuperscript{35}Such as the Green Climate Fund and Long-Term Finance, the Warsaw of framework to REDD Plus and the Warsaw International Mechanism for Lass and Damage, aimed at addressing climate change damage in developing countries.
\textsuperscript{36}Lima, Peru: COP 21 held in December 2014.
\textsuperscript{37}Decision -/CP. 20: Lima call for climate action, UNFCC COP 20, December 2014
\textsuperscript{38}Prior to COP 21 in Paris 2015, 160 Intended Nationally Determined Contributions (INDC) submissions, covering 187 parties (some parties submitted joint INDCs) were made to the UNFCC. The Paris Decision (of COP 21) calls for those countries that did not submit INDCs prior to the COP 21 to do so prior to the Paris Agreement coming into force in 2020.
\textsuperscript{39}See M. Doelle, “The legacy of the climate talks in Copenhagen: Hopenhagen or Brohenhagen?” (2010) 4 carbon and climate law review 86.
every party had the opportunity to review each successive version of the text, and to submit its views directly to the presidency. In the end, it was a remarkable outcome of this effort that produced the Paris Agreement, which includes elements of, but also differs from, each previous international climate change agreements. The Paris Agreement therefore, is a further evolution of international climate change law.

It is against this contextual background that this paper seeks to achieve the following objectives:-

i. To examine the rationale behind, and underscore the importance of, the legal character of the Paris Agreement;

ii. Analyse the structure of legal commitments and approaches to monitoring implementation of the Agreement;

iii. Analyse the scope of the key elements;

iv. Assess the implications of the Agreement for sustainable development and the energy sector;

v. Conclude with viable options for Africa and Nigeria.

1. THE RATIONALE, NATURE OF THE LEGAL CHARACTER AND STRUCTURE OF THE PARIS AGREEMENT

The rationale behind the Paris Agreement is to hold the increase in the global average temperature to “well below 2°C above pre – industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre – industrial levels”. In addition, the Agreement aims at increasing “the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production”, and to make

---


41 For example, it offers a fundamentally different approach to Kyoto. It is based on the idea that self-imposed unilateral commitments are more likely to be met than actual domestic progress, full transparency and regular review of the collective effort are more effective at moving parties beyond their national interests to a global cooperation level, than a top down approach with conditional targets and binding consequences.

42 The Paris Agreement constitutes the heart of the international legal regime on climate change with respect to the post 2020 period.

43 The Paris Agreement, Article 2(a).

44 Ibid, Article 2(1)(b).
“finance flows consistent with a pathway towards low GHG emissions and climate resilient development”\textsuperscript{45} All these objectives are set “in the context of sustainable development and efforts to eradicate poverty”\textsuperscript{46} The latter is an acknowledgement of developing countries development concerns, which needs to be taken into account in efforts to combat climate change\textsuperscript{47}.

While developing countries thus won a hard fought battle for reiteration of the differentiation principle, the new language can be interpreted to move beyond the static dichotomy of the UNFCC’s Annexes\textsuperscript{48} Hence the Paris 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\textsuperscript{49}.

The approach in Paris was to move away from these hard lines and agree on more tailored approaches to differentiation depending on the issue, and to allow for more flexibility over time. The allocation of provisions between the Paris Agreement and the Paris COP 21 Decision helped to facilitate this effort\textsuperscript{50}.

On the nature of the legal character of the Paris Agreement, the preamble to the Agreement served as a useful middle ground between the formal Paris Agreement and the informal Paris COP Decision. It seemed to serve as the host for provisions some parties insisted on including in the Paris Agreement that other parties were uncomfortable including in the operative provisions. Among the issues highlighted in the preamble are the following innovative paragraphs, many recognized for the first time in the United Nations (UN) climate regime:\textsuperscript{49}

- i. The imperative of a just transition of the workforce;
- ii. The need to respect, promote and consider human rights;

\textsuperscript{45} Ibid, Article 2(1)(c)
\textsuperscript{46} Ibid, Article 2(1).
\textsuperscript{47} Ibid.
\textsuperscript{48} Under Annex 1, industrialized countries have to report regularly on their climate change policies and measures, including issues governed by the Kyoto Protocol (for countries which have ratified it). Under non-Annex 1 parties, developing countries report in more general terms on their actions both to address climate change and to adapt to its impacts, but less regularly than Annex 1 parties do, and their reporting is contingent on their getting funding for the preparation of the reports particularly in the case of the least developed countries.
\textsuperscript{49} The Paris Agreement, op cit, Article 2(2).
\textsuperscript{50} It essentially served an important role in permitting a nuanced approach to differentiation among parties. The issue of differentiation had been divisive for a long time and had centered on the Annexes of the UNFCC and the concept of common but differentiated responsibilities.
iii. The need to consider the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations;

iv. The need to consider the right to development, to gender equality, to the empowerment of women and to intergenerational equity when taking action on climate change.\(^{51}\)

There is no question about the Paris Agreement’s legal force under international law. After entry into force by 2020, the Agreement will be a legally binding multilateral treaty within the meaning of the Vienna Convention on the Law of Treaties.\(^{52}\) The Agreement’s provisions on signature, ratification and entry into force,\(^{53}\) remove any doubt about the intent of the parties to the Agreement to be bound under, and hence governed by, international law. However, viewed from the regime established by the UNFCC (the convention), the legal character of the Paris Agreement displays a number of curious attributes.\(^{54}\)

The agreement and its accompanying decision refer repeatedly to the convention, as in establishing that the convention COP will serve as the meeting of the parties under the agreement,\(^{55}\) that the convention’s secretariat will service both agreements,\(^{56}\) and that the convention’s amendment procedures apply to the Paris Agreement as well.\(^{57}\)

Nevertheless, because the text of the convention does not anticipate a free-standing agreement connected in a legal manner to the parent treaty (the UNFCC) the Paris Agreement’s relationship to the convention, unlike the Kyoto Protocol’s and the Doha Amendment’s is not entirely clear. More problematically, is that the Paris Agreement itself makes no single reference to the Kyoto Protocol. This is not just a

---

\(^{51}\) Preamble of the Paris Agreement Annexed to the Paris COP 21 Decision, 12 December 2015.

\(^{52}\) Vienna convention on the Law of Treaties, Article 2, para 1 (“treaty” means an international agreement concluded between states in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation).

\(^{53}\) Paris Agreement, Articles 20-21. December 12, 2015. Also see Vienna convention, op cit, Articles 11-16.


\(^{55}\) Paris Agreement, op cit, article 16(1).

\(^{56}\) Ibid, article 17(1).

\(^{57}\) Ibid, Article 22.
curious attribute, but a potentially serious omission that could raise legal questions about the continuity of the climate regime from the Kyoto Protocol to the new Agreement.  

The expected legal character of the Paris Agreement would have taken the shape of a protocol like the Kyoto, as provided for in Article 17 of the UNFCC. This convention protocol construction was the preferred approach developed in the late 20th century for environmental treaty regimes. This, however, would have forced the USA Government to submit the protocol to the senate for ratification. The parties in Paris thus chose a legal character that is not provided for in the UNFCC because it is neither an amendment to the convention nor a protocol. This innovative legal approach immediately sparked a discussion in the USA whether the Paris Agreement is a treaty and whether it has to be submitted to the senate for ratification.

Undoubtedly, the Paris Agreement is innovatively a dependent treaty to the UNFCC under international law, because only parties to the convention may ratify and because it cannot stand alone since many clauses refer to the respective procedures and bodies of the UNFCC. The Agreement may be considered an “international agreement other than a treaty” under the USA constitutional law which does not require the approval of the senate.

Hence the possibility that the Paris Agreement might be spared the fate of the Kyoto Protocol, which was never even submitted to the senate and which lacked the support of the USA. It may therefore fulfill its function as a truly global agreement intended to be legally binding on all the parties, including the USA, upon entry into force by 2020.

---

58 Wirth, op. cit.
62 The Paris COP Decision adopted the Paris Agreement as an agreed outcome on climate change with legal force under the UNFCC applicable to all parties to the UNFCC.
63 Paris Agreement, Articles 16 and 17.
64 See the USA Foreign Affairs Manual, chapter 700 on Treaties and other International Agreements, available on http://www.state.gov/e/oes/rpts/175/1319.htm. This approach is not new and was, e.g. also chosen 201 for the conclusion of the Minnesota convention on mercury.
65 Paris Agreement, article 21.
Further, the Paris Agreement provides for different treatment of substance based and process based commitments or binding and non binding legal commitments. Consider, for example, the first sentence of Article 4(2) of the Agreement which states: “Each party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve”.

The above sentence deals with both substance and process. Substantively, each party is to “intend” to achieve a certain nationally determined contribution to emission reductions. But this language does not give rise to a binding international legal commitment to achieve any particular level of contribution even the one that the party ‘intends’ to achieve. Procedurally, each party “shall” (which in legal Jargon means, ‘must’) communicate to the other parties what its intended contributions are. By contrast, this procedural language does give rise to a binding international legal commitment.

It seems odd to mandate process but not substance. But there are two likely reasons why this was done. First, countries may be more willing to bind themselves as a matter of law to substance based commitments because they may feel more confident of their ability to deliver on their process commitments. This is especially true if the substance based commitments are going to be meaningful ones; that is, countries might be less willing to set bold goals for emissions reduction if they are going to be in violation of international law if they fail to meet these goals.

