GOVERNMENT'S ANALYSIS,
ASSESSMENT AND RESEARCH ACTIVITIES

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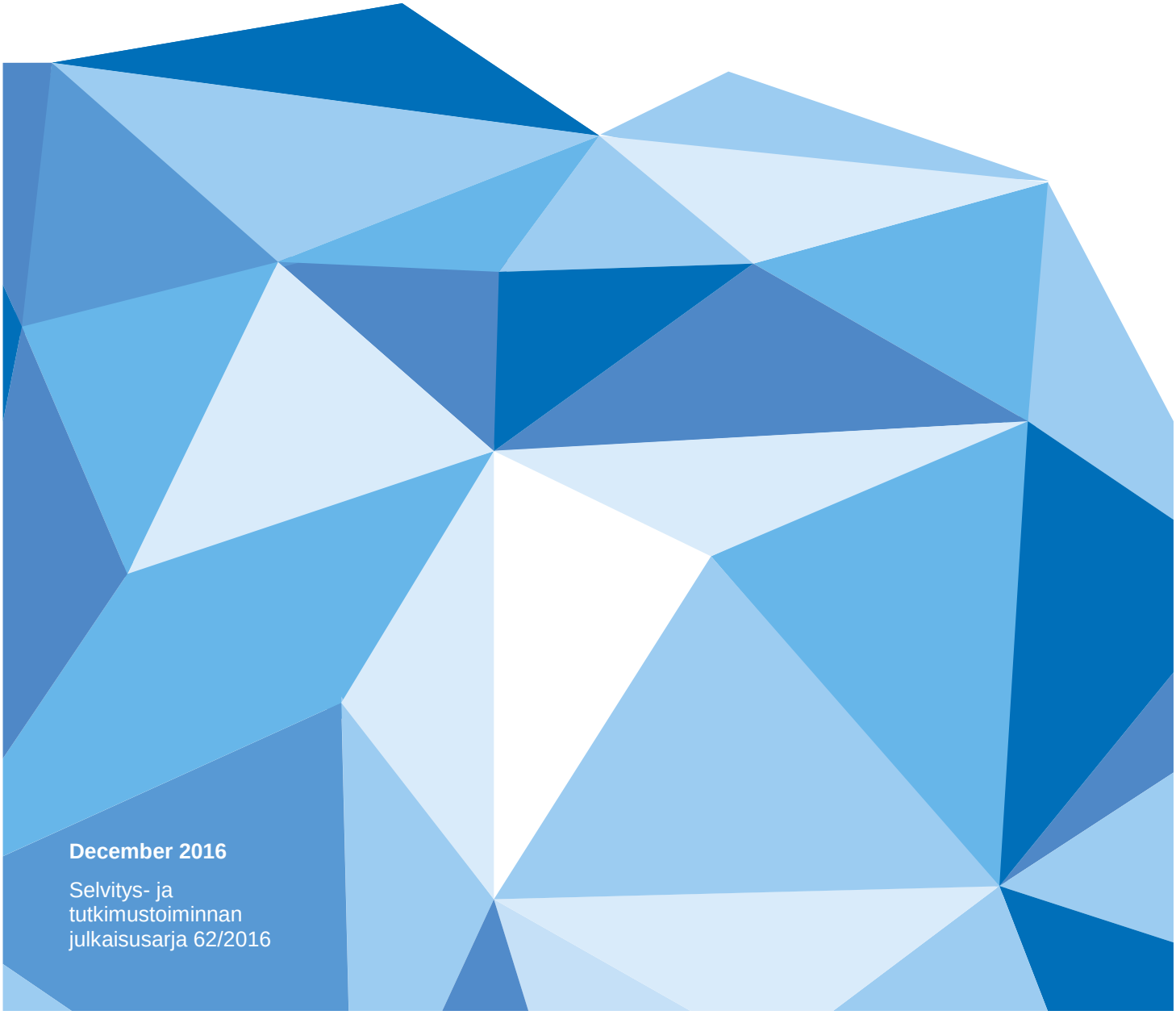
Implementation of the Paris Agreement and tasks to develop its rulebook



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Tiivistelmä

Pariisin ilmastokokouksessa (COP 21) joulukuussa 2015 hyväksyttiin ensimmäinen maailmanlaajuinen ilmastosopimus, jonka mukaan kaikki osapuolet osallistuvat ilmastonmuutoksen hillintään kansallisesti määrättyjen panoksien (NDCs) mukaisesti. Ensimmäinen Pariisin sopimuksen täytäntöönpanoa koskeva neuvottelukierros käytiin Bonnissa, Saksassa toukokuussa 2016. Tämän kokouksen aikana kolme ilmastosopimuksen apuelintä - SBI, SBSTA ja APA – aloittivat neuvottelut siitä, miten luoda tarvittavat säännöt, säännöt ja menettelyt Pariisin sopimuksen toimeenpanoon. Tämä työ jatkuu, kun nämä kolmen elintä tapaavat COP 22-ilmastokokouksessa Marrakechissa, Marokossa marraskuussa 2016.

Raportissa arvioidaan tehtäviä kaikkien Pariisin sopimuksen keskeisten osa-alueiden sääntöjen luomiselle. Aihealueita ovat ilmastonmuutoksen hillintä ja siihen sopeutuminen, ilmastorahoitus, tiedon avoimuus, metsät ja maankäyttö, teknologian kehittäminen ja siirto, toimintavalmiuksien tukeminen, yhteistyömenettelyt ja markkinamekanismit, vahingot ja menetykset sekä sopimuksen toimeenpanon ja noudattamisen edistäminen. Kuhunkin aihealueeseen liittyvien tehtävien kuvauksen lisäksi raportissa arvioidaan Suomen roolia Pariisin sopimuksen toteuttamisessa, ja miten suomalaista osaamista voidaan hyödyntää edistämään ilmastotoimia kaikkialla maailmassa.

Tämä julkaisu on toteutettu osana valtioneuvoston vuoden 2016 selvitys- ja tutkimussuunnitelman toimeenpanoa (www.vn.fi/teas).

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Sammandrag

På klimatkonferensen (COP 21) i Paris i december 2015 antogs det första globala klimatavtalet. Enligt avtalet deltar alla parter begränsningen av klimatförändringen i enlighet med nationella bidrag (INDC). De första förhandlingarna gällande verkställandet av Parisavtalet hölls i Bonn, Tyskland i maj 2016. I detta möte började tre arbetsgrupper - SBI, SBSTA och APA – handla om regler och förfaringssätt för verkställandet av klimatavtalet. Förhandlingarna försätter på COP22 – klimatkonferensen Marrakech, Marocko, i november 2016, i samband med vilken arbetsgrupperna sammanträder.

Rapporten gör en bedömning av uppgifter för skapandet av regelverket för de centrala delområden i Parisavtalet. De centrala delområdena är begränsning och anpassning till klimatförändringen, klimatfinansiering, transparens, skogar samt markanvändning, utveckling av teknologi samt överföring av teknologi, kapacitetsutveckling, samarbetsförfaranden samt marknadsmekanismer, förluster och skador, ver ställning av avtalet samt befrämjandet av att avtal efterföljs. Utöver en beskrivning av uppgifter i anslutning till varje delområde görs en bedömning av Finlands roll verkställandet av avtalet samt om hur finskt kunnande kan utnyttjats för att befrämjandet klimatåtgärder i hela världen.

Den här publikation är en del i genomförandet av statsrådets utrednings- och forskningsplan för 2016 (tietokayttoon.fi).

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Abstract

At the Paris climate conference (COP 21) in December 2015, the first global climate agreement was adopted, under which all Parties participate in climate change mitigation through nationally-determined contributions (NDCs). The first round of negotiations concerning the implementation of the Paris Agreement was held in Bonn, Germany, in May 2016. During this meeting, the three subsidiary bodies – the SBI, SBSTA and APA - launched discussions on how to create the necessary rules, modalities and procedures to implement the Paris Agreement. This work continues as the three bodies meet in context of COP 22 in Marrakech, Morocco, in November 2016.

This report assesses the tasks to create the rules related to all key parts of the agreement: mitigation and adaptation, climate finance, transparency, land use and forestry, technology, capacity building, cooperative approaches, loss and damage as well as facilitating implementation and compliance. In addition to describing the tasks for each topic, the report analyses the role of Finland in implementing the Paris Agreement, and how Finnish know-how can be used in enhancing climate action worldwide.

This publication is part of the implementation of the Government Plan for Analysis, Assessment and Research for 2016 (tietokayttoon.fi).

SISÄLLYS

Glossary

AFOLU	Agriculture, Forestry and Other Land Use
APA	Ad Hoc Working Group on the Paris Agreement
BAU	Business As Usual
CBDRRC	Common But Differentiated Responsibilities and Respective Capabilities
CDM	Clean Development Mechanism
CH_4	Methane
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
COP	Conference of the Parties
CO_2	Carbon Dioxide
CTCN	Climate Technology Centre and Network
ESD	(EU) Effort Sharing Decision
ETS	Emissions Trading Scheme
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse gas
ICAO	International Civil Aviation Organisation
IET	International Emissions Trading
IFI	International Financing Institution
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
ITMO	Internationally Transferable Mitigation Outcome
JCM	Joint Crediting Mechanism (of Japan)
JI	Joint Implementation
JMA	Joint Mitigation and Adaptation
LDC	Least Developed Countries
LMDC	Like-Minded Developing Countries
LULUCF	Land Use, Land Use Change and Forestry
MDB	Multilateral Development Bank
MOI	Means of Implementation
MRV	Monitoring, Reporting and Verification
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organisation
N_2O	Nitrous Oxide

ODA	Official Development Assistance
Paris Decision	Decision 1/CP.21
REDD	Reducing Emissions from Deforestation and Forest Degradation
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SIDS	Small Island Developing States
TEC	Technology Executive Committee
UNFCCC	United Nations Framework Convention on Climate Change

PART 1: MITIGATION CONTRIBUTIONS, TRANSPARENCY, GLOBAL STOCKTAKES, COOPERATIVE APPROACHES AND MECHANISMS

1. Introduction: The Paris Outcome and the related UNFCCC framework and process

At the Paris climate conference (Conference of the Parties, COP 21) in December 2015, 195 countries adopted the first global climate agreement under which all Parties participate in climate change mitigation through nationally-determined contributions (NDCs). Key elements of the Paris Outcome consist of the Paris Agreement - a new, legally-binding international treaty - and Decision 1/CP.21 by COP 21 on the Adoption of the Paris Agreement (Paris Decision). An important part of the Paris Outcome are also the intended nationally determined contributions (INDCs) submitted before and during the Paris conference. These will become NDCs in accordance with the Paris Agreement when Parties ratify or accept the Agreement. NDCs will be subject to regular reporting and updating requirements, which are discussed in this report. Broadly speaking the Paris Outcome also includes commitments and announcements made by various local governments and other stakeholders, such as businesses and civil society, in context of the Paris conference.[1]

In order to reach their NDCs more cost-effectively, Parties can use international cooperative approaches, including market- and non-market based approaches, such as emissions trading. The Paris Agreement lays the foundation for new forms of international cooperative approaches within the new situation where all Parties have mitigation objectives defined established through their NDCs. These approaches are also discussed in this report, and what type of transparency and accounting guidance needs to be developed in order to make these approaches robust and usable.

The United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992 at the Rio Earth Summit, was the first step in the creation of the UN climate regime. The regime has been subsequently complemented by two legally-binding treaties, namely the Kyoto Protocol in 1997 and the Paris Agreement in 2015. The UNFCCC provides the basic legal and institutional framework for the UN climate regime. Its Subsidiary Body for Scientific and Technological Advice (SBSTA) and Subsidiary Body for Implementation (SBI), together with the new *Ad Hoc* Working Group on the Paris Agreement (APA) are tasked with creating “rulebook” defining the details of how to implement the Paris Agreement.

