

International Climate Negotiations

Issues at stake in view of the COP25 UN Climate Change Conference in Madrid



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Abstract

At the 25th Conference of the Parties (COP25) to the United Nations Framework Convention on Climate Change, delegates will negotiate the further implementation of the Paris Agreement. This study provides an overview of the international framework to address climate change, the stakeholders involved, the status of the negotiations and recent developments that may affect the negotiations.

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LIST OF ABBREVIATIONS

ABU	Group of Argentina, Brazil and Uruguay
AC	Adaptation Committee
ACE	Action for Climate Empowerment
AILAC	Independent Alliance of Latin America and the Caribbean (Asociación Independiente de Latinoamérica y el Caribe)
AGN	African Group of Negotiators
ALBA	Bolivarian Alliance for the Peoples of our America (Alianza Bolivariana para los Pueblos de Nuestra América)
AOSIS	Alliance of Small Island States
BASIC	Group of Brazil, South Africa, India and China
BECCS	Bio Energy and Carbon Capture and Storage
BINGO	Business and Industry NGOs
bn	billion
BTR	Biennial Transparency Report
CBDR/RC	Common But Differentiated Responsibilities and Respective Capabilities
CCS	Carbon Capture and Storage
CCU	Carbon Capture and Utilisation
CDM	Clean Development Mechanism
CFCs	Chlorofluorocarbons
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO₂	Carbon Dioxide

CO₂eq	Carbon Dioxide Equivalent
COP	Conference of the Parties
COY	Conference of the Youth
CP	Credit Programme
CTCN	Climate Technology Centre and Network
DCS	Data Collection System
ECONGO	Education and Capacity Building and Outreach NGOs
EEDI	Energy Efficiency Design Index
ENGO	Environmental NGOs
ETS	Emissions Trading System
EU	European Union
ExCom	Executive Committee (of the Warsaw International Mechanism for loss and damage)
FAO	Food and Agriculture Organization
FBOs	Faith Based Organisations
FMCP	Facilitative, Multilateral Consideration of Progress
GWP	Global Warming Potential
G-77	Group of 77 at the United Nations
GAP	Gender Action Plan
GCoM	Global Covenant of Mayors for Energy and Climate Change
GHG	Greenhouse Gas
GST	Global Stocktake
HFCs	Hydrofluorocarbons
ICAO	International Civil Aviation Organization
ICC	International Chamber of Commerce

ICLEI	International Council for Local Environmental Initiatives
IGO	Intergovernmental Organisation
IMO	International Maritime Organization
INDC	Intended Nationally Determined Contribution
IPO	Indigenous Peoples Organizations
ITMO	Internationally Transferred Mitigation Outcome
ITUC	International Trade Union Confederation
JI	Joint Implementation
KCI	Katowice Committee of Experts on the Impacts of the Implementation of Response Measures
KJWA	Koronivia Joint Work on Agriculture
LCIPP	Local Communities and Indigenous Peoples Platform
LDC	Least Developed Countries
LGMA	Local Government and Municipal Authorities
LEG	Least Developed Countries Expert Group
LMDC	Like-Minded Developing Countries
LPAA	Lima Paris Action Agenda
LULUCF	Land Use, Land Use Change and Forestry
MEPC	Marine Environment Protection Committee
MPGs	Modalities, Procedures and Guidelines (for the transparency framework for action and support)
Mt	Million tonnes
NAP	National Adaptation Plan
NAZCA	Non-state Actor Zone for Climate Action

NDC	Nationally Determined Contribution
NGO	Non-Governmental Organisation
ODP	Ozone Depletion Potential
ODS	Ozone Depleting Substances
PAWP	Paris Agreement Work Programme
PCCB	Paris Committee on Capacity Building
ppm	parts per million
RINGO	Research and Independent Non-Governmental Organisations
SARPs	Standards and Recommended Practices
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCF	Standing Committee on Finance
SDG	Sustainable Development Goal
SEEPM	Ship Energy Efficiency Management Plan
SIDS	Small Island Developing States
SR1.5	Special Report on the impacts of global warming of 1.5°C above pre-industrial levels
TEC	Technology Executive Committee
TM	Technology Mechanism
TNA	Technology Needs Assessment
TUNGO	Trade Union Non-Governmental Organisations
UNFCCC	United Nations Convention on Climate Change
UG	Umbrella Group
UN	United Nations
USD	United States Dollar

WGC	Women and Gender Constituency
WIM	Warsaw International Mechanism (for loss and damage)
WMO	World Meteorological Organization
YOUNGO	Youth Non-Governmental Organisations

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EXECUTIVE SUMMARY

From 2 to 13 December 2019, the 25th Conference of the Parties (COP25) to the United Nations Framework Convention on Climate Change (UNFCCC) will take place in Madrid. Under the presidency of Chile, which had originally planned to host the conference, delegates will continue to negotiate the rules for international cooperation in climate change mitigation and discuss issues such as adaptation and support to developing countries.

The international framework for addressing climate change

The UNFCCC entered into force in 1994. Its objective is to stabilise the concentrations of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The Kyoto Protocol, which requires a limited number of developed country Parties to limit or reduce their greenhouse gas emissions up to 2020, was adopted under the Convention in 1997.

In order to address climate change more broadly, the Paris Agreement was negotiated and adopted in 2015. This agreement, which entered into force in 2016, requires climate change mitigation and adaptation actions from all Parties in the time period after 2020. The goals of the Paris Agreement are to hold the increase in the global average temperature to well below 2°C above pre-industrial levels, to pursue efforts to limit this increase to 1.5°C, to increase the ability to adapt to the adverse impacts of climate change and to make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Under the Paris Agreement, Parties regularly communicate their Nationally Determined Contributions (NDCs) as part of the global response to climate change; the ambition of these contributions has to increase over time. The Paris Agreement also provides for a global stocktake which assesses the collective progress of all Parties towards achieving the goals of the agreement.

Besides the UNFCCC, its Kyoto Protocol and its Paris Agreement, the Montreal Protocol addresses emissions of certain greenhouse gases. The Kigali Amendment to the Montreal Protocol schedules the phase-down of hydrofluorocarbons, a group of gases which gained in importance as substitutes for ozone-depleting substances. Emissions of carbon dioxide from international aviation and shipping are also addressed by two specialised United Nations Agencies – the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO). Finally, other United Nations initiatives address the response to climate change, including the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs).

Main issues at stake at the Climate Change Conference in Madrid

In the previous climate change conference in Katowice in December 2018, the rules for the implementation of the Paris Agreement were largely defined. These include the information that Parties shall provide when communicating their NDCs, guidance for accounting for NDCs, guidelines for reporting on mitigation, adaptation and support to developing countries, and rules for the global stocktake.

However, agreement on some aspects is still pending, such as common timeframes for NDCs or detailed provisions for the reporting of greenhouse gas emissions, mitigation actions and support. Most

importantly, Parties still have to agree on the rules for voluntary cooperation between Parties, including the use of international carbon market mechanisms. The views of the Parties on how to operationalise such mechanisms still differ. This is particularly true regarding the question of how to avoid double counting of emission reductions, how to deal with different time frames and scopes of NDC targets, and how to manage a transition from the mechanisms currently in place under the Kyoto Protocol.

Besides the negotiations under the Paris Agreement, Parties will continue to address a number of topics under the Convention at COP25, including adaptation, loss and damage, technology development and transfer and capacity building. Parties will also discuss cross-cutting issues such as the role of local communities and indigenous peoples, gender and climate change, issues related to agriculture or research and systematic observation.

The COP will serve as the meeting of the Parties to the Kyoto Protocol (CMP) and to the Paris Agreement (CMA). In addition, work on implementation and technical issues will continue under the Convention's Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA).

Stakeholders in the negotiations

Representatives from 197 Parties participate in the climate change negotiations under the UNFCCC. They organise themselves in groups of countries with similar interests such as the Umbrella Group representing a number of developed countries or the group of G-77 and China representing the majority of developing countries. The European Union (EU) and each of its Member States are Parties to the Convention. Positions are coordinated between the Union and its Member States.

Besides the Parties to the Convention, observers play a prominent role in the process. Non-governmental organisations, including environmental, research, youth and business organisations, as well as local and regional governments organise events and call for more ambitious action during the climate change conferences. Observers also include organisations under the United Nations system such as the Intergovernmental Panel on Climate Change (IPCC), and other international organisations.

Related developments

In the run-up to COP25, the IPCC published two special reports in 2019 – one on climate change and land and one on climate change and the ocean and cryosphere. These reports assess the effects that climate change already has on land systems, on the earth's oceans and on its ice cover. They discuss the risks associated with these effects, but also the options available to mitigate their impacts. These two reports follow an IPCC special report on the impacts of global warming of 1.5°C, which was published in 2018 and which attracted broad interest, both in the negotiations and in the general public.

Throughout 2019, the topic of climate change continued to generate attention, be it through civil society movements or at events at the United Nations level such as the United Nations Secretary-General's Climate Action Summit where the urgency to address climate change was distinctly pronounced. As it is becoming clearer that climate change mitigation will require a profound transformation of the world's economies, there are more calls for a just transition that takes into account the needs of workers and communities that are affected by this transition.

Outlook

Current NDCs are highly insufficient to achieve the goals of the Paris Agreement and limit global warming to a maximum of 1.5°C or well below 2°C. The Parties to the Paris Agreement are required to communicate new or updated NDCs in 2020. Many Parties also intend to communicate long-term low greenhouse gas emission development strategies. These strategies, together with the NDCs, will be in the spotlight at the COP26 in November 2020, which will most likely take place in Glasgow. Besides the negotiations on further technical details, the future climate change conferences will focus on the implementation of the Paris Agreement and on enhancing ambition in the global response to climate change.

1. INTRODUCTION

The year 2019 saw important developments in the global response to climate change, such as new scientific findings, widespread calls from civil society for more climate action and governments announcing new targets and measures.

As the final milestone of this year, the 25th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) will be held in Madrid from 2 to 13 December 2019. At this conference, a quarter of a century after the entry into force of the Convention and three years after the entry into force of the Paris Agreement, delegates will negotiate on a wide range of topics, from rules for international carbon market mechanisms to guidance for reporting on adaptation and to the provision of financial support. At the same time, civil society representatives will call for more ambitious action.

Amid the technical discussions and political statements at the conference, it will be important to keep an eye on the big picture – ensuring that the Paris Agreement fulfils its role as a robust multilateral framework for the global response to climate change. The aim of the present study is to provide insights into this big picture. After introducing the international framework for addressing climate change (chapter 2), the document provides an overview of the stakeholders in the negotiations, from groups of Parties to observers (chapter 3).

The study also describes the status of the negotiations and the main issues at stake at the conference in Madrid (chapter 4). It addresses recent developments with potential impacts on the negotiations (chapter 5) and provides an outlook on the climate change agenda in 2020 and beyond (chapter 6). The study was prepared as a background document for the European Parliament delegation to the climate change conference in Madrid, but it also aims to inform other readers interested in the various aspects of international climate negotiations.

2. THE INTERNATIONAL FRAMEWORK FOR ADDRESSING CLIMATE CHANGE

2.1. The United Nations Framework Convention on Climate Change

The concentrations of greenhouse gases in the atmosphere have increased significantly due to human activities such as the combustion of fossil fuels. In the 1980s, the scientific evidence that such an increase would affect the global climate system grew (e.g. IPCC 1990), and the call for concerted action at international level emerged. At the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, the UNFCCC was adopted (UNFCCC 1992).

The objective of the UNFCCC is to stabilise the concentrations of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Parties to the Convention commit to implementing measures to mitigate climate change and to facilitating adequate adaptation to its effects.

The Convention recognised the specific needs and difficulties of developing countries and introduced the principle of ‘common but differentiated responsibilities and respective capabilities’ (CBDR/RC). It noted that the largest share of historical emissions of greenhouse gases originated from developed countries. Hence, more comprehensive requirements were introduced for developed country Parties, which are listed in Annex I to the Convention. Several topics which are negotiated under the Convention (e.g. on the provision of support or on reporting) distinguish between ‘Annex I Parties’ and ‘non-Annex I Parties’.

In the months and years following the 1992 Rio conference, most countries signed and ratified the Convention and it entered into force on 21 March 1994. After the entry into force, its first Conference of the Parties (COP) convened in Berlin in 1995. In addition to the COP, other bodies under the Convention with specific tasks convene, as summarised in Table 1.

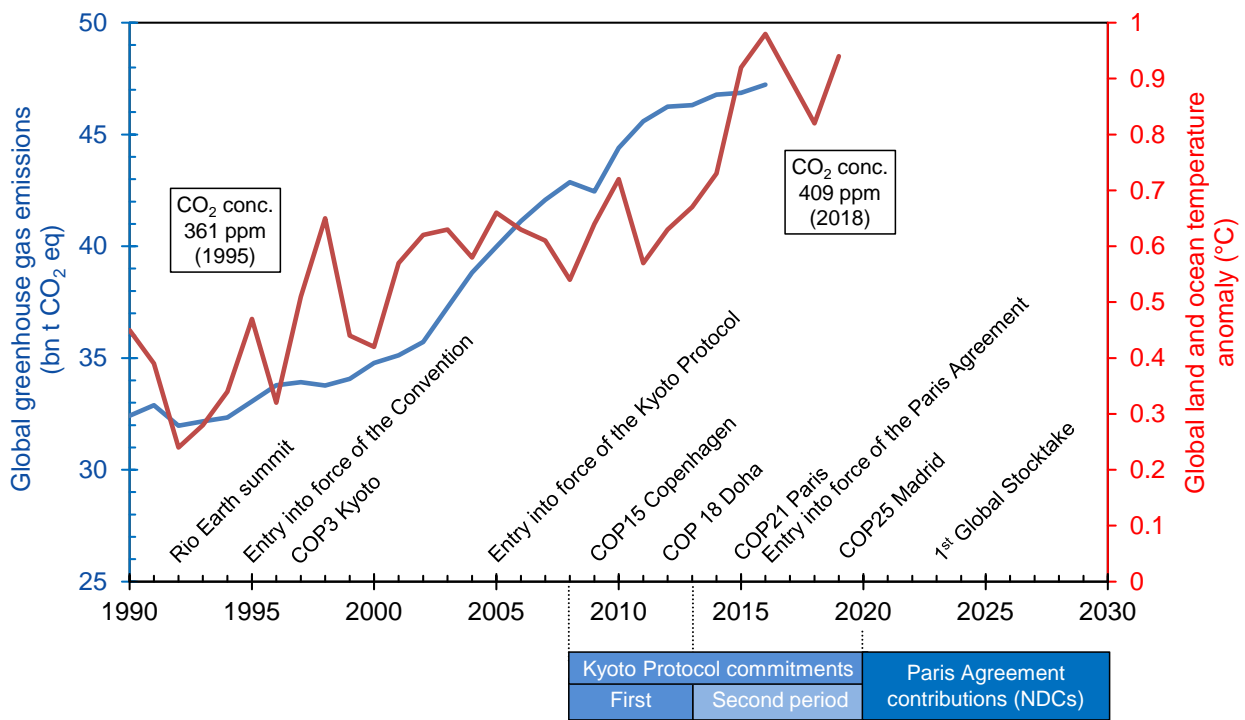
Table 1: The Conference of the Parties and other related bodies

Body	Meetings	Purpose
Conference of the Parties (COP)	Annually since 1995	The COP is the supreme body of the Convention. It keeps under review and promotes the implementation of the Convention.
Subsidiary Body for Scientific and Technological Advice (SBSTA)	Biannually since 1995	The SBSTA assesses the state of scientific knowledge relating to climate change and responds to scientific, technological and methodological questions raised by the COP.
Subsidiary Body for Implementation (SBI)	Biannually since 1995	The SBI considers the information provided by Parties and assists the COP in the preparation and implementation of its decisions.
Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP)	Annually since 2005	The CMP keeps the implementation of the Kyoto Protocol (cf. chapter 2.2) under regular review and promotes its effective implementation.

Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA)	Annually since 2016	The CMA periodically takes stock of the implementation of the Paris Agreement (cf. chapter 2.3) and promotes its effective implementation.
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Currently there are 197 Parties to the Convention, including the European Union and each of its Member States. In the 25 years since its entry into force, the UNFCCC saw both progress and setbacks, while global greenhouse gas emissions continued to increase and, with them, surface temperatures. Figure 1 depicts selected key milestones; chapters 2.2 and 2.3 below present more details.

Figure 1: Milestones under the UNFCCC



Source: Gütschow et al. (2019), NOAA National Centers for Environmental Information (2019).

Note: CO₂ conc: Annual average carbon dioxide concentration, as measured at Mauna Loa; ppm: parts per million; bn t CO₂eq: billion tonnes of carbon dioxide equivalent; NDC: Nationally Determined Contribution Global greenhouse gas emissions include emissions of carbon dioxide, methane, nitrous oxide and fluorinated gases, converted to CO₂eq using global warming potentials (GWP) from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Emissions from land use, land use change and forestry, international aviation and international maritime transport are not included. The global land and surface temperature anomaly is the deviation from the average of the years 1901 to 2000. The value for 2019 is based on the average of January to September only.

2.2. The Kyoto Protocol

In order to support the achievement of its objectives, the UNFCCC provides for the adoption of protocols. Following the entry into force of the Convention, the Kyoto Protocol was adopted by the Conference of the Parties in Kyoto in 1997 (UNFCCC 1998).

The Kyoto Protocol required developed country Parties to limit or reduce their greenhouse gas emissions. The reductions or limitations agreed for the first commitment period (2008-2012) were slightly below the emissions levels of 1990 in most cases, and for some countries they constituted an increase compared to 1990. The largest emitter at the time of the adoption of the Kyoto Protocol, the United

States of America, did not ratify the Protocol, and another important emitter, Canada, withdrew from it in 2011.

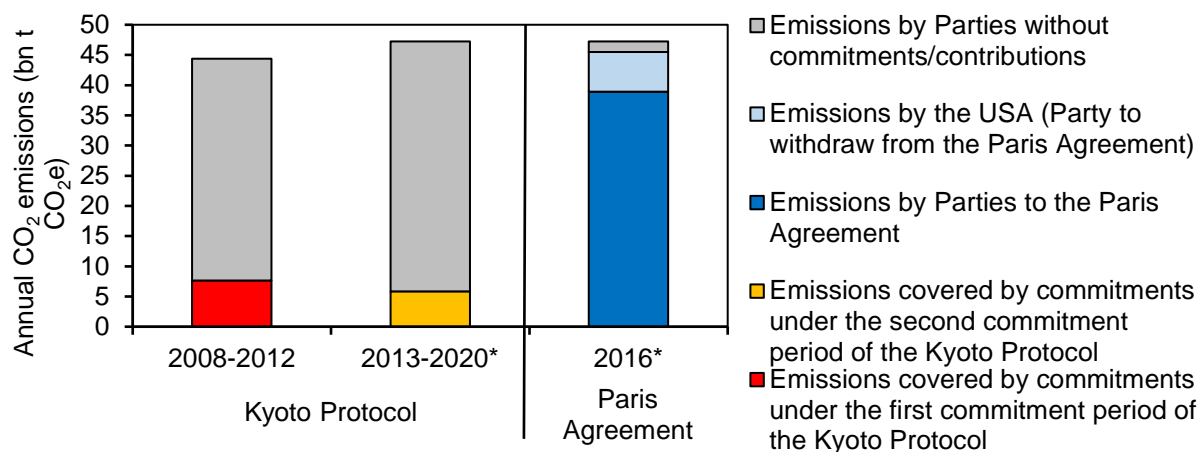
The remaining Parties to the Kyoto Protocol fulfilled their obligations in the Protocol's first commitment period. The Kyoto Protocol allows countries to achieve their emission reductions or limitations by three carbon market mechanisms: Under the Clean Development Mechanism (CDM), developed countries were allowed to use certified emission reductions from mitigation projects in developing countries to achieve their commitments. Under Joint Implementation (JI), developed countries were allowed to acquire emission reduction units resulting from projects in other developed countries. Moreover, developed countries could transfer parts of their assigned emission budgets to other developed countries.