Second, and probably even more significant, this different treatment between substance and process was important to USA negotiators as a matter of constitutional law. Process based commitments are more likely to meet this standard than are substance based commitments. Hence the extended last minute showdown in Paris over whether the text of another substantive part of Article 4 was to use. The more aspirational word “should” or the more binding word “shall”.

---

66 Ibid, Articles 2-3 on long term ambition, Articles 4-6 on mitigation; Article 7 on adaptation; Article 8 on loss and damage; Article 9 on Finance; Articles 13-15 on transparency, stocktaking and compliance.
67 Ibid, Article 4(1)
Choice in terms of the level of legal commitment can be seen throughout the Paris Agreement. These choices were clearly important to the negotiators. What remains to be seen, however, is how much these particular choices are going to matter to parties to the agreement once it enters into force by 2020.

It would be erroneous to think that the non-binding nature of some of the commitments makes these commitments toothless. Many crucial aspects of international cooperation function though agreements that are legally non-binding (soft law) but practically important. As an example, most international financial cooperation works this way. If parties take their commitments seriously and insist that others do so, then those commitments will have meaningful effect. It would similarly be erroneous to think that the binding nature of other commitments makes these commitments unbreakable. International law is not always taken as an absolute imperative, and the Paris Agreement does not identify strong penalties for violation of its legally binding terms.

The Paris Agreement represents the legally binding core of the post 2020 climate regime. It covers all key elements of the post 2020 regime, including mitigation, adaptation, loss and damage, finance, technology, capacity, education, transparency, stock taking compliance, and institutional arrangements. On all these issues, however, some elements of the regime are left to the Paris COP 21 decision. Provisions dealing with technology, capacity, education, and institutional arrangements, while clearly deserving of attention, are not addressed, and elements on cooperative approaches and forests are only briefly considered.

The Paris COP 21 decision supplements and complements the Paris Agreement. It includes provisions on the process for bringing the Paris Agreement into force, and on elements of the post 2020 regime that parties decided not to include in the Paris Agreement. Some elements were considered to be of a level of detail not appropriate for

---

69 Ibid.
70 Instead of legal sanction, the Paris Agreement relies on a mechanism of ‘naming and shaming’ to ensure implementation: it creates a reputational risk through the establishment of a mandatory transparency and review mechanism (“ratchet”) aims for parties to enhance their contributions every five years. Starting in 2018, concentrated political attention every five years that may be used for fostering the dynamics of the process.
71 Paris Agreement, Articles 2-15.
72 COP 21 Decision, para. 66-105.
73 Ibid, para. 22-140.
the Paris Agreement. Others were included in the Paris COP decision to allow for more flexibility in the future, as the provisions included in the COP decision will be easier to amend. Yet others were included in the Paris COP decision to distance them from the Paris Agreement, which parties will have to submit to domestic ratification processes. Finally, the COP decision includes a number of provisions meant to enhance pre–2020 ambition through elaborations and additions to the current climate regime.74

The allocation of provisions between the binding Paris Agreement and the Paris COP decision served an important role in permitting a nuanced approach to differentiation among parties, thereby making the Paris outcome75 a “hybrid legal structure”.76

2. ANALYSIS OF THE CONSTITUTIVE ELEMENTS OF THE PARIS AGREEMENT

The Paris Agreement provides a remarkably strong basis for future global action on climate change. It has the following constitutive elements:- ambitious long term adaptation and loss and damage, climate finance, technology transfer, capacity building and implementation.

2.1 AMBITIOUS LONG TERM GOALS FOR GLOBAL EMISSIONS REDUCTION

To have a likely chance of staying within 2°C of warming, the 5th assessment Report of the Intergovernmental Panel on Climate Change77 (IPCC) makes it clear that net global GHG emissions have to be phased out altogether within this century. Allowing for negative emissions, net carbon dioxide emissions must decline to zero by 2060 – 75. But three core problems make this prospect very hard for policy makers to contemplate. Firstly, current technologies are not sufficiently developed to achieve a zero emissions

---

74 Ibid.
75 It consists of both the COP 21 Decision and the Paris Agreement itself.
77 Published in 2014, available on www.ipcc.ch/report.
world, and many existing technologies appear still too expensive to be deployed at the scale needed. Second, although governments in most major economics have taken important steps in recent years to constrain emissions, the political process remains difficult. Almost all governments are exposed to powerful high carbon interests, often including their own state owned energy companies, as well as understandable anxiety about the costs that energy consumers and businesses in high emitting sectors may have to pay. Third, an international agreement can never force countries to reduce emissions. National governments are sovereign, and domestic politics and economics will always trump international concern.78

The Paris Agreement overcomes these three problems through a cleverly designed architecture.79

First, it sets an ambitious and clear long term goal for global emissions reduction based explicitly on the science. The Agreement acknowledges that climate change is already dangerous at 1.5°C of warming, so this limit should be the world’s ambition over and above the 2°C previously agreed by governments.80 It then states clearly the ultimate goal of net zero emissions, to be achieved in the second half of this century.81

The focus of the Paris agreement is on a process for achieving the well below 2°C target. Key to that process is the bottom up submission by parties of “Nationally Determined Contributions” (NDCs).82 NDCs are high level policy plans setting out what approach each country will take to reduce emissions and contribute to the global well below 2°C goal. In the lead up to Paris COP 21, parties to the UNFCC were called upon to submit their “Intended Nationally Determined Contributions” (INDCs)83 or interim NDCs, with a view to create momentum for the Agreement by showcasing how emissions reduction would be possible. In response, 160 INDCs submissions, covering

---

78 See ‘The Paris Agreement is highly ambitious and very clever’, available on http://www.lse.ac.uk/granthaminstitute - accessed on 27 December 2015.
79 Ibid.
80 Paris Agreement, Article 2(1)(a)
81 Ibid, Article 4(1).
82 Ibid, Article 4
83 For link to all INDCs, see http://www.unfccc.int/submissions/indc/submission%20pages/submissions.aspx.
187 parties (some parties submitted joint INDCs) were made to the UNFCC, even though all slightly different in approach.\textsuperscript{84}

Indeed, the Paris Decision\textsuperscript{85} acknowledges that the INDCs submitted by the parties in the lead up to the Paris COP 21, do not fall within least cost 2\textdegree{}C scenarios”.\textsuperscript{86} The Agreement itself recognises that there is a significant gap between the parties’ INDCs and even the 2\textdegree{}C goal. To set an ambitious tone to the start of the Agreement, the Paris Decision calls on all parties to participate in a “facilitative dialogue”\textsuperscript{87} in 2018 prior to the Agreement coming into force, in which all NDCs will be assessed against the well below 2\textdegree{}C goal.

Thus the Paris Agreement requires that when countries submit their longer term NDCs, they ensure that the revised commitments reflect the “highest possible ambition”.\textsuperscript{88} Each NDC is also to be revised every five years “with a view to enhancing the level of ambition”.\textsuperscript{89}

Second, knowing that governments are not in the short term willing to commit to achieving a pathway towards this goal, the Agreement sets up a regular process of “review and ratchet”.\textsuperscript{90} The NDCs will be made publicly available, enabling civil society to review, analyze and hold governments to account for those pledges. In addition, there will be a process of \textit{global stocktaking} on progress towards the well below 2\textdegree{}C every five years from 2023; a process designed to drive countries to increase the ambition of their NDCs.\textsuperscript{91} Article 14 contemplates ratcheting up to the mitigation and financing commitments.

\textsuperscript{84} Ibid.
\textsuperscript{85} COP 21 held in Paris, France, November 30 to December 12, 2015.
\textsuperscript{86} But rather lead to a projected level of 55 gigatones in 2030. See Decision-/CP21, op. cit. para. 17.
\textsuperscript{87} Ibid, para 20.
\textsuperscript{88} Paris Agreement, Article 4(3).
\textsuperscript{89} Ibid, Article 4.
\textsuperscript{90} Ibid, Article 13.
\textsuperscript{91} Ibid, Article 14.
2.2 MITIGATION INITIATIVES

The starting point for mitigation in the Paris Agreement is the collective mitigation effort represented by the NDCs measured against the long term temperature goal.\textsuperscript{92}

The Agreement’s “bottom – up”\textsuperscript{93} approach to mitigation through NDCs differs from the Kyoto Protocol’s top-down approach. Where Kyoto required an annexed emission reduction targets and was prescriptive at the international level in the approach that those countries could take to achieve the target, the Paris Agreement on the other hand, asks all countries (both developed and developing) to justify how they propose to contribute to broader global emission reduction goal with all countries defining their own measures through INDCs/NDCs, the Paris Agreement has created greater “buy-in” into the process.\textsuperscript{94}

A potential challenge of the Agreement’s “bottom – up” structure is that countries could simply elect not to make sufficient domestic policy reform to achieve the global emissions reduction goal. But according to Article 3 of the agreement, “as nationally determined contributions to the global response to climate change, all parties are to undertake and communicate ambitious efforts as defined in Article 4, 7, 9, 10, 11 and 13 with the view to achieving the purpose of this agreement as set out in Article 2”. The Article thus reflects developing countries’ demand that contributions should cover not only mitigation but all elements, as Article 4 covers mitigation, Article 7 adaptation, Article 9 Finance, Article 10 technology, Article 11 capacity building, and Article 13 transparency. However, the Agreement does not make developing countries’ contributions conditional on the provision of support, but it does recognize “the need to support developing country parties for the effective implementation of this Agreement”.\textsuperscript{95}