A key step in the evolution of the UN climate regime in the Paris Agreement concerns differentiation and the respective roles of developed and developing countries. The Convention places a strong emphasis on the principle of common but differentiated responsibilities and respective capabilities (Article 3 of the Convention), making a clear distinction between developed (Annex I) and developing (non-Annex I) countries. This distinction also played a strong role in the Kyoto Protocol, as its legally-binding mitigation commitments were set for Annex I countries only. The Paris Agreement creates a common mitigation framework for all Parties, albeit with some flexibility for developing countries. In the Paris Agreement, the Annexes of the Convention are not mentioned, for the first time in the history of climate regime. Still, differences in opinion remain

[1] Kulovesi, K., Vihma, A., Laine, A et al (2016): Results of the Paris COP 21 climate negotiations

even after Paris, on what the flexibility for developing countries actually means, and how their national circumstances are taken into account in the implementation of the Agreement.

Under the Kyoto Protocol, detailed guidance on developed country emissions accounting, as well as market-based flexibility mechanisms were developed. These can serve as a good basis for the Paris rulebook considering, however, the different levels of development between countries. There are positive and negative lessons to be learned from the Kyoto Protocol and its rules, modalities and mechanisms, and these can help in the ongoing negotiations concerning the implementation of the Paris Agreement. The rules and processes to be negotiated before the entry into force of the Paris Agreement need to be strong and effective, in order to promote ambitious climate action and accelerate it in the coming years to reach the global emission reduction targets set in the Paris Agreement.

The first round of negotiations concerning the implementation of the Paris Agreement was held in Bonn, Germany, in May 2016. During this meeting, the three subsidiary bodies – the SBI, SBSTA and APA - launched discussions on how to create the necessary rules, modalities and procedures to implement the Paris Agreement. This work will continue as the three bodies meet in context of COP 22 in Marrakech, Morocco, in November 2016. At the Bonn session, the Marrakech conference was predicted to be an "action COP" tasked with taking concrete steps towards the implementation of the Paris Agreement and acceleration of climate action worldwide.

The first Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) will be held in conjunction with the first COP after the Paris Agreement enters into force. According to Article 21 of the Paris Agreement, the Agreement will enter into force on the 30th day after at least 55 Parties, accounting in total for at least 55 % of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession. In theory, the first CMA could be held in November 2016 if enough Parties ratified the Agreement by 7 October 2016. The possibility of early entry into force of the Paris Agreement creates some challenges to completing the tasks for the Paris rulebook in time before its scheduled adoption at CMA 1.

Key work to be adopted in CMA 1 include the topics discussed in this report, such as:

- further guidance on NDCs;
- modalities for the global stocktake defined in Article 14 of the Agreement;
- detailed modalities, procedures and guidance on transparency in Article 13 of the Agreement; and
- rules, modalities and procedures for the mechanism established in Article 6.4 of the Paris Agreement.[2]

At its first meeting in May 2016, the APA discussed the possibility of suspending the first CMA to ensure that the rulebook for the implementation of the Paris Agreement can be fully developed and all key Parties can participate in the decision-making. If suspended, CMA 1 would continue in conjunction with the subsequent COP. Another option could be to use CMA 1 to carry the work forward and extend the mandate of the APA.[3] In any case, it is important for the implementation of the Paris Agreement to secure enough time to negotiate a rulebook that is robust, clear and acceptable to all Parties.

[2] UNFCCC: Entry into force of the Paris Agreement: legal requirements and implications http://unfccc.int/files/paris_agreement/application/pdf/entry_into_force_of_pa.pdf

[3] Earth Negotiations Bulletin, Bonn May 2016 summary: http://www.iisd.ca/download/pdf/enb12676e.pdf

2. Tasks related to mitigation and transparency

Article 2 of the Paris agreement sets the ambitious mitigation target of holding global mean temperature increase well below 2°C and pursuing efforts to limit the increase to 1.5°C. This explicates the ultimate objective defined in Article 2 of the UNFCCC on avoiding dangerous anthropogenic climate change. To make these targets operational, Articles 3 and 4 of the Paris Agreement contain provisions that require all Parties to undertake and communicate progressively more ambitious efforts to mitigate climate change.

This section analyses the relevant provisions of the Paris Agreement and Paris Decision (1/CP.21) relating to mitigation contributions, tracking of progress and reporting of Parties' emissions and mitigation efforts. These themes are closely interlinked and also linked with other parts of the Agreement, such as cooperative approaches in Article 6, (see Section 0 of this report). Both the Agreement and Decision identify a number issues which will require further deliberations. To understand better what aspects should be considered by the three subsidiary bodies – namely the APA, SBI and SBSTA – perspectives on open questions and potential ways forward are provided.

2.1 Tasks related to the mitigation contributions in NDCs

Relevant articles of the Paris Agreement and Decision 1/CP.21

Article 3

As [NDCs] to the global response to climate change, all Parties are to undertake and communicate ambitious efforts as defined in Articles 4, 7, 9, 10, 11 and 13 with the view to achieving the purpose of this Agreement as set out in Article 2. The efforts of all Parties will represent a progression over time, while recognizing the need to support developing country Parties for the effective implementation of this Agreement.

Article 4.2

Each Party shall prepare, communicate and maintain successive [NDCs] that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.

Article 4.3

Each Party's successive [NDC] will represent a progression beyond the Party's then current [NDC] and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

Article 4.4

Developed country Parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets. Developing country Parties should continue enhancing their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances.

Article 4.8

In communicating their [NDCs], all Parties shall provide the information necessary for clarity, transparency and understanding in accordance with decision 1/CP.21 and any relevant decisions of the [CMA].

Article 4.9

Each Party shall communicate a [NDC] every five years in accordance with decision 1/CP.21 and any relevant decisions of the [CMA] and be informed by the outcomes of the global stocktake referred to in Article 14.

Article 4.10

The [CMA] shall consider common time frames for [NDCs] at its first session.

Article 4.11

Party may at any time adjust its existing [NDC] with a view to enhancing its level of ambition, in accordance with guidance adopted by the [CMA].

Article 4.13

Parties shall account for their [NDCs]. In accounting for anthropogenic emissions and removals corresponding to their [NDCs], Parties shall promote environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting, in accordance with guidance adopted by the [CMA].

Article 4.19

All Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

Article 14.2

The [CMA] shall periodically take stock of the implementation of this Agreement to assess the collective progress towards achieving the purpose of this Agreement and its long-term goals (referred to as the "global stocktake"). It shall do so in a comprehensive and facilitative manner, considering mitigation, adaptation and the means of implementation and support, and in the light of equity and the best available science.

Article 14.2

The [CMA] shall undertake its first global stocktake in 2023 and every five years thereafter unless otherwise decided by the [CMA].

Article 14.3

The outcome of the global stocktake shall inform Parties in updating and enhancing, in a nationally determined manner, their actions and support in accordance with the relevant provisions of this Agreement, as well as in enhancing international cooperation for climate action.

Decision 1/CP.21, paragraph 20

Decides to convene a facilitative dialogue among Parties in 2018 to take stock of the collective efforts of Parties in relation to progress towards the long-term goal referred to in Article 4, paragraph 1, of the Agreement and to inform the preparation of [NDCs] pursuant to Article 4, paragraph 8, of the Agreement;

Decision 1/CP.21, paragraph 22

Also invites Parties to communicate their first [NDC] no later than when the Party submits its respective instrument of ratification, acceptance, approval or accession of the Paris Agreement; if a Party has communicated an intended [NDC] prior to joining the Agreement, that Party shall be considered to have satisfied this provision unless that Party decides otherwise;

Decision 1/CP.21, paragraph 23

Requests those Parties whose [INDC] pursuant to decision 1/CP.20 contains a time frame up to 2025 to communicate by 2020 a new [NDC] and to do so every five years thereafter pursuant to Article 4, paragraph 9, of the Agreement;

Decision 1/CP.21, paragraph 24

Also requests those Parties whose [INDC] pursuant to decision 1/CP.20 contains a time frame up to 2030 to communicate or update by 2020 these contributions and to do so every five years thereafter pursuant to Article 4, paragraph 9, of the Agreement;

Decision 1/CP.21, paragraph 99

Requests the [APA] to identify the sources of input for the global stocktake referred to in Article 14 of the Agreement and to report to the [COP], with a view to the [COP] making a recommendation to the [CMA] for consideration and adoption at its first session, including, but not limited to:

(a) Information on:

(i) The overall effect of the nationally determined contributions communicated by Parties;

(ii) The state of adaptation efforts, support, experiences and priorities from the communications referred to in Article 7, paragraphs 10 and 11, of the Agreement, and reports referred to in Article 13, paragraph 8, of the Agreement;

(iii) The mobilization and provision of support;

(b) The latest reports of the Intergovernmental Panel on Climate Change;

(c) Reports of the subsidiary bodies;

Decision 1/CP.21, paragraph 100

Also requests the [SBSTA] to provide advice on how the assessments of the [IPCC] can inform the global stocktake of the implementation of the Agreement pursuant to its Article 14 and to report on this matter to the [APA] at its second session;

Decision 1/CP.21, paragraph 101

Further requests the [APA] to develop modalities for the global stocktake referred to in Article 14 of the Agreement and to report to the [COP], with a view to the [COP] making a recommendation to the [CMA] for consideration and adoption at its first session.

Article 3 of the Paris Agreement lays down the basic features of Nationally Determined Contributions (NDCs), which are further expanded in subsequent Articles. Obligations and recommendations for mitigation contributions are described in Articles 4.2 to 4.4 and 4.9 to 4.11. Relatedly, Article 4.19 requests all Parties to formulate a long-term mitigation strategy that would complement the mitigation contributions communicated in the NDC. In the Paris Decision, paragraphs 22 to 24 invite Parties to communicate their first NDC upon ratification, acceptance, approval or accession to the Paris Agreement. Parties are requested to communicate or update their intended national contributions by 2020. A global stocktake, which compares the Parties contributions' ambition level to the Agreement's long-term goals, is carried out in a five year intervals starting from 2023, as laid down in Article 14.

In short, the Paris Agreement requires all Parties to submit their NDCs upon joining the Agreement, and also to periodically update their NDCs at five year intervals. The Agreement also includes an obligation to pursue mitigation measures to achieve the mitigation objectives of the

NDC. INDCs submitted towards the Paris Agreement are requested to be communicated or updated as the NDC; although a new NDC is requested from Parties whose INDC contained a time frame only up to 2025. Each successive NDC is required to present a higher level of mitigation ambition than its predecessor. The underlying rationale of this is to increase the ambition level over time, as the submitted INDCs imply an insufficient mitigation effort for even the 2°C target, which is noted in the Paris Decision, paragraph 17.

Reflecting a bottom-up approach, the Paris Agreement contains few provisions on the ambition level necessitated from each Party. Article 4.4 denotes the differentiated ambition levels between developed and developing countries only in terms of NDCs' scope and formulation, requesting economy-wide absolute targets from developed countries and encouraging developing countries to move towards similar targets over time. Article 4.3 states, however, that each Party's successive NDC's will represent a progression over the current NDC as well as representing its highest possible ambition. The provision leaves open how such progression will be measured and how substantial it should be. This reflects the country-driven bottom-up approach used for determining the NDCs.

Communication on long-term progression is strengthened with the statement that Parties should strive to also formulate long-term mitigation strategies. Such strategies could play a role in providing a long-term perspective on whether the Parties' ambition level is sufficient for meeting the objectives of the Paris Agreement.

The global stocktake, outlined in Article 14 of the Agreement, is expected to play a critical role in securing a sufficient level of ambition. Accordingly, the CMA will periodically take stock of the implementation of the Paris Agreement "to assess the collective progress towards achieving the purpose of the Agreement and its long-term goals." The first stocktake is scheduled for 2023 and five-year intervals thereafter. The APA is tasked with elaborating the modalities for the global stocktake. Paragraphs 99 and 100 of the Paris Decision request the APA and SBSTA to advice what information sources could be used and how; and paragraph 101 requests the APA to develop the actual procedures.

Key features of the item

A key feature relating to the NDCs is the obligatory nature: each Party to the Agreement "shall" prepare and communicate periodically NDCs that "will" present progressively a higher level of ambition; and also "shall" pursue mitigation efforts to meet the objectives of the NDC. All contributions should reflect the countries "differentiated responsibilities and respective capabilities, in the light of different national circumstances". Developed countries "should" undertake absolute and economy-wide emission reduction targets, while developing countries are encouraged to move towards undertaking such targets over time. The facilitative dialogue in 2018 will inform the preparation of NDCs, and the global stocktake by the CMA "shall inform Parties" on how the Parties could enhance their contributions.