As the first commitment period of the Kyoto Protocol ended in 2012, countries agreed on a second commitment period at the climate change conference in Doha in 2012. The so-called Doha Amendment to the Kyoto Protocol (UNFCCC 2012) commits a restricted number of developed country Parties to limiting or reducing their emissions in a second commitment period from 2013 to 2020. Since large emitters such as the Russian Federation or Japan did not assume a commitment for this period, emissions reductions under the Doha Amendment are mainly achieved through the commitment of the European Union to decrease its greenhouse gas emissions by 20 % compared to 1990, in line with the EU's 2020 climate and energy package (European Commission 2019a).

It should be noted that the Doha Amendment is not yet in force. The Kyoto Protocol stipulates that amendments to the Protocol enter into force only after acceptance by at least three fourths of the Parties to the Kyoto Protocol. So far, this condition has not been met. As of 6 November 2019, 134 of 192 Parties to the Kyoto Protocol have accepted (ratified) the Doha Amendment.

Overall, as shown in Figure 2, only a limited share of the world's emissions were covered by commitments under the first commitment period of the Kyoto Protocol, and an even smaller percentage is covered in the second commitment period. In contrast, the Parties to the Paris Agreement – which is introduced in the following section – cover the vast majority of global emissions.

Figure 2: Greenhouse gas emissions covered by international commitments/contributions



Source: Gütschow et al. (2019).

* The latest year with available global emissions data is 2016; the second commitment period under the Kyoto Protocol lasts until 2020 and commitments under the Paris Agreement will apply after 2020. Under the Paris Agreement, all Parties are committed to climate change mitigation, but not all have pledged emission limitations or reductions.

Note: The United States is a Party to the Paris Agreement, but on 4 November 2019 notified the UN Secretary-General of its withdrawal, which is to take effect on 4 November 2020.

2.3. The Paris Agreement

2.3.1. Negotiation history

Since the adoption of the Kyoto Protocol greenhouse gas emissions from emerging countries, most notably from China, have increased rapidly. As the commitments under the Kyoto Protocol covered a limited number of developed countries only, the international community prepared a successor to the Kyoto Protocol, which would include mitigation commitments by a larger group of countries.

The first major attempt ended in a failure at COP15 in Copenhagen in 2009, where countries only 'took note' of a document that laid out principles for voluntary contributions in the period up to 2020.

The subsequent negotiations focused on an agreement that would allow Parties to determine their contributions in a bottom-up approach, but would have legal force and would require all Parties to contribute to its mitigation goals.

The negotiations on this agreement came to a closure in 2015, the same year the SDGs, and the Sendai Framework for Disaster Risk Reduction (cf. chapter 2.5) were adopted. The decisive conference, COP21 in Paris in December of that year, was preceded by announcements by many countries to contribute to climate change mitigation – the so-called Intended Nationally Determined Contributions (INDCs). More than 150 heads of state and government attended a high-level event on the first day of the Paris conference.

Despite the positive momentum that had been built ahead of the conference, negotiators still had to resolve a number of key issues such as how to find a balance between ambitious action and the needs of developing countries, and how to enshrine increased ambition over time in the agreement.

Guided by the French COP presidency, Parties reached an agreement on 12 December 2015 adopting the Paris Agreement. It is the first global agreement requiring climate change mitigation and adaptation action from all Parties (UNFCCC 2015b). While each Party determines the extent of its action (the bottom-up approach of the nationally determined contributions), the Paris Agreement also contains universal legal obligations that apply to all Parties, thus establishing a shared rules-based system (top-down approach).

The Paris Agreement is included in the annex of COP decision 1/CP.21 (UNFCCC 2015a). This decision adopted the Paris Agreement and laid out additional details, including technical work to be completed in order to make the Paris Agreement fully operational. This technical work, the so-called 'Paris Agreement Work Programme' (PAWP) constituted the main focus of climate negotiations from 2016 to 2018. As the Paris Agreement focuses on the time period after 2020, the COP decision of 2015 also addressed increased climate change mitigation and adaptation ahead of the year 2020 ('pre-2020 action').

2.3.2. Signature, ratification and entry into force

After its adoption, the Paris Agreement was open for signature for one year, starting in April 2016. 195 of the 197 Parties to the Convention signed the Paris Agreement in that period (the two remaining Parties, Nicaragua and Syria, acceded the Paris Agreement shortly afterwards).

What is more important than the signature is the actual ratification or accession, which legally binds Parties to the Agreement. Progress in ratification was more rapid than many had expected, with the pivotal moment coming in September 2016 when U.S. President Barack Obama and China's President Xi Jinping delivered their instrument of ratification to the UN Secretary General. Other large emitters, such as India and the European Union, deposited their instrument of ratification in October 2016.

With the ratification by over 55 Parties, accounting for more than 55 % of global greenhouse gas emissions, the requirements for entry into force of the Paris Agreement were met, and it entered into force on 4 November 2016.

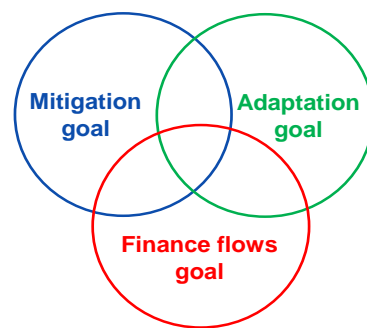
As of 6 November 2019, 187 of the 197 Parties to the Convention have ratified or acceded to the Paris Agreement. The Russian Federation is an important Party that acceded to the agreement recently, on 7 October 2019. Large emitters that have not yet ratified include Turkey and Iran. In addition, on 4 November 2019, the government of the United States notified the UN Secretary-General of its decision to withdraw from the Paris Agreement (U.S. Department of State 2019). This withdrawal will take effect one year later, on 4 November 2020 (cf. chapter 5.7).

2.3.3. The goals of the Paris Agreement and the ambition cycle

The Paris Agreement is guided by three goals, which are laid out in Article 2 of the Agreement. The temperature goal aims to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit this increase to 1.5°C. The adaptation goal aims to increase the ability to adapt to the adverse impacts of climate change and to foster climate resilience and low greenhouse gas emissions development. Finally, the 'finance flows' goal aims to make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

The pursuit of the three goals of the Paris Agreement shows overlaps and synergies, as schematically depicted in Figure 3. As an example, an investment in reforestation, which improves flood resilience and sequesters carbon from the atmosphere, may contribute to all three goals.

Figure 3: Goals of the Paris Agreement



Source: UNFCCC 2015b, authors' views.

It should be noted that the 'finance flows' goal is broader than the concept of 'financial support' addressed in Article 9 of the Paris Agreement (cf. chapter 2.3.4 below). While Article 9 addresses financial support to developing countries, this 'finance flows' goal (also commonly referred to as 2.1.c) aims at also addressing finance flows within countries, e.g. the distribution of subsidies or private investments.

The 'finance flows' goal also needs to be distinguished from the '100 billion dollar goal', a commitment by developed country Parties, first made at the COP in Copenhagen in 2009, to mobilise climate finance amounting to USD 100 billion per year by 2020, from public and private sources. The '100 billion dollar goal' was reiterated in the decision on the Paris Agreement (UNFCCC 2015a), and it was decided that it shall apply from 2020 to 2025 and a new global goal shall be set from a floor of USD 100 billion per year, which is to apply thereafter.

Besides the three overarching goals of the Paris Agreement, the 'ambition cycle' constitutes another important overarching feature. The ambition cycle is not explicitly stated or defined in the Paris Agreement; it refers to the overall architecture and functioning of the Paris Agreement that results from the interplay of the different individual and collective obligations it contains. Each Party is required to undertake ambitious efforts to strengthen the global response to climate change. The specific efforts are determined by each Party, hence referred to as 'Nationally Determined Contributions' (NDCs). Many Parties already provided Intended Nationally Determined Contributions ahead of the

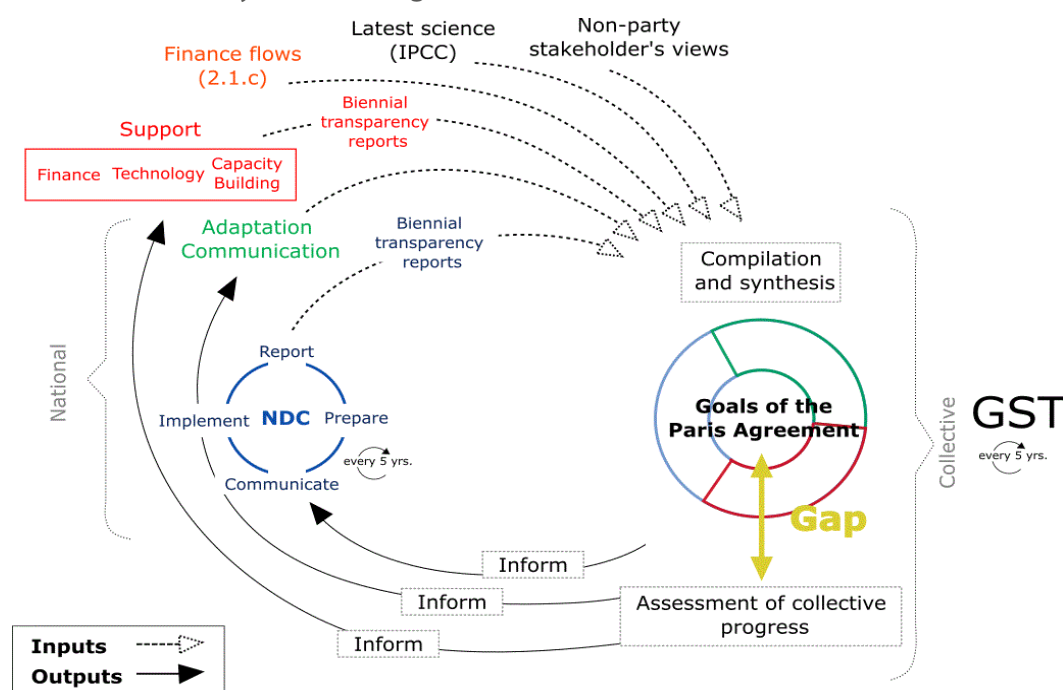
Paris conference and maintained these as their NDCs under the Paris Agreement. Others provided their NDCs in the course of the ratification process of the agreement. All Parties are required to communicate a new NDC or update their existing NDC by the end of 2020.

As the NDCs communicated by Parties vary in their scope and ambition, the Paris Agreement stipulates that contributions have to represent a progression over time, and it introduces a mechanism of taking stock and increasing ambition (cf. Figure 4). In the so-called global stocktake (GST), the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) assesses the collective progress towards achieving the goals of the agreement. The aim of the global stocktake is to inform Parties in updating and enhancing their NDCs. The first global stocktake will take place in 2023. The so-called Talanoa Dialogue, which was conducted in 2018, already contained elements of such a stocktake.

The global stocktake will consist of three phases: information collection for a technical assessment, technical assessment of collective progress, and consideration of outputs. Sources of input to the global stocktake include information on greenhouse gas emissions and removals, adaptation efforts and finance flows as reported by Parties according to their obligations under the transparency framework and the latest reports of the Intergovernmental Panel on Climate Change as well as relevant reports from the UN and UNFCCC process.

Following the global stocktake, countries need to communicate NDCs in 2025. Both the global stocktake and the communication of NDCs take place every five years, thereby enhancing climate action over time.

Figure 4: The ambition cycle and the global stocktake



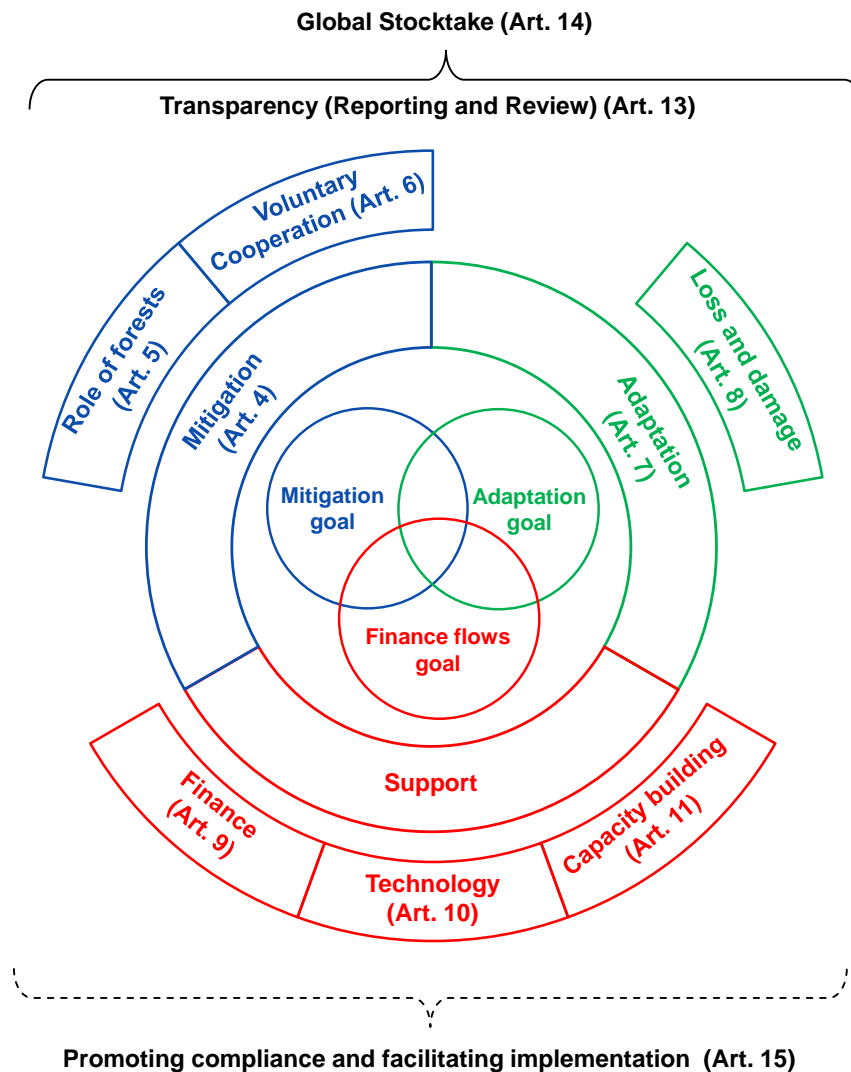
Source: UNFCCC 2015b, authors' views.

Note: New or updated NDCs are communicated two years after each global stocktake (GST).

2.3.4. Overview of the main topics of the Paris Agreement

The Paris Agreement addresses a wide range of topics, from mitigation to adaptation and support to developing countries. Figure 5 shows a schematic overview of the Paris Agreement topics and their relationship with the goals laid out in Article 2 of the Paris Agreement.

Figure 5: Main topics addressed by the Paris Agreement



Source: UNFCCC 2015b, authors' view.

a. Mitigation

Mitigation, i.e. the reduction of greenhouse gas emissions and the enhancement of sinks of greenhouse gases, is a cornerstone of the response to climate change. The Paris Agreement, in Article 4, sets out the emissions goal, according to which Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, and to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century. The main instrument for reaching the emissions goal is the NDC, which each Party has to submit every five years; successive NDCs represent a progression beyond the Parties' then current NDCs. Developed countries should establish economy-wide absolute emissions reduction targets in their NDCs. Developing countries may also establish other forms of targets (e.g. for renewable energy or for some sectors

only) but are encouraged to move, over time, towards economy-wide emission reduction or limitation targets. Most current NDCs have a time horizon until 2030 and some until 2025.

In addition to their NDCs, Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies. Decision 1/CP.21 invited Parties to communicate such strategies with a mid-century time horizon by 2020.

Besides the reduction of emissions, the uptake of carbon dioxide from the atmosphere will have to play an important role in achieving the temperature goal of the Paris Agreement (IPCC 2018). Article 5 of the Paris Agreement states that Parties should take action to conserve and enhance sinks and reservoirs of greenhouse gases, including forests.

As Parties may choose to cooperate in their mitigation actions, including through international carbon market mechanisms, the Paris Agreement addresses such voluntary cooperation, with a similar approach as that taken in the Kyoto Protocol. Article 6 provides a framework for using mitigation outcomes achieved in other countries to achieve a Party's NDC, establishes a new carbon crediting mechanism under international oversight and establishes a framework for countries to engage in non-market approaches.

b. Adaptation

As climate change has widespread impact on human and natural systems (IPCC 2014), adaptation to climate change is needed as a complementary approach to mitigation. It has become more relevant with the passing of time and failure of the international community to address mitigation of greenhouse gas emissions adequately. Article 7 of the Paris Agreement establishes a goal on adaptation; its pillars are the enhancement of adaptive capacity, the strengthening of resilience and the reduction of vulnerability to climate change.

Adaptation to climate change is a central political and practical priority for developing countries since they are more vulnerable than developed countries and they possess fewer adaptive capacities. In this regard, the Paris Agreement recognizes the importance of support, of international cooperation and of taking into account the needs of developing countries.

The Paris Agreement requires each Party to engage, as appropriate, in an adaptation planning process and in the implementation of adaptation actions. Each Party should report on these actions in a so-called adaptation communication, which is to be submitted and updated periodically.

Despite adaptation efforts, the adverse impacts of climate change may cause loss and damage, such as the loss of low-lying land as a result of sea level rise or the damage to property and infrastructure as a result of extreme weather events. Like adaptation, this topic is of special importance to developing countries, in particular to Small Island Developing States (SIDS) and Least Developed Countries (LDC) whose capacity to avert, minimise or address loss and damage is limited.

Article 8 of the Paris Agreement addresses loss and damage. It lists areas of cooperation, inter alia on early warning systems, emergency preparedness, risk assessment and management, and resilience of communities, livelihoods and ecosystems. The Warsaw International Mechanism (WIM) on Loss and Damage, established by the COP in Warsaw in 2013, is subject to the authority and guidance of the CMA.

c. Support

Mitigation and adaptation actions require, among other things, financial resources, technologies and skills. As has already been the case under the Convention, the Paris Agreement requires developed

country Parties to provide financial, technology and capacity building support to developing countries.

The Paris Agreement extends the group of countries providing financial support: While the Convention, in its Annex II, lists a limited number of developed country Parties that are required to provide financial support, the Paris Agreement, under Article 9, requires all developed country Parties to do so – and encourages others (e.g. emerging countries). For the distribution of funds to developing countries, the so-called Financial Mechanism was established under the Convention, and this mechanism also serves under the Paris Agreement. The main entities operating under the Financial Mechanism are the Global Environment Facility (GEF) and the Green Climate Fund (GCF).

Besides *providing* financial resources, developing country Parties should continue to take the lead in *mobilising* climate finance from a wide variety of sources. As decided at the COP in Paris, developed countries intend to continue their existing goal of mobilising USD 100 billion annually from 2020 through 2025 and to set a new collective quantified goal for the time period after 2025, from the floor of USD 100 billion per year.

Besides financial support, the Paris Agreement notes the importance of the development and transfer of mitigation and adaptation technologies. Under Article 10, it establishes the so-called technology framework. This framework should facilitate, inter alia, technology needs assessments, the provision of enhanced financial and technical support, the assessment of technologies that are ready for transfer, and the enhancement of enabling environments for technology development and transfer.

These activities are supported by the technology mechanism, which had been established under the Convention. The technology mechanism consists of the Technology Executive Committee (TEC) which analyses policy issues and provides recommendations, and the Climate Technology Centre and Network (CTCN), which provides technical assistance, creates access to knowledge and fosters collaboration.

As another aspect of support, Article 11 of the Paris Agreement addresses capacity building. Its aim is to enhance the capacity and ability of developing countries to take effective climate action. The COP in Paris established the Paris Committee on Capacity-building (PCCB), with the aim of addressing capacity building gaps and needs and enhancing capacity-building efforts.