The Paris Agreement does offer additional guidance on how parties are to determine the adequacy of their NDCs with respect to mitigation. Article 4(1) provides that parties are to aim to reach global peaking of emissions as soon as possible, and to

\textsuperscript{92} Paris Agreement, Articles 4-6.
\textsuperscript{93} Ibid.
\textsuperscript{94} While much of the commentary on the Paris outcome credits the Paris COP 21 for this concept, it was actually developed following the Copenhagen COP.
\textsuperscript{95} Paris Agreement, Article 3
undertake rapid reductions thereafter in line with science. Parties agreed to recognized that it will take longer for developing country emissions to peak, putting pressure on developed countries to accelerate their emission reductions to achieve a global peaking as soon as possible. Parties are to achieve a collective balance between emission and removals of GHG from the atmosphere in the second half of the century (2050), suggesting that GHG concentration should stabilize or decline sometime after 2050.96

Further, Article 4 spells out the details on the contributions, stipulating that each party “shall prepare, communicate and maintain successive NDC that it intends to achieve”.97 In addition, “parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions”.98 The contributions are to be housed in a public registry maintained by the secretariat.99 The Agreement also enshrines the principle that there shall be no backsliding in contributions by requiring that each successive contribution “will represent a progression beyond the party’s then current NDC”.100

Differentiation is addressed by the provision that developed countries “should continue taking the lead by undertaking economy wide absolute emission reduction targets” while developing countries are called upon to “continue enhancing their mitigation efforts and are encouraged to move over time towards economy wide emission reduction or limitation targets in the light of different national circumstances”.101 Furthermore, support “shall be provided to developing country parties for the implementation of this Article (4) recognizing that enhanced support for developing country parties will allow for highest ambition in their actions”.102 The section also repeals the compromise on the principle of common but differentiated responsibilities and respective capabilities stipulating that a party’s contribution will reflect “its common but differentiated responsibilities and respective capabilities, in the light of different

96 Ibid, Article 4(1)
97 Ibid, Article 4(2)
98 Ibid.
99 Ibid, Article 4(12)
100 Ibid, Article 3
101 Ibid, Article 4(3)
102 Ibid, Article 4(5)
national circumstances”. Further guidance on features of contributions is to be developed in the coming years.

2.2.1 REDUCING EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION (REDD +)

Deforestation and forest degradation activities are a major source of GHG emissions, being responsible for more than ten percent (10%) of the global GHG emissions. At the same time, forests store large amounts of carbon and provide numerous environmental and social functions. In order to support developing countries in their efforts to reduce emissions from forest activities and to protect and enhance forest carbon stocks, negotiations to establish a dedicated instrument, the REDD+ mechanism, have been ongoing since 2005.

The Paris Agreement therefore does not install a new REDD+ mechanism but instead builds on the Warsaw Framework for REDD+ and related decisions. Article 5 of the Agreement, which is exclusively devoted to REDD+, states that “parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of GHG as referred to in Article 4(1)(d) of the convention, including forests”. It further states that “parties are encouraged to take action to implement and support, including through results based payments, the existing framework as set out in related guidance and decisions already agreed under the convention for policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries, and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while

103 Ibid, Article 4(3)
104 Decision-/CP21, Adoption of the Paris Agreement, paras 26-28.
105 Paris Agreement, Article 5.
106 Ibid, Article 5(2)
107 Ibid, Article 5(1)
reaffirming the importance of incentivizing, as appropriate non-carbon benefits associated with such approaches”.

The generation wording of Article 5 on the REDD+ remains weak. However, the relevance of the concept is underscored with its explicit mention in the finance part of the COP 21 decision adopting the Paris Agreement, which contains a paragraph that stresses the importance of providing financial resources for REDD+ activities.

2.2.2 EMISSIONS FROM AVIATION AND SHIPPING

Emissions from international aviation and shipping activities account for an ever larger share of GHG emissions globally. If they were a country, they would rank among the world’s top ten emitters and have in recent years grown twice as fast as emissions in general, with projected increases of 250 – 300% until 2050. Over the years, many attempts have been made to include these ‘bunker fuels’ into the efforts to curb emissions, but without much success, working through the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO). These organizations have to date not been able to agree on a common approach to deal with this issue.

The Paris Agreement and the related COP decision do not mention even once aviation and marine transport emissions. This leaves the issue completely to ICAO and IMO without any guidance from the climate regime. These two organizations are heavily influenced by their respective industries. Because of the growing emissions in this sector, the issue will have to be seriously addressed in the next years if the purpose of the Paris Agreement, enshrined in Article 2, is to be fulfilled. If not, any reduction efforts in

---

108 Ibid, Article 5(2)
109 Decision-CP21, op. cit. para 55.
111 See Article 2(2) of the Kyoto Protocol, op. cit.
112 As at the time of writing this paper, 30 June, 2016.
113 A March 2016 draft global market based measure (MBM for aviation emission reduction through carbon neutral growth from 2020 is in circulation, meant to be considered by October 2016.
the land transport sector might be compromised if there are no equally ambitious actions on international aviation\textsuperscript{115} and shipping.

Unlike the Paris Agreement, aviation\textsuperscript{116} was effectively added to the European Union (EU) emission trading scheme (ETS) in 2012, based on EU directive 2008/101/EC.\textsuperscript{117} Airlines can use both general allowances for fixed industrial installations and aviation allowances for the aviation sector, but fixed installations cannot use aviation allowances. The community wide emissions COP for aviation in the trading period 2013 – 20 is set at 5\% below the average annual level of emissions in the years 2004 – 06. Unlike the COP for fixed installations, the aviation emissions COP remains the same in each year of this trading period, namely 210, 349, 264 (about 200 million aviation allowances per year). Various aircrafts and airlines are exempted from the EU-ETS, such as police, state and rescue flights, airlines operating limited services within the EU and airlines from least developing countries.\textsuperscript{118}

According to the European Court of Justice (ECJ), the application of the EU-ETS to aviation is compatible with international law. The ECJ drew this conclusion on 21\textsuperscript{st} December 2011 as part of proceedings brought by a number of American Airlines and their trade association against the UK Secretary of State for Energy and Climate Change.\textsuperscript{119} However, after political protest and legal action taken by various governments, including the USA and China, the EU decided in early 2013 to ‘stop the clock’ by postponing enforcement of the EU-ETS for flights from or to non-European countries. Initially, non-enforcement only applied to the year 2012, but in early 2014 it was extended until 2016.\textsuperscript{120} At the end of 2013 ICAO agreed to develop a global market

\textsuperscript{116} Aviation brings enormous benefits to communities and economies around the globe. It is a key enabler of economic growth, social development and tourism providing connectivity and access to markets. Air transport, currently supporting 56.6 million jobs and over $2.2 trillion dollars of global GDP with a strong track record of fuel efficiency and CO\textsubscript{2} emissions savings, is a strategic contributor to sustainable development, and should remain safe, affordable and accessible in order to ensure mobility on an equitable basis to all sectors of society. With these benefits comes an impact on the environment. In 2012, aviation produced 689 million tones of CO\textsubscript{2} or around 2\% of the global total. The aviation industry recommends that, as part of a comprehensive approach to address air transport’s climate impacts, a single global market based measure (MBM) be agreed by October 2016. This must be seen as part of the broader package efficient operations and better use of infrastructure. (see www.enviro.aero; www.atag.org).
\textsuperscript{117} Directive 2008/101/EC of the European parliament and the council of 19 November 2008 amending the directive 2003/87/EC so as to include aviation activities in the scheme for GHG emissions allowance trading within the community.
\textsuperscript{118} Edwin, W et al, Essential EU Climate Law, op. cit, at p.54.
\textsuperscript{119} ECJ case C-366/10, Air Transportation Association of America (2011) ECR at p.637.
based mechanism (MBM) by 2016 to tackle international aviation emissions as of 2020.\textsuperscript{121} The European Commission developed a legislative proposal for the EU – ETS to cover only that part of a flight until the planned global MBM enters into force.

As at June 2016, shipping is not yet included in the EU – ETS. To reduce GHG emissions from shipping, the EU prefers a global MBM under the IMO. To facilitate this process, the commission proposes to monitor, report and verify CO\textsubscript{2} emissions from large ships (over 5,000 gross tons) using EU ports as of 2018. Also road transport and households are not included in the EU – ETS. Instead those sectors are subject to (non-tradable) emissions standards, direct regulation, taxation and labeling.\textsuperscript{122}

2.2.3 COOPERATIVE MECHANISMS

The Paris Agreement, having recognized that some parties choose to pursue voluntary cooperation in the implementation of their NDCs,\textsuperscript{123} allows parties to conduct “cooperative approaches”.\textsuperscript{124} Under these approaches, mitigation outcomes can be “internationally transferred” and “used” against NDCs.\textsuperscript{125} The respective Article 6(2) of the Agreement names environmental integrity, transparency and robust accounting as the core principles guiding these approaches, while UNFCC oversight is not foreseen. Instead, the Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement (CMA) is to develop dedicated guidance.