The obligation for all Parties to communicate an NDC and take action towards the Agreement's objectives is an evident strong point of the Agreement. On the other hand, Parties not willing to undertake ambitious mitigation action can communicate a less ambitious NDCs towards the Agreement. This is obviously inevitable in an agreement that builds on a bottom-up approach. In light of the strong bottom-up elements of the NDCs and the mitigation regime created by the Paris Agreement, the global stocktake will play a pivotal role in aggregating the Parties' contributions to a global measure, from which the overall effort can then be compared to the aims of the Paris Agreement. A meaningful stocktake would require – at the minimum – two sources of information: the level of emissions from each Party, as e.g. implied by their NDCs; and a science-

based view on whether the Parties' aggregate emission level is in line with the aims of the Agreement. It is not straightforward how the stocktake would proceed.

Other open questions for the global stocktake include how the relevant information will be used, and what conclusions can be drawn from the stocktake. Many parties have mitigation targets that provide no unambiguously quantifiable emission levels for the target year, e.g. if the reduction targets are made relative to future GDP or a BAU scenario, or if the countries have two separate target levels. This makes it difficult to assess the global emission level implied by the current mitigation targets. Assumptions need to be made also on emission sources excluded from the NDCs, e.g. for international aviation and maritime transport, or Parties' emission sources that are outside the scope of their NDC targets.

Importantly for the global stocktake, there is no clear-cut relationship between the medium-term mitigation targets set out in Parties' NDCs and the global long-term emission pathways that are consistent with e.g. 1.5°C or 2°C temperature increase. Higher global emissions in 2030 could be, in principle at least, compensated with steeper emission reductions later on, as exemplified later in section **Virhe. Viitteen lähdettä ei löytynyt.**; although the global community's ability to achieve very steep reduction pathways remains unproven.

To be effective, global stocktake will need to consider how fast emissions could be reduced after 2030 in order to assess whether the NDCs are in line with the Agreement's overall aim, or whether an "emission gap" exists between the submitted NDCs and the necessary emission level. This could be informed e.g. by the forthcoming IPCC special report on the 1.5°C target, or analyses commissioned by the UNFCCC secretariat[4].

Another key open issue is how the global stocktake can affect the ambition and progression of mitigation targets contained in the Parties' NDCs. Given the nationally-determined nature of the NDCs and the language used in the Paris Agreement, a formal UNFCCC process requiring further emission reductions from individual Parties seems implausible. One possibility is that Parties are left to draw their own conclusions from the stocktake and independently raise the level of ambition according to what they see as their fair share of the emission gap. One practical proposal[5] for making a stronger link between the stocktake and the Parties' NDCs is to require Parties to inform in their subsequent NDCs how the outcome of the global stocktake was taken into account.

The stocktake is likely to analyse the mitigation contributions' of NDCs only on the aggregate level, i.e. instead of highlighting the efforts by each Party individually. Yet, with sufficient transparency in Parties' emission reporting and NDCs, stakeholders – including researchers, consultants and NGOs – will undoubtedly provide analyses of individual Parties' efforts as well as Parties' comparative efforts. These are likely to provide diverse results and conclusions, reflecting challenges with assessing what should the equitable efforts from different Parties be given their national circumstances. Although such analyses might not have an official position in the UNFCCC process, they can contribute towards building pressure for certain Parties to increase their ambition level. Nevertheless, the ultimate impact of the stocktake is entirely dependent on the willingness of Parties' to increase ambition.

Against this background, the only provision for enhancing individual Parties' ambition level stated explicitly in the Paris Agreement is the requirement that each NDCs represents progression and reflects a Party's highest possible ambition. However, the concept of progression is somewhat

[4] See e.g. UNFCCC: Synthesis report on the aggregate effect of the intended nationally determined contributions – Note by the secretariat, http://unfccc.int/resource/docs/2015/cop21/eng/07.pdf

[5] World Resources Institute, 2016: Staying On Track From Paris: Advancing The Key Elements Of The Paris Agreement, http://www.wri.org/sites/default/files/Staying_on_Track_from_Paris_-_Advancing_the_Key_Elements_of_the_Paris_Agreement.pdf

vague and sets very minimal requirements for increasing ambition. Progression can be measured relatively easily for emission targets that are relative to a historical base-year. For emission targets that are tied to an increasing BAU scenario or intensity targets relative to a growing GDP, however, progression is very ambiguous. As a concrete example, increasing the reduction percentage from 2030 to 2040 relative to a BAU scenario could be interpreted as progression; it can also imply increasing emission from 2030 to 2040, if the BAU involves increasing emission within this timeframe. Also, if the type or scope of the emission target is changed between NDCs – e.g. by including more emissions sources, or switch from an intensity-based or BAU-based target to an absolute target – or if a Party decides to use internationally transferred mitigation outcomes; progression will be difficult to determine.

Scope of the tasks

The Parties shall update or submit their NDCs upon the ratification, acceptance, approval or accession of the Agreement. 162 Parties (189 countries, including the EU member states) have submitted their INDC by the end of April 2016; but the INDCs have very diverse contents and limited transparency. Further guidance on the information needs promoting transparency, and guidance for accounting for Parties' contributions, has been requested from the APA. A facilitative dialogue in 2018 will inform the preparation of NDCs. Parties are also invited to communicate mid-century low-GHG strategies by 2020.

The APA initiated defining the information needs and modalities for the global stocktake of Article 14 in its 1st session in Bonn, May 2016, which will continue through a consultation of Parties' views on the tasks.

Links with other topics/tasks

NDCs, progression and stocktake are closely related to the tasks on transparency, which discusses the information Parties need to include in their NDC (see section 0). Parties' mitigation contribution can involve also efforts carried out through international cooperation, linking the NDC process with ITMOs (see section 0). Mitigation contributions are also linked to means of implementation; including finance, technology transfer and capacity building.

2.2 Tasks related to the transparency of emissions and mitigation actions

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 4.8

In communicating their [NDCs], all Parties shall provide the information necessary for clarity, transparency and understanding in accordance with decision 1/CP.21 and any relevant decisions of the [CMA].

Article 4.12

[NDCs] communicated by Parties shall be recorded in a public registry maintained by the secretariat.

Article 4.13

Parties shall account for their [NDCs]. In accounting for anthropogenic emissions and removals corresponding to their [NDCs], Parties shall promote environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting, in accordance

with guidance adopted by the [CMA].

Article 4.14

In the context of their [NDCs], when recognizing and implementing mitigation actions with respect to anthropogenic emissions and removals, Parties should take into account, as appropriate, existing methods and guidance under the Convention, in the light of the provisions of paragraph 13 of this Article.

Article 13.1

In order to build mutual trust and confidence and to promote effective implementation, an enhanced transparency framework for action and support, with built-in flexibility which takes into account Parties' different capacities and builds upon collective experience is hereby established.

Article 13.7

Each Party shall regularly provide the following information:

(a) A national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases, prepared using good accepted by the Intergovernmental Panel on Climate Change and agreed upon by the [CMA]; and

(b) Information necessary to track progress made in implementing and achieving its [NDC] under Article 4.

Decision 1/CP.21, paragraph 25

Decides that Parties shall submit to the secretariat their [NDCs] referred to in Article 4 of the Agreement at least 9 to 12 months in advance of the relevant session of the [CMA] with a view to facilitating the clarity, transparency and understanding of these contributions, including through a synthesis report prepared by the secretariat;

Decision 1/CP.21, paragraph 26

Requests the [APA] to develop further guidance on features of the [NDC]s for consideration and adoption by the [CMA] at its first session;

Decision 1/CP.21, paragraph 27

Agrees that the information to be provided by Parties communicating their [NDCs], in order to facilitate clarity, transparency and understanding, may include, as appropriate, inter alia, quantifiable information on the reference point (including, as appropriate, a base year), time frames and/or periods for implementation, scope and coverage, planning processes, assumptions and methodological approaches including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals, and how the Party considers that its [NDC] is fair and ambitious, in the light of its national circumstances, and how it contributes towards achieving the objective of the Convention as set out in its Article 2;

Decision 1/CP.21, paragraph 28

Requests the [APA] to develop further guidance for the information to be provided by Parties in order to facilitate clarity, transparency and understanding of [NDCs] for consideration and adoption by the [CMA] at its first session;

Decision 1/CP.21, paragraph 84

Decides to establish a Capacity-building Initiative for Transparency in order to build institutional and technical capacity, both pre- and post-2020; this initiative will support developing country Parties, upon request, in meeting enhanced transparency requirements as defined in Article 13 of the

Agreement in a timely manner;

Decision 1/CP.21, paragraph 85

Also decides that the Capacity-building Initiative for Transparency will aim:

(a) To strengthen national institutions for transparency-related activities in line with national priorities;

(b) To provide relevant tools, training and assistance for meeting the provisions stipulated in Article 13 of the Agreement;

(c) To assist in the improvement of transparency over time.

Decision 1/CP.21, paragraph 86

Urges and requests the [GEF] to make arrangements to support the establishment and operation of the Capacity-building Initiative for Transparency as a priority reporting-related need, including through voluntary contributions to support developing country Parties in the sixth replenishment of the [GEF] and future replenishment cycles, to complement existing support under the [GEF];

Decision 1/CP.21, paragraph 91

Requests the [APA] to develop recommendations for modalities, procedures and guidelines in accordance with Article 13, paragraph 13, of the Agreement, and to define the year of their first and subsequent review and update, as appropriate, at regular intervals, for consideration by the [COP], at its twenty-fourth session, with a view to forwarding them to the [CMA] for consideration and adoption at its first session;

Decision 1/CP.21, paragraph 92

Also requests the [APA], in developing the recommendations for the modalities, procedures and guidelines referred to in paragraph 91 above, to take into account, inter alia:

(a) The importance of facilitating improved reporting and transparency over time;

(b) The need to provide flexibility to those developing country Parties that need it in the light of their capacities;

(c) The need to promote transparency, accuracy, completeness, consistency and comparability;

(d) The need to avoid duplication as well as undue burden on Parties and the secretariat;

(e) The need to ensure that Parties maintain at least the frequency and quality of reporting in accordance with their respective obligations under the Convention;

(f) The need to ensure that double counting is avoided;

(g) The need to ensure environmental integrity.

Articles 4.8 and 4.12 to 4.14 of the Paris Agreement and paragraphs 25 and 27 of the Paris Decision describe the requirements for Parties NDCs and mitigation actions with regard to clarity and transparency. Paragraph 28 of Decision 1/CP.21 requests the APA to develop guidance for what information the Parties' NDCs should contain.

Transparency is further expanded under the transparency framework, described in Article 13. Relating to the Parties' compliance with their NDCs, Article 13.7 requires all Parties to the Agreement to submit regular national inventory reports of anthropogenic emissions and sinks using good practice methodologies provided by the IPCC. Paragraphs 91-93 of Paris Decision request the APA to develop recommendations for procedures regarding e.g. the timing of inven-

tory submissions. Article 13, however, determines that the transparency framework shall provide flexibility to account for the differing capacities of Parties. Paragraphs 84 to 86 of the Paris Decision build the institutional foundations for the transparency framework as the Capacity-building Initiative for Transparency.

Transparency of reporting emissions and mitigation actions has been highlighted in many parts of the Paris Agreement and the Paris Decision. Clarity and transparency need to be enhanced both in the Parties' reporting of emissions and the NDCs. The guidelines requested from the APA regarding the content of NDCs and emission inventories will be critical, as they enable making comparisons between the Parties' mitigation objectives and emission estimates.

Key features of the item

The Paris Agreement and Paris Decision aim to improve mitigation-related transparency on two fronts: reporting of Parties' greenhouse gas emissions and the contents of the mitigation objectives included in Parties' NDCs. In contrast to the current requirements, clear and transparently communicated NDCs and regular reporting of emissions are required from all Parties joining the Agreement, although flexibility is warranted to account for their differing capacities.