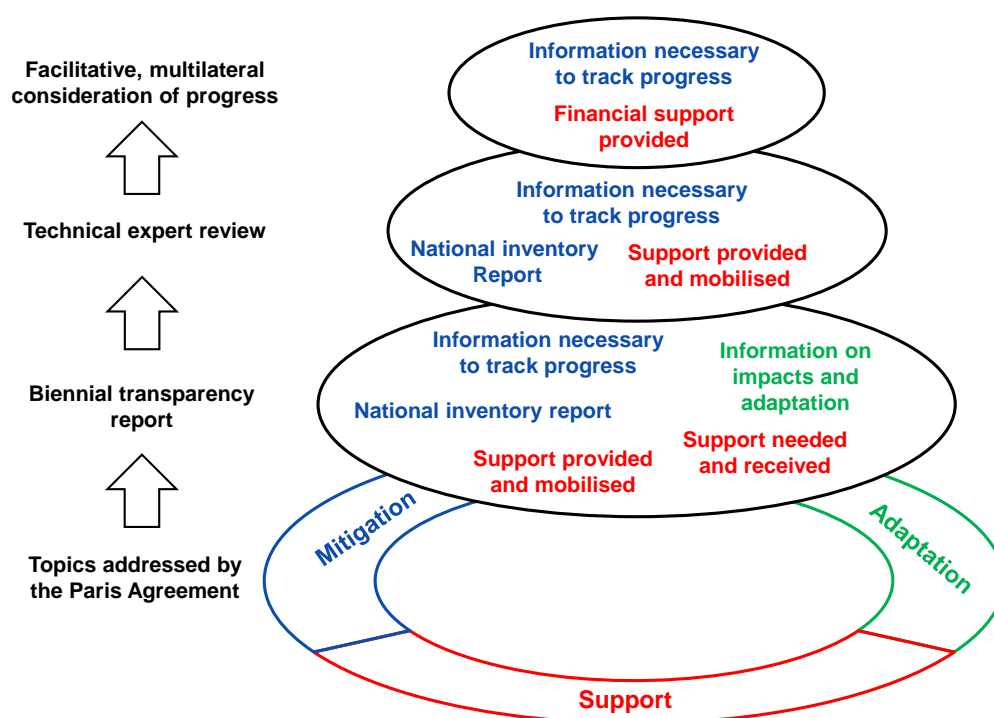
d. Transparency and compliance

In order to be able to track the overall progress towards the goals of the Paris Agreement, the Parties' efforts need to be transparent. Article 13 of the Paris Agreement establishes an enhanced transparency framework for action and support. This transparency framework comprises the three layers of biennial reporting, technical expert review and facilitative, multilateral consideration of progress (Figure 6).

According to Article 13, each Party shall regularly provide a national inventory of anthropogenic greenhouse gas emissions and removals and information necessary to track progress made in implementing and achieving its NDCs. Each Party should also provide information related to climate change impacts and adaptation.

The information on support differs between developed and developing countries: Developed country Parties *shall* provide information on financial, technology transfer and capacity-building support provided. Other Parties (e.g. emerging countries) that provide support *should* provide such information. Finally, developing country Parties *should* provide information on support *needed* and *received*.

Figure 6: The transparency framework: scope of the biennial transparency report, the technical expert review and the facilitative, multilateral consideration of progress



Source: UNFCCC 2015b, authors' views.

Note: The reporting of support needed and received and of information on impacts and adaptation is a 'should' provision. Hence, the reporting of this information is not mandatory and it is not subject to review.

Information on the national inventory, on tracking of progress and on support provided will undergo a technical expert review. Part of that information will be discussed in the so-called Facilitative, Multilateral Consideration of Progress (FMCP) – a question-and-answer session organised under SBI.

The enhanced transparency framework builds upon reporting and review practices established under the Convention, but it introduces new reporting elements and requires, for the first time, that all Parties provide relevant information, and thereby ends the differentiation in reporting requirements between Annex I and non-Annex I Parties under the Convention and the Kyoto Protocol. However, exceptions exist for SIDS and LDCs and some flexibility is granted to those developing countries that need it in the light of their capacities.

The transparency framework will play an important role in providing information on the implementation on the Paris Agreement and in providing input to the Global Stocktake (cf. chapter 2.3.3). In addition, the implementation of and compliance with the provisions of the Paris Agreement will be examined by a committee. Article 15 of the Paris Agreement established a committee, which will be expert-based and facilitative in nature and shall pay particular attention to the respective national capabilities and circumstances of Parties.

To summarise, the Paris Agreement addresses all main topics relating to climate action and support. While the text of the Paris Agreement is rather concise, additional details such as the tasks of various committees were specified in a COP decision in Paris (UNFCCC 2015a). In addition, this COP decision mandated the subsidiary bodies (SBI, SBSTA and a temporary body under the Paris Agreement) with

elaborating the modalities and procedures for operationalising the various articles of the Paris Agreement. This work, which came to be known as the 'Paris Agreement work programme', is discussed in chapter 4 below.

2.4. Sectoral agreements outside the UNFCCC

Mitigation actions under the Paris Agreement address greenhouse gas emissions from all main sectors and from all greenhouse gases that are not also ozone-depleting substances. However, three sub-sectors with growing importance are addressed by separate international processes and agreements.

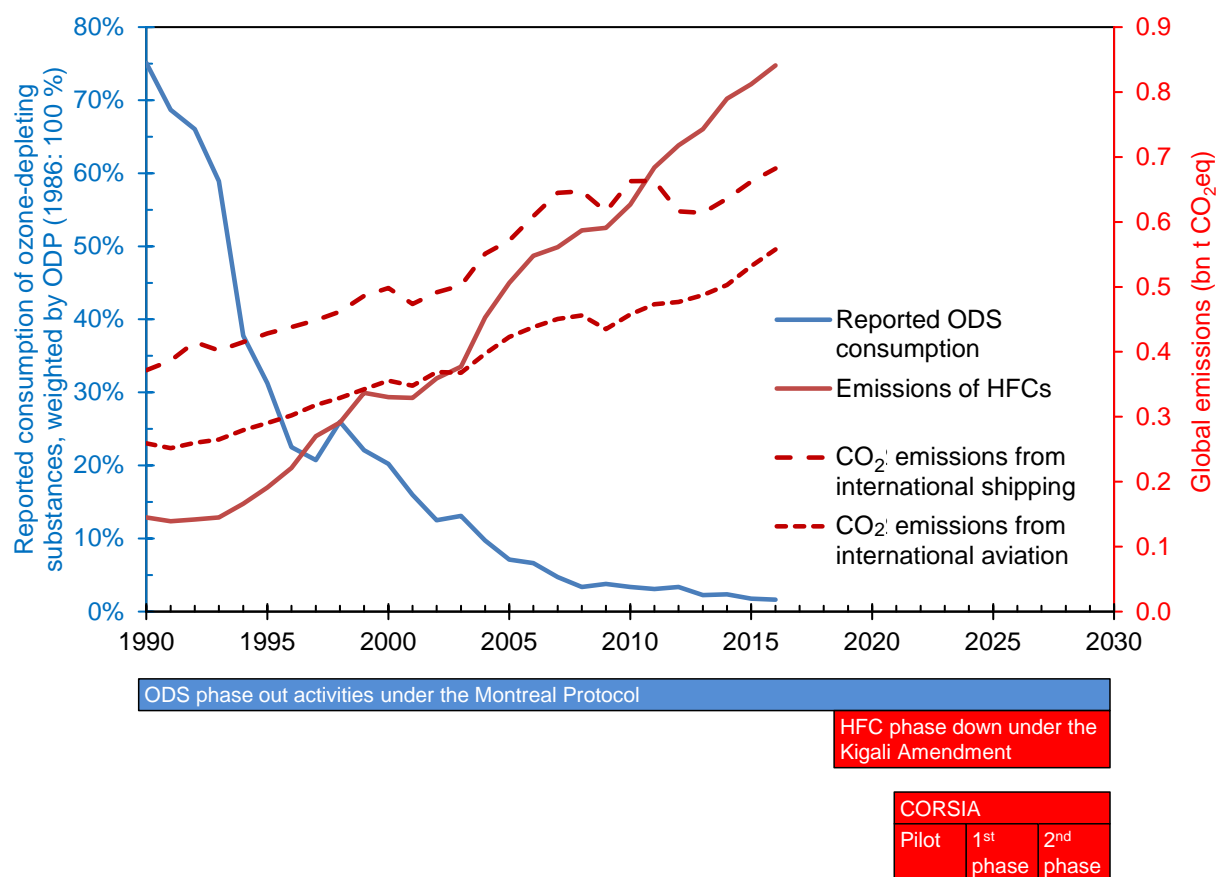
International aviation and international maritime transport saw rapid global growth over the past decades. Their growth is associated with an important increase of emissions from fossil fuels (the fuels used in these sectors are also known as bunker fuels). Greenhouse gas emissions from bunker fuels have been on the agenda of climate negotiations since 1995. However, these emissions are not included in the total of national greenhouse gas inventories under the UNFCCC and were not included in the scope of the targets under the Kyoto Protocol. Instead, the Kyoto Protocol mandated two specialised United Nations Agencies – the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) respectively – to address climate change mitigation in these sectors.

Besides emissions from international aviation and shipping, emissions of hydrofluorocarbons (HFCs) constitute another area with rapid emission growth. HFCs are a group of greenhouse gases containing hydrogen, fluorine and carbon, mostly used as cooling agents. Many countries address these gases as part of their climate change mitigation actions. In addition, the 2016 Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer addresses these gases.

As can be seen in Figure 7, greenhouse gas emissions from international aviation and shipping and emissions of HFCs strongly increased over the past decades, while the consumption of ozone-depleting substances (ODS), which are controlled by the Montreal Protocol, decreased. The following sections discuss the status of international negotiations and agreements in these areas.

2.4.1. International aviation and maritime transport

Emissions from international civil aviation and maritime transport are two of the fastest-growing greenhouse gas emission sources. In 2016, they accounted overall for almost 4.0 % of global CO₂ emissions from fuel combustion (IEA 2019). In absolute terms, international aviation emitted approximately 560 million tonnes (Mt) CO₂ (1.7 %) and international maritime transport 680 Mt CO₂ (2.1 %) in that year. These quantities are comparable to the total greenhouse gas emissions of Australia (547 Mt CO₂eq) and Canada (708 Mt CO₂eq) in 2016 (UNFCCC 2019i).

Figure 7: Consumption of ozone-depleting substances, emissions of hydrofluorocarbons and CO₂ emissions from international aviation and international maritime transport

Source: EEA (2019), Gütschow et al. (2019), IEA (2018).

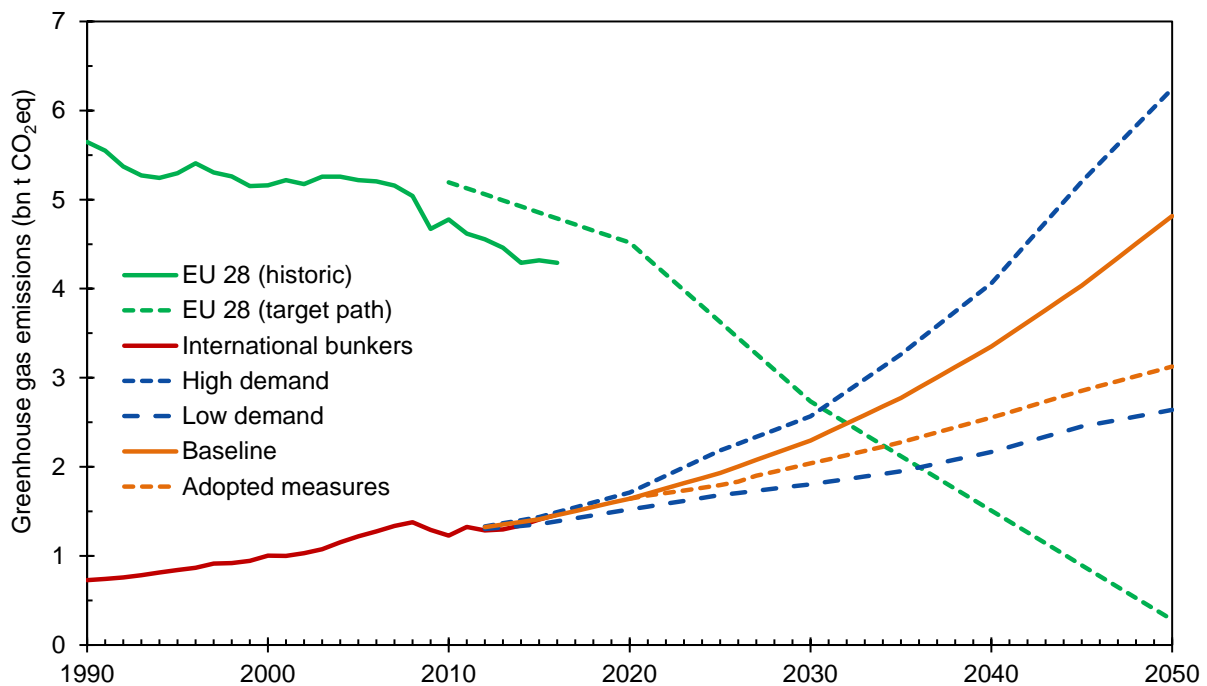
ODP: Ozone Depletion Potential. CORSIA: Carbon Offsetting and Reduction Scheme (cf. chapter 0).

Note that there is a time lag between the consumption and the emission of ODS; important amounts of ODS continue to be emitted and are projected to remain in the atmosphere for several decades.

Despite efficiency gains due to technological and operational improvements, emissions from international aviation and maritime transport have grown at an annual average of 4.0 % and 2.6 %, respectively, since 2012 (IEA 2019). Projections for 2050 indicate (Figure 8) that the CO₂ emissions of international aviation and maritime transport together, if they remain unaddressed while the EU stays below its target path, will exceed the EU's total greenhouse gas emissions sometime between 2030 and 2035.

If the world pursued an emission path that is compatible with the Paris Agreement while international aviation and shipping remain unchecked, the two sectors would be responsible overall for 20 % to 50 % of global CO₂ emissions in 2050 (Cames et al. 2015). If the non-CO₂ climate impacts of aviation, which are at least as large as those of CO₂ (Grewe 2019), are taken into account, the share of international aviation in global radiative forcing may be even larger.

Figure 8: Projected emissions from international bunker fuels and the EU target path



Source: IEA 2019, ICAO 2013, IMO 2009, IMO 2015, EEA 2018, Council of the European Union 2011, authors' own calculation.

Note: EU emissions are based on all greenhouse gases excluding land-use, land-use change and forestry. For 2050, the upper limit of the EU's ambition of 80-95 % below 1990 is used.

International aviation and maritime transport are not directly mentioned in the Paris Agreement. However, Article 4.1 calls all Parties to achieve a balance between anthropogenic emissions by sources and removals by sinks. Since emissions from international aviation and maritime transport are clearly anthropogenic, their emissions are thus implicitly included. As referred to above, two specialised UN agencies for these sectors – the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO), cf. chapter 3.2.3 – were mandated to address these emissions.

a. Greenhouse gas mitigation activities under ICAO

In 2016, ICAO adopted a new global scheme – the Carbon Offset and Reduction Scheme for International Aviation (CORSIA) – which aims to achieve carbon neutral growth between 2021 and 2035.

From 2021, airlines must offset emission growth beyond average emission levels of 2019/2020 on all routes between participating states. Which units will be eligible for offsetting and to which extent sustainable alternative fuels including bio- and synthetic fuels will reduce the airlines' offset requirements is currently debated and will be decided in early 2020. Key contentious issues include how double counting of emission reductions can be avoided between countries' NDCs and the goal under CORSIA and whether old credits left over from the CDM will be eligible under the scheme (Warnecke et al. 2019).

Research suggests that ICAO's current goal is not compatible with the Paris Agreement and that ICAO's mitigation ambition needs to be strengthened to pursue a pathway compatible with the Paris Agreement (Cames 2019). Another issue, which was very contentious at ICAO's 40th Assembly is whether CORSIA should be the only global measure to address CO₂ emissions from international avia-

tion. In the end, the Assembly determined in its resolution that ‘CORSIA or any other scheme decided by the Assembly is to be the only global market-based measure applying to CO₂ emissions from international aviation’. Hence, the EU will be required to decide how and to which extent the inclusion of aviation in the EU Emissions Trading System (ETS) can be continued.

b. Greenhouse gas mitigation activities under IMO

In the period of 2007 to 2010, the IMO discussed market-based policies to address greenhouse gas emissions from international maritime transport, including an emissions trading system (ETS) and a global greenhouse gas fund, but the Marine Environment Protection Committee (MEPC) has not been able to reach an agreement on this issue. However, IMO has adopted several policies to reduce greenhouse gas emissions from ships since then:

- the **Energy Efficiency Design Index** (EEDI) sets compulsory energy efficiency standards for new ships built after 2013,
- the **Ship Energy Efficiency Management Plan** (SEEMP) requires ships to develop a plan to monitor and possibly improve their energy efficiency, and
- the **Data Collection System** (DCS) requires that ships collect and report data on fuel consumption from 2019 onwards and report it to their flag state; this will allow IMO to monitor maritime greenhouse gas emissions as a basis for the development of short-, medium- and long-term policies.

In April 2018, IMO’s initial strategy on the reduction of greenhouse gas emissions from ships was adopted, which includes the long-term goal ‘to peak greenhouse gas emissions from international shipping as soon as possible and to reduce the total annual greenhouse gas emissions by at least 50 % by 2050 compared to 2008 whilst pursuing efforts towards phasing them out as called for in the Vision as a point on a pathway of CO₂ emissions reduction consistent with the Paris Agreement temperature goals’ (IMO 2018). With the view to adopting policies for achieving this goal by 2023, it also includes a list of candidate short-, mid- and long-term policies.

In addition to the activities described above, both ICAO and IMO provide reports to the UNFCCC process. The role of information from ICAO and IMO in the current climate change negotiations is discussed in chapter 4.5.6.

2.4.2. Addressing hydrofluorocarbons under the Montreal Protocol

The Montreal Protocol on Substances that Deplete the Ozone Layer (United Nations 1987), established the global phase-out of substances such as chlorofluorocarbons (CFCs), which were found to deplete the ozone layer. After the Montreal Protocol entered into force in 1989, the production and consumption of ozone-depleting substances (ODS) was reduced effectively at a global scale (cf. Figure 7).

Over the past three decades, ODS were largely substituted by another group of gases, the so-called hydrofluorocarbons (HFCs). These gases do not affect the ozone layer, but they have high global warming potentials and therefore contribute to climate change. In order to address the mitigation of HFCs at a global scale, the Parties to the Montreal Protocol adopted the so-called Kigali Amendment in 2016 (United Nations Environment Programme 2016). The Kigali Amendment defines timelines for the phase-down of HFC production and consumption. As of 6 November 2019, the Kigali Amendment has been ratified by 88 of the 198 Parties to the Montreal Protocol, including by the European Union and 25 of its Member States (United Nations Environment Programme 2019). The Kigali Amendment entered into force on 1 January 2019.

For most developed countries that already ratified the Kigali Amendment, the phase-down started in 2019; by 2036 HFC production and consumption have to be reduced by 85 % compared to the average of 2011-2013. In the European Union, the legal framework for the reduction of HFC production and consumption has already been in place for several years. Its centrepiece is the Regulation (EU) No 517/2014 (European Union 2014), known as the ‘F-Gas Regulation’.

For developing countries, the Kigali Amendment provides for an extended phase-down schedule. These countries are required to freeze production and consumption of HFCs by 2024 (at the level of the average of 2020-2022). The obligation for reduction starts in 2029, with an 80 % reduction to be achieved by 2045. A number of countries on the Arab Peninsula and in southern Asia are granted a more extended schedule.

It is important to note that the schedule provided by the Kigali Amendment is very long-term, and HFC production and consumption are not phased out completely (unlike production and consumption of ODS under the Montreal Protocol). Hence, the Kigali Amendment can be seen as an important contribution to reducing the emissions of greenhouse gases, but it is only a step on the path towards a balance of greenhouse gas emissions and removals in the second half of this century, which has been stipulated by the Paris Agreement.

2.5. Other UN initiatives addressing climate change

Besides the adoption of the Paris Agreement, 2015 saw the agreement on three other United Nations initiatives with close links to climate action and support.

In March 2015, at the third World Conference on Disaster Risk Reduction, delegates adopted the Sendai Framework for Disaster Risk Reduction 2015 to 2030 (IISD Reporting Services 2015b). The Framework sets seven targets to assess progress in reducing the risks associated with natural disasters, which becomes increasingly important as natural disasters such as flooding are projected to increase with progressing climate change.