One distinct feature of the Paris Agreement is the establishment of a new mechanism which is to “contribute to the mitigation of GHG emissions and support sustainable development”.\textsuperscript{126} This mechanism shall be supervised by a body designated by the CMA and shall aim at the following: “(a) promoting the mitigation of GHG while fostering sustainable development; (b) incentivizing and facilitating participation in the mitigation of GHG emissions by public and private entities authorized by a party; (c) contributing to the reduction of emission levels in the host party, which will benefit from

\begin{footnotesize}
\begin{enumerate}
\item UN Climate Summit 2014, transport aviation action plan, op. cit.
\item Edwin, W. op. cit, at p.55.
\item Paris Agreement, op. cit, Article 6(1)
\item Ibid, Article 6(2)
\item Ibid, Article 6(2) and (3)
\item Ibid, Article 6(4)
\end{enumerate}
\end{footnotesize}
mitigation activities resulting in emission reductions that can also be used by another party to fulfill its NDC; and (d) delivering an overall mitigation in global emissions”. Further, the Agreement prohibits double counting of emission reductions: namely accounting for emission reduction at the same time in the inventories of the host country as well as in the budget of the receiving country.

Furthermore, the Paris Agreement allows parties to make use of available “non-market approaches” for the implementation of their NDCs, but in the context of sustainable development and poverty eradication, as well as a coordinated and efficient manner, including through, inter alia appropriate mitigation, adaptation, finance, technology transfer and capacity building. These non-market approaches aim at: “(a) promoting mitigation and adaptation ambition; (b) enhancing public and private participation in the implementation of NDCs; and (c) enabling opportunities for coordination across instruments and relevant institutional arrangements”.

2.3 ADAPTATION TO CLIMATE CHANGE

Like mitigation, important recognition is given to the role of adaptation in the global climate action, since even if the limit of 2°C was observed, some of the impacts of climate change will be unavoidable. The Paris Agreement recognizes adaptation as a multi-level global challenge, from local to international and as a key component of the
long term global response to climate change for the protection of people, livelihoods and ecosystems.\textsuperscript{133} For this reason, the Paris Agreement:-

i. Establishes a long term vision on adaptation and a global goal to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change in order to contribute to sustainable development and ensure “an adequate adaptation response in the context of the temperature goal referred to in Article 2”;\textsuperscript{134}

ii. Recognizes the need for adaptation of developing countries and the consequent efforts to meet them, along with the need to strengthen international cooperation in favour of the most vulnerable countries to the adverse effects of climate change;\textsuperscript{135}

iii. Acknowledges that adaptation action should be country driven, gender responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, available science and appropriate traditional/local knowledge systems, for ultimate integration of adaptation into relevant socio-economic and environmental policies and actions;\textsuperscript{136}

iv. Commits developed countries to implementing measures of technological cooperation and transfer of technology in favour of developing countries in order to help them cope with the inevitable impacts of climate change;\textsuperscript{137}

v. Recognizes that the current need for adaptation is significant and that greater levels of mitigation can reduce the need for additional adaptation efforts, and that greater adaptation needs can involve greater costs;\textsuperscript{138}

vi. Requests all parties to engage in adaptation planning processes and the implementation of actions, plans and policies;\textsuperscript{139}

\textsuperscript{133} Paris Agreement, Article 7(2)
\textsuperscript{134} Ibid, Article 7(1)
\textsuperscript{135} Ibid, Article 7(2), (3) and (6)
\textsuperscript{136} Ibid, Article 7(6)
\textsuperscript{137} Ibid, Article 7(7)
\textsuperscript{138} Ibid, Article 7(4)
\textsuperscript{139} Ibid, Article 7(9)
vii. Requests all parties to compile information on adaptation priorities, plans, actions, implementation and supports in an adaptation communication which is to be recorded in a public registry maintained by the UNFCC secretariat and updated periodically,\(^\text{140}\)

viii. Finally, national adaptation communications will be part of the global stock taking process under Article 14 of the Agreement, though it is not included in the 2018 stocktaking exercise provided for in the Paris COP 21 decision. Thus offering opportunities to review the overall progress made in achieving the global goal on adaptation and to spiral up adaptation action and support.\(^\text{141}\)

Increased adaptation finance was a top priority in the negotiations for many developing Country Parties. The need for substantial adaptation finance is recognized in the Paris Agreement which calls for a balance between adaptation and mitigation finance and support.\(^\text{142}\) Though the call for balanced allocation is not new, in practice, developed countries have so far put adaptation finance in second place after mitigation finance. Furthermore, the Agreement recognizes the need for public and grant based resources for adaptation as well as the special needs of the most vulnerable nations.\(^\text{143}\) However, while the Agreement states that “continuous and enhanced international support shall be provided to developing country parties”,\(^\text{144}\) and recognizes the importance of support for an international cooperation on enhanced adaptation efforts”,\(^\text{145}\) it does not include a collective, quantified goal for adaptation finance, as had been demanded by developing countries.

2.4 **LOSS AND DAMAGE\(^\text{146}\)**

As a concept, loss and damage refers to adverse impacts of climate change which cannot be adapted to or when mitigation and adaptation fail. The concept has been a

\(^{140}\) Ibid, Article 7(10), (11) and (12)
\(^{141}\) Ibid, Article 7(14)
\(^{142}\) Ibid, Articles 9(4) and 11(6)
\(^{143}\) Ibid, Article 9(4)
\(^{144}\) Ibid, Article 7(13)
\(^{145}\) Ibid, Article 7(6) and (7)
\(^{146}\) Those affected by climate change may face damage to their property or health, or in worst cases, permanent loss of land, means of livelihood or survival or even loss of life.
contentious issue of the climate change negotiation for many years. Least developed countries and small Island States that are particularly more vulnerable to the impacts of climate change, have been fighting strongly for its recognition. This was achieved implicitly with respective language in the preamble of the 2012 COP decisions in Doha, and explicitly by the installation of the Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts (WIM) in 2013. Despite these achievements, the issue of loss and damage has since then not progressed significantly. After intense negotiations loss and damage finally found its way into the Paris Agreement. With this, developing countries have achieved the formal recognition and strengthening of the concept. However, the USA, with support of other developed countries, managed to include a phrase that rules out claims of compensation and liability in the context of loss and damage.

The compromise outcome was a stand-alone Article 8 for the loss and damage in the Paris Agreement, with the recognition of the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, as well as the role of sustainable development in reducing the risk of loss and damage.\footnote{Paris Agreement, Article 8(1)}

The Paris Agreement does not create a new mechanism, as originally proposed by developing countries, but states under Article 8 that the Warsaw Mechanism (WIM) is to operate under the governing body of the new Agreement, and that the WIM may be enhanced and strengthened\footnote{Ibid, Article 8(2) and (5)} in the future as contained in the COP 21 decision adopting the Agreement.\footnote{COP Decision-CP.21, Adoption of the Paris Agreement, op. cit, para 48}

Article 8 also refers to enhancing support for loss and damage on a cooperative and facilitative basis, but does not mention specifically funding. Loss and damage is not included in the list of items in Article 3 that parties are asked to address in their NDCs.

\footnote{Paris Agreement, Article 8(1)}
\footnote{Ibid, Article 8(2) and (5)}
\footnote{COP Decision-CP.21, Adoption of the Paris Agreement, op. cit, para 48}
\footnote{Paris Agreement, Article 8(3)}
The explicit exclusion of compensation and liability for loss and damage is articulated in the Paris COP 21 decision and not in the Paris Agreement. Also moved to the COP decision in the later stages of the negotiations was a call for integrated approaches to displacement associated with climate change.\footnote{COP 21 Decision, op. cit, para 50}

Article 8 underscores the importance of dealing with loss and damage by listing a total of eight areas of cooperation to enhance understanding, action and support, including early warning systems, emergency preparedness, comprehensive risk assessment and management, resilience of communities, livelihoods and ecosystems, risk insurance facilities and non economic losses.\footnote{Paris Agreement, Article 8(4)} This provision constitutes key among the progress made to broaden the mandate for loss and damage in the Agreement.\footnote{Despite the fact that the implementing provisions accompanying the Paris Agreement are clear in stating that, the inclusion of loss and damage, (in a dedicated Article independent of adaptation, clearly reinforces its relevance, as requested by developing countries) implies no monetary compensation and no attribution of responsibility to the industrialized countries.}

2.5 MEANS OF IMPLEMENTATION:- FINANCE, TECHNOLOGY, CAPACITY BUILDING, TRANSPARENCY AND COMPLIANCE

For developing countries to effectively implement their NDCs, industrialized countries will have to offer assistance in various forms. The basis for this obligation is traceable to Article 4 of the UNFCC. Support to developing countries in general should come in the form of finance, technology development and transfer, as well as capacity building. Bearing in mind that finance and technology especially are “hard currency” not only in the climate realm, but have notable implications for country budgets, the history of the COPs has seen fights thereover at almost every session.\footnote{COP 21 Decision, op. cit, paras 53-104.}

A large portion of the Paris Agreement contains provisions for varying strength of support to developing countries: Article 9 – 13 deal with finance, technology development and transfer, capacity building and education, and transparency of mitigation efforts and support respectively. Article 15 also provides for facilitating implementation and compliance mechanism with the Paris Agreement.\footnote{Paris Agreement, Articles 9-15}
2.5.1 **FINANCE**

In order to strengthen the global response to the threat of climate change, the Paris Agreement aims at making finance flows consistent with a pathway towards low GHG emissions and climate resilient development”.\(^{157}\)

The Agreement requires developed countries to provide financial resources to assist developing countries with mitigation and adaptation in continuation of existing obligations under the UNFCC.\(^ {158}\) Developed countries are expected to continue to take the lead in mobilizing financial resources from a wide variety of sources, instruments and channels,\(^ {159}\) and other parties are encouraged to “provide or continue to provide such support voluntarily”.\(^ {160}\) The collective commitment of USD 100 billion applies only to developed countries, with any contribution from developing countries provided outside the collective commitment on a voluntary basis.\(^ {161}\) Not much progress was made with respect to sources of funding. In terms of allocation, parties largely agreed to continue to utilize existing funding mechanisms, including the Green Climate Fund.\(^ {162}\)

Agreement was reached on transparency and review of financial support and its use through biannual reporting and the global stocktaking process to be carried out every 5 years starting in 2023.\(^ {163}\) There is generally support for funding to reduce emissions from deforestation and forest degradation (REDD+), but no firm commitments or goals.\(^ {164}\) References in earlier drafts to the phase out of domestic fossil fuel subsidies did not survive the final round of negotiations. This is consistent with the general approach to refrain from dictating specific domestic policies to achieve the goals in the Paris Agreement.