According to Article 4.13, Parties are obliged to track and report the progress towards their NDC's objectives. Paragraph 27 of the Paris Decision lists a number of possible items that should be described in the NDC, such as the reference point for the emission target, scope and coverage, assumptions and methodological approaches.

With respect to emissions reporting, Article 13.7 requires the emission inventories to be based on IPCC good practice methodologies. In order to improve developing countries' capacity for transparency, the COP decision establishes a Capacity-building Initiative for Transparency. Obligatory reporting of emissions and progression towards NDCs are key to the Agreement's credibility and progress made towards meeting its objectives. Given the multiple references to transparency, in relation to both emission reporting and mitigation objectives, this issue has been clearly identified as a priority. This is justified, because the bottom-up approach of NDCs produces very diverse outcomes, and the global scope of the agreement necessitates also developing countries to provide emission inventories and determine their own mitigation targets.

The agreement requires the Parties to submit information necessary for clarity and transparency, but the current formulation allows very loose interpretations to be made. The more detailed points stated in the Decision paragraph 27 are suggestions, and further guidance on features of NDCs are requested from the APA in the Decision paragraph 26.

The effective deployment of the Capacity-building Initiative for Transparency is vital for building the necessary expertise in developing countries. Currently, developing countries have submitted only National Communications to the UNFCCC with irregular intervals and varying levels of detail. Also, external estimates on their emissions often vary wildly. Producing reliable emission inventories with an official status in the UNFCCC is essential for the determining of mitigation objectives, comparison of Parties' objectives, and also in tracking the progress towards these objectives.

Scope of the tasks

The APA has been tasked with developing guidance and procedures that facilitate the clarity and transparency of NDCs, the outcome of which should be forwarded for consideration and adoption to the first session of the CMA. Similarly, the procedures and guidelines regarding

emission reporting requested from the APA, should be forwarded to the first session of the CMA. The Capacity-building Initiative for Transparency will function upon request from developing countries towards meeting their emission reporting requirements. Concurrently, the Parties shall develop and submit their NDCs, which should include the information necessary for transparency, yet to be determined by the APA.

Parties discussed the nature of the guidance related to NDCs in the first session of the APA. Consideration was given for e.g. how detailed the guidance should be, whether the guidance should be differentiated e.g. relative to the NDC type or the Party status, how national circumstances should be taken into account, and whether a detailed guidance conflicts with the bottom-up approach of NDCs. Views were divergent on whether the guidance should involve detailed modalities or general principles and how uniform the guidance should be across Parties. However, certain aspects of clarity, transparency and understanding that Article 4.8 requires cannot be dependent on the status of the Party. Clearly, national circumstances have implications e.g. for how Parties are capable of estimating reliably their emissions, devising mitigation strategies to the future and actually carrying out the emission reduction measures. In this respect, the NDCs of more developed Parties are on more firm soil, while the NDCs of developing country Parties are contingent on more uncertain information. To ensure clarity, transparency and understanding, this contingency could be made explicit in the NDC, instead of hiding it behind insufficient information provided in the NDC. Possible provisions to re-specify targets under new information – e.g. on emission inventories, assessed with appropriate methodologies – could also be considered.

The largest challenges in interpreting the submitted INDCs have related to the possibly lacking information on the reference point, coverage, or the assumptions behind a BAU scenario for BAU-based targets[6]. Without an explicitly defined reference point a mitigation target's impact cannot be determined and its attainment cannot be verified; and in this sense such target is outright meaningless. Yet, the INDCs submitted by a number of Parties included an emission reduction target relative to a BAU scenario for future emissions, but without a quantitative value for the BAU scenario.

Regarding scope and coverage, all submitted INDCs define the scope of the target, but the scope definitions are inaccurate in some cases. As an example, the INDC of a Party might indicate that the emission estimates and associated targets cover the land use, land-use change and forestry (LULUCF) sector, but in fact some land categories with emission sources from the sector are excluded. This makes it difficult to assess which fraction of the economy-wide emissions are actually covered, and also to compare the emission estimates to external sources. Finally, reporting the key assumptions used to estimate BAU emission pathways would be useful, given that different Parties have provided e.g. highly divergent BAU estimates. Given this divergence in BAUs, the percentage reduction from the BAU level is a poor guide for estimating the ambition level or the change in emissions relative to the current level that would be implied by the INDC target.

The APA has clear mandate and its task has a relatively clear scope. In addition, some items that should be reported in the NDC have been already defined. However, a potential conflict exists regarding timing of these tasks. The first session of the CMA, to which the APA shall report its guidance, takes place only after a sufficient number of countries have ratified the Agreement, and hence also submitted their first NDC. The first emission inventories based on the new guidance, including inventories from developing countries, are likely to be submitted only after the first session of the CMA. Hence, the first developing country NDCs are not based

[6] Ekholm and Lindroos: An analysis of countries' climate change mitigation contributions towards the Paris agreement, http://www.vtt.fi/inf/pdf/technology/2015/T239.pdf

on emission estimates that have an official status in the UNFCCC. Relating to this, a sufficient resourcing of the Capacity-building Initiative for Transparency is essential for the ensuring a sufficient quality of developing countries' first NDCs and emission inventories.

Links with other topics/tasks

Issues related to transparency has direct implications for the measurement of progression (Articles 3 and 4.3), the global stocktake (Article 14.2) and the cooperative approaches (Article 6.2). Without clearly and transparently stated targets, it is not possible to determine unambiguously whether a Party's successive NDCs are progressive in relation to each other, to what level of global emission the Parties' target would amount to, or maintain additionality and environmental integrity of ITMOs.

3. NDCs, the 1.5˚C target and the global stocktake process

3.1 Current emission trends and INDCs

Article 2(a) of the Paris Agreement defines the overall mitigation objective as holding "the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels". To facilitate emission reductions globally, the Agreement establishes obligations for Parties to communicate, maintain and update NDCs, as discussed in section **Virhe. Viitteen lähdettä ei löytynyt.** of this report. Whether the mitigation efforts established in the NDCs will be successful in limiting the global average temperature increase to below 2°C or to 1.5°C depends on Parties' collective ambition level, which is to be assessed through the global stocktake process.

To understand what is needed from the stocktake process, we must analyse the current trends of global emissions, the current set of proposed mitigation targets and long-term emission pathways in relation to their impacts on global temperature increase projections.

Current emission trends

According to the International Energy Agency, the growth of energy-related CO_2 emissions has stalled for the past three years[7]. Emissions in the two largest emitters, China and the United States, declined in 2015. This is in stark contrast to the previously prevailing trend of rapidly increasing CO_2 emissions, particularly in China. Meanwhile, the most recent emissions estimates on non-energy related CO_2 emissions and other greenhouse gases – methane (CH_4), nitrous oxide (N_2O) and F-gases –indicate increases on a slow pace[8].

Even recent projections have assumed an increasing emission trend towards 2030. However, the flat development of CO_2 emissions in recent years, combined with the introduction of new climate policies e.g. in China and the US, provides a good background for analyzing alternative developments. Whether emissions return to an increasing trend, remain stable as during the past three years, or even start to show a decline, will have a significant impact on the cumulative emissions between 2015 and 2030, and hence on the prospects of meeting the stringent objectives included in the Paris Agreement.

Mitigation targets in the current set of INDCs

[7] International Energy Agency: Decoupling of global emissions and economic growth confirmed, http://www.iea.org/newsroomandevents/pressreleases/2016/march/decoupling-of-global-emissions-and-economic-growth-confirmed.html

[8] World Resources institute: CAIT Climate Data Explorer, http://cait.wri.org/historical/

As noted in Section 2, 162 INDCs have been communicated to the UNFCCC by the end of April 2016, covering 189 Parties (96% of the Parties to the Convention). All INDCs include a mitigation component. Due to the nationally-driven bottom-up nature of the INDCs, however, countries' mitigation contributions have been determined in very different ways. While some of the Parties have targets described relative to a historical year, most developing countries have chosen to determine the target relative to some assumed baseline scenario (a counterfactual scenario), which might be revised over time.

Many Parties have provided both an unconditional and a conditional target in their INDC. Also the target year and coverage of emissions sources vary between Parties. Two of the main developing country emitters, China and India, have chosen an emission intensity target, whereby their absolute emission targets depend on their future economic growth. Further, due to the lack of regular and externally reviewed emission inventories from most of the developing countries, and also due the uncertainties to in existing inventories from all parties; there are uncertainties related to both the current and the projected emissions included in the INDC.

As a result of these conditionalities, differences and uncertainties, it is not possible to accurately determine the global emission level to which the current set of INDCs would lead to around 2030. Instead, a number of studies have presented a range of 2030 global emissions. A synthesis on INDCs by the UNFCCC secretariat estimated the INDCs imply a range from 52 to 59 Gt CO_2-eq. in 2030.[9] An analysis of INDCs by VTT[10], by comparison, suggested a slightly lower range: from 52 to 55 Gt CO_2-eq[11]. In this analysis, we use the latter source.

3.2 Long-term emission pathways and temperature targets

To analyse the prospects of meeting the temperature targets specified in Article 2(a) of the Paris Agreement, and to highlight what is expected from the global stocktake process; we consider alternative long-term emission pathways as two separate stages. First, alternative assumptions for emissions between 2015 and 2030 are made based on the current emission trends and INDC targets. Second, two post-2030 emission pathways that keep global temperature increase at 1.5°C and 2°C by 2100 are specified for each pre-2030 pathway.
Four pre-2030 pathways are specified as follows:

- Emissions will return to an increasing path, and equal to the *higher estimate of INDC targets* in 2030 (unconditional targets).
- Emissions will return to an increasing path, and equal to the *lower estimate of INDC targets* in 2030 (conditional targets).
- Emissions will stabilize at 2015 levels until 2030, after which they start to decline.
- Emissions peaked at 2015, and start to decline gradually starting from the current year.

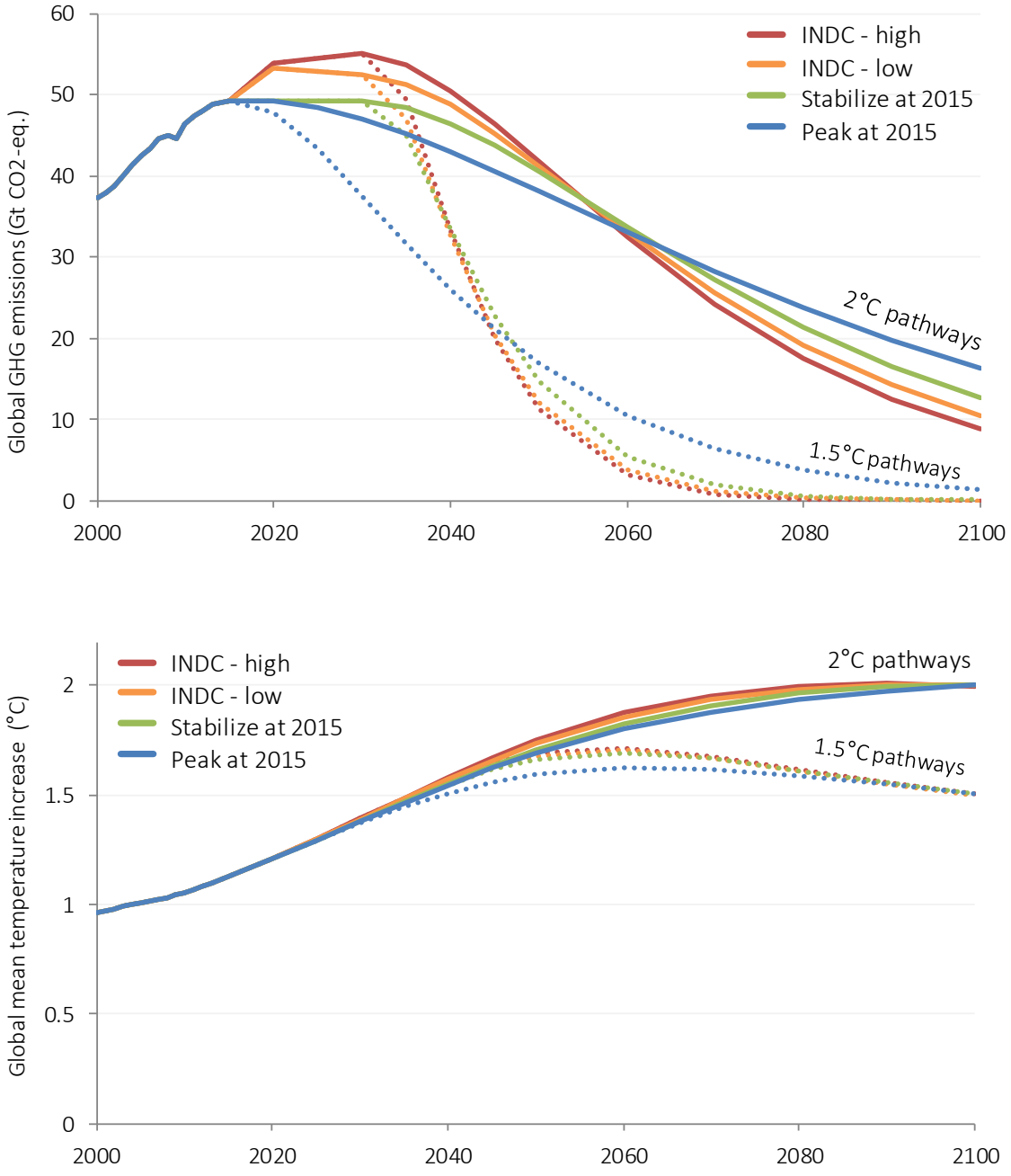
The post-2030 pathways represent idealized emission trajectories that transition from the trend around 2030 to exponentially declining emissions. The possibility for a negative level of global net emissions is excluded from the analysis due to the uncertainty in large-scale deployment of negative emission technologies. The temperature limits are required to be met with a 50% chance, given the uncertainty in climate sensitivity; while allowing emissions to peak above the temperature limit and decline to the target by 2100.