In July of the same year, the Addis Ababa Action Agenda was adopted at the Third International Conference on Financing and Development (IISD Reporting Services 2015a). This agenda identifies action areas at domestic and international level in order to provide financing and enabling environments for sustainable development.

Finally, in September 2015 the UN General Assembly adopted the 2030 Agenda for Sustainable Development (United Nations 2015). The agenda sets 17 Sustainable Development Goals (SDGs), each of which are subdivided in a number of more specific targets. The most prominent feature of the SDGs is that they are closely interlinked; the pursuit of one goal cannot be seen in isolation from the other goals.

This is in particular the case for goal no. 13 – ‘Take urgent action to combat climate change and its impacts’ (‘climate action’ in short). The goal includes targets in the area of climate change mitigation, adaptation and support, but when pursuing this goal, it is important to take into account other goals such as ‘zero hunger’ or ‘decent work and economic growth’. On the other hand, goals such as ‘affordable and clean energy’, ‘sustainable cities and communities’ and ‘responsible consumption and production’ can reinforce the ‘climate action’ goal.

In September 2019, an SDG summit took place in New York (the UN Secretary-General’s climate action summit which was hosted in the same week is described in more detail in chapter 5.4). The SDG summit featured a number of ‘leaders’ dialogues’ on topics such as megatrends impacting the

achievement of SDGs, and the summit reviewed progress in the implementation of the 2030 agenda and its SDGs (IISD Reporting Services 2019c).

Based on this review, a political declaration was adopted, which expressed concern in a number of areas, including climate change and related areas such as biodiversity loss or disaster risk. The declaration requested the UN Secretary-General to engage governments, civil society, the private sector and other stakeholders in generating solutions and accelerating action. Based on the experience of the 2019 climate action summit, the declaration also requested the secretary-general to organise an annual moment to highlight action on the Sustainable Development Goals.

3. STAKEHOLDERS IN THE NEGOTIATIONS

The negotiations under the UNFCCC bring together representatives from close to 200 Parties. Parties with similar national circumstances and interests coordinate their positions beforehand and in between negotiation slots. For each item on the negotiation agenda, they select a representative who speaks on behalf of their group of Parties. Chapter 3.1 below provides an overview of the groups of Parties typically present at negotiations under the UNFCCC.

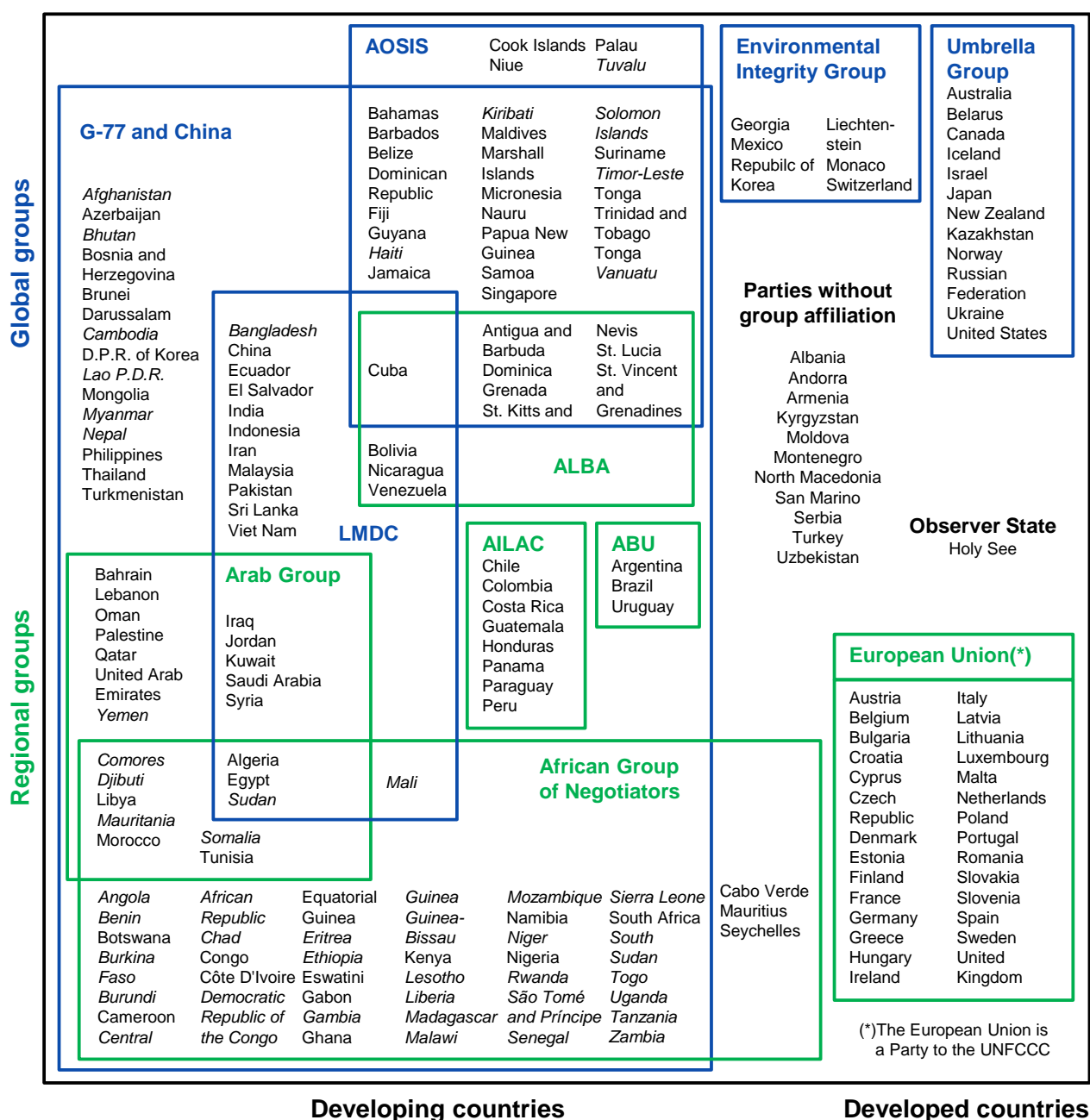
In addition, representatives from civil society and various international organisations play an increasingly important role at climate change conferences. They participate in the role of observers; they can attend formal negotiating sessions, but are not allowed to speak at these sessions or attend informal sessions. Nevertheless, observers make their voice heard – by speaking at opening and closing plenaries, special events and side events and by commenting and reporting to their audience outside the conference. Chapter 3.2 provides an overview of these observers.

3.1. Groups of Parties and their positions

In the negotiations under the UNFCCC, approximately 10 groups of Parties have formed who regularly coordinate their positions. Some of these groups generally coordinate in UN processes such as the 'G-77 and China' group. These negotiating groups need to be distinguished from the five United Nations regional groups (African States; Asia-Pacific States; Eastern European States; Latin American and the Caribbean States; and Western European and other States). The regional groups play a role in appointing representatives to various bodies, and the COP presidency rotates between them.

On the other hand, the negotiating groups gather along similar interests rather than geographical proximity. Although there is some fluctuation and groups are not active at the same level at each conference, we can distinguish between the following groups, as depicted in Figure 9 and discussed below.

Figure 9: Parties and Observer State to the UNFCCC, and group affiliations



Source: AGN (2019), AOSIS (2019), G-77 (2019), UNFCCC (2019e), Moosmann et al. (2017).

Note: Members of the Group of Least Developed Countries (LDC) are shown in italics. There are 197 Parties to the Convention. The Holy See is the only Observer State.

a. Umbrella Group

The Umbrella Group is a coalition of developed countries comprising Australia, Belarus, Canada, Iceland, Israel, Japan, New Zealand, Kazakhstan, Norway, the Russian Federation, Ukraine and the United States (UNFCCC 2019e). Most of its members have high per-capita greenhouse gas emissions. Hence, some of the members of this group are cautious about ambitious mitigation actions and the group generally calls for developing countries to contribute to mitigation action.

In the negotiations, members of the Umbrella Group aim at overcoming the differentiation between developed and developing countries which was introduced in the Convention. In general, the group calls for high standards of transparency in reporting, both for developed and developing country Parties.

b. Environmental Integrity Group

The Environmental Integrity Group (EIG) consists of three small developed countries (Liechtenstein, Monaco and Switzerland) and three developing/emerging countries (Mexico, Republic of Korea and Georgia). Members of the EIG call for ambitious mitigation action, including from developing countries, and they are proponents of transparent reporting.

The majority of EIG members plan to make use of voluntary cooperation under Article 6 of the Paris Agreement to achieve their NDCs. The group therefore shows a strong interest in the current negotiations on Article 6 and calls for high transparency standards and the promotion of environmental integrity in the cooperative approaches and the mechanism under Article 6.

In recent climate negotiations, representatives of the EIG were vocal against attempts to discredit the work of the IPCC. They pointed out the importance of distinguishing between the scientific findings on the one hand and the results of the negotiations on the other hand, which are driven by different Parties' interests (IISD Reporting Services 2019b).

c. Independent Alliance of Latin America and the Caribbean (AILAC)

The Independent Alliance of Latin America and the Caribbean (Asociación Independiente de Latinoamérica y el Caribe – AILAC) comprises Chile, which presides over COP25, as well as Colombia, Costa Rica, Guatemala, Honduras, Panama, Paraguay and Peru (AILAC 2019).

AILAC aims at bridging divides between developing and developed countries. Its members call for ambitious mitigation action, not only from developed, but also from developing countries. AILAC also supports an effective transparency framework for all countries. Like other groups of developing countries, AILAC also points out the importance of adaptation action and of financial, technological and capacity building support.

d. Alliance of Small Island States (AOSIS)

The Alliance of Small Island States (AOSIS) comprises 44 small island and low-lying coastal developing states (AOSIS 2019). As these countries will be affected disproportionately by rising sea levels and by extreme weather events, AOSIS is a proponent of ambitious mitigation action. In the negotiations on the Paris Agreement, the introduction of the 1.5 °C goal constituted one of the achievements of AOSIS.

In current negotiations, the group calls for high levels of transparency and environmental integrity, while being mindful about the limited capacities available to developing countries. Consisting of mostly low-income and small countries, the group calls for support, e.g. for financial support and capacity building in the area of adaptation.

However, as the possibilities to adapt to effects such as global sea level rise is limited for low-lying islands and coastal areas, members of AOSIS also show high interest in the topic of loss and damage due to climate change in climate negotiations.

e. Least Developed Countries (LDCs)

The Least Developed Countries (LDCs) are a group of 47 low-income countries; the affiliation to this group follows specific criteria and is reviewed regularly by the Committee for Development under the United Nations Economic and Social Council (UN Economic Analysis & Policy Division 2019).

Similar to AOSIS countries, the LDCs have limited capacity to respond to the impact of climate change. In the negotiations, the group stresses the importance of adaptation action and of addressing loss and damage. LDC is also vocal in the negotiations on support for developing countries.

f. African Group of Negotiators (AGN)

The African Group of Negotiators (AGN) comprises all 54 African countries (AGN 2019). Like other groups of developing countries, the AGN points out the challenges faced by their members in adapting to the adverse impacts of climate change. Hence, the AGN calls for giving the same level of importance in the negotiations to adaptation as to mitigation. In addition, the AGN points out the limited capacities available in African countries and calls for financial, technological and capacity building support. Within the AGN, South Africa is an important country that supports high transparency standards.

g. Group of Argentina, Brazil and Uruguay (ABU)

The group of Argentina, Brazil and Uruguay (ABU) comprises three important agricultural producers. For these countries, it is important to recognize the specific role of agriculture in mitigation and adaptation. As agricultural activities lead to the emissions of specific greenhouse gases (methane and nitrous oxides) besides carbon dioxide, ABU is active in the discussion on global warming potentials of various greenhouse gases.

Another area in which ABU (mostly Brazil) is vocal is the discussion on Article 6 of the Paris Agreement. Brazil has been very active in the Clean Development Mechanism under the Kyoto Protocol and aims at establishing a mechanism with similar rules and avoiding restrictions under the Paris Agreement.

h. Bolivarian Alliance for the Peoples of Our America (ALBA)

The Bolivarian Alliance for the Peoples of Our America (Alianza Bolivariana para los Pueblos de Nuestra América – ALBA) is an association of ten Latin American and Caribbean countries with socialist/social democratic governments. Although the group is less active at present, it has played a prominent role in supporting the interests of indigenous peoples in the climate change negotiations.

The group was also a proponent of introducing concepts such as ‘climate justice’ in the Paris Agreement and it supports the development of non-market approaches to cooperation between Parties.

i. Like-Minded Developing Countries (LMDC)

The group of Like-Minded Developing Countries (LMDC) comprises 24 developing countries (Algeria, Bangladesh, Bolivia, China, Cuba, Ecuador, Egypt, El Salvador, India, Indonesia, Iran, Iraq, Jordan, Kuwait, Malaysia, Mali, Nicaragua, Pakistan, Saudi Arabia, Sri Lanka, Sudan, Syria, Venezuela and Vietnam). This group often refers to the principle of common but differentiated responsibilities and calls for ambitious action and support from the part of developed countries. The group stresses the historical responsibility of developed countries, as they have been responsible for the majority of greenhouse gas emissions over the past decades.

The LMDCs point out the importance of taking into account sustainable development and poverty eradication when addressing climate change. The topic of loss and damage is also on the group's agenda.

Finally, the LMDCs are among the groups that remind Parties of the importance of pre-2020 action, which formed part of the decision adopted in Paris in 2015.

j. Arab Group

The Arab Group comprises 22 Parties from the Arab Peninsula and Northern Africa. As some of them are important oil and gas producers, the Arab Group pays particular attention to possible impacts of mitigation measures (such as a shift away from fossil fuels) on their economies. The topic of 'impacts of the implementation of response measures' is a regular item on the agenda at climate change negotiations (cf. chapter 4.5.5). The Arab Group and other oil producing countries point out the challenges of diversifying their economies in response to mitigation actions; Saudi Arabia is the most vocal member of the group.

k. Group of G-77 and China

In addition to being a member of one of the groups introduced above, most developing countries are members of the 'G-77 and China' group. The 'Group of 77 at the United Nations' (G-77) was founded by 77 developing countries at the United Nations Conference on Trade and Development in 1967 (G-77 2019). Since then, the group has grown to 134 members, and in climate change negotiations, China associates itself with the group. Hence, the G-77 and China group is the largest group of Parties at UNFCCC negotiations.

Like other groups of developing countries, the G-77 and China emphasise the common but differentiated responsibilities and respective capabilities in the Convention. Representatives of the group point out that developed countries are responsible for a large share of historical emissions and should take the lead in climate change mitigation.

Another focus of G-77 and China is the call for support from the part of developing countries. On specific technical topics, however, diverse views exist across the members of G-77 and China. On such topics, G-77 and China holds a general position, while other groups of developing countries bring forward more nuanced positions.

In 2019, the State of Palestine chairs the G-77. Although it is not a member state of the United Nations, the State of Palestine has been a Party to the UNFCCC and to the Paris Agreement since 2016. At COP25 in December 2019, representatives of the State of Palestine will be in the spotlight at several occasions, as they speak on behalf of the group of G-77 and China.

l. European Union

Among the groups of Parties, the European Union constitutes a special case. The EU is a Party to the UNFCCC and to the Paris Agreement, and so is each of its Member States. Delegates from the EU and its Member States coordinate their position throughout the year and prepare shared positions before each negotiating session. For each agenda item negotiated at a climate change conference, a representative (from a Member State or from the European Commission) is selected who negotiates on behalf of the EU and its Member States. Member States do not speak for themselves in the negotiations.

The focus of the EU in the negotiations is on increasing mitigation actions. The EU also acknowledges the importance of support to developing countries and points out the related efforts by the EU and

its Member States. It calls for transparent reporting on both action and support. Although the EU does not intend to participate in voluntary cooperation under Article 6 of the Paris Agreement, it is a proponent of strict and transparent rules for such cooperation, in order to preserve the environmental integrity of such approaches.

The European Union and its Member States committed to emission reductions under the Convention and under the Kyoto Protocol. By 2020, the EU and its Member States are committed to reduce their greenhouse gas emissions by at least 20 % compared to 1990. At the EU level, the implementation of this commitment is governed by the legislation under the '2020 climate and energy package'. Its main pillars are the EU Emissions Trading System (EU ETS) and the sharing of efforts between the Member States as defined in the Effort Sharing Decision No 409/2009/EC (European Commission 2019a).

For the period up to 2030, the European Union committed in its NDC to a 40 % reduction of greenhouse gas emissions compared to 1990. The EU aims at achieving this reduction domestically, i.e. without relying on emissions reductions in countries outside the EU. It makes use of an enhanced ETS, of effort sharing between the Member States and of rules in the land-use, land use change and forestry (LULUCF) sector. The legislation governing the 2030 commitment is known as the '2030 climate and energy framework' (European Commission 2019b).

As far as the influence of the various negotiating groups is concerned, it is important to note that all COP, CMP and CMA decisions and all conclusions of subsidiary bodies are made unanimously. Hence, every single Party can influence the outcome of the negotiations. Nevertheless, the larger groups such as the LMDC, the Umbrella Group or the EU have an advantage because they have a sufficient number of experts available in their delegations to cover all topics in-depth and to reach out to delegates from other groups to discuss and find compromises.

3.2. Observers

In the UNFCCC process, observer organisations comprise different types of actors: the United Nations System and its Specialised Agencies, intergovernmental organisations (IGOs) and non-governmental organisations (NGOs). IGOs and NGOs need to be granted observer status by the UNFCCC secretariat. Thereafter, they can register delegates on behalf of their organisation. In 2018, over 2,200 NGOs and 130 IGOs were registered as observer organisations to the UNFCCC. They cover a broad variety of topics, interests and types of organisations (UNFCCC 2019d). The number of observer organisations has been steadily growing since COP1 (UNFCCC 2019f).

NGOs in the UNFCCC process organise themselves in constituencies in which they are clustered according to common interests or perspectives. They mirror the 9 'Major Groups' which were established in the Agenda 21 and re-confirmed by the Rio+20 summit: business and industry NGOs (BINGO), environmental NGOs (ENGO), farmers and agricultural NGOs (Farmers), indigenous peoples organisations (IPO), local government and municipal authorities (LGMA), research and independent NGOs (RINGO), trade union NGOs (TUNGO), women and gender constituency (WGC), youth NGOs (YOUNGO). Faith based organisations (FBOs), education and capacity building and outreach NGOs (ECONGO) and parliamentarians are recognised as informal NGO groups by the Secretariat since 2016 (UNFCCC 2019b).

In the following, we describe the activities of the various observer organisations. We distinguish between (a) civil society, (b) local and regional governments (although they are also a constituency under the UNFCCC), and (c) international organisations.

3.2.1. Civil society

The current list of admitted NGOs¹ denotes 920 organisations as part of the constituency of environmental NGOs. The most vocal environmental NGO in the international climate negotiations is the Climate Action Network (CAN).² It is a worldwide network of over 1300 NGOs in more than 120 countries that consists of numerous regional and national networks. During the UNFCCC negotiation sessions, CAN publishes the well-known daily 'Eco' Newsletters which provide an NGO perspective on the negotiation process. Furthermore, CAN awards the daily 'Fossil of the Day' which is given to countries or stakeholders in the negotiation that it sees as obstructing progress or acting unsustainably.

The group of youth NGOs covers 72 admitted NGOs. They elect two focal points (one for the global north and one for the global south) to coordinate communication with the UNFCCC secretariat. In the days preceding COPs, the youth NGOs organise so-called conferences of the youth (COY) as a forum for exchange and establishing common strategies. During UNFCCC sessions, YOUNGO provides a space, called Spokes Council where youth can learn about the process, network with other youth and collaborate.³

About 60 indigenous peoples NGOs are included in the constituency of indigenous peoples' organisations. Through the international indigenous peoples forum on climate change⁴ they elaborate common strategies for the UNFCCC process. The Local Communities and Indigenous Peoples Platform (LCIPP, cf. chapter 4.5.2) has been established under the UNFCCC framework as a basis for strengthening the knowledge, technologies, practices and efforts of local communities and indigenous peoples related to addressing and responding to climate change, to facilitate the exchange of experience and sharing of best practices and lessons learned on mitigation and adaptation and to enhance the engagement of local communities and indigenous peoples in the UNFCCC.