With respect to pre-2020 finance, the Paris COP decision points out that increased financial support from developed countries is critical to enhancing the ambition of pre-2020 commitments. The Agreement calls for an increase in financial support with an

---

\(^{157}\) Ibid, Article 2(1)(c)  
\(^{158}\) Ibid, Article 9(1)  
\(^{159}\) Ibid, Article 9(3)  
\(^{160}\) Ibid, Article 9(2)  
\(^{161}\) Ibid, Article 9(2)  
\(^{162}\) Paris COP 21 Decision, para 54.  
\(^{163}\) Ibid, paras 59 and 60; Paris Agreement, Article 9(8)  
\(^{164}\) Paris Agreement, Article 9(5)  
\(^{165}\) Ibid, Article 5(2); Paris COP Decision, para 55
emphasis on adaptation funding and the importance of public funds.\textsuperscript{165} The Paris COP decision urges developed countries to develop roadmap for achieving the 2020 goal of USD 100 billion, and decides to conduct a facilitative dialogue in 2016 to assess progress.\textsuperscript{166}

Despite the fact that COP 21 has brought with it a number of important announcements regarding new financial commitments, the figure is still far from the needs of the developing world, estimated by the World Bank as 140-175 billion dollars a year by 2030 for mitigation actions and another 75-100 billion dollars for adaptation.\textsuperscript{167}

2.5.2 TECHNOLOGY DEVELOPMENT AND TRANSFER AND CAPACITY BUILDING

Ultimately, to achieve the overall objective of the UNFCC and the Paris Agreement, which is to avert dangerous interference with the climate system, the holding the increase in the global average temperature to well below 2\textdegree{}C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5\textdegree{}C,\textsuperscript{168} the low carbon technologies that exist and those that will be developed through further innovations, need be rapidly deployed throughout the world. One of the vexing challenges with rapid deployment of such technologies is striking the right balance between respect for intellectual property rights (IPRs) and the needy countries lack of robust legal frameworks.

The Paris Agreement does not solve this challenge, but creates a platform for how parties are to work through this issue to encourage more technology transfer along with capacity building.\textsuperscript{169} The Agreement establishes a technology framework in order to provide guidance to the technology mechanism operating under the UNFCC to also serve this Agreement for the following purposes:- (1) promoting and facilitating enhanced action on technology development and transfer; (2) supporting the implementation of this

\begin{footnotesize}
\textsuperscript{165} Ibid, Article 9(3) and (4)
\textsuperscript{166} Paris COP Decision, paras 115-116
\textsuperscript{167} See http://climatefundingsnapshot.com/
\textsuperscript{168} Paris Agreement, Article 2(1)(a)
\textsuperscript{169} Ibid, Articles 10 and 11
\end{footnotesize}
Agreement; (3) pursuing parties long term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce GHG emissions.\(^{170}\)

The Agreement, while noting the importance of technology for the implementation of mitigation and adaptation actions, and how existing technology deployment and dissemination efforts can strengthen cooperative action on technology development and transfer, establishes a clear link between technology and finance. Article 10(5) is to the effect that, the acceleration, encouragement and enablement of innovation is not only to be supported through the technology mechanism, but also through financial means by the financial mechanism of the UNFCC. The financial and technology mechanism will facilitate collaborative approaches to research and development, access to technology by developing countries, particularly at the early stages of the technology cycle.\(^{171}\)

For effective implementation of this Agreement, developing countries shall be provided with the necessary support, including financial support and strengthening cooperative action on technology development and transfer at different stages of the technology cycle, with a view to achieving a balance between support for mitigation and adaptation. The global stock take referred to in Article 14 shall take into account available information on efforts related to support on technology development and transfer for developing country parties.\(^{172}\)

Although IPRs predictably do not appear in the Agreement text, being a red line issue for many developed economies like the USA, the link established between technology and finance at least acknowledges that finance could be needed for the acquisition of patented and copy-righted technologies. If this will be sufficient to close the chapter on IPRs again remains to be seen.

The Paris Agreement recognizes the importance of capacity building, but the text of the Agreement itself is relatively weak and non-binding. For example, Article 11 states that capacity building should enhance the ability of developing countries that are

\(^{170}\) Ibid, Article 10(4) and 10(1)
\(^{171}\) Ibid, Article 10(5)
\(^{172}\) Ibid, Article 10(6)
particularly vulnerable to the adverse effects of climate change, to take effective climate action on mitigation and adaptation. Parties should cooperate to build the capacity of developing countries to develop technology, access finance, education and information to manage the impact of climate change.\textsuperscript{173}

Capacity building should be country driven, responsive to national needs, participatory, cross cutting and gender responsive, in order to foster country ownership of the process and outcome.\textsuperscript{174} All parties enhancing the capacity of developing countries to implement this Agreement, through bilateral, regional or multilateral approaches, shall regularly communicate on such capacity building measures. Similarly, beneficiary developing countries should regularly communicate progress made on implementing capacity building policies, plans, actions or measures to implement this Agreement.\textsuperscript{175} The COP shall adopt a decision on the appropriate institutional arrangement for capacity building and support for effective implementation of the Agreement.\textsuperscript{176}

Despite the relatively weak posture of the Agreement, the accompanying COP 21 decision text, however, holds a negotiation success for developing countries by creating the Paris committee on capacity building with the aim of: “addressing gaps and needs, both current and emerging, in implementing capacity building in developing country parties and further enhancing capacity building efforts, including with regard to coherence and coordination in capacity building activities under the convention”.\textsuperscript{177}

The committee will follow a work plan in the period of 2016 – 2020, with a number of different issues related to the existing capacity building framework under the UNFCC, as well as capacity gaps that should be addressed by the parties. Each year, the committee will focus on a special topic, and hold annual in session meetings where these areas can be addressed.\textsuperscript{178}

The Agreement states that “parties shall cooperate in taking measures, as appropriate to enhance climate change education, training, public awareness, public

\textsuperscript{173} Ibid, Article 11(1)
\textsuperscript{174} Ibid, Article 11(2)
\textsuperscript{175} Ibid, Article 11(3) and (4)
\textsuperscript{176} Ibid, Article 11(5)
\textsuperscript{177} Paris COP 21 Decision, para 72
\textsuperscript{178} Ibid paras 72-84
participation and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement”.179

2.5.3 TRANSPARENCY AND COMPLIANCE FRAMEWORK

Transparency is a focus of capacity building efforts under the Paris Agreement, a clear signal that developed country parties are motivated to help build capacity in developing countries in order to minimize differentiation on transparency.180

The Paris Agreement establishes an enhance transparency framework for action and support in order to build mutual trust and confidence and to promote effective implementation of the Agreement, with built in flexibility which takes into account parties different capacities and the need for collective experience sharing.181 Special considerations are included for the least developed countries (LDCs) and the small Island Developing States (SIDSs).182

The purpose of the transparency framework of action is to provide a clear understanding of climate change action consistent with the objective of the UNFCC,183 including clarity and tracking of progress towards achieving parties’ NDCs and adaptation actions, including good practices, priorities, needs and gaps, in order to inform the Agreement’s global stocktaking process under Article 14.184 The purpose of the transparency framework of support is to provide clarity on support provided and received by relevant individual parties in the context of climate change actions under Article 4, 7, 9, 10-11, and to the extent possible, provide a full overview of aggregate financial support provided, in order to inform the Agreement’s global stock take.185

The Agreement clearly signals the intention to build on and enhance transparency arrangements under the UNFCC, including national communications, biennial reports and update reports, international assessment and review and international consultation

179 Paris Agreement, Article 12
180 Ibid, Article 11; and Paris COP Decision paras 85-89
181 Ibid, Article 13(1)
182 Ibid, Article 13(3)
183 UNFCC, Article 2
184 Paris Agreement, Article 13(5)
185 Ibid, Article 13(6)
and analysis.\textsuperscript{186} It ensures that the transparency rules apply to all parties, with some modest differentiation, mainly through a commitment to flexibility and support for developing countries.\textsuperscript{187} Importantly, flexibility with respect to transparency is specifically linked to capacity, not to the broader concept of common but differentiated responsibility and respective capability or national circumstances. Further, it calls specifically for more regular and comprehensive reporting, a more harmonized verification process,\textsuperscript{188} and common modalities, procedures and guidelines.\textsuperscript{189} It poffers a surprising details and references to transparency in key provisions on mitigation, adaptation, finance and capacity.\textsuperscript{190}