[9] UNFCCC: Aggregate effect of the intended nationally determined contributions: an update – Synthesis report by the secretariat, http://unfccc.int/resource/docs/2016/cop22/eng/02.pdf

[10] Ekholm and Lindroos: An analysis of countries' climate change mitigation contributions towards the Paris agreement, http://www.vtt.fi/inf/pdf/technology/2015/T239.pdf

[11] The range of emissions have been supplemented with F-gas emissions, which were not included in the original source; and converted to CO_2 equivalents using the IPCC AR5 GWP values, whereas the original source used GWP values from IPCC SAR.

Figure 1. Emission pathways (top figure) that keep global mean temperature increase in 2100 at either 1.5°C or 2°C (bottom figure), with four assumptions for the emission development between 2015 and 2030.



While these pathways do not necessarily conform to the currently prevailing view of feasible emission reduction rates, they are here used to represent the needed action to meet the stringent temperature targets. It is also worth to note that other recent analyses have taken a varying set of assumptions, e.g. by allowing negative net emissions, a higher 66% probability for remaining below the temperature limit, or disallowing to overshoot the temperature limit. Such assumptions yield differing scenarios, and thus the assumptions must be borne in mind while comparing the results and conclusions of different analyses.

The emission pathways are presented in

Figure 1. As perhaps the most direct interpretation of the figure, it can be said that both of the considered temperature targets are not physically impossible to reach even if emissions in 2030

correspond to the current set of INDC targets. Meeting the 1.5°C target would require an annual reduction rate in global emissions far above 10%. Such a reduction rate exceeds dramatically the rates that past emissions scenarios have envisaged, and would imply a near-zero emission level already in 2070. For the 2°C target, a much more lenient rate – around 2% to 3% per year – would be sufficient.

The 2030 emission levels in the different cases are between 2 and 3 Gt CO_2-eq apart from each other (except for the "Peak at 2015" with 1.5°C temperature target). For the post-2030 pathways aiming towards the 2°C target, the 2030 level has a discernible impact: with earlier action the emission pathways can remain somewhat higher towards 2100. When aiming for the 1.5°C target, however, the impact of the 2030 level is much subtler: only the case where emissions decline starting from the current year allows notably higher emissions for the latter half of the century.

3.3 Implications for the global stocktakes and future NDCs

Although the mitigation targets included in the current INDCs might still provide a realistic opportunity to achieve the 2°C target, far more ambitious action will be required to limit temperature increase to 1.5°C. Minor adjustments in the 2030 emission level, such as the shift from current unconditional to conditional targets, will have only a marginal impact on the prospects of meeting the 1.5°C target. Even if emissions could be stabilized at the current level up to 2030 – i.e. having global emissions 3 - 6 Gt CO_2-eq. below the level implied by current INDC targets – the 1.5°C target could be met only through a radically high rate of emission reductions throughout the globe, reaching near-zero emission levels within 40 years after 2030.

Based on the emission pathways of
Figure 1, maintaining a realistic chance of remaining at 1.5°C around the end of the century requires global emissions to decline considerably well before 2030. The pathway with global emissions peaking already in 2015 requires global emissions to be roughly 30% below the INDC level in 2030. If the ambition gap were to be distributed evenly among Parties, the pathway would necessitate a dramatic increase all Parties' level of ambition for 2030. For instance, the European Union (EU) would have to shift from the current -40% target to a target of -60% relative to the 1990 base year. Such an approach of distributing the "emission gap" evenly among UNFCCC Parties, does not, however, consider differentiation based on Parties' national circumstances. Taking developing countries' national circumstances into consideration, the emission target would likely involve even more ambitious efforts from the EU and other developed country Parties than in the above example. The challenge for the stocktake in enhancing ambition level sufficiently for the 1.5°C target is therefore immense.

The first global stocktake under the Paris Agreement is scheduled to take place only in 2023. It can therefore affect emission levels around year 2020 only through the anticipation of possible future measures to enhance mitigation ambition. Therefore the stocktake process cannot directly affect emissions development similar to the deeper pre-2030 pathways presented in
Figure 1. A facilitative dialogue planned for 2018, however, has the purpose of taking stock of current action in relation to progress towards the long-term goal and informing the preparation of NDC's, overcoming some of the problems relating to timing of the stocktake.
Against this background, the prospect of the global stocktake leading Parties to achieve the 1.5°C target remain rather thin. A clear conflict is present between the urgency of the emission reductions and the slow pace of the process; including e.g. the development of modalities of the stocktake process, capacity-building for developing countries and implementation of the mitigation actions. Nevertheless, increasing the ambition level will inevitably lead closer to the 1.5°C target.

On operationalizing the stocktake, two separate steps could be seen as necessary:

- a clear and common understanding of the remaining emission gap,
- a process for increasing the ambition level of Parties.

These are elaborated below.

First, the Parties need to have a common view of the emission gap. As Figure 1 above suggests, even the current set of INDC targets do not outright rule out the possibility of reaching the 1.5°C target in 2100 (50% chance), provided that a rapid decline to zero emissions takes place right after 2030. Assuming that such action post-2030 is deemed possible, the emission gap can be interpreted not to exist. The ambiguity of the concept thus becomes evident. While a common understanding on the emission gap is not strictly necessary for increasing mitigation ambition through the global stocktake process, diverging views on how much and how soon further effort is required could hinder progress. A single acknowledged estimate for the emission gap – which would reflect the prevailing contributions by Parties and thus be updated regularly – might avert some debate over definitions.

Second, a process aiming at closing the emission gap is required. While envisaging the modalities for this, the bottom-up nature and inertia in enhancing Parties' contributions must be recognized. This precludes a top-down formula or procedure for distributing the emission gap among Parties. Rather, Parties should be encouraged to take up more ambitious targets in their NDCs. In short term, this could be achieved by encouraging Parties to pursue their conditional targets and providing them support to meet the conditions attached to their INDCs. Indeed, Parties could be even requested to provide further conditional targets in order to generate additional flexibility in the process. In the longer term, increases in ambition levels could be sought through bi- or multilateral discussions, where a number of Parties agree jointly on enhanced action.

4. Tasks related to cooperative approaches, including a mechanism

Article 6 of the Paris Agreement addresses voluntary cooperation between Parties in the implementation of their NDCs "*to allow for higher ambition in their mitigation and adaptation action and to promote sustainable development and environmental integrity*" (Article 6.1).

Due to divergent preferences of Parties on how to organise international cooperation for the implementation and enhancement of the Paris Agreement, Article 6 was one of the last pieces of the Paris Outcome to be finalised. It represents a carefully balanced compromise that caters for the diversity of Parties' preferences through three specific types of cooperation (hereafter collectively referred to as "cooperative approaches" in this report[12]), namely:

- "*Cooperative approaches that involve the use of* ***internationally transferred mitigation outcomes*** *[ITMOs] towards NDCs*" whereby Parties shall "*promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double-counting*". (Articles 6.2-6.3, hereafter referred to as ITMO activities)

[12] The terminology and concepts of the Paris Agreement are still open for interpretation and discussion. For example, some consider "cooperative approaches" to cover only Article 6.2-6.3 while others consider them to cover all of Article 6. To avoid confusion and premature interpretations, this report makes frequent reference to the relevant sections of the article and is loyal to the wording of the Paris Agreement and Decision.

- A UN-governed "***mechanism to contribute to mitigation and support sustainable development***" (Articles 6.4-6.7, hereafter referred to as the Paris mechanism)
- A "***framework for non-market approaches*** *to sustainable development*" to assist in the implementation of NDCs in a coordinated and effective manner, through mitigation, adaptation, finance, technology and capacity-building (Articles 6.8-6.9).

The Paris Decision requested the SBSTA to carry out work on each of these three items. The requested work does not necessarily cover all the tasks required to effectively implement the Paris Agreement. One approach to mapping the relevant tasks is to identify the guidance needed to implement all the "shalls" contained in the Paris Agreement. Parties discussed their views and expectations relating to Article 6 for the first time after Paris in May 2016 in Bonn under the 44th session of the SBSTA (SBSTA 44). These discussions took place under three distinct but linked agenda items, namely:

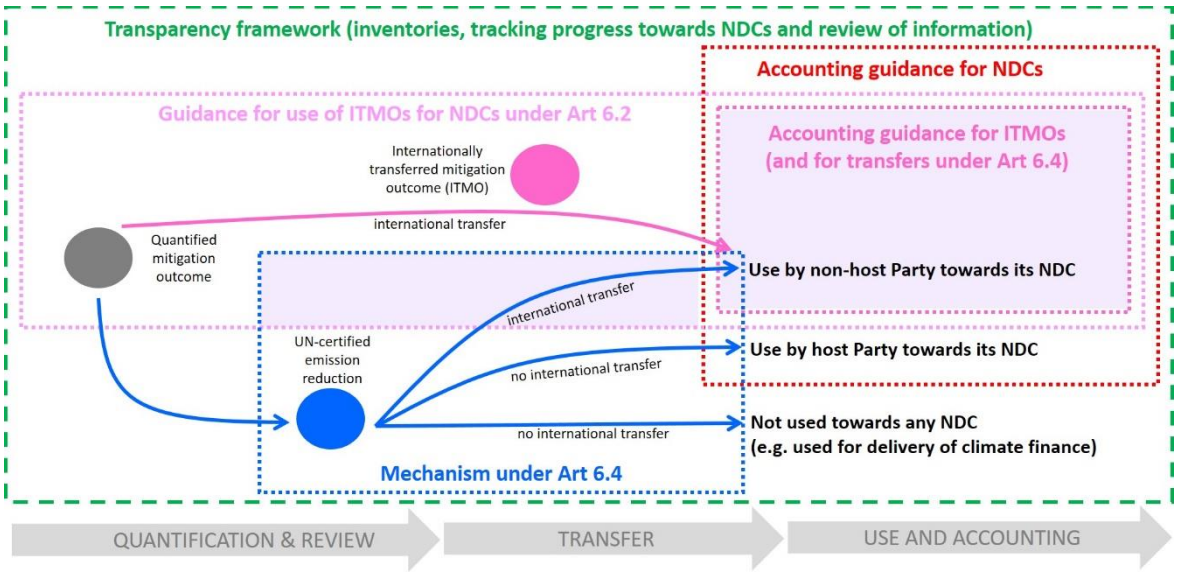
- Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement;
- Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement; and
- Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement.