36 NGOs are listed as part of the constituency of women and gender NGOs. The constituency is a platform for exchange of NGOs working on gender issues in the context of climate change and to promote the rights of women as they are particularly affected by the adverse impacts of climate change. A Gender Action Plan seeking to advance women's full, equal and meaningful participation and to promote gender-responsive climate policy and the mainstreaming of a gender perspective in the implementation of the Convention was adopted by the COP in 2017 (cf. chapter 4.5.3).

Research and independent NGOs comprise organisations engaged in independent research and analysis in order to develop sound strategies to address the causes and consequences of global climate change. More than 550 organisations belong to the RINGO constituency under the UNFCCC. RINGO representatives play an active part in climate change conferences, e.g. by organising side events to address a wide range of topics.

Activities by the 282 business and industry NGOs under the BINGO constituency are coordinated by the International Chamber of Commerce (ICC) which undertakes efforts to help business take climate action. In 2019, the Chambers Climate Coalition has been launched, providing a platform for chambers to demonstrate their commitment to an effective global response to climate change.⁵

¹ <https://unfccc.int/process/parties-non-party-stakeholders/non-party-stakeholders/admitted-ngos/list-of-admitted-ngos>

² <http://climatenetwork.org/>

³ <https://youthclimatemovement.wordpress.com/younggo/>.

⁴ <http://www.iipfcc.org/>.

⁵ <https://www.chambers4climate.iccwbo.org/>.

The International Trade Union Confederation (ITUC) as the umbrella organisation for trade unions, lists climate justice and industrial transformation as one of its central priorities (International Trade Union Confederation 2019). Its aim is to implement global climate action 'on the basis of just transition principles and plans: national and industry/enterprise plans that protect and create new jobs by investing in the necessary industrial transformation'; see also chapter 5.6 on just transition. 14 NGOs are listed as part of the trade unions' constituency under the UNFCCC.

The farmers' constituency comprises 23 NGOs. Most recently in 2017, COP23 initiated the Koronivia Joint Work on Agriculture (KJWA) which requests the SBSTA and SBI to jointly address issues related to agriculture (cf. chapter 4.5.1). In the view of the Food and Agriculture Organization (FAO), this work is an 'important step forward in the negotiations on agriculture with the UNFCCC and emphasises the importance of agriculture and food security in the climate change agenda. By mainstreaming agriculture into the UNFCCC process, the KJWA can drive transformation in the agricultural sector and address synergies and trade-offs between adaptation, mitigation and agricultural productivity' (FAO 2019). The farmers' constituency as well as a number of individual NGOs with a stake in agriculture have expressed their views in submissions in 2019 on methods and approaches for assessing adaptation, adaptation co-benefits and resilience as well as on improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrated systems, including water management.

3.2.2. Local and regional governments

The constituency of local government and municipal authorities is coordinated by 'ICLEI – Local Governments for Sustainability'. ICLEI (International Council for Local Environmental Initiatives) is a global network of more than 1,500 local and regional governments committed to sustainable urban development, active in more than 100 countries. In the UNFCCC negotiations, ICLEI aims to ensure that the needs, interests and priorities of local and regional governments are represented and taken up in official decisions. At the same time, it engages in spreading information on developments at the international level through their networks to the local and regional level.⁶

Among a number of initiatives and activities which ICLEI organises and engages in, it also launched and facilitates the Cities and Regions Talanoa Dialogues. These dialogues are designed to convene local and regional governments and national ministries of climate, environment and urbanisation, as well as host organisations and climate stakeholders to discuss NDCs and ways to strengthen them. They particularly examine the urban dimension of climate action and look at how multilevel governance can help to strengthen NDCs.⁷

Another important initiative from cities is the Global Covenant of Mayors for Climate and Energy (GCoM). It is the largest alliance for city climate leadership and covers over 10,000 cities and local governments from 139 countries, representing more than 800 million people. With a secretariat based in Brussels, GCoM has also established regional/national covenants, which serve as local chapters of the global alliance. The three main initiatives of the GCoM are: 1) a research and innovation initiative to identify specific data, information and technology priorities and drive investment in these areas; 2) an initiative to collect data on cities' climate action and implement common ways of reporting among cities; and 3) an initiative to enhance cities and local governments' access to domestic and

⁶ https://iclei.org/en/our_approach.html.

⁷ https://iclei.org/en/Talanoa_Dialogue.html and <http://www.cities-and-regions.org/climate-advocacy/>.

international financial investment critical to their commitments.⁸ The GCoM brings together the EU's Covenant of Mayors⁹ and the former Compact of Mayors.

Additionally, local and regional actors have launched sub-national initiatives on climate change such as initiatives of US state governments that join forces in the US Climate Alliance founded in 2017.¹⁰ Under this alliance, which represents 40 % of the US population states pursue common initiatives aimed at collaborating in combating climate change through e.g. clean transportation, reducing hydrofluorocarbons, grid modernisation etc.¹¹ Also, California has its own climate initiative and collaborates with national and subnational actors worldwide through bi- and multilateral agreements (e.g. Pacific Coast Action Plan on Climate and Energy; Transport Decarbonisation Alliance etc.).¹²

3.2.3. International organisations

The UNFCCC provides that representatives of the United Nations system may be represented as observers at the negotiations (UNFCCC 2019j).

The IPCC is one of these UN organisations and as a scientific body plays a prominent role in the UNFCCC negotiations. It assesses the scientific, technical and socioeconomic information relevant for understanding the risk of human-induced climate change. The IPCC's work covers physical scientific aspects of the climate system and climate change, the vulnerability of socio-economic and natural systems to climate change as well as options for mitigating climate change. It produces general assessment reports as well as special reports and technical papers on specific issues, often upon the request of the COP or the SBSTA, which then find entrance into COP decisions (see also chapter 5.1). Also, the IPCC has developed guidelines for national greenhouse gas inventories which are used by all Parties to prepare national reports on their greenhouse gas emissions (UNFCCC, 2018c).

The International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO) are two other UN organisations with close links to the UNFCCC negotiations. Apart from making submissions to the UNFCCC process, they report under SBSTA on their activities and ICAO's CORSIA scheme for emissions offsetting plays a role in the negotiations on cooperative approaches under Article 6 (see chapter 2.4.1).

In addition, intergovernmental organisations (IGOs) outside the UN system may be admitted by the COP as observers to the UNFCCC. More than 120 IGOs have observer status, including a great variety of organisations such as, e.g., the Secretariat of the Pacific Community, the Permanent Secretariat of the Alpine Convention, the Islamic or the European Investment Bank or the Gas Exporting Countries Forum (UNFCCC 2019a).

Like other observer organisations, representatives from international organisations may participate in sessions open to observers, make submissions, make statements at high-level segment sessions, organise side events and present their work in the exhibition area.

⁸ <https://www.globalcovenantofmayors.org/>

⁹ <https://www.covenantofmayors.eu/>

¹⁰ <https://www.usclimatealliance.org/>

¹¹ <https://www.usclimatealliance.org/about-initiatives>

¹² https://www.climatechange.ca.gov/climate_action_team/partnerships.html

3.3. Global Climate Action Agenda (the Marrakesh Partnership)

Building on the Lima Paris Action Agenda (LPAA)¹³, in Paris Parties agreed to convene annual high-level meetings at the COPs to focus on the implementation of policy options for enhancing climate action, to showcase successful examples of scaling up efforts to address climate change and foster collaboration between Parties and non-Party stakeholders (e.g. cities, regions, the private sector, and financial institutions). Other arrangements Parties installed to further strengthen collaboration between Parties and non-Party stakeholders are the technical examination processes on mitigation and adaptation and the Non-State Actor Zone for Climate Action (NAZCA) Platform¹⁴, which serves as a repository of non-Party climate initiatives and helps to track their progress. The Global Climate Action Agenda also offers the opportunity for collaboration with the wider UN agenda and the SDG process.

The COP also decided that the COP Presidencies should appoint high-level champions to coordinate these efforts on their behalf. Each champion serves two years, so there is an overlap between an experienced and a new champion. At COP22 the high-level champions appointed by the French and Moroccan COP presidencies relaunched the Action Agenda as the Marrakech Partnership for Global Climate Action¹⁵ to continue and scale-up efforts and coordination. The current serving champions are Mr. Tomasz Chruszczow (Polish Special Envoy for Climate Change from the Ministry of Environment) and Mr. Gonzalo Muñoz (Chilean entrepreneur and social change-maker).

The rationale behind establishing an explicit link between the formal (understandably more rigid) UNFCCC party driven process and non-Party actors who are addressing climate change on the ground was to give voluntary and concrete climate action efforts more visibility and thus lay the ground for political goodwill, enhanced ambition and collective action.¹⁶ Given that the context of the Global Climate Action Agenda arrangements was among other things, the enhancement of pre-2020 climate action, the mandate to appoint champions is currently limited to 2020. Consultations regarding the future of the Action Agenda are underway.¹⁷ Its continuation is of special importance, considering the current gap in implementation and ambition of Parties to achieve the goals of the Paris Agreement. Non-party stakeholders hold the potential to complement the UNFCCC process and bring momentum to political discussions.

¹³ A collaboration between the Peruvian COP20, the French COP21 Presidency, the UN Secretary General's Office and the UNFCCC secretariat to convene Party and non-Party stakeholders throughout 2015 to showcase concrete progress in climate action and induce accelerated action. The LPAA built on the 2014 UN Secretary General Climate Summit and culminated with a series of high-level events at COP21 and gave way to the arrangements specified in Decision 1/CP.21.

¹⁴ <https://climateaction.unfccc.int/>

¹⁵ <https://unfccc.int/climate-action/marrakech-partnership-for-global-climate-action>

¹⁶ See, for example, decision 1/CP.21 paragraph 118.

¹⁷ <https://unfccc.int/climate-action/marrakech-partnership/invitation-to-provide-feedback-to-the-high-level-champions-on-global-climate-action>

4. STATUS OF NEGOTIATIONS AND MAIN ISSUES AT STAKE AT COP25

The next UN Climate Change Conference will take place from 2 to 13 December 2019. Following the rotation between the five UN regional groups, it was agreed that a Latin American country – Chile – should preside over and host the conference. However, on 30 October 2019, the Chilean President Sebastián Piñera announced Chile would not be able to host the conference due to ongoing protests in Chile which had started in mid-October. Following this announcement, the Spanish government offered to host the conference, and the COP Bureau confirmed on 1 November 2019 that the COP will take place in Madrid on the same dates as originally planned. Even though the conference will take place in Spain, Chile will still hold the presidency and the Chilean Environment Minister Carolina Schmidt will serve as COP, CMP and CMA President.

The main issues of the formal negotiation process include the completion of methodological issues under the Paris Agreement (agreeing on guidance on Article 6 and making progress in defining reporting tables) and issues related to support for the implementation of NDCs. Achieving substantive outcomes of these issues will be a priority of the Chilean COP Presidency. The following sections summarise the state of negotiations considering the main outcomes of COP22, 23 and 24 – and describe open issues that will be at stake at COP25. In addition to the formal negotiations, the COP will also present an opportunity for non-state actors to gather and issue calls and commitments for more ambitious climate action.

4.1. Mitigation

4.1.1. Voluntary cooperation under Article 6 of the Paris Agreement

International rules for Article 6 are the only part of the PAWP that remained incomplete in Katowice. Thus, negotiations on Article 6 will be of special interest in Madrid and guidance and rules under this Article will be a central deliverable of CMA2. Throughout the negotiations in 2016, 2017 and 2018, Parties discussed central concepts and captured views in several informal documents. After concluding the first sessional period of 2019, Parties have now accepted draft negotiation texts, prepared by the co-facilitators, for all three parts of Article 6, which will serve as the basis for discussion.¹⁸

Article 6 of the Paris Agreement includes three distinct approaches for Parties to pursue ‘voluntary cooperation in the implementation of their NDCs to allow for higher ambition in their mitigation and adaptation actions’ (Article 6.1). Two approaches are market-based approaches, entailing the international transfer of emission reductions, and one is a non-market approach that does not foresee such transfers (see Table 2). Article 6.2 establishes a framework for countries to count the international transfer of emission reductions towards their NDCs. Article 6.4 establishes a new mechanism under international oversight which is commonly viewed as a successor to the Kyoto Protocol’s Clean Development Mechanism (CDM). One of the main distinctions between these two approaches is governance. The international transfer of emission reductions under Article 6.2 is implemented under the responsibility of the participating Parties and foresees only limited international oversight, while the new mechanism established by Article 6.4 is implemented under the oversight of an international

¹⁸ https://unfccc.int/sites/default/files/resource/SBSTA50.DT_i11a%20clean.pdf, https://unfccc.int/sites/default/files/resource/SBSTA50.DT_i11b.clean_.pdf, <https://unfccc.int/documents/197873>

supervisory body and the CMA. Article 6.8 establishes a framework for using non-market-based approaches.

Table 2: Summary table of Article 6 approaches

Approach	Main features/characteristics of each approach as defined in Article 6 and Decision 1/CP.21
6.2. Cooperative approaches	<ul style="list-style-type: none"> • Countries are allowed to use Internationally Transferred Mitigation Outcomes (ITMOs) to achieve their NDC • When cooperating, Parties shall: promote sustainable development and environmental integrity; ensure transparency, including in governance; and apply robust accounting and avoid double counting on the basis of corresponding adjustments • Use of ITMOs for achieving an NDC requires authorization by the cooperating Parties
6.4. Mechanism under CMA authority	<ul style="list-style-type: none"> • The mechanism is established to contribute to the mitigation of greenhouse gas emissions and support sustainable development • The mechanism stands under the authority of the CMA and is supervised by a body designated by the CMA • Participation is voluntary • Participating entities (public or private) require Party authorisation • The mechanism aims to deliver overall mitigation in global emissions • A share of proceeds from activities will be levied to cover administrative expenses and support adaptation actions in developing countries
6.8. Framework for non-market approaches	<ul style="list-style-type: none"> • The framework promotes integrated, holistic and balanced non-market approaches that assist Parties in NDC implementation • The context of the framework is sustainable development and poverty eradication • The approaches aim to promote mitigation and adaptation ambition, enhance participation and enable coordination

In the authors' view, a number of contentious issues pose serious threats for the environmental integrity and ambition of the Paris Agreement. Central to the debate are the negotiations on how to avoid 'double counting'. Competing views on this issue were a major roadblock to reaching consensus at COP24 in Katowice. Double counting means that the same emission reduction is counted more than once to achieve NDCs or other climate goals. It presents a serious risk to the integrity of international carbon markets. If it is not prevented, actual greenhouse gas emissions could end up being higher than the aggregated achievement reported by countries participating in the carbon market.

In the context of the Paris Agreement, a robust system to account for international transfers of emission reductions is the main ingredient needed to avoid double counting. Article 6.2 of the Paris Agreement establishes such an accounting framework. It avoids double counting through a form of double-entry bookkeeping, referred to as 'corresponding adjustments'.¹⁹ As with bank transfers, an

¹⁹ 'Double-entry bookkeeping' was applied under the Kyoto Protocol mechanisms.

entry in one account requires a corresponding, opposite entry to another account. Under the Paris Agreement, the relevant currency is emission reductions: the country selling emission reductions makes an addition to its emission level, and the country acquiring the emission reductions makes a subtraction. As part of the enhanced transparency framework, both countries prepare an emissions balance in which the country's target level is compared with its emissions, adjusted for any international transfers of emission reductions. This ensures that the acquiring country can count the transferred emission reductions towards its mitigation target, while the transferring seller country cannot count them any longer (Schneider et al. 2019).

However, Brazil, supported by some other countries, proposes that seller countries should not have to apply corresponding adjustments if the emission reductions are generated under the new mechanism established by Article 6.4 of the Paris Agreement. Brazil argues that the requirement that emission reductions from the mechanism must be additional obviates the need for corresponding adjustments by seller countries because it ensures that the emission reductions go beyond the climate action that the country would pursue to achieve its NDC. This position would implement accounting similar to the Kyoto Protocol where only developed countries have climate mitigation targets, so there would be no need for developing countries to account for transfers of emission reductions. However, it could result in double counting in the new context of the Paris Agreement, under which all countries have pledged NDCs. The EU and most other countries have, therefore, taken the position that corresponding adjustments be applied by both selling and acquiring countries for the new mechanism established by Article 6.4. Disagreement over this matter was central to the failure of the attempt to reach a consensus at COP24 (Schneider et al. 2019).

Countries are also wrestling with avoiding double counting between ICAO's CORSIA and NDCs. Under ICAO, countries have formally agreed that double counting between countries' mitigation targets and ICAO's aviation scheme should be avoided. Yet under the Paris Agreement, Saudi Arabia and a few other countries have taken the position that international rules under Article 6 should not address such double counting, arguing that Article 6 only refers to transfers of emission reductions to achieve Paris targets, but not transfers to airlines, and that ICAO and the Paris Agreement are independent treaties. Without a requirement for countries to apply corresponding adjustments for emissions reductions sold to the aviation industry, however, there is a risk that these reductions are double counted: once by the selling countries to achieve their Paris targets and once by airlines to achieve their obligations under ICAO. Failure to resolve this matter could undermine the integrity of ICAO's scheme (Schneider et al. 2019).

Avoiding double counting is also challenging because countries communicated very diverse NDCs, including different types of targets, different coverage of gases or sectors and different target time frames. This makes accounting for transfers of carbon market units technically complex.

In the context of different target time frames, South Korea has proposed that countries should be allowed to count emission reductions achieved in another country over many years (e.g. from 2021 to 2030) to achieve a target for a single year only (e.g. 2030). This could undermine environmental integrity in various ways, for example, if the seller country would only account for transfers that occurred in its target year (e.g. 2030). But how to then account for transfers of emission reductions generated in pre-target years is an open question. Adopting multi-year targets or trajectories would be much more tractable for carbon market accounting, though it is potentially politically difficult. It would ensure continuous accounting over time and provide for integrity and transparency (Schneider et al. 2019).

There is also debate about whether, and under what conditions, countries should be allowed to sell emission reductions from greenhouse gases or economic sectors which they have not included in

their targets under the Paris Agreement. China, for example, has only a target for CO₂ but not for other greenhouse gases. If the country sold emission reductions from a project that captures methane from landfills, this would not lead to double counting because only the buying country would use the emission reductions to achieve its NDC, and corresponding adjustments would thus not be necessary on the part of transferring seller countries. However, allowing such transfers without adjustments by seller countries could create a disincentive for them to include more sectors and greenhouse gases in their future targets, because doing so would compel them to make adjustments any time they wish to sell such emission reductions.

To address this concern, the EU has proposed that such transfers should not be eligible. Some other countries, such as the United States, have proposed that international rules should require that seller countries apply corresponding adjustments for all transfers, regardless of whether the emission reductions occur within or outside the scope of their Paris targets. This would create incentives for seller countries to expand the scope of their targets and make accounting simpler as it would avoid the need to determine whether emission reductions occur inside or outside the scope of their targets. However, such an approach could make it more difficult to use international carbon markets for reducing emissions that occur outside the scope of Paris targets. This is because the country would need to make an adjustment to the emissions covered by its NDC but only observe emission reductions from sectors or gases that are not covered by its NDC. In the above example of a landfill gas capture project in China, the country would need to make an addition to its reported CO₂ emissions (which are covered by the NDC), while it would observe a reduction in its methane emissions (which are not covered by its NDC). To resolve these issues, one option considered in the negotiations is a grace period for the application of corresponding adjustments (Schneider et al. 2019).

Some countries, most vocally Saudi Arabia, also propose to use other metrics than CO₂ emissions to engage in international transfers, such as kilowatt-hours of renewable energy. The EU and most other countries favour an approach whereby only emission metrics (tons of CO₂ equivalent) are internationally transferred and accounted towards NDCs. Allowing other metrics provides more flexibility to countries but also different concerns: it could create a disincentive for countries to move towards emissions targets, give rise to emissions, and be practically difficult to implement.