The stocktaking process is another key element of the overall effort to ensure the goal of the Paris Agreement is met through the collective efforts of individual parties. The global stock take set out in Article 14 covers mitigation, adaptation, means of implementation and support. The first global stock take is to take place in 2023, in time for the revision of the parties’ NDCs in 2025. The goal of the global stock take is to enhance national action and international cooperation. An initial stocktaking process is scheduled for 2018 under the Paris COP decision. The reference to NDCs does open the door to consideration of issues beyond mitigation.\textsuperscript{191}

The compliance mechanism is to be facilitative, non adversarial, and non punitive in nature and applies to all parties.\textsuperscript{192} The compliance committee is to consist of 12 membership determined in a manner similar to the facilitative branch of the compliance committee under the Kyoto Protocol.\textsuperscript{193} The committee is to be sensitive to national capabilities and circumstances of parties in its work.\textsuperscript{194}

\begin{thebibliography}{99}
\bibitem{186} Ibid, Article 13(4)
\bibitem{187} Ibid, Article 13(7) to (10); and Paris COP Decision para 91
\bibitem{188} Ibid, Article 13(11) to (12), through a technical expert review.
\bibitem{189} Ibid, Article 13(13)
\bibitem{190} Ibid, Articles 4(8), 4(12), 6(2), 7(5), 9(7) and 11(1). Transparency is referenced throughout the COP 21 Decision.
\bibitem{191} Paris COP Decision, para 20
\bibitem{192} The Paris Agreement, Article 15
\bibitem{193} Paris Decision COP 21, para 103
\bibitem{194} The Paris Agreement, Article 15(2)
\end{thebibliography}
3. ASSESSMENT OF THE PARIS CLIMATE CHANGE AGREEMENT AND ITS IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT GOALS (SDGS) AND THE ENERGY SECTOR

The Paris Agreement is highly ambitious and very clever, despite its notable shortcomings. Hence any assessment of the Agreement needs to be based on an understanding of what international climate negotiation processes can actually deliver. Diplomacy does not happen in a vacuum. The positions countries take internationally are determined by their domestic political and economic situations. International negotiations can therefore rarely take decisions that have not previously been prepared nationally. As countries are sovereign, international agreements can only go as far as what countries are prepared to do.

The fact that any agreement was reached in Paris is remarkable when one considers the diversity of national circumstances, interests and perspectives that key parties brought to the negotiations. The USA, for instance, came to the negotiations with domestic political constraints that impose severe restrictions on the legal form of the agreement it can accept, and potentially on its ability to implement any agreement. Emerging economies such as China, India, South Africa and Brazil, seem, to varying degrees, conflicted between concerns about constraints to future development needed to meet the needs of their populations, and a growing awareness of the impact of unmitigated climate change on their ability to meet those needs. Small Island states increasingly see their existence threatened by inaction from major emitting countries.

---

195 Such as: the failure to address emissions from international aviation and shipping will likely continue to plague the negotiations, as emissions from these sectors are expected to grow and threaten to undermine efforts at the national level; the inability of the parties to agree to a peak year and a decarbonisation year in line with the 1.5 or even 2 degree temperature goals may make efforts to bridge the ambition gap more difficult; the exclusion of liability and compensation for loss and damage in the COP 21 decision may make the inevitable discussions on responsibility for loss and damage more difficult in the future; failure to clearly signal the phase out of fossil fuels (crude oil, natural gas and coal) or the elimination of fossil fuel subsidies will likely prolong the debate over the future of fossil fuels in some countries; there was surprisingly little detail provided on the roles of sinks, emissions trading, offsetting and non-market mechanisms, though the details elements are included, and there is provision for negotiating the details in these key areas in the near future; gender equity, human rights, intergenerational equity and climate justice are largely limited to the preamble of the Paris Agreement.


197 See Paris COP 21 Decision, op. cit.
producing countries like Saudi Arabia, Iran, Venezuela and Nigeria see their economic stability threatened by efforts of major economies to transition away from fossil fuels.198

Changes in national politics and policies will therefore be a prerequisite for, rather than a consequence of, the development of an effective international regime. The role the international climate process can in the meantime play is to serve as a key catalyst for these national discussions by keeping the issue on the agenda and forcing national policymakers to continuously revisit it. There is evidence that the UNFCC does indeed fulfill this catalytic function. While Copenhagen failed to deliver the anticipated universal climate treaty, the Paris Agreement seems to have the potential to catalyse changes of these national political and regional economic realities.199

3.1 MAJOR ACCOMPLISHMENTS OF THE PARIS CLIMATE AGREEMENT

First, from a legal perspective, the Paris Agreement has formalized a new approach consisting on the one hand of a legally binding part that establishes common rules to promote a transparent process and to ensure an assessment of its objectives, supported by elements left to the national legislation of each state party, for example the INDCs/NDCs.200 This “hybrid” solution was dictated by the need to obtain a large consensus on the final document and thus provide a tool that is receivable in national legislations without much difficulty. The rigid distinction included in the Kyoto Protocol, among Annex I States with binding reduction commitments as opposed to non-Annex I States, which had none, has been replaced by a new more nuanced and flexible form of differentiation that simply distinguishes developed countries from developing countries. Many provisions establish common rules and commitments, yet allow respect for the different national circumstances and capabilities of the poorer nations, through both the

198 Three notable forms of fossil fuels are: Crude Oil, Natural Gas and Coal.
199 Paris Agreement, op. cit, Articles 2-7
200 Ibid, Article 4; and Paris COP Decision, paras 12-21
so-called “self – differentiation” implicitly included in the national contributions, and more detailed rules, as in the case of financial support.201

Critics of the Agreement have observed that countries’ commitments are not legally binding.202 But this misses the point. The requirement to improve national plans every five years is legally binding. And though the commitments themselves not binding at an international level, in almost all countries, they will be translated into binding national law and policy, which is of course where it really matters. As we know from the commitments made in Copenhagen, which were not binding but have been almost universally carried out, governments cannot easily escape the plans they have presented to their domestic constituencies, especially with pressures from civil society and international peers. There is no reason to doubt that the current INDCs, and the future NDCs, will be implemented.

So the Paris Agreement represents a multilateral rules – based system which understands the economic and technological processes of innovation, and the political processes of civil society pressure, and uses them to achieve its goals.203 The Agreement does not of itself save the world, because no international agreement could do that. But it has established the core conditions to drive down future emissions. And it has effectively put the key levers in the hands of those (businesses and civil society organizations) who wish to do so.

Second, the Agreement has learned from past mistakes and has tried to respond to the urgency for climate action by encouraging the widest possible participation of all stakeholders, even though giving up some elements that would increase its effectiveness. From this viewpoints, the Agreement can certainly be considered a success. For example, by including those announced during the Paris conference itself, 188 parties have indicated their national contributions,204 making up more than 98% of global emissions. The countries with the highest emissions, such as the USA, China, India and the

201 Ibid, Article 9
204 See http://www.iccgov.org/iccgstudies/assessing-the-indcs-a-comparison-of-different-approaches/.
European Union, are finally participating together in the fight against climate change, and their political leaders have pledged themselves ready to do their part. Certainly, compared to what the Kyoto Protocol obtained in its first two stages and to the voluntary targets promised after Copenhagen, the reduction in emissions under the Agreement, more ambitious than in the past.

However, as was clear before the Paris conference opened, it is not yet sufficient to limit a temperature rise to below 2°C compared to pre-industrial levels. Starting with the UNFCC itself, several studies have evaluated the aggregate effect of the Paris Agreement, stressing that further reductions will be needed after 2030, otherwise the temperature increase at the end of century will be closer to 3°C than the 2°C. Much therefore will depend on what the countries will be able to accomplish after 2030. If emissions decline rapidly and if we acquire technologies capable of removing CO₂ from the atmosphere on a large scale, then the 2°C target will be achieved. Otherwise, we will have to adapt to a very different climate from what we have now. It is obvious that the more we postpone significant emission reductions, the more ambitious they will have to be in the future. For this reason, the review and update process on the commitments outlined in the Paris Agreement (and that hopefully will be further defined in the rounds of negotiations between 2016 and 2020 to keep it effective) will play a key role in promoting increasingly ambitious climate actions.

Likewise, the mobilization of financial resources to enable developing countries to implement mitigation and adaptation plans, as well as those that all countries will invest in research, development and transfer of new technologies, will be crucial for achieving the goals that have been set. A recent study shows that in 2014 the developed countries provided 61.8 billion dollars to developing countries, about 70% of which came from public funds. Just as significant is the fact that the number has grown in

---

205 http://climateobserver.org/unfcc-indcs-to-slow-down-emissions-growth-but-more-action-needed/
206 Ibid.
207 Paris Agreement, Articles 13-14
208 Ibid, Article 10
recent years, because of both the increasing commitment of governments and increasingly transparent reporting systems.