Parties emphasised the need to achieve balanced progress across all three items and discussed some cross-cutting issues such as the nature, scope and applications of the items and relationship between different elements of Article 6 and between Article 6 and other articles of the Paris Agreement.

While the non-market approaches referred to in Articles 6.8 and 6.9 explicitly exclude market-based approaches. Other elements of Article 6 are not necessarily exclusively market-based, although they enable and facilitate market-based applications. Cooperative approaches involving ITMOs (Article 6.2) are arguably primarily market-based activities, given that they concern the transfer of the right to use mitigation outcomes towards NDCs from the seller to the buyer Party. Such transfers typically – albeit not necessarily – constitute market-based transactions where the price is determined by market forces. However, the mechanism is not limited to market-based uses but can also serve as a measurement tool for domestic climate policies and international climate finance that do not involve international transfers.

Figure 2. Relationships between different elements of Article 6[13]

[13] Figure by GreenStream Network



The relationships between the different elements of Article 6 remain unclear and subject to interpretation and negotiation (illustrated by Figure 2). Article 6.1 can be interpreted as a preamble covering all elements of Article 6 or a stand-alone paragraph. The Paris mechanism could be envisaged as an instrument that operates independently or that operates partly under Article 6.2. In the latter case, the mechanism would generate UN-certified emission reductions that are eligible for international transfer and use towards NDCs. Transfers of such UN-certified emission reductions would take place under Article 6.2. The parallel from the Kyoto Protocol would be secondary transfers of Certified Emission Reductions (CERs) or Emission Reduction Units (ERUs), whereby CERs and ERUs would be issued under the Clean Development Mechanism and Joint Implementation respectively, and any secondary international transfers of these units would be governed by the rules for International Emissions Trading. These mechanisms and transfers are discussed in more detail below in Chapter 5.

Article 6 is linked to numerous other articles, most clearly to NDCs and accounting (Article 4) and transparency (Article 13). There are also potential links to compliance (Article 15) and, through the non-market approaches, to adaptation (Article 7), financing (Article 9), capacity building (Article 10) and technology transfer (Article 11), possibly even sinks (Article 5). Some Parties also emphasised the importance of reading all articles in the context of the Paris Agreement's general objectives and principles. Coordination across the different elements of the Paris Agreement is central for ensuring coherence of measurements and complementarity of instruments, and thereby the effective and transparent implementation of the Paris Agreement.

Tasks associate with implementing Article 6 will require technical work, political decisions and coordination with other tasks. At SBSTA 44, Parties could not yet agree on requesting technical work from the Secretariat, since some Parties feared that technical work could prejudge issues of political nature. Instead, Parties were requested to make submissions on all the three items by 30 September 2016.

4.1 Tasks related to the use of internationally transferred mitigation outcomes towards NDCs

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 6.2

Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.

Article 6.3

The use of internationally transferred mitigation outcomes to achieve nationally determined contributions under this Agreement shall be voluntary and authorized by participating Parties.

Decision 1/CP.21, paragraph 36

[The CMP] [r]equests the [SBSTA] to develop and recommend the guidance referred to under [Article 6.2] for consideration and adoption by the [CMA 1], including guidance to ensure that double counting is avoided on the basis of a corresponding adjustment by Parties for both anthropogenic emissions by sources and removals by sinks covered by their [NDCs].

Articles 6.2 and 6.3 of the Paris Agreement concern specific types of voluntary international cooperative approaches, namely those that "involve the use of internationally transferred mitigation outcomes" (ITMOs) for a specific purpose, that is, "towards nationally determined contributions" (NDCs). The focus of this item on international transfers of mitigation outcomes implies its application to market-based activities, while not explicitly limiting it to them.
Neither an ITMO nor its "use towards NDCs" are clearly defined. The use of ITMOs towards NDCs may cover both meeting and enhancing the level of ambition of the current NDC. Parties will have to decide on the need and prescriptiveness of definitions on these issues. Definitions can have political implications on the scope of this item, including who can generate and use ITMOs, when, where and how.

Key features of the item

Article 6.2 lists key features that Parties "shall" observe when engaging in the use of ITMOs, namely "promoting" sustainable development, "ensuring" environmental integrity and transparency, including in governance, and "applying" robust accounting to "ensure", inter alia, the avoidance of double-counting, "consistent with" guidance by the CMA. Article 6.3 states that cooperative approaches involving ITMOs "shall" be voluntary and authorized by participating Parties.
There seems to be broad agreement among Parties that sustainable development, environmental integrity, transparency and robust accounting are all equally important requirements for Parties wishing to engage in cooperative approaches involving ITMOs. However, there were differing views on what these requirements entail and how they should be met. The definition, scope and content of these requirements, as well as any process to demonstrate their fulfilment, remain subject to negotiation.[14]

Parties play a key role in implementing international transfers while ensuring that requirements are met. The role of the UN is less clear and seems to be limited to providing guidance. Parties need to decide whether and how UN has a role in considering the consistency of Parties' actions with guidance and whether there would be consequences for inconsistencies.

A parallel from the Kyoto Protocol is International Emissions Trading (IET) under Article 17 of the Protocol. To be eligible to trade, a Party is required to have its Kyoto target calculated and recorded as an Assigned Amount, have in place a national system and registry for estimating emissions and removals, and have submitted the most recent required inventory.[15] Eligibility to trade is controlled by the Kyoto Protocol's Compliance Committee. Although sustainable development and environmental integrity were not explicitly addressed in Article 17, all units eligible for international transfer and use towards Kyoto targets were defined and issued under the Kyoto Protocol, either against quantified Kyoto targets (Assigned Amount Units) or in accordance with the modalities and procedures of the two project-based Kyoto mechanisms, namely JI and the CDM (Certified Emission Reductions and Emission Reduction Units). Furthermore, the trading and use of internationally transferred Kyoto units was restricted by the requirement that the use of mechanism is supplementary to domestic action and that Parties maintain a Commitment Period Reserve.[16]

From the perspective of accounting, key differences between the Paris Agreement and the Kyoto Protocol are the diversity of mitigation target due to the bottom-up nature of the NDCs under the Paris Agreement as well as the absence of common accounting units. Accounting under the Kyoto Protocol was facilitated by a common target type – a quantified, absolute, economy-wide, multi-year emission budget – and common Kyoto units. Accounting under the Paris Agreement will need to be applicable to a range of different contribution types and scopes that can differ across Parties, sectors and time. While this implies a higher degree of complexity compared to accounting under the Kyoto Protocol, it is conceivable that the accounting guidance developed under the Paris Agreement will leave details to Parties and provides only general guidance on accounting that is applicable to all (albeit with built-in flexibility which takes into account Parties' different capacities).

Scope of the tasks

The scope of tasks relate to the requirements contained in Articles 6.2 and 6.3 of the Paris Agreement for Parties that engage in voluntary cooperative approaches that involve the use of ITMOs towards NDCs. Namely, Parties shall:

- promote sustainable development;
- ensure environmental integrity and transparency, including in governance;
- apply robust accounting to ensure, inter alia, the avoidance of double counting;
- [demonstrate] the voluntary nature of the use of ITMOs to achieve NDCs; and
- authorize [by participating Parties] the use of ITMOs to achieve NDCs.

The SBSTA is requested to develop the guidance referred to in Article 6.2, "including guidance to ensure that double counting is avoided on the basis of a corresponding adjustment". At SBSTA 44, Parties expressed divergent views on the scope of this guidance: some wanted the guidance to focus on how to apply robust accounting while others wanted all the requirements listed in Article 6.2 (and even Article 6.3) to be covered by this SBSTA process or other pro-

[15] Decision 2/CMP.1, paragraph 5

[16] Kyoto Protocol Reference Manual on Accounting of Emissions and Assigned Amount, available at: http://unfccc.int/resource/docs/publications/08_unfccc_kp_ref_manual.pdf

cesses under SBSTA and/or APA. SBSTA 44 invited Parties to make submissions on their views on the guidance by 30 September 2016.

Overall, some Parties call for UN guidance on all requirements while others think that some requirements can be fulfilled domestically without UN guidance. Thus, it is possible that the requirements stipulated in Articles 6.2 and 6.3 have a broader scope than the guidance developed by SBSTA. It is not clear whether, where and how to address any requirements beyond the scope of the guidance developed by the SBSTA.

In the context of Article 6, ensuring environmental integrity can be understood to mean ensuring that the cumulative global greenhouse gas emissions will be equal or lower as a result of using cooperative approaches compared to Parties meeting their NDCs without cooperative approaches. In other words, cooperative approaches should not lead to higher emissions, thereby undermining the ambition embedded in the NDCs. The environmental integrity of cooperative approaches depends on several aspects, including: the NDCs; the quantification of greenhouse gas budgets; emissions and emission reductions (including baselines and additionality in the case of crediting mechanisms, and cap-setting in the case of trading mechanisms); and the arrangements for issuance, transfer and use of mitigation outcomes, i.e. accounting. Hence, environmental integrity includes, but is not limited to, robust accounting which includes (but is not limited to) the avoidance of double-counting.

This can be illustrated by considering JI and International Emissions Trading (IET) under the Kyoto Protocol: the applicable regulatory framework ensured that national greenhouse gas budgets and emissions were robustly quantified and there was no double-counting of emission reductions. Nonetheless, due to some Parties having national emission quotas above their business-as-usual emissions, the use of JI and IET to transfer such surplus quota (also known as hot air) for use by other Parties for Kyoto compliance lead to higher global emissions compared to a situation where Parties would have met their Kyoto targets domestically, raising widespread concern over environmental integrity. The explicit requirement to ensure environmental integrity under Article 6 indicates the Parties' desire to address such concerns under the Paris Agreement.

Sustainable development is an even broader overarching principle of the Paris Agreement. In Article 6, sustainable development is identified as a motivation for some Parties to pursue voluntary cooperation in the implementation of their NDCs (Article 6.1) and as a specific element of the Paris mechanism which "shall aim […] to promote the mitigation of greenhouse gas emissions while fostering sustainable development" (Article 6.4(a)). This dual aim mirrors the purpose of the CDM to assist host Parties in achieving sustainable development and buyer Parties to achieve their Kyoto targets. Under CDM, it was the "host Party's prerogative to confirm whether a clean development mechanism project activity assists it in achieving sustainable development".[17]

Links with other tasks or work programmes

The tasks under Articles 6.2 and 6.3 have clear links with tasks relating to accounting under Article 4.13 and transparency under Article 13.13. Guidance for accounting and common modalities, procedures and guidelines for transparency of action and support will be developed by the APA.
Several key features of Articles 6.2 and 6.3 are also mentioned in other parts of the Paris Agreement. Article 4.13 requires Parties to account for their NDCs in a manner that promotes

[17] Decision 17/CP.7, preamble.

environmental integrity and transparency and ensures the avoidance of double counting. The need to ensure environmental integrity and avoidance of double counting is also mentioned in the context of developing common rules, modalities and guidelines for the transparency of action and support under Article 13.13. Other features included in Articles 4.13 and 13.13, such as the promotion of transparency, accuracy, completeness, comparability and consistency, may be helpful in elaboration on "robust accounting" under Article 6.2.

Clarity is needed on both the distinction and coordination between these related sets of tasks. Depending on the scope of the guidance referred to in Article 6.2, it may overlap with or be complemented by the tasks under Articles 4.13 and Article 13.13, regarding, environmental integrity, transparency and robust accounting, including avoidance of double-counting.

4.2 Tasks related to the mechanism to contribute to mitigation and to support sustainable development

Article 6.4 of the Paris Agreement establishes a new mechanism for mitigating greenhouse gas emissions and supporting sustainable development. Contrary to the mechanisms established under the Kyoto Protocol, Clean Development Mechanism (CDM) and Joint Implementation (JI), the Article 6.4 mechanism shall aim to deliver an overall mitigation in global emissions.