Overall, robust accounting and environmental integrity of international carbon market mechanisms would be greatly facilitated if all countries moved towards targets that are expressed in terms of absolute greenhouse gas emissions levels, included the entire economy and all greenhouse gases, were ambitious, and applied to continuous multi-year periods.

In addition to accounting, there are other contentious matters to be resolved. Many developing countries propose that a portion of the carbon market revenues be used to fund adaptation. While this principle has been agreed for the mechanism established by Article 6.4, they propose that it applies to any bilateral carbon market cooperation. Most developed countries, including the EU, do not want to extend this principle to bilateral carbon market cooperation as they fear that this could hinder such cooperation, for example the linking of the EU's and the Swiss emissions trading schemes.

Many developing countries, in particular AOSIS members (cf. chapter 3.1), likewise argue that all carbon market approaches should lead to an 'overall mitigation in global emissions' – interpreted to mean that a portion of the mitigation is neither used by the seller nor by the buyer country to achieve their NDCs but as a benefit for the atmosphere. The EU and the Umbrella Group take the position that this principle does not need to be further operationalised, as carbon markets can help raise ambition by lowering the costs of mitigating climate change. They argue that the mechanism established by

Article 6.4 should rather establish ambitious baselines to achieve this goal. They also argue against extending this principle to bilateral carbon market approaches under Article 6.2.

With respect to the mechanism established by Article 6.4, a key controversy relates to how ambitious crediting baselines should be. While Brazil proposes that the approaches from the CDM continue to be used, such as using historical emissions, the EU argues vocally for ambitious baselines, such as best available technologies or ambitious emission benchmarks.

Another major policy controversy is whether and how the Kyoto mechanisms should be migrated to the Paris Agreement, in particular whether Kyoto units generated in the period up to 2020 could be used to achieve NDCs after 2020. Brazil and India strongly argue for allowing such units to be used to achieve NDCs, stating that this provides for continuity, whereas many other countries argue against such banking, arguing that it could dilute ambition under the Paris Agreement.

Table 5 in the Annex summarises the main contentious issues in the design of further rules under Article 6 that will have to be resolved at COP25.

4.1.2. Issues related to Article 4 of the Paris Agreement (NDCs)

Article 4 of the Paris Agreement establishes the obligation for each Party to prepare, communicate every five years and maintain successive NDCs ‘that it intends to achieve’. Each new NDC is to represent a progression in comparison to the current NDC and to represent the highest possible ambition. Parties are also obliged to ‘pursue domestic mitigation measures’ to achieve the objectives they have established in their contributions. In addition, COP21 established three mandates for the development of guidance to enhance the shared understanding of NDCs. These mandates in the PAWP were:

- to develop guidance on features of NDCs;
- to develop further guidance on information to facilitate clarity, transparency and understanding of an NDC (this information shall be provided when NDCs are communicated);
- to elaborate guidance for accounting for NDCs (Parties shall account for the anthropogenic emissions and removals corresponding to their NDC).

In 2018, CMA1 adopted one decision addressing all three mandates. The guidance on NDCs is a central component of the so-called Paris Agreement Rulebook, which will guide Parties in the implementation of the Agreement. On information to facilitate clarity, transparency and understanding, Parties provided more detail for the different categories of information mentioned in decision 1/CP.21 and decided that guidance shall be used as applicable to the type of NDC chosen by a Party. The adopted accounting guidance aims to support Parties in ensuring methodological consistency between their greenhouse gas inventories and their accounting approaches and mandates biennial reporting.

Two issues related to NDCs remain to be discussed at COP25: common time frames and the public registry. The Paris Agreement requires Parties to communicate an NDC every five years and decision 1/CP.21 further specifies that this should be done 9 to 12 months prior to the relevant COP. The Paris COP hereby provided a clear timing for the procedure of communication but it did not determine the time frame, i.e. the duration of an NDC (Winkler 2017). Currently, Parties have NDCs with time frames of 5 or 10 years (i.e. NDCs ending in 2025 or in 2030). In Paris, Parties gave the CMA the mandate to ‘consider common time frames at its first session’. Decision 1/CP.21 specified how Parties should proceed according to the NDCs they have presented. Parties with an NDC for 2025 are required to communicate a new NDC by 2020, whereas Parties with an NDC for 2030 are required to communicate or

update their current NDC by 2020.²⁰ In Katowice Parties agreed that any decision on common time frames shall apply starting 2031 and discussion will continue at COP25.

The Paris Agreement also established that NDCs shall be recorded in a public registry hosted by the Secretariat. The development of modalities and procedures for the operation of this registry were part of the PAWP and an interim registry²¹ was made available in 2016. In Katowice Parties agreed on establishing one public registry portal, which will have one part to host NDCs and a second part to host the adaptation communications (cf. chapter 4.2). At COP25 Parties will conclude their deliberations on the registry portal.

Table 3 summarises the mandates described above and the status of deliberations. More detail on the adopted guidance for NDCs is included in Table 6 in the Annex.

Table 3: Summary of issues for discussion by CMA2 related to NDCs and mitigation

Mandate	Context of the mandate	Status
Guidance on common time frames	<ul style="list-style-type: none"> Current NDCs include a variety of applicable time frames To ensure comparability of efforts, enhance ambition over time, and to facilitate reporting on progress, the use of market mechanisms and taking stock of collective progress, it would be important to establish a shared pace for all Parties. 	<ul style="list-style-type: none"> Parties have limited the number of options under discussion to time frames of 5 or 10 years, or a combination of these time frames for all Parties, or maintaining the situation as is with Parties deciding their time frames. In that case, an option is to specify the end years of NDCs and the year of communication until 2040. There has been little common ground to establish one common time frame applicable to all Parties. There were technical or practical arguments in favour or against each of the options. A 5-year time frame could be more responsive to technological developments but could overburden national planning and implementation processes. A 10-year time frame may give governments and the private sector more time to plan, but may lock in low levels of ambition for a longer period.
Public registry for NDCs	<ul style="list-style-type: none"> A simple issue from the technical point of view (this is about a website), but related to the politically controversial issue of the scope of NDCs (whether they only cover mitigation or they also cover adapta- 	<ul style="list-style-type: none"> NDCs will be recorded in a tabular format. Previously submitted NDCs will be archived and remain on the registry. Sorting and viewing of NDCs is possible and the user friendly interface will

²⁰ Note the ambiguity surrounding the concept of updating in conjunction with the Paris requirement that each subsequent NDC shall represent a progression. Does updating imply an increase in ambition or do Parties fulfil their Paris commitments if they re-submit the same NDC? Among other things, the UN Climate Summit organised by the UN Secretary General served to build political momentum around the updating of NDCs, especially considering the political developments in two very relevant Parties with five year NDCs.

²¹ An interim NDC registry is available until the registry portal is finalised: <https://www4.unfccc.int/sites/ndcstaging/Pages/Home.aspx>

	<p>tion).</p> <ul style="list-style-type: none"> Discussions also revolved around as to whether the registry would record past NDCs and around the degree of functionality offered to users (e.g. search functions). Ultimately, the registry is a matter of transparency around NDCs and of facilitating the work of non-state actors to hold Parties accountable for their NDCs. 	<p>be presented in the six UN languages.</p>
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4.2. Adaptation

A key political feature of the Paris Agreement is the balance it puts between adaptation and mitigation issues. Throughout the negotiation process leading to the agreement, developing countries were adamant that they would not accept a mitigation centric agreement. Their main political demands were the recognition of adaptation efforts, the recognition of adaptation needs and the support for adaptation action. This crystallised in the central debate whether adaptation would be a component of NDCs. In practical terms, Parties needed to agree on how they communicate their adaptation actions and needs to the international community. Unlike for mitigation action where it was straightforward to determine the difference between ex-ante information (in the NDC) and ex-post information (under the transparency framework), it is much harder to make that distinction with adaptation action, and reporting on needs and priorities, as well as on progress may have many more implications than reporting on mitigation action.

With the Paris Agreement, Parties introduced the Adaptation Communication as a tool for communicating ‘priorities, implementation and support needs, plans and actions’ (Article 7). According to Article 7 Parties can submit the adaptation communication as part of their NDCs or other reports and documents already established under the Convention, like the National Communication or the National Adaptation Plan (NAP). The Adaptation Communication will be recorded in a public registry maintained by the Secretariat. In addition, Parties should report as appropriate on information related to climate change impacts and adaptation (c.f. chapter 4.4).

The main adaptation related mandates under the PAWP were the development of further guidance for the adaptation communication and guidance for reporting on impacts and adaptation under the transparency framework. The Adaptation Committee (AC) and the Least Developed Countries Expert Group (LEG) received the request to make recommendations for modalities to recognize the adaptation efforts and needs of developing countries. A key issue related to support for adaptation was whether the Adaptation Fund, established under the Kyoto Protocol, would also serve the Paris Agreement.

In Katowice Parties adopted guidance for the adaptation communication (decision 9/CMA.1) and a decision taking up the recommendations from the Adaptation Committee and the LEG (decision 11/CMA.1). They also decided that the adaptation communications will be recorded in the same public registry portal as the NDCs (decision 10/CMA.1). Reporting on climate change impacts and adaptation is covered by the Modalities, Procedures and Guidelines for the biennial transparency reports (cf. chapter 4.4). Table 7 in the Annex summarises the key aspects of these decisions.

The public registry for the adaptation communication will contain hyperlinks to the documents containing the adaptation communication and the national focal points are responsible for uploading the adaptation communication or informing the secretariat if the adaptation communication is contained in another document. At COP25 in Madrid, Parties will review the prototype of this registry portal.

4.2.1. Loss and Damage

The main arrangement under the Convention to address Loss and Damage is the 'Warsaw International Mechanism for Loss and Damage' (WIM), established in 2013. The Paris Agreement ensured the continuation of the WIM and stated that it is subject to the authority of the CMA (Article 8). Decision 1/CP.21 clarified that 'Article 8 of the Agreement does not involve or provide a basis for liability or compensation'.

A twenty member Executive Committee (ExCom) guides the implementation of the WIM based on a rolling work plan (COP23 endorsed the last work plan in 2017²²). The ExCom meets at least twice a year and receives guidance by Parties once a year. At COP23, ExCom established the Fiji Clearing House for Risk Transfer.²³ This is a repository for information on insurance and risk transfer and has the purpose to facilitate the development and implementation of comprehensive risk management strategies.

At COP22, Parties completed a first review of the WIM and decided that the next review will take place in 2019. In June of 2019, Parties agreed on the terms of reference of this review (UNFCCC 2019h). In Madrid, in their 51st session, the SBI and the SBSTA will undertake the review and issue recommendations for a decision by the CMA and the COP. The objective is to review progress on the implementation of the work plan of the ExCom as well as the long-term vision that guides the WIM. Among other things, the review will focus on the structure of the WIM, the usefulness of its outputs, collaboration with bodies and relevant stakeholders within and outside of the UNFCCC, the implementation of the ExCom work plan and cover the period of 2013 to 2019.

4.3. Support

Articles 9 (finance), 10 (technology development and transfer) and 11 (capacity building) of the Paris Agreement contain differentiated provisions, reaffirming the core obligations established under the Convention for developed country Parties to provide support to developing country Parties. However, the Paris Agreement also saw an evolution in this regard with the invitation to other Parties to provide support.

4.3.1. Finance

Consensus on Article 9 was only possible because Parties were able to adequately balance the interests of developed countries (who wanted to expand the donor base) and developing countries (who require support for mitigation and adaptation). A key element of this balance is the recognition that the mobilisation of climate finance, i.e. deploying various sources of climate finance beyond public funding from developed country Parties that are mobilized by public climate finance, will be crucial for achieving the goals of the Paris Agreement (Gastelumendi and Gnittke 2017).

²² The WIM work plan is carried out with the support of four thematic expert groups working on slow onset events, non-economic losses, displacement related to the adverse impacts of climate change and comprehensive risk management approaches.

²³ <http://unfccc-clearinghouse.org/>

In terms of how to keep track of these obligations, the Paris Agreement establishes a number of reporting requirements, both ex-ante and ex-post. Article 9.5 of the Paris Agreement establishes the obligation for developed country Parties to provide biennially indicative and qualitative information related to the provision and mobilisation of climate finance (ex-ante information). Other Parties that provide support are encouraged to do the same. Article 9.7 of the Paris Agreement establishes the obligation for developed country Parties to provide biennially transparent and consistent information on support provided and mobilised through public interventions (ex-post information). Parties negotiated further details on how to implement these obligations under the PAWP and reached agreement at COP24 (see Table 4). The reporting of ex-post information on support is governed by the modalities, procedures and guidelines for the transparency framework, which build on and enhance the current reporting on support under the Convention.

In the context of mobilisation of climate finance from a wide variety of sources, instruments and channels (Article 9.3) Parties agreed to set ‘a new collective quantified goal from a floor of USD 100 billion per year, taking into account the needs and priorities of developing countries’ prior to 2025. At COP24, Parties agreed to start deliberations on this matter in 2020 (at CMA3). The preparation for these negotiations may however already be discussed at political level at COP25.

COP25 and CMA2 will also consider the recurring mandates of giving guidance to the operating entities of the Financial Mechanism of the Convention: the Standing Committee on Finance (SCF), the GCF, GEF (cf. chapter 2.3.4) and the Adaptation Fund. The most contentious deliberations will be on the governance of the Adaptation Fund, specifically the composition of its board. The Adaptation Fund was originally established under the Kyoto Protocol in 2001 and in 2017 Parties decided that it shall also serve the Paris Agreement. Its purpose is to specifically finance adaptation projects in developing countries and thus it plays a crucial role in practical and political terms. The main sources of financing for the Adaptation Fund are a share of proceeds generated from CDM projects and voluntary contributions from developing countries.

Table 4: Summary of guidance on information to be provided in relation to climate finance (Article 9)

Issue	Guidance adopted by the CMA
Biennial indicative and quantitative information on support provided and mobilised (Article 9.5.)	<ul style="list-style-type: none"> Parties will start providing biennial communications in 2020. These should include, inter alia: <ul style="list-style-type: none"> information to increase clarity on projected levels of public financial resources to be provided information on purpose and types of support (mitigation, adaptation, cross-cutting) information on action and plans to mobilise additional climate finance Update of information requirements will be considered in 2023
Biennial information on support for developing country Parties provided and mobilised (Article 9.7)	Parties requested the SBSTA to develop modalities for accounting of financial resources provided and mobilised through public interventions. Guidance on this issue was adopted as part of the transparency framework (cf. chapter 4.4, below).

4.3.2. Technology development and transfer

The Technology Mechanism (TM) under the Convention is composed of two bodies, the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN). In 2010, the COP established the TM to facilitate actions throughout the technology cycle to support mitigation and adaptation in developing countries.²⁴ Article 10 of the Paris Agreement establishes a technology framework to provide 'overarching guidance' to the Technology Mechanism. By clearly linking the TM to the Paris Agreement, Parties aimed to enhance implementation of technology development and transfer and provide new instances to take stock of progress, inter alia in the global stocktake. The focus lays in improving effectiveness and efficiency of the TM and its two bodies and improving support for technology development and transfer.

The PAWP included two specific mandates: 1) to elaborate the technology framework and 2) to define the scope of and modalities for the periodic assessment of the technology framework. CMA1 adopted two respective decisions on these mandates. The CMA elaborated the framework defining five 'focused areas of action', namely: innovation, implementation, enabling environment and capacity building, collaboration and stakeholder engagement and support (Decision 15/CMA.1). The periodic assessment will focus on the effectiveness of the TM and the adequacy of support provided to the TM in supporting the implementation of the Paris Agreement. It will take place every five years starting in 2021, and its outcomes will serve as inputs to the global stocktake (Decision 16/CMA.1). In Madrid COP25 and CMA2 will consider the joint reports from the TEC and the CTCN. SBI51 will consider whether and how the upcoming review of the CTCN and the periodic assessment of the technology framework can be aligned.

4.3.3. Capacity Building

Achievement of the long-term goals of the Paris Agreement depends in large parts on the capacities of developing countries to implement their mitigation and adaptation actions and to participate in the climate regime, for example through reporting. Article 11 and the related paragraphs in Decision 1/CP.21 specifically address capacity building. Parties agreed on the obligation to regularly communicate on actions or measures on capacity building and established the Paris Committee on Capacity Building (PCCB) to address capacity building needs and gaps. It is the first time in the UNFCCC that Parties address capacity building independently from other means of implementation, despite its cross-cutting nature (d'Auvergne and Nummelin 2017).

In Paris, Parties agreed on a first PCCB workplan for the 2016 and 2020 period inter alia addressing synergies and collaboration of the UNFCCC bodies that work on capacity building, fostering cooperation at different levels and exploring how capacities in developing countries can be maintained in the long term. At COP25 Parties will review the progress, the effectiveness and enhancement of the PCCB.

4.4. Transparency

The Paris Agreement introduced, in Article 13, an enhanced transparency framework for action and support. In the years 2016 to 2018, negotiators fleshed out further details of this framework. Parties had to agree on the information to be provided in the reports under the framework, on the modalities for reviewing these reports, and on the procedures for the Facilitative, Multilateral Consideration

²⁴ Prior to the Technology Mechanism, Parties established the Poznan strategic programme (branded as such in 2008). Among other things, it tasked the GEF to provide funding to technology development and transfer for climate action and provide support for Technology Needs Assessments (TNAs). TNAs were introduced in 2001 (COP7) as a tool for developing country Parties to identify and analyse priority technology needs.

of Progress, which had been introduced by the Paris Agreement (cf. chapter 2.3.4). The negotiations on these details constituted one of the main work packages of the PAWP.

When defining the details for the transparency framework, Parties made use of the experience made with reporting under the Convention and under the Kyoto Protocol, namely with national communications, biennial reporting obligations and national inventory reports. However, restrictions of the current reporting systems had to be overcome, in particular the fact that reporting under the Convention and Kyoto Protocol is bifurcated, with different requirements for Annex I Parties compared to those not included in Annex I to the Convention.

Despite these differences in the current system, Parties were able to agree on a common reporting framework, which is applicable to all Parties to the Paris Agreement. Achieving this agreement was made possible by the concept of flexibility, which had been introduced in Article 13 of the Paris Agreement: Those developing country Parties that need it in the light of their capacities are granted flexibility, such as the reporting of less detailed information or choices concerning the type of review.

This agreement was reached at the COP in Katowice in December 2018 and the document adopted there, the ‘Modalities, Procedures and Guidelines (MPGs) for the transparency framework for action and support’ (UNFCCC 2018c) can be regarded as one of the central elements of the ‘Paris Agreement rulebook’.

The MPGs provide guidance for reporting on the greenhouse gas inventory, on tracking of progress in implementing and achieving the NDC, on adaptation and on support. This information is to be provided biennially and the first so-called biennial transparency report (BTR) is to be submitted by the end of 2024 at the latest. In addition, the MPGs provide guidance on the organisation of reviews and of the Facilitative, Multilateral Consideration of Progress.

However, the negotiation time up to the Katowice conference was not sufficient to agree on report outlines or on detailed reporting tables. Therefore, the CMA requested to SBSTA to develop such outlines and tables – this constitutes the major task for transparency negotiators in 2019 and 2020.

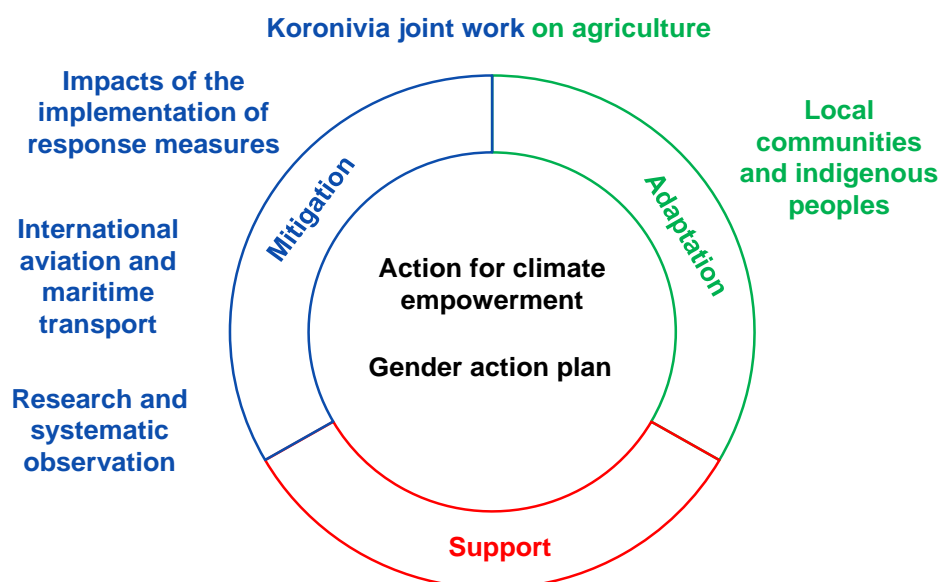
Although the negotiations on outlines and tables are very technical overall, some difficult questions may emerge, such as how to reflect flexibility in the reporting tables, or how to design the report outlines and tables in a way that allows for complete and transparent reporting, while still being easy to use for developing countries with limited capacities. Consequently, negotiators from developing countries will continue to emphasise the importance of capacity building.