Third, the Agreement confirms a broad consensus of 195 different nations of diverse cultural and political backgrounds that the current scientific understanding of the serious risks of climate change requires a coordinated international effort to address. To mitigate these risks requires a goal of “holding the increase in the global average temperature to well below 2°C above pre-industrial levels” and to “reach global peaking of GHG emissions as soon as possible”.\(^\text{210}\) At the insistence of some particularly vulnerable countries, including Island Nations, the Agreement adds an inspiration “to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels”.\(^\text{211}\) It recognises the need for large scale adaptation to a changing climate, as well as the key role of financial flows and investments for both mitigation and adaptation.\(^\text{212}\) In addition, the Agreement highlights the need to conserve forests and other carbon “sinks”.\(^\text{213}\) It also emphasizes the necessity of technological innovation to solve the overall climate change problem, including the development of alternative energy options.\(^\text{214}\)

Fourth, in order to make progress, the Agreement adopts a new-bottom-up iterative approach that requires each country to submit “nationally determined contributions”\(^\text{215}\) to mitigation and adaptation, as well as efforts to promote the financing and technological progress needed to address climate change. Skeptics say that this process will prove useless because each country is given the ability to compose its own plans with no constraints. On the contrary, however, this process allows for a practical resolution of the difficult balance between claims of differential abilities and ethical responsibilities of national states in a world of radical disparities of wealth, industrial development and administrative capabilities.

\(^{210}\) Paris Agreement, Article 4
\(^{211}\) Ibid, Article 2(1)(a)
\(^{212}\) Ibid, Article 7
\(^{213}\) Ibid, Article 5
\(^{214}\) Ibid, Articles 10 and 11
\(^{215}\) Ibid, Article 4
Fifth, the Agreement breaks ground in establishing a new process to assure “transparency” and verification of mutual progress on national commitments. In broad terms, the Agreement promises that experts will develop agreed-upon international technical standards for reporting on various aspects of GHG emissions, forest preservation, energy use and efficiency, and other key variables. This is a role that makes sense for an international agreement of this nature.

Sixth, the Agreement locks in participation of all nations going forward to join in a “global stock take” of current progress (or not) toward agreed-upon targets and the likely need to ratchet up performance. This process is to be conducted every five years and provides an encouraging extension of current practices, linking periodic scientific updates with policy reviews.

Seventh, at the same time, the “compliance” committee established by the Agreement is toothless. To say in an international agreement that compliance vaguely specified process that will be “transparent, non-adversarial, and non-punitive” seems to stretch any acceptable meaning of true “compliance”. Nevertheless, establishing an iterative reporting process and the development of expert determined standards is likely to generate oversight through diplomatic pressure public opinion over time, perhaps leading to stiffer enforcement provisions in the future.

Finally, the climate Agreement reinforce a historical trajectory toward a long-term planetary scale management of what is probably the most serious threat to humanity. It follows other global developments in 2015, namely, the Sendai Framework on Disaster Risk Reduction and the UN 2030 Agenda for Sustainable Development and its 17 goals (SDGs).

---

216 Ibid, Article 13
217 Ibid, Article 15
218 Ibid, Article 14
219 Ibid, Article 15(2)
220 Ibid.
222 Ibid.
3.2 IMPLICATIONS OF THE PARIS AGREEMENT FOR SUSTAINABLE DEVELOPMENT GOALS (SDGs) AND THE ENERGY SECTOR

The 2030 Agenda for Sustainable Development adopted in September 2015 by the Heads of State and Government, which includes 17 goals (SDGs) and 169 targets are part of a history of multilateral efforts to shift the world into a sustainable and climate resilient pathway.

The SDGs aim at tackling key systemic barriers to sustainable development, such as poverty, inequality, unsustainable consumption and production patterns, inadequate infrastructure, climate change and lack of decent jobs. The SDGs provide useful guidance for shaping law, policy and practice for implementation of effective and ambitious climate change action. Tackling climate change and fostering sustainable development are two mutually reinforcing sides of the same coin: sustainable development cannot be achieved without climate action, as many of the SDGs are actually addressing the core drivers of climate. Given that many of the SDGs guide action on the core drivers of climate change, their implementation, that commenced in January 2016, will accelerate transition towards the implementation of the Paris Climate Agreement that will enter into force in 2020.

On the other hand, the Paris Agreement is an ambitious climate agreement that is essential to creating the best chance of achieving the SDGs by 2030 because: it can potentially have a significant impact on the state of the economy and social well being in the poorest and most climate vulnerable countries in Africa, Asia, Latin America and the

---

223 The concept of sustainable development received the approval of over 140 governments in 1992, at the UN Conference on Environment and Development (the Earth Summit). Despite the general agreement, there are hundreds of formulations of “Sustainable development”, each reflecting particular values and priorities. One way sustainable development may be described is “development that meets the need of the present without compromising the ability of future generations to meet their own needs”. (Brutland Report, 1987). Sustainable development requires the integration of three pillars: Social Justice, Economic Growth and Environmental Protection. However, it is not simply a goal, it is also a process. Sustainable development has significant procedural elements. It ought to be done through empowerment, consultation, impact and risk assessment, the expansion of opportunities and capacities and public participation.


225 See Ladan, M.T. (2016): Addressing the impacts of climate change through the SDGs for sustainable development in Africa. A paper presented at the Law for supporting the 2030 Development Agenda. Organized by the National Green Tribunal of India, New Delhi and UNEP, Nairobi, at Vigyan Bhawan, New Delhi, India, on 4-6 March 2016.

226 See SDGs 1, 7, 8, 10, 12, 13 and 16

227 Especially SDG 13 and its targets/indicators.

228 SDGs 9, 11-15 have climate related targets.

229 See the Preamble to the 2030 Agenda, op. cit, paras 1-4 and SDG 13.

230 Upon ratification in accordance with Article 21 of the Paris Agreement which replaces the Kyoto Protocol regime.
Small Island States, before 2030, thereby improving the likelihood that they will achieve the SDGs;\textsuperscript{231} it apparently provides a clear policy framework and legal basis for action on climate change;\textsuperscript{232} it can incentivize international cooperation on climate change;\textsuperscript{233} and it seeks to mobilize additional finance and resources for mitigation and adaptation activities that support climate compatible development.\textsuperscript{234}

Undoubtedly, the Paris COP Decision and the Agreement preambles embrace climate coordination in the broader global sustainability endeavour. The do so by referencing the SDGs,\textsuperscript{235} in particular its goal 13, and by specifically:-

“Emphasizing the intrinsic relationship that climate change actions, responses and impacts have with equitable access to sustainable development and eradication of poverty”.\textsuperscript{236}

The above emphasis is important because the poverty,\textsuperscript{237} inequality,\textsuperscript{238} energy,\textsuperscript{239} and climate\textsuperscript{240} related SDGs depend on the Paris Climate Agreement that is strong on climate mitigation, adaptation and financing.\textsuperscript{241} Parties have set a long-term trajectory through national climate action plans and are coordinating peaking emissions as soon as possible. The Agreement sets forth the principle that future national plans will be no less ambitious than existing ones. The 188 climate actions plans submitted in 2015 serve as a foundation for higher ambition. At the core of the Agreement, parties will submit their updated plans, called NDCs, every five years in a process that seeks to ratchet up climate ambition.

Increasing ambition is to occur through a two-stage process, recognizing that the current provisions do not add up to the agreed upon 1.5°C. The small Island nations and other developing countries seeking to set 1.5°C as a legally binding long term mitigation target did not succeed in requiring the global community to meet this scientific threshold,
but did manage to gain broad consensus for its inclusion as a strongly stated aspirational goal.\textsuperscript{242}

The Agreement makes clear that developed countries will continue to provide and mobilize finance to support developing countries, and developed countries agreed to continue their commitment of mobilizing 100 billion US dollars a year until 2025.\textsuperscript{243} For the period after that, governments will adopt a new, higher, collective goal, though the extent to which finance will increase, and who will mobilize it, is a significant outstanding question. The Agreement opens the door to their peers, recognizing that some developing countries are already doing so.\textsuperscript{244}

In addition, governments agreed to balance public funding between adaptation and mitigation, and agreed to significantly increase support to adaptation before 2020, which is of vital importance for the most vulnerable countries dealing with the impacts of a warmer world.\textsuperscript{245} Countries also committed to improve reporting on finance, with everyone providing information about finance received or provided, as appropriate. Thereby establishing a common system of transparency for all countries.\textsuperscript{246}

Notably, the Agreement contains a strong, legally binding framework for reporting, transparency and review of implementation capable of driving greater ambition to tackle climate change.\textsuperscript{247} The establishment of a mechanism to facilitate implementation and promote compliance will provide further assurances of parties’ actions.\textsuperscript{248}

The Agreement has a heavily negotiated sentence that when closely read, seems to call for the virtual end of fossil fuel\textsuperscript{249} use in this century, unless there are major advances in carbon sequestration or air capture technology, that in turn, has important legal implications.\textsuperscript{250} Article 4(1) of the Paris Agreement states that, “in order to achieve the

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{242} Ibid, Article 2(1)(a)
\item \textsuperscript{243} Ibid, Article 9; and COP 21 Decision, op. cit, paras 53 and 54
\item \textsuperscript{244} Ibid.
\item \textsuperscript{245} Paris Agreement, Preamble and Article 7
\item \textsuperscript{246} Ibid, Articles 6, 9 and 13
\item \textsuperscript{247} Ibid, Article 15
\item \textsuperscript{248} Ibid.
\item \textsuperscript{250} Ibid.
\end{itemize}
\end{footnotesize}
long term temperature goal set out in Article 2, parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country parties, and to undertake rapid reductions thereafter in accordance with best available science; so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century (2050) on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty”. This means that what goes up should be taken back down; for every ton of GHG emitted from a smokestack, chopped tree or tailpipe, a ton should be removed.