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 6.4

A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the [CMA] for use by Parties on a voluntary basis. It shall be supervised by a body designated by the [CMA], and shall aim:

- ***a) To promote the mitigation of greenhouse gas emissions while fostering sustainable development;***
- ***b) To incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party;***
- ***c) To contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfil its [NDC]; and***
- ***d) To deliver an overall mitigation in global emissions.***

Article 6.5

Emission reductions resulting from the [Article 6.4 mechanism] shall not be used to demonstrate achievement of the host Party's [NDC] if used by another Party to demonstrate achievement of its [NDC].

Article 6.6

The [CMA] shall ensure that a share of proceeds from activities under the [Article 6.4 mechanism] is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.

Article 6.7

The [CMA] shall adopt rules, modalities and procedures for the [Article 6.4 mechanism] at its first session.
Decision 1/CP.21, paragraph 38

Recommends that the [CMA] adopt rules, modalities and procedures for the [Article 6.4 mechanism] on the basis of:

- ***a) Voluntary participation authorized by each Party involved;***
- ***b) Real, measurable, and long-term benefits related to the mitigation of climate change;***
- ***c) Specific scopes of activities;***
- ***d) Reductions in emissions that are additional to any that would otherwise occur;***
- ***e) Verification and certification of emission reductions resulting from mitigation activities by designated operational entities;***
- ***f) Experience gained with and lessons learned from existing mechanisms and approaches adopted under the Convention and its related legal instruments.***

Decision 1/CP.21, paragraph 39

Requests the [SBSTA] to develop and recommend rules, modalities and procedures for the mechanism for consideration and adoption by the [CMA] at its first session.

Articles 6.4 to 6.7 of the Paris Agreement concern a mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development (hereafter referred to as the Paris mechanism in the absence of any formal name for this mechanism) under the authority and guidance of the CMA for use by all Parties on a voluntary basis.

This section establishes the Paris mechanism and lists aims, key features and requirements for the mechanism. The possibility of non-host Parties to use the resulting emission reductions to fulfil their NDCs implies – but does not explicitly limit – the application of the Paris mechanism to market-based activities involving international transfers of mitigation outcomes.

The application of the Paris mechanism as a tool to measure emission reductions can be relevant even for climate action that does not involve international transfers. Emission reduction estimates are needed to assess, design, implement and evaluate the results and effectiveness of domestic mitigation policies and international climate finance. Market-based uses of the Paris mechanism are implied by references to use of emission reductions by other Parties towards their NDCs (Article 6.4(c)) and to the avoidance of double-counting in case another Party uses emission reductions to demonstrate achievement of its NDC (Article 6.5).

Key features of the item

Articles 6.4 to 6.7 and the related paragraph 37 of the Paris Decision contain provisions for the Paris mechanism, including on its aims, features, requirements and governance. The Paris mechanism has a double aim of promoting mitigation while fostering sustainable development. It shall also aim to deliver an overall mitigation in global emissions.

The Paris mechanism shall aim to incentivise mitigation actions by public and private entities authorised by a Party. Such mitigation actions shall contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions. Another Party can also use these emission reductions to fulfil its NDC. According to Article 6.5, emission reductions resulting from the Paris mechanism shall not be used to demonstrate achievement of the host Party's NDC if used by another Party to demonstrate achievement of its NDC. The Paris mechanism is established under the authority and guidance of the CMA and it shall be supervised by a body designated by the CMA.

The CMA shall adopt rules, modalities and procedures for the Paris mechanism on the basis of:

- Voluntary participation authorised by each Party involved;
- Real, measurable, and long-term benefits related to the mitigation of climate change;
- Specific scopes of activities;
- Reductions in emissions that are additional to any that would otherwise occur;
- Verification and certification of emission reductions resulting from mitigation activities by designated operational entities;
- Experience gained with and lessons learned from existing mechanisms and approaches adopted under the Convention and its related legal instruments.

Finally, there shall be a Share of Proceeds under the Paris mechanism to cover administrative expenses and assist vulnerable developing countries with the costs of adaptation.
The Paris mechanism will be governed by an UN-appointed body and the real, measurable and additional emission reductions achieved under the mechanism will be verified by a third party. These features are similar to CDM and Track 2 JI under the Kyoto Protocol, and there are many lessons to be drawn from the Kyoto mechanisms on implementing these features. There are also important differences between the Paris and Kyoto mechanisms.
For one, there is the multi-faceted issue of scope that will require both technical work and political negotiations. The Paris mechanism is open to all, and will need to operate in a range of contexts, such as CDM-type contexts outside the scope of NDCs to JI-type contexts within the scope of absolute, quantified economy-wide NDCs. At SBSTA 44, many Parties acknowledged the fundamentally different contexts in which the Paris mechanism will need to operate compared to CDM and JI: contrary to CDM, all host Parties will have NDCs and contrary to JI, the NDCs of host Parties will not be of identical type or scope. Scope may also refer to the nature and level of mitigation activities: the Kyoto mechanisms were largely project-based, with some programmatic activities, while the Paris mechanism makes no reference to projects, thereby opening its scope for broader activities such as sectoral policies. The issue of sectors is another dimension of scope: the inclusion or exclusion of activities relating to forests divides Parties. In the case of the CDM, selected forestry activities became eligible under the mechanism upon the adoption of specific modalities and procedures for such activities.

Secondly, the requirement of overall mitigation in global emissions is a new feature of the Paris mechanism that will require both technical work and political negotiations. “Overall mitigation” currently lacks a common definition, and Parties will need to clarify its meaning and options for its implementation.

Past negotiations on the New Market-based Mechanism (NMM) as well as the CDM and JI reviews can provide further insights into what Parties may understand by overall mitigation. The NMM was required to “achieve a net decrease and/or avoidance of greenhouse gas emissions”[18], as a step up from the CDM which was not designed to achieve any net decrease of emissions. Under CDM, Certified Emission Reductions achieved in the host country Party allow the buying Party to increase their emissions by an equivalent amount, thereby cancelling out any emission reductions beyond those needed to achieve the Kyoto targets (so-called offsetting). Similarly, JI was also intended for offset use under the Kyoto Protocol: emission reductions achieved in the host country could be transferred to other Parties if a corresponding amount was deducted from the host country’s national emission quota to avoid double-counting of the emission reductions. Such a deduction was not applicable to CDM countries since they do not have national emission quotas under the Kyoto Protocol. Under the CDM review, some Parties advocated the reform of the CDM to deliver “net mitigation” while others opposed.[19]
Under the JI review, Parties discussed (but did not agree on) requirements to “enhance the

[18] Decision 2/CP.17, paragraph 79

[19] UNFCCC (2014). SBI 40 - Note by the co-chairs - version 1 of 13 June 2014 at 23:30 hrs. Available online at http://unfccc.int/files/meetings/bonn_jun_2014/in-session/application/pdf/sbi40_i6a_13jun2014t2330_dt_note_by_the_co-chairs.pdf.

delivery of net mitigation beyond the benefit of the host Party" or, in alternative wording, "to provide for net atmospheric benefits from activities".[20]

Although CDM (and JI) are not required nor designed to go beyond offsetting, they nonetheless can result in mitigation beyond offsetting, in cases where part of the emission reductions achieved by CDM/JI are not used towards compliance under the Kyoto Protocol.[21] This could occur, for example, if the emission reductions are credited in a conservative manner (e.g. due to methodological uncertainties), or if the buyer decides to cancel the CDM/JI credits (e.g. to enhance ambition or deliver results-based support) instead of using them for Kyoto compliance. Against this backdrop, overall mitigation in global emissions could be understood as mitigation going beyond pure offsetting and beyond the aggregate levels represented by the NDCs.[22] Some NDCs are fully or partially conditional to the provision of international support and/or the availability of international cooperative approaches, and the achievement of such conditional levels may also be interpreted as "overall mitigation".

In any case, an actual positive result for the atmosphere can occur only if emission reductions are robustly quantified and accounted for and NDCs represent mitigation from business-as-usual (i.e. they do not contain so-called "hot air).[23] These features contribute to ensuring environmental integrity, which is an overarching requirement for Article 6.

Besides market-bases uses, the mechanism can also serve as a measurement tool for domestic climate policies and international climate finance that do not involve international transfers. The parallel from the Kyoto Protocol would be the use of CERs issued under the CDM for delivery of results-based climate finance. In this case, "use" of CERs would be their cancellation instead of their retirement for compliance towards targets under the Kyoto Protocol.

The Paris mechanism could serve as a space for the development of UN-governed methodologies and processes for quantifying emission reductions for example at project, programme and sectoral levels. This work would need to be aligned with guidelines for NDCs, transparency and accounting. Together, such efforts could promote the quality, consistency and comparability of tracking the results of mitigation action across the board: across different modes of cooperation and support; across actors, sectors and countries; and across project and programme level to sectors, national inventories and NDCs. Parallels from the Kyoto Protocol include the use of the CDM methodologies as blueprints in JI and national schemes, and the coordination between national JI authorities and inventory experts to ensure the consistency between national JI methodologies and inventory methodologies.

Scope of the tasks

Under the Paris Decision, paragraph 38, SBSTA was requested to develop rules, modalities and procedures for the Paris mechanism on the basis of aspects listed in paragraph 37. The scope of the SBSTA work seems to cover most of the tasks arising from Articles 6.4-6.7. Although not explicitly mentioned, the SBSTA work may also cover possible piloting, prompt start and/or transition of activities from CDM and JI to the Paris mechanism. These topics were raised by some Parties as SBSTA 44.

[20] UNFCCC (2016). Review of the joint implementation guidelines. Draft conclusions proposed by the Chair. FCCC/SBI/2016/L.8, Annex, Part II, paragraph 12. Available online at: http://unfccc.int/resource/docs/2016/sbi/eng/l08.pdf

[21] UNFCCC (2014). New market-based mechanism. Technical Paper. FCCC/TP/2014/11. Available online at: http://unfccc.int/resource/docs/2014/tp/11.pdf

[22] Raeschke-Kessler, K. (2016). Next Steps. How to make Article 6.4 of the Paris Agreement work. In: Carbon Mechanism Review 01/2016. Available online at: http://www.carbon-mechanisms.de/fileadmin/media/dokumente/publikationen/CMR_2016_01_Dawning_bf.pdf

[23] Raeschke-Kessler, K. (2016). id.

At SBSTA 44, many Parties called for technical work and political discussions to develop common definitions and understanding of the key features of the Paris mechanism, as well as of relationships with other parts of the Paris Agreement, before starting detailed technical work on the rules.

While it is clear that the rules, modalities and procedures for the Paris mechanism with make use of past experience and lessons, it is less clear what these past experiences and lessons entail and how and to what extent they are applicable to the Paris mechanism. This will require extensive technical work as well as political negotiations.

At SBSTA 44, many Parties suggested that the rules, modalities and procedures for the mechanism would build extensively on the CDM modalities and procedures, and some also mentioned the relevance of JI guidelines. In fact, SBI 44 captured experience gained under the review of the JI guidelines in the form of draft revised JI modalities and procedures. These may be relevant for the Paris mechanism, given that both JI and the Paris mechanism operate in host countries with national mitigation targets. Some Parties emphasised the fundamentally different contexts in which the Paris mechanism is applied and other key differences compared to CDM, such as the overall mitigation, the scope beyond projects and the need to avoid double-counting. They noted that even the features that the Paris mechanism has in common with the CDM, such as additionality, may need to be applied differently in new contexts. Thus, the modalities and procedures of the Paris mechanism may differ significantly, at least in some aspects, from those governing CDM and JI.

Links with other tasks

At SBSTA 44, Parties discussed the need to clarify the relationship between the Paris mechanism and other elements of the Paris Agreement, such as the link between Article 6.5 and provisions under Article 6.2 regarding avoidance of double-counting. Any methodological approaches and accounting provisions developed under the Paris mechanism need to be coordinated and consistent with the rest of the Paris Agreement, for example the provisions for transparency and accounting for NDCs under Article 13 and 4, respectively.