In addition to the negotiations in Madrid, more technical work on reporting tables is expected to be needed in 2020, before the outlines and tables can be finalised by November 2020 as requested by the CMA (UNFCCC 2018c).

4.5. Other topics in recent negotiations

Besides the implementation of the Paris Agreement, negotiators discussed a number of other topics under the Convention and under the Kyoto Protocol in recent years, many of which are also on the agenda in Madrid. Figure 10 depicts selected topics, which are regularly negotiated under the Convention. The COP addresses some of these topics; other, more technical agenda items are negotiated under its subsidiary bodies, SBI and SBSTA.

Figure 10: Other topics in recent negotiations and their relation to the main topics of mitigation, adaptation and support



Source: UNFCCC (2018a), authors' views

Note: Most topics are cross-cutting in nature. The relations depicted in this figure constitute a simplification and are for illustrative purposes only.

4.5.1. Koronivia Joint Work on Agriculture

Agriculture is an example of a sector with close links to both mitigation and adaptation. On the one hand agricultural activities lead to greenhouse gas emissions, e.g. from livestock; on the other hand the sector is one of the most vulnerable to climate change. In order to address these issues, COP23 launched the Koronivia Joint Work on Agriculture. The work programme was named after the Koronivia Research Station, the agricultural research station of Fiji, which presided over COP23. Under this work programme, the SBI and SBSTA work jointly through workshops and expert meetings on a number of agriculture-related issues, taking into consideration the vulnerability of agriculture to climate change and addressing food security (UNFCCC 2017c). During the COP in Madrid, a workshop on improved nutrient use and manure management will be held.

4.5.2. The Local Communities and Indigenous Peoples Platform

Also at COP23, the 'Local Communities and Indigenous Peoples Platform' (LCIPP) was established. Its aim is to strengthen the knowledge, technologies, practices, and efforts of local communities and indigenous peoples related to addressing and responding to climate change (UNFCCC 2017a). In Madrid, the SBSTA will discuss the 2020-21 work plan of the platform, which is currently being developed by the 'facilitative working group', a group comprised of representatives from Parties and indigenous peoples' organisations.

4.5.3. The Gender Action Plan

As a third initiative agreed at COP23, the gender action plan (GAP) seeks to advance women's participation and promote gender-responsive climate policy and the mainstreaming of a gender perspective in the implementation of the Convention (UNFCCC 2017b). This is especially important as in many countries women are more exposed to the impacts of climate change than men, while they have not been equally involved in addressing its causes and impacts. The GAP consists of a number of

dialogues, reports and capacity-building activities, which were carried out in 2018-19. At COP25 the terms of reference for the review of the GAP will be negotiated.

4.5.4. Action for Climate Empowerment

The field of education, training, public awareness, public participation and public access to information constitutes another important aspect of the response to climate change. This topic is enshrined in the Convention and in Article 12 of the Paris Agreement. Education-related topics are discussed in annual dialogues under the 'Action for Climate Empowerment' (ACE) programme (UNFCCC 2019k). At the COP in Madrid, it can be expected that the terms of a review of the ACE programme will be decided on.

4.5.5. Impacts of the implementation of response measures

A mitigation-related aspect has been discussed under the Convention since the beginning and is also addressed under the Paris Agreement – the impacts of the implementation of response measures. Whenever measures in response to climate change are taken, such as the reduction of fossil fuel consumption, they may have impacts on other economic sectors and other countries. The oil-producing countries, in particular Saudi Arabia, point out the importance of addressing these impacts and of acknowledging and supporting related activities, such as economic diversification in countries relying on fossil fuel production.

Under the Convention, the impact of the implementation of response measures has been addressed by a forum since 2012. The modalities, work programme and functions of this forum under the Paris Agreement were agreed at the COP in Katowice (UNFCCC 2018d). The Katowice Committee of Experts on the Impacts of the Implementation of Response Measures (KCI) supports the forum. During the COP in Madrid, SBI and SBSTA are tasked with finalising a 6-year workplan for the forum.

4.5.6. International aviation and maritime transport

There are three main areas in which emissions from international aviation and maritime transport or policies of ICAO and IMO are discussed under the UNFCCC:

Submissions and reports of ICAO and IMO updating the UNFCCC about their activities to reduce greenhouse gas emissions in their sectors under SBSTA:

Since COP1 in Bonn in 1995, ICAO and IMO have reported on their work to control and reduce emissions from international bunker fuels under the SBSTA. Prior to each SBSTA session, they submit a report on their work since the previous session. In addition, ICAO and IMO provide a short statement at the SBSTA opening plenary, in which their report is summarised. These statements were used by Parties to comment on the efforts made under ICAO and IMO, i.e. progress made in terms of relevant decisions or on the level of mitigation ambition.

At SBSTA48 in Bonn in June 2018, Saudi Arabia called into question further reports of IMO and ICAO because they considered their position under IMO not adequately reflected in the IMO secretary's report. As a result, Parties could not agree on draft conclusions. At SBSTA49 in Katowice in December 2018, Saudi Arabia repeated its position that ICAO and particularly IMO should not be invited for reporting on their progress made. However, the UNFCCC secretariat clarified that the invitation for ICAO and IMO dates back to COP1 in 1995, which should be considered as a standing invitation to both organisation to regularly report on their work and progress and that this decision cannot be overruled by SBSTA conclusions. At SBSTA50 in Bonn in June 2019, the issue was not reiterated again.

but Parties could, nevertheless, not agree on draft conclusions. However, two Parties made use of the invitation to submit their views on ICAO's and IMO's reports (Japan, EU).

Global Stocktake pursuant to Article 14 of the Paris Agreement:

At COP24 in Katowice, Parties adopted decision 19/CMA.1 in which they agreed on details how to implement the Global Stocktake (cf. chapter 2.3.3). Some of these details are relevant for efforts under ICAO and IMO to reduce greenhouse gas emissions from international aviation and maritime transport.

The decision on the global stocktake clarifies that events outside the UNFCCC (such as events organised by ICAO and IMO) can contribute to the global stocktake. In the decision Parties agreed to consider outputs with a view to enhancing their actions and support as well as in enhancing international cooperation for climate action, which implicitly includes actions under ICAO and IMO. Finally Parties requested that SBSTA and SBI identify potential information gaps in relation to the global stocktake. Taking into account the stringent temperature goal of the Paris Agreement, it is clear that potential gaps beyond the core jurisdiction of the UNFCCC, such as information on emissions from international aviation and shipping, need to be included.

The IMO also made a submission under the Talanoa Dialogue in 2018 (cf. chapter 2.3.3), in which the vision of the IMO's initial strategy on the reduction of greenhouse gas emissions from ships was explained in detail (IMO 2018). This illustrates that international aviation and maritime transport need to be considered as part of the global effort to combat climate change. ICAO, in contrast, has not submitted a similar document under the Talanoa Dialogue. For the global stocktake in 2023, it will be important that both ICAO and IMO submit documents in which they explain their contributions to the global efforts to mitigate climate change.

Articles 6 and 13: Negotiations on guidance for the implementation of **cooperative approaches** to achieve the nationally determined contributions (NDCs):

ICAO's Carbon Offset and Reduction Scheme for International Aviation (CORSIA) is based on offsets, i.e. units which ensure that emissions are reduced elsewhere. This can either be a certified unit from a project-based baseline and credit programme (CP) or an allowance from an emissions trading system (ETS). So far, ICAO has only adopted Standards and Recommended Practices (SARPs) which enable the use of units from CP. In the negotiations on cooperative approaches and on tracking of progress of NDCs at the COP in Madrid, it will be important to ensure that emission reductions used under CORSIA will not be double-counted towards emission reductions under the NDCs (cf. chapter 4.1.1).

4.5.7. Research and systematic observation

Finally, the SBSTA has research-related items on its agenda (UNFCCC 2019g). Under 'Scope of the next periodic review', the appropriateness of the long-term goal of the Convention and progress towards this goal are discussed, with close links to the goals of the Paris Agreement. In addition, an 'Earth information day' is organised, where earth observation results are presented, and the topic 'research and systematic observation' is negotiated. While the scientific evidence of climate change and its impacts is mounting from year to year, the negotiations on this topic face the difficulty of finding a common wording that is acceptable to all Parties. Although generally all Parties appreciate and welcome the work of the scientific community, some may not agree with particular results, which then leads to rather general conclusions in the negotiations.

As an example, the IPCC Special Report on global warming of 1.5°C (cf. chapter 5.1) was widely acknowledged as an important, timely and well-researched document. However, at the negotiations

under SBSTA, Saudi Arabia was not willing to agree on substantial conclusions. Hence, the conclusions reached by SBSTA in June 2019 are procedural only (UNFCCC 2019c), without reference to the contents or implications of this report. The IPCC special reports on land and on the ocean and cryosphere, which were published in 2019 (cf. chapter 5.1), will be addressed in joint SBSTA-IPCC special events during the first week of the COP in Madrid.

5. RECENT DEVELOPMENTS AND THEIR IMPACT ON THE NEGOTIATIONS

In 2019, climate change moved to the centre stage of the political debate at several occasions. Events such as the UN Secretary-General's climate action summit, civil society movements and new findings such as the IPCC special reports shaped the discussion in 2019 and will have an impact on the negotiations at COP25 and beyond. This chapter provides an overview of recent developments and their possible impacts on the climate change negotiations.

5.1. IPCC special reports

Several recent IPCC reports have attracted substantial public attention and play an important role for the UNFCCC negotiations as they underline the urgency to act now in order to combat climate change and prevent greater harm to humans and the ecosystem.

In October 2018, the IPCC published its special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development and efforts to eradicate poverty (SR1.5). The COP had invited the IPCC in 2015 to prepare this report when it adopted the Paris Agreement and its temperature goal.

The report compares cumulative emissions anticipated under NDCs with carbon budgets for 1.5°C and states the ranges of total 2030 emissions that could be compatible with different warming levels. The report concludes unequivocally that continued action in line with current NDCs is not compatible with pathways consistent with limiting warming to 1.5°C. If current NDCs were fully implemented, emissions in 2030 would roughly be twice the amount (52-58 bn t CO₂eq) compatible with the long-term temperature goal of 1.5°C (25-30 bn t CO₂eq). However, the gap is even bigger with currently implemented policies and measures as many countries have not adopted measures sufficient to reach their NDC targets. The current state of implementation of policies and measures is likely to result in global warming by 3.2°C (2.4-4.3°C). The report underlines that we can already experience the consequences of global warming of 1°C and mentions a number of implications of climate change, which could be avoided by limiting global warming to 1.5°C compared to 2°C. It also points out that global warming above 1.5°C would put at risk the possibility to reach the goals for sustainable development (IPCC 2018).

The SR1.5 and its implied warnings received broad public attention. However, at the SBSTA session in Katowice in December 2018, Parties were not able to agree on conclusions on the report, because a small number of countries did not support its main messages. The related COP decision (UNFCCC 2018b) contains very general wording only. Nevertheless, COP24 invited Parties to make use of the information contained in the special report in their discussions under relevant agenda items of the subsidiary and governing bodies. The report served as input to the Talanoa Dialogue and it is supposed to inform the next round of NDCs. Additionally, it will be an important reference for the global stocktake as a scientific basis for benchmarks of collective action.

In August 2019, the IPCC published another special report – on climate change and land – with central relevance for the UNFCCC negotiations. The report highlights that land provides the principal basis for human livelihoods and well-being as well as biodiversity on land. Human use directly affects more than 70 % of the global, ice-free land surface. Furthermore, land is under enormous pressure as one fourth of land area managed by humans is degraded. Additionally, land plays a crucial role in the climate system, both as a source of greenhouse gas emissions (agriculture, forestry and other land use activities are responsible for approx. 23 % of greenhouse gas emissions) and providing a sink for

carbon dioxide (roughly 11 bn t CO₂ per year, equivalent to approx. 29 % of annual average CO₂ emissions between 2007 and 2016). Emissions from the land use and agricultural sector are even higher if emissions associated with pre- and post-production activities in the global food system (e.g. food processing or energy use of agricultural machines) are attributed to the sector.

Land and climate affect each other mutually: changes in land conditions impact global and regional climate and may affect the occurrence of extreme weather events. At the same time, climate change creates additional stresses on land with repercussions on livelihoods, biodiversity, human and ecosystem health, infrastructure and food systems. Land-related responses that contribute to climate change adaptation and mitigation can also combat desertification and land degradation and enhance food security and vice versa. Additionally, most of the response options assessed in the report contribute positively to sustainable development and other societal goals. Particularly reducing deforestation and forest degradation is an effective and robust option for climate change mitigation with additional benefits for adaptation and the Sustainable Development Goals. However, in order to ensure sustainable land management and the availability of sufficient land area for afforestation, other parameters need to change as well: these include a change in diets to consume less meat, reduced consumption, medium growth or stabilisation of the population and the reduction of fossil energy sources (IPCC 2019a).

The messages of the report are timely and worrying in the context of the recent fires in the Amazon basin which reached an unprecedented scale in this year. Triggered and aggravated by factors such as an increased occurrence of drought resulting from climate change, deforestation and recent policy changes in Brazil, they illustrate the risks highlighted in the IPCC report in an unsettling way.

Thirdly, the IPCC released a special report on the ocean and cryosphere in a changing climate in September 2019. It highlights the extent and the accelerating pace at which sea levels might rise as a result from global warming and the resulting adverse effects on fish, corals and other marine life. If no meaningful action were to be taken and greenhouse gas emissions continued to rise, sea levels could rise by approx. 84 cm by 2100, which is roughly 10 cm higher than estimated in the IPCC's 2014 Global Assessment Report. However, sea level rise could be limited to approx. 43 cm by 2100 and around a metre by 2300 if the world sharply cuts greenhouse gas emissions in line with the goals set by the Paris Agreement. Ocean warming also affects coastal ecosystems with negative consequences on habitat area and biodiversity as well as ecosystem functioning and services. Also, food security, the availability of water resources, water quality, livelihoods, health and well-being, infrastructure, transportation, tourism and recreation as well as culture of human societies, particularly of indigenous peoples, will be negatively affected by the consequences of the shrinking cryosphere in the Arctic and high-mountain areas (IPCC 2019a; 2019b).

At COP25, the IPCC report on the ocean and cryosphere will receive special attention as the Chilean presidency has announced to put a special focus on the oceans to make COP25 a 'blue COP' (COP25 official website 2019).

5.2. Civil society movements

Against the background of insufficient action by major emitting countries to combat climate change, the involvement of civil society has intensified over the past year. Most importantly, the protests initiated by Greta Thunberg in summer 2018 have induced the new movement of 'Fridays for Future' which has brought thousands of students to the streets every Friday for the last several months. From 20 to 27 September, the movement called for participating in a global climate strike and a climate action week in which several million people in 185 countries participated overall (Global climate strike

2019). One of the key demands of youth engaging in Fridays for Future is for politicians to listen to climate science and act accordingly.

Another new global movement that has gained public attention is 'Extinction Rebellion'. It describes itself as 'an international movement that uses non-violent civil disobedience in an attempt to halt mass extinction and minimise the risk of social collapse' (Extinction Rebellion 2019). The movement organises public actions of peaceful civil disobedience to raise attention for the ecologic crisis including blocking public spaces and infrastructure as in London in July 2019 for example (The Guardian 2019).

These movements have brought climate change to the centre of political debates in Europe and elsewhere, inducing numerous actors on the political stage to take a stance on the issue. It remains to be seen to what extent civil society action will be able to generate concrete political action needed to tackle climate change in the near future.

5.3. UN Security Council and Climate Change

As the adverse impacts of climate change endanger the livelihoods of communities and regions, they pose risks to international peace and security. This topic was taken up for the first time at the level of the UN Security Council in 2007. In a presidential statement in 2011 (United Nations Security Council 2011) the Security Council expressed its concern that possible adverse effects of climate change may, in the long run, aggravate certain existing threats to international peace and security. At the same time, the Security Council reaffirmed that the UNFCCC is the key instrument for addressing climate change.

In 2017, the adverse effects of climate change were addressed for the first time in a Security Council Resolution. In its Resolution 2349 on the situation in the Lake Chad Basin region (S/RES/2349 2017), the Security Council recognized 'the adverse effects of climate change and ecological changes among other factors on the stability of the Region, including through water scarcity, drought, desertification, land degradation, and food insecurity'. It also emphasised the need for adequate risk assessments and risk management strategies relating to these factors. Similar statements followed in a number of other resolutions in the following years.

The issue was also taken up by the Security Council in January 2019 during the presidency of the Dominican Republic (UN news 2019). In an open debate, researchers briefed the Security Council on extreme weather events and the related environmental security issues. Calls were made for the strengthening of risk assessment frameworks, for replicating good practice and for building and enforcing partnerships.

As an example of such a partnership, Germany and Nauru established the Group of Friends on Climate and Security in the United Nations in 2018 (Federal Foreign Office of Germany 2018). The aim of the group is to cooperate in developing solutions for the impact of climate change on security policy, to raise public awareness and to boost the involvement of the United Nations in this area.

5.4. The UN Secretary-General's Climate Action Summit

Climate change was not only addressed at the Security Council, but also during General Assembly week. On 23 September 2019, UN Secretary-General António Guterres convened a Climate Action Summit at the UN headquarters in New York. Over 65 heads of state and government attended the summit (IISD Reporting Services 2019a). Representatives from civil society played a prominent role; a dialogue between youth and the Secretary-General received high attention.

Heads of state and government announced new initiatives to increase climate action, such as supporting the shift from coal towards renewable energy generation. Regional, city and business representatives reported on their initiatives in the areas of low greenhouse gas emissions and resilient investments. These initiatives are documented in the UNFCCC Global Climate Action portal (NAZCA platform²⁵, cf. chapter 3.3). Several heads of state also announced increased support to the Green Climate Fund.

At the summit, the president of Chile, Sebastián Piñera, announced the launch of the so-called Climate Ambition Alliance. The alliance addresses climate change mitigation, with 66 Parties to the UNFCCC working towards achieving net-zero emissions by 2050 and a similar number of Parties to the Paris Agreement working on more ambitious NDCs (Gobierno de Chile 2019). A number of regions, cities, businesses and investors joined this alliance. Besides raising mitigation ambitions, the alliance also aims at increasing adaptation actions in the areas of water management, infrastructure resilience and sustainable cities.

Overall, the Climate Action Summit highlighted that climate change is high on the agenda of many of the world's governments and businesses and it underlined the urgency of action. However, a discrepancy was once again seen between the long-term goals and the specific actions announced at the summit.

Hence, the announcements made at the summit by many representatives to aim at net-zero emissions by 2050 only constitute a first step. The path towards this goal still needs to be worked out and will face many challenges. For the Parties to the Paris Agreement, the update of their NDCs in 2020 will constitute the next major milestone.

5.5. Climate neutrality

As could be seen at the Climate Action summit in September 2019, a growing number of countries aim at achieving 'net-zero emissions' or 'climate neutrality' by a defined year. Climate neutrality means that all emissions of greenhouse gases are compensated by the uptake of an equivalent amount of carbon dioxide from the atmosphere. Besides climate neutrality, the term 'carbon neutrality' is also used. However, this term only suggests that emissions and uptake of carbon dioxide are balanced, while for climate neutrality the emissions of other greenhouse gases (methane, nitrous oxide and fluorinated gases) need to be compensated as well.