According to the IPCC’s Fifth Assessment Report (2014), fossil fuel emits about 32 gigatons of carbon dioxide per year. Other sources, such as methane leakage, cement manufacture and other industrial processes add another 5-7 gigatons carbon dioxide equivalent. Deforestation and other agriculture, forestry and land use changes, add yet another 10-12 gigatons a year (but subtracting emissions sequestered by forest growth). This all adds up to about 49 gigatons. However, global carbon sinks remove only about 18 gigatons per year (8.8 to the oceans, 9.2 to land, not including land use changes).\(^{251}\)

Thus the sinks take up about the equivalent of the non-fossil sources. In order to achieve a balance between emissions and sinks, we need to move towards ending the release of GHG from fossil fuel. It has been suggested recently, that to achieve the long term temperature goal in Article 2(1) of the Paris Agreement (holding the increase in global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit temperature increase to 1.5°C’), carbon dioxide from electricity would have to be brought close to zero by 2050, and by then around 25% of energy required for transportation would also need to come from electricity (up from less than one percent now).\(^{252}\)

There seems to be only three ways to continue to use fossil fuels for electricity in the second half of the century (and for transport by the end of the century) and still meet the temperature goal:

\(^{251}\) IPCC’s 5th report released in 2014, op. cit.  
\(^{252}\) Jessica, W. op. cit.
i. Capture the carbon before it escapes into the air, and sequester it;

ii. Devise and deploy on a massive scale, technologies to remove the carbon from the air, and sequester it;

iii. Create new sinks, such as through the immediate halt to deforestation and a worldwide programme of tree planting.\(^{253}\)

All three of these ways raise a question of how long the carbon will be stored; we do not know how long it will stay in reservoirs but we do know that trees do not live forever, and when they burn or die they release their carbon. Moreover, the technologies of carbon capture and sequestration, and of removing carbon from the ambient air, are developing slowly and are nowhere near large scale deployment.\(^{254}\) Most of the industrial carbon sequestration that now occurs goes toward “enhanced oil recovery”, that is squeezing oil out of depleted reservoirs, but extracting more oil is not compatible with stopping fossil fuel use. Finding the land for large scale tree planting would face its own challenges in a world where sea level rise, persistent drought and extreme heat will be rendering much land unsuitable for growing food.\(^{255}\)

So meeting the demands of society for energy means a combination of aggressive energy efficiency and conservation programmes, the installation of renewable energy (and perhaps nuclear energy) and the substitution of electric or hydrogen vehicles for those using petroleum at an unprecedented pace. The Deep Decarbonization Pathways Project has set forth the colossal amount of new facility construction that would be required worldwide to achieve this.\(^{256}\)

The Paris Agreement calls on all countries to strengthen their pledges to reduce GHG emissions, and to monitor their progress and report it to the world. It also says that “all parties should strive to formulate and communicate long-term low GHG emission

\(^{253}\) Ibid.


\(^{255}\) See Ladan M.T. (2016) op. cit.

\(^{256}\) Jessica, W. op. cit.
development strategies". That looks like strategies under which every country must show how it is controlling fossil fuel use.

The above provisions are not legally enforceable against parties. However, many domestic laws are, and they will become a powerful tool to force early planning, or at least disclosures. One key example is the securities disclosure requirements for publicly traded companies. On January 27, 2010, the USA Securities and Exchange Commission issued guidance for the disclosure of climate related risks. It specifically calls on companies to “consider, and disclose when material, the impact on their business of treaties or international accords relating to climate change”. The Paris Agreement is clearly one of such accords, and if it is vigorously implemented, it will have material impact on many companies in the business of extracting, processing and using fossil fuels, or making products that rely on fossil fuel, such as motor vehicles, ships and airplanes.

For fossil fuel reliant energy and resource companies, the signals from the Paris COP 21 on climate action are clear: governments have committed to a reduction in emissions over long-term, they have committed to building policy infrastructure to give effect to that transition in the form of carbon markets, and there is a growing interest in carbon neutrality from investors and consumer bases. Given that the primary source of emissions is industrial and energy sources which are in the main reliant on fossil fuels, unless measures are taken and implemented to negate emissions from such activities, the future use of fossil fuels and the development of fossil fuels reserves will be curtailed.

It will therefore be important for energy and resource companies to consider how to diversify towards less emissions intensive asset classes. Additionally, while the Paris COP signaled a reduction in reliance on fossil fuels, it is worth nothing that the Paris Agreement does not call for zero emissions to be produced altogether. Rather, as soon as

---

257 Paris Agreement, Article 4(2)
258 Ibid, Article 4
259 National Environmental Management or Protection Acts and Policies or Regulations.
260 Jessica, W, op. cit.
possible after 2050, it calls for countries to have net zero emissions: meaning that any emissions produced by a country should be offset by sinks. Therefore, the energy and resource companies should ensure that investments are made into offsetting activities (through REDD+ and others) to ensure that any ongoing emissions can be justified by governments hosting emissions intensive assets. These companies ought to monitor NDC development in countries where they have operations and the development of the trading mechanisms under the Paris Agreement.

While the Paris agreement does not specifically address renewable energy, it remains one of the key mitigation measures that has widespread international support. Consequently, the sector continues to attract investment and substantial financial commitments made with respect to renewable and research and development into new technologies. Also, 80% of INDCs included plans to increase clean and renewable energy supply in coming decades. This strong government commitment coupled with a sharp decline in installed costs of renewable technology have meant the growth rates have been impressive and steady despite global economic challenges.

In the light of the developments, it appears that there will be continued growth of renewable and clean energy. The key problem will be continuing elimination of barriers to trade in clean technologies and the need to develop the necessary legal regime to facilitate much greater private investments in renewable in such countries.

Going forward, systematic analysis and disclosure of climate risks will lead responsible boards of directors to undertake serious planning to effect an orderly transition to the low-carbon world that 188 countries agreed to in Paris. These disclosures will also help investors decide what companies will thrive in such a world of

---

264 Paris Agreement, Articles 2 and 4
265 Ibid, Articles 5-6
267 Paris Agreement, Article 6
268 Submitted by parties before the Paris COP 21, November 30 – December 12, 2015
269 See Chris Carr, op. cit.
272 See Paris COP 21 Decision, op. cit.
developers of technologies for renewable energy and energy efficiency, and what companies are failing to prepare for the transition and thus will themselves become fossils.

4. CONCLUSION AND VIABLE OPTIONS

Overall, the Paris Agreement is an important step in the right direction. A realistic move which will enable governments to work together within a robust process of review and growth in commitments. The Paris conference has therefore closed one cycle, that of the Kyoto Protocol and opened up another, larger one in terms of participation based on past achievements, but open up to future improvements. It is now up to the individual countries to adopt concrete mitigation and adaptation measures. In particular, there are some very important decisions to be taken urgently:

i. Investing significant resources, quadrupling those invested today, in research and development of low-carbon technologies, especially for producing electricity and for its use and storage. Research and development technologies for CO₂ removal from the atmosphere, to reduce energy and water poverty, for developing climate resistant seed, and for low-cost dissemination of education programmes globally.

ii. Taking steps to reduce the consumption of fossil fuels, starting with coal, which should be phased out, by 2050, at least in all the industrializes countries, and replaced by gas.

iii. Promoting the replacement of fossil fuels with renewable energy by eliminating fuel subsidies and using the financial resources so obtained to fund research and development on the renewable.

---

273 UNEP and IUCN (2007) op. cit.
274 Ladan M.T. (2014): Electricity Law, op. cit, at pp. 197-260
276 Ibid.
iv. Taking measures to make sure that every ton of carbon emitted has a price that will encourage technological innovation, energy efficiency and the gradual replacement of fossil fuels with renewable energies.

v. Adopting climate smart agriculture\textsuperscript{277} practices that will allow small holders and big producers, to adapt to climate change whilst reducing emissions, particularly in Africa whose large population of peasant farmers are rain-fed agriculture dependants. This requires initiation of climate smart input pilots, bringing drought resistant seeds and new varieties suited to changing climate to countries more vulnerable to the impacts of climate change.\textsuperscript{278}

Thus we need far-sighted public and private investment decisions. In Paris COP 21, one important role was played by the private sector, which for the first time has made important commitments to reduce emissions of GHG. More generally, the success of the COP 21 is also due to the great work of the civil society and local institutions: the mayors of major cities, private companies, activists and research networks, and actions of many NGOs are showing how change is possible and above all an opportunity. We need to continue on this path with vision and foresight.

Across the private and public sectors, norms on climate action are shifted. The Paris Agreement was possible because of this shift, and it will continue to reinforce those shifting norms in positive ways. There is reason for optimism.

\textsuperscript{277} The Agriculture sector in Nigeria, as in many African countries, is highly vulnerable to a wide range of climate change impacts including increased temperatures, drought, flood, ecosystem degradation.