4.3 Tasks related to the framework for non-market approaches

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 6.8

Parties recognize the importance of integrated, holistic and balanced non-market approaches being available to Parties to assist in the implementation of their [NDCs], in the context of sustainable development and poverty eradication, in a coordinated and effective manner, including through, inter alia, mitigation, adaptation, finance, technology transfer and capacity-building, as appropriate. These approaches shall aim to:

- ***a) Promote mitigation and adaptation ambition;***
- ***b) Enhance public and private sector participation in the implementation of [NDCs]; and***
- ***c) Enable opportunities for coordination across instruments and relevant institutional arrangements.***

Article 6.9

A framework for non-market approaches to sustainable development is hereby defined to promote the non-market approaches referred to in [Article 6.8].

Decision 1/CP.21, paragraph 40

Also requests the [SBSTA] to undertake a work programme under the framework for non-market approaches to sustainable development referred to in [Article 6.8] with the objective of considering how to enhance linkages and create synergy between, inter alia, mitigation, adaptation, finance, technology transfer and capacity-building, and how to facilitate implementation and co-ordination of non-market approaches.

Decision 1/CP.21, paragraph 41

Further requests the [SBSTA] to recommend a draft decision on the work programme referred to in Paragraph 40 above, taking into account the views of Parties, for consideration and adoption by the [CMA 1].

Article 6.8 of the Paris Agreement recognizes the importance of "integrated, holistic and balanced" non-market approaches being available to Parties to assist in the implementation of their NDCs. Article 6.9 defines a framework for such non-market approaches.

While Articles 6.2-6.7 are focused on mitigation, Articles 6.8-6.9 are broader in scope, covering both mitigation and adaptation, and concerning financing, technology transfer and capacity building. This is also explicitly restricted to non-market-based approaches.

Key features of the item

Non-market approaches referred to in Article 6.8:

- are integrated, holistic and balanced
- assist Parties in implementing their NDCs
    - in the context of sustainable development and poverty eradication
    - in a coordinated and effective manner
- shall aim to
    - promote mitigation and adaptation ambition
    - enhance public and private participation in the implementation of NDCs
    - enable opportunities for coordination across instruments and relevant institutions.

At SBSTA 44, Bolivia as the main proponent of non-market approaches shared its vision of the framework as a new mechanism for providing more (public) support – in the form of financing, technology transfer and capacity building – for non-market approaches that target mitigation, adaptation and sustainable development in an integrated manner. Other Parties wanted to explore the current landscape of support in order to identify needs and gaps that the framework may help to address.

Parties discussed the need to define and narrow down the non-market approaches considered under the framework. According to Bolivia, a key feature of non-market approaches should be the provision of support based on Parties' needs rather than results. By extension, market-based approaches – which are not mentioned in the Paris Agreement – would involve the international transfer of these results and their use towards other Parties' NDCs.

Scope of the tasks

The tasks associated with defining a framework for non-market approaches may include deciding on the nature, purpose, scope and functions of the framework. The SBSTA has been requested to undertake a work programme under the framework "with the objective of considering how to enhance linkages and create synergy between, inter alia, mitigation, adaptation, financing, technology transfer and capacity building, and how to facilitate the implementation and coordination of non-market approaches".

Deciding on the nature, purpose, scope and functions of the framework is largely political in nature, although the discussions could benefit from technical work on the range of available options and their implications and relationships with other instruments and institutions. The SBSTA work programme has the potential to be technical in nature, but at SBSTA 44, the political debate on the framework took place under the agenda item on the work programme.

At SBSTA 44, Parties discussed the framework and its relationship to the work programme. Some Parties considered that the objectives of the work programme reflected the key features of the framework, which should thus focus on enhancing linkages, creating synergies and facilitating implementation and coordination. Bolivia focused on its vision of the framework which is much broader in scope that the scope of the work programme.

Links with other programmes

The scope of Articles 6.8 and 6.9 is broad and covers elements that have their own articles in the Paris Agreement, namely mitigation (Article 4), adaptation (Article 7), financing (Article 9), technology transfer (Article 10) and capacity building (Article 11). There is also a potential link to Article 5 which mentions joint mitigation and adaptation (JMA) approaches for the management for forests. To avoid overlap and duplication of work, Articles 6.8 and 6.9 could serve as a space for cross-cutting issues and coordination across these elements.

5. Existing and emerging cooperative approaches: lessons and implications to the Paris Agreement

This chapter describes and analyses existing and emerging cooperative approaches, including those under the Kyoto Protocol; those outside the UN system; as well as those under the Paris Agreement. The chapter also discusses linkages between different cooperative approaches and the lessons from existing cooperative approaches for the development of the cooperative approaches under the Paris Agreement. First, the rationale for cooperative approaches is discussed. Second, the chapter introduces the existing market-based schemes under the Kyoto Protocol and outside the UN system, and their existing and planned linkages. Third, cooperative approaches under the Paris Agreement are described. The chapter concludes with lessons from existing mechanisms for the development of the cooperative approaches under the Paris Agreement.

5.1 Rationale for cooperative approaches

International cooperation is essential in addressing environmental challenges that transcend national borders. Through international cooperation, countries and regions can leverage more resources and achieve more results, earlier and faster, as well as more flexibly and more cost-effectively, thereby enabling greater ambition.

International cooperation can be facilitated top-down, through internationally established mechanisms and multilateral initiatives, or bottom-up, through international linkages of domestic and regional schemes. Regional, bilateral and multilateral cooperation on climate action is taking place both within and outside the UN framework.

The preamble of the UNFCCC acknowledges "that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions". International cooperation is also central in the Kyoto Protocol which establishes three international mechanisms to facilitate and govern cooperation between Parties (Articles 6, 12 and 17 of the Kyoto Protocol).

International cooperation is also a key feature of the Paris Agreement. The Paris Decision recognises that combatting climate change "requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions" (preamble of Decision 1/CP.21). Article 6.1 of the Paris Agreement indicates that "some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity."

The cooperative approaches under Article 6 of the Paris Agreement aim to accommodate the diverse range of existing and emerging international cooperation that could assist Parties in achieving and enhancing the NDCs under the Paris Agreement. Guidance for using these cooperative approaches towards NDCs will be developed in the coming years.

Several jurisdictions, including the EU, New Zealand, California and Quebec, as well as some Chinese provinces and cities, have implemented emissions trading that impose an emission cap to the covered sources. These schemes vary in terms of, inter alia, design, coverage and ambition. Some have a direct international link, such as California's and Quebec's schemes through the mutual recognition of units from both schemes, while others have (or have had) an indirect international link, such as EU's and New Zealand's schemes through their acceptance of the same units generated under the international Kyoto mechanisms.

Cooperative approaches can be used for several purposes, including:

- Compliance with international and/or domestic targets;
- Voluntary mitigation beyond targets;
- Delivery of and access to international support; and/or
- As domestic policy tool.

The rationale for using cooperative approaches includes:

- Enhanced flexibility in meeting targets;
- Cost reduction in meeting targets;
- Management of uncertainties in meeting targets;
- Promotion of co-benefits (sustainable development, technology transfer, capacity/institution/infrastructure/standard development);
- Enhancement of transparency and environmental integrity;
- Enhanced effectiveness/efficiency of resource allocation;
- Enabling of international linkages.

5.2 Types of cooperative approaches

This section focuses on cooperative approaches that can have market-based applications. Such cooperative approaches may also be used for non-market applications, as discussed in Section 5.5.6 below.

Since the early 1970s, market-based schemes for pricing emissions have emerged alongside command-and-control policies, both for regulating greenhouse gases and other pollutants that are considered harmful for the environment. The main motivation for market-based instruments is enhancing the cost-efficiency of achieving a desired environmental outcome such as lower emissions. With differences in abatement costs across sectors and regions, introducing a price on emissions instead of tightening existing regulations reduces the cost of further emissions reductions. Carbon pricing plays an important role in in the Paris Agreement.

Market-based schemes typically fall into one of two categories: cap-and-trade (trading) schemes and baseline-and-credit (crediting) schemes. Both types of schemes are currently in operation around the world at both national and international levels.

5.2.1 Cap-and-trade schemes

Under a cap-and-trade scheme, emissions are capped over a predetermined period. As a consequence the number of allowances to emit are fixed. For a given sectoral and geographical scope, the cap is typically set to decline over time. The allowances can either be allocated for free (grandfathered) or auctioned across the entities that participate in the scheme. Once the initial allocation has been set, participating entities are free to trade the allowances between themselves – participants with an excess can sell the surplus to entities with a deficit.

Two types of cap-and-trade schemes can be identified based on who the participating entities are:

1. Between governments
2. Between companies that are part of regional/national/supranational schemes.

Governments typically trade within the national carbon budgets, whereas companies trade within caps that cover only a share of national emissions.

An example of emissions trading between governments is **International Emissions Trading (IET)** under the Kyoto Protocol[24]. Under the Kyoto Protocol the emission reduction targets are expressed as levels of allowed emissions, or “assigned amounts,” over the commitment period. The allowed emissions can also be called a cap. The allowed emissions are expressed in terms of Assigned Amount Units” (AAUs). Under IET, countries with emission caps could trade AAUs to reach their targets under the Kyoto Protocol. In other words, countries that over-perform can sell the over-performance to countries that underperform, relative to set targets.
There are currently 16 emission trading schemes in operation worldwide[25], the largest of which is the EU ETS.[26] All the existing schemes are listed in Table 1 of section 0 below. The table summarises selected design parameters of fundamental nature: the coverage in percentage,

[24] http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php

[25] ICAP: Emissions Trading Worldwide - International Carbon Action Partnership (ICAP) Status Report 2016

[26] http://ec.europa.eu/clima/policies/ets/index_en.htm

the point of regulation (upstream/downstream), linkages with other schemes and rules for the use of offsets.

An example of emissions trading between companies is the **EU Emissions Trading Scheme** (EU ETS). The position by the EU Commission is that the EU ETS is and continues to be the main instrument to achieve EU's GHG reduction target.[27] The EU ETS was launched in 2008 and has since then gradually been expanded both in terms of gas coverage, sectoral coverage and geographical coverage. Currently, it covers slightly less than half of EU emissions.
There are examples of emissions trading schemes with small geographical coverage (see table 1 below in section 0 of current trading schemes). Different ETS's can also be linked, meaning their units are mutually accepted and can thus units can be traded between two schemes. While EU ETS and other trading initiatives of trading between companies are not governed internationally under the UN, they represent a way for governments to reach internationally agreed mitigation targets, such as those set in the Kyoto Protocol.
In addition to the existing schemes, a number of new schemes have been suggested, of which the most important is China's National ETS, which is expected to launch in 2017. The operation of the national ETS is expected to be delayed to the second half of 2017, but its emission cap is likely to be backdated to the beginning of the year, meaning that only the start of trading is delayed.[28] The National ETS is an evolution and expansion of the ongoing seven regional pilot schemes in China. By June 2014, all seven carbon trading pilots started trading. Jointly the pilot schemes, cover 1919 entities, and their emissions have been capped at 1.2 billion tons of CO_2e per year.[29] The national scheme is expected to cover approximately 10,000 entities.[30]
In Australia, the main opposition party has revived the plan for an emissions trading scheme, which was repealed by the previous government. According to the revived plan, Australia will allow for the use of international offsets and link to other cap-and-trade schemes.[31] In Canada's Ontario province, its government voted on 18 May 2016 to establish the province's cap-and-trade system, with the intention of linking to Québec and California's joint market in late 2017 or 2018.[32]

5.2.2 Baseline-and-credit schemes

Under a baseline-and-credit scheme, allowances are issued relative to a baseline. Under a mandatory sectoral crediting scheme, entities with emissions above the baseline would be obliged to acquire allowances from entities with emissions below the baseline. In a voluntary project-based baseline-and-credit scheme, the credits are awarded to projects that reduce emissions below the baseline. In a voluntary project-based baseline-and-credit scheme, there is typically no demand, just supply. The demand must come from external sources. The baseline can either be project-specific or standardized. The baseline is a hypothetical reference case, representing the volume of greenhouse gases that would have been emitted if the project were not implemented.

Clean Development Mechanism (CDM) and Joint Implementation (JI) are examples of international baseline-and-credit schemes that generate credits from emission reduction projects and programmes in countries without (CDM) and with