The Paris Agreement does not use the term 'climate neutrality', but another, equivalent wording: Article 4 of the Paris Agreement speaks of a 'balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases', and this balance is to be achieved 'in the second half of this century'.

As pointed out by the IPCC (cf. chapter 5.1), achieving the temperature goal of the Paris Agreement becomes more difficult the later such a balance of emissions and removals is achieved. Hence, it is of paramount importance that Parties aim to reach carbon neutrality as soon as possible and set specific years for this target.

Currently, a number of European governments are discussing proposals to achieve climate neutrality in 2050 or earlier. Norway (2030), Sweden (2050), France (2050) and the United Kingdom (2050) are among those that have such goals already in law, and the government of Finland set the goal of climate neutrality by 2035 in its coalition agreement (Climate Home News 2019). However, it has to be

²⁵ <https://climateaction.unfccc.int/>

noted that some of these countries plan to rely on offsetting emissions in other countries to achieve climate neutrality.

At the EU level, climate neutrality was discussed by the European Council in June 2019, but due to reservations of some Member States, it was not included in the main text of the Council Conclusions. Instead, a footnote to the conclusions reads 'For a large majority of Member States, climate neutrality must be achieved by 2050' (European Council 2019b).

As some developed countries are now working towards achieving climate neutrality, it is important to acknowledge that such an objective poses yet additional difficulties to emerging countries. Countries such as China have taken over manufacturing and heavy industries that used to be located in developed countries. Decarbonising these industries will constitute a difficult task and emerging countries argue that they have fewer resources available to make large changes to their economies. At the 28th BASIC Ministerial Meeting on Climate Change in São Paulo in August 2019, the ministers of environment/representatives of Brazil, China, India and South Africa stressed their support for the UNFCCC process, but focused on short-term action and on the need for support to developing countries (Ministry of Ecology and Environment 2019).

In the coming years, the difficulties that many countries will face in reducing their emissions will shift the focus towards technologies for removing carbon dioxide from the atmosphere. As no large-scale technologies exist for direct removal, afforestation and reforestation constitute the main ways of taking up carbon dioxide and sequestering it in biomass and in soils.

Carbon dioxide from combustion processes can potentially be captured and stored ('Carbon Capture and Storage – CCS), e.g. in underground mines. It can also be used for chemical processes ('Carbon Capture and Utilisation – CCU). However, these applications are still at prototype stage and are not in use on a large scale. If the carbon dioxide captured originates from fossil sources, emissions can be reduced, but no CO₂ would be removed from the atmosphere. Only the combination of growing biomass, combusting it, capturing the resulting CO₂ and storing it results in a permanent removal of CO₂ from the atmosphere (IPCC 2014). This approach is known as Bio Energy with Carbon Capture and Storage (BECCS). Another potential approach is direct air capture, an energy intensive process which directly removes CO₂ from ambient air (Carbon Brief 2019).

Carbon capture and storage technologies are a subgroup of 'geo-engineering' technologies. Under this term, additional technologies are subsumed, which aim at altering the radiative properties of the atmosphere, such as the introduction of particles in the stratosphere to reflect solar radiation. Such so-called 'solar radiation management' is not yet tested and it is important to point out that it would not affect the concentration of greenhouse gases. With solar radiation management and without climate change mitigation, greenhouse gas concentrations in the atmosphere would continue to increase and remain high for centuries. Any disruption in solar radiation management would lead to an increase in the earth's temperature at an unprecedentedly short timescale with limited possibilities for human and natural systems to adapt to new conditions.

5.6. Just transition

In the Paris Agreement, the very same sentence that addresses climate neutrality also points out the importance of equity and of efforts to eradicate poverty. As a transition towards climate neutrality requires fundamental changes to the world's economies in the coming decades, it will be important to take into account the broader needs of each country's population – both in developing, but also in developed countries.

The transition towards climate neutrality will provide both opportunities and challenges for various economic sectors and for different regions. The call for making this transition a just transition, taking into account the needs of the workers and communities, has been made by trade unions, but also by the governments of countries that rely on fossil fuels in important sectors of their economies.

At the COP in Katowice in December 2018, the Polish presidency launched the ‘Solidarity and Just Transition Silesia Declaration’ (COP24 presidency 2018), which was endorsed by 56 leaders and Parties. The declaration stresses the importance of creating decent work and quality jobs and of making infrastructure climate-resilient and it recognizes the challenges and opportunities that lay ahead for sectors, cities and regions in this transition.

For a just transition towards climate neutrality, the term ‘green deal’ has been introduced recently, both in the European Union and in the United States. In the 2019-2024 European Commission, the ‘European Green Deal’ is one of the three areas presided by an executive Vice-President. The focus of the European Green Deal is on the transition towards carbon neutrality, but Vice-President Frans Timmermans will also coordinate a ‘just transition fund’, the aim of which is to support the regions most involved in the transition (von der Leyen 2019).

In the United States, recent proposals for transforming the economy while meeting the needs of the workforce have come to be known as ‘green new deal’. At the beginning of 2019, a ‘Green New Deal Resolution’ was proposed by Democratic congresspersons (116th Congress 2019). Although the resolution did not pass the Senate, the topic can be expected to play a prominent role during the 2020 Democratic primaries and U.S. presidential elections.

5.7. U.S. withdrawal from the Paris Agreement

Besides the discussions in the run-up to the next presidential election, the status of the United States as a Party to the Paris Agreement is currently of central interest. Together with China, the United States was the first major economy that ratified the Paris Agreement in 2016. However, after the end of Barack Obama’s second presidential term, President Donald Trump announced in June 2017 that the USA intends to withdraw from the Paris Agreement.

According to Article 23 of the agreement, a Party may withdraw from it by giving a written notification to the Depositary, the UN Secretary-General, at any time after three years from the date on which the Agreement entered into force for that Party. The relevant notification date for the United States was 4 November 2019. On that day, the government of the United States notified the UN Secretary-General of its decision to withdraw from the Paris Agreement (U.S. Department of State 2019).

Withdrawal does not take effect immediately. Article 23 of the Paris Agreement specifies that withdrawal takes effect upon expiry of one year from the date of receipt by the Depositary of the notification. This date will be 4 November 2020, which happens to be one day after the next U.S. presidential election. A future U.S. government may decide to re-accede to the Paris Agreement. The United States would then become a Party to the Paris Agreement on the 30th day after the date of deposit of its instrument of accession.

In the short term, and in particular at COP25, it is important to note that the United States is still a Party to the Paris Agreement and U.S. delegates participate in the negotiations under the CMA. Even after withdrawal from the Paris Agreement, the United States will continue to be a Party to the UN-FCCC and will participate in the climate negotiations. The U.S. may focus on topics which are still of interest for it, such as calling for increased transparency from the part of developing countries.

However, the U.S. withdrawal from the Paris Agreement has consequences for global climate action and support. The U.S. government already cancelled the main domestic policies under its NDC, such as the reduction of emissions from coal-fired power plants or the reduction of leaks from natural gas systems. Some factors may still lead to an overall decrease of U.S. greenhouse gas emissions in the coming years such as a shift from coal to gas in the power sector due to the ready availability of gas (Bloomberg New Energy Finance 2019), or emission reduction initiatives by states such as California or New York.

In addition, the United States cut its contributions to the UNFCCC process and its support to developing countries in the area of climate change mitigation and adaptation. As a consequence, activities under the UNFCCC such as reviews or capacity building had to be scaled down.

6. OUTLOOK

The outcome of the COP in Madrid will shape the focus of climate negotiations and climate action in 2020 and beyond. In the area of voluntary cooperation (Article 6 of the Paris Agreement), it is still open whether an agreement can be reached. Should this not be the case, the negotiations on cooperative approaches and on the mechanism under Article 6 will continue to be a major negotiation topic in 2020. Similarly, as far as technical details of reporting under the transparency framework are concerned, negotiators may carry a major workload into 2020 if they do not make sufficient progress at COP25. Conclusions on these technical questions are expected by the time of COP26 at the end of 2020.

If the technical negotiations in Madrid are successful, COP25 will contribute to an overall shift in the international climate regime from negotiations towards implementation. Once the technical framework under the Paris Agreement is completed, negotiations will continue on topics such as the provision of support, the review of mechanisms or the revision of guidelines. However, the implementation of the Paris Agreement according to the agreed rules and guidelines will move to centre stage. In relation to the Paris Agreement, two important implementation-related deadlines have been set for 2020:

First, Parties whose NDC contains a timeframe up to 2025 are requested to communicate by 2020 a new NDC. Parties whose NDC contains a timeframe up to 2030 are to communicate or update their NDC. The EU and its Member States are among the latter Parties. As increased climate action is one of the priorities of the von der Leyen Commission and many Member States, the discussion on increased ambition in the EU's NDC can be expected to be a major topic in 2020.

Second, the COP in Paris invited Parties to communicate, by 2020, mid-century, long-term low greenhouse gas emission development strategies. For the EU, a Commission Communication explored how climate neutrality can be achieved by 2050 (European Commission 2018). At the European Council meeting in June 2019, a large majority of Member States expressed the position that climate neutrality must be achieved by 2050 (European Council 2019a). At the European Council meeting in October 2019, the Council recalled 'that it will finalise its guidance on the EU's long-term strategy on climate change at its December meeting with a view to the adoption and submission of the EU's long-term strategy to the UNFCCC in early 2020' (European Council 2019c).

The year 2020 also marks the first year of the commitment by developed country Parties to mobilise annually USD 100 billion of support for developing countries (cf. chapter 2.3.4). The actual figure of support mobilised will be available after 2020 only and the way of estimating it leaves room for interpretation. Nevertheless, the annual USD 100 billion goal will be a topic to watch from 2020 onwards, not least of all because the CMA will start negotiations on a future, more ambitious goal during COP26 at the end of 2020. In general, matters relating to finance play an important role at each climate change conference, and the related agenda items often remain open until the last day or night of the COP.

The location of COP26, which is scheduled to take place from 9 to 19 November 2020, will be confirmed by the end of the Madrid conference. The most likely outcome will be that the United Kingdom will host COP26 in Glasgow and that Italy will host a pre-COP a few weeks earlier.²⁶

As far as the overall schedule under the Paris Agreement is concerned, the COP in Madrid marks the halfway point between the adoption of the agreement in 2015 and the first global stocktake, which will take place in 2023. In the run-up to the global stocktake, it can be expected that the focus of conferences will continue to shift from a negotiations mode towards an implementation mode. A rapid shift towards more ambitious implementation will be a necessary condition for meeting the goals of the Paris Agreement – and for meeting the expectations that civil society has put on the international process of responding to climate change.

²⁶ According to the established rotation between UN regional groups, 2020 is the turn for the Western European and other States Group. Following this rotation, COP27 would take place in a member country of the African Group, COP28 in a member country of the Asia-Pacific Group, COP29 in a member country of the Eastern European Group and COP30 in a member of the Latin American and Caribbean Group.

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ANNEX

This annex contains additional information on selected topics negotiated/adopted under the Paris Agreement Work Programme. This information complements the discussion in chapter 4.

Table 5: Summary table of Article 6 issues for debate at COP25/CMA2

Approach	Main issues to be resolved by CMA2
6.2. Cooperative approaches	<p>Parties have to decide on guidance on cooperative approaches. The main contentious issues are:</p> <ul style="list-style-type: none"> • How to operationalise the application of corresponding adjustments, in particular: <ul style="list-style-type: none"> – Should Article 6 rules also avoid double counting with CORSIA? – How should transfers be accounted for in the context of single-year NDC targets? – Should emission reductions from sectors or greenhouse gases that have not yet been included in NDCs be eligible for international transfer, and if yes, how should such transfers be accounted for? – Should accounting for internationally transferred mitigation outcomes be only implemented in greenhouse gas (GHG) emission metrics (i.e. tCO₂eq) or could countries also engage in other transfers (e.g. renewable electricity)? • Whether the transfer of ITMOs should generate a share of proceeds (similar to the Article 6.4 mechanism) • Whether a contribution to overall mitigation is not only required for the mechanism established by Article 6.4, but also to cooperative approaches under Article 6.2, and how it should be operationalised • Definition of ITMOs • Reporting, review, recording and tracking <ul style="list-style-type: none"> – What minimum requirements countries must meet to engage in Article 6 and what countries need to regularly report – How that information is reviewed (separately under Article 6 or only as part of the Article 13 review) • The need for and nature of safeguards and when they need to be defined (as part of the guidance or after adoption of the guidance)²⁷
6.4. Mechanism under CMA authority	<p>Parties have to agree on rules, modalities and procedures for the cooperation mechanism under Article 6.4. The main contentious issues are:</p> <ul style="list-style-type: none"> • Whether double counting needs to be avoided through corresponding adjustments if the emission reductions are internationally transferred. • Activities covered by the 6.4. mechanism: <ul style="list-style-type: none"> – which sectors and gases are eligible (controversy around activities related to

²⁷ The discussion surrounding safeguards illustrates the many risks inherent to the Article 6 mechanisms for the implementation of the Paris Agreement and the achievement of its long-term goals.

	<p>sinks, especially forests as addressed in Article 5 of the Paris Agreement)</p> <ul style="list-style-type: none"> – how to deal with activities that lay outside of the sectors/activities which a country has included in its NDC (scope of the NDC) • Approaches for establishing emissions baselines • Transition issues from the Kyoto Protocol mechanisms, in particular: <ul style="list-style-type: none"> – some Parties call for allowing the use of Kyoto credits from CDM and JI, generated in the period up to 2020, to be eligible towards NDCs for the period after 2020 – several other Parties oppose this, as it could dilute ambition under the Paris Agreement • Operationalising the contribution to overall mitigation of global emissions • Governance of the mechanism: <ul style="list-style-type: none"> – tasks and operation of the supervisory body – serving terms of board members, limited or not – responsibilities of supervisory body – responsibilities for Parties (especially host countries)
6.8. Framework for non-market approaches	<p>Parties are to decide on a work programme for the framework. The main contentious issues are:</p> <ul style="list-style-type: none"> • An underlying tension exists regarding what the 6.8. work programme should do, without duplicating work that is already done by other bodies or work streams under the Convention (mitigation, adaptation, finance, technology, capacity building) • Governance arrangements of the work programme and whether there is the need to have new and/or permanent institutional arrangements

Table 6: Summary of the guidance adopted on NDCs and mitigation (decision 4/CMA.1)

Mandate	Context of the mandate	Guidance
Guidance on features of NDCs	<ul style="list-style-type: none"> • Mandate resulted from different views regarding adaptation in NDCs, the nature of NDCs as being expressed in qualitative or quantitative terms and remaining divergences on differentiation. 	<ul style="list-style-type: none"> • The decision adopted at COP24 refers back to relevant provisions in the Paris Agreement, which the majority of Parties considered sufficient to clarify the nature of NDCs. • The issue will be considered again in 2024.
Guidance on Information to facilitate clarity, transparency and understanding of NDCs	<ul style="list-style-type: none"> • Parties could not agree on whether further specification of the accompanying information of NDCs was necessary, to ensure that their contents and objectives are understandable to the international community and that their implementation and achievement can be tracked. 	<ul style="list-style-type: none"> • Guidance applies to the second and subsequent NDCs. • Provision of information according to the guidance is mandatory, but Parties apply it according to their NDC (not all information requirements apply to all NDCs). • Requirements include information on: <ul style="list-style-type: none"> – the reference point (e.g. a base year)

	<ul style="list-style-type: none"> Also, at the time Parties could not agree on the extent to which guidance on this information would be mandatory 	<ul style="list-style-type: none"> or baseline scenario) <ul style="list-style-type: none"> the target (e.g. emissions reduction by a certain percentage) the sectors and gases covered in the NDC assumptions and methodological approaches used for accounting how the outcomes of the global stocktake have informed the preparation of the NDC How the Party considers that its NDC is fair and ambitious. Guidance will be revised in 2027.
Guidance for accounting for NDCs	<ul style="list-style-type: none"> Under the Paris Agreement, Parties need to account for their NDCs, i.e. count their emissions and removals and compare those to the target proposed in their NDCs. The Paris Agreement spelled out guiding accounting principles namely, that accounting should promote transparency, accuracy, completeness, comparability and consistency and ensure that double counting is avoided. The challenge was to develop accounting guidance that accommodated different types of NDCs (including those that are not economy wide and quantified) and at the same time ensured Parties provided comparable and robust information regarding emissions and removals in their NDC. If collected in a methodologically robust way, this information will ultimately allow tracking progress of mitigation actions and aggregating the data needed to assess collective action. 	<ul style="list-style-type: none"> Application of guidance is mandatory for the second NDC, Parties may choose to apply it to their first NDC. Accounting information will be reported biennially in a tabular format (closely related to transparency provisions, cf. chapter 4.4) Accounting is done according to methodologies and common metrics assessed by the IPCC. Parties have to ensure the methodology they use to account for their NDC is consistent with the one they used when communicating their NDC. Any methodology used needs to be consistent with the Parties' GHG inventory. Once a GHG, a source or a sink becomes part of an NDC it is part of subsequent NDCs. Technical changes to update reference points, reference levels or projections should result from changes in a Party's inventory or improvements in accuracy that maintain methodological consistency. Methodological changes and technical updates made during the implementation of an NDC need to be reported. Guidance will be revised in 2027.

Table 7: Summary of adaptation related CMA decisions

Issue	Key content of the guidance
Further guidance for the adaptation communication	<ul style="list-style-type: none"> • The purpose of the adaptation communication is to: <ul style="list-style-type: none"> – increase the visibility and profile of adaptation – strengthen adaptation action and support for developing countries – provide input to the global stocktake and Parties are invited to submit them in time for this – enhance learning and understanding of adaptation needs and actions • Parties can choose how to submit their adaptation communication (as part of or together with the NDC or NAP or national communication or the biennial transparency reports²⁸) • The adaptation communication is not a basis for comparison and not subject to review • Parties are invited to clearly identify and number their adaptation communication sequentially • The Adaptation Committee received the request to draft supplementary guidance for voluntary use together with IPCC Working Group II by 2022 • The guidance will be revised if necessary in 2025 • The GEF is invited to provide support for the preparation of the Adaptation Communication • Elements Parties may choose to include in their Adaptation Communication include: <ul style="list-style-type: none"> – National circumstances, institutional arrangements and legal framework – Impacts, risks and vulnerabilities – Adaptation priorities, strategies, plans, goals, actions – Implementation support needs and provision of support to developing countries – Implementation of adaptation actions (progress, results, good practices, monitoring and evaluation) – Adaptation actions with mitigation co-benefits – Gender-responsive adaptation action, traditional knowledge, knowledge of indigenous peoples and local knowledge systems • Parties are invited to include ex-ante information
Recognition of adaptation needs	<ul style="list-style-type: none"> • The Adaptation Committee and LEG and partner organizations of the Nairobi work programme are tasked with developing and updating an inventory of relevant methodologies for assessing adaptation needs

²⁸ This provision is new; a submission of the adaptation communication as part of the transparency reports (more of an ex-post view) was not foreseen in the Paris Agreement.

	<ul style="list-style-type: none"> • The first inventory is expected for 2020 and Parties and observer organisations are invited to submit their views of the development and application of methodologies by 2021. • The inventory of methodologies and submissions will be the basis of a technical paper prepared by the Adaptation Committee and the Working Group II of the IPCC • The World Meteorological Organization (WMO) is invited to regularly inform the SBSTA about its activities aimed at improving the availability and accessibility of comprehensive climate information
Recognition of adaptation efforts	<ul style="list-style-type: none"> • The UNFCCC secretariat will prepare a synthesis report on adaptation efforts as input for the global stocktake using all available information, including IPCC reports • Adaptation efforts will be recognized during the high-level event of the global stocktake • Starting in 2020, the Adaptation Committee and the LEG will prepare biennial synthesis reports on specific adaptation themes. They will do so in collaboration with relevant stakeholders

At the 25th Conference of the Parties (COP25) to the United Nations Framework Convention on Climate Change, delegates will negotiate the further implementation of the Paris Agreement. This study provides an overview of the international framework to address climate change, the stakeholders involved, the status of the negotiations and recent developments that may affect the negotiations.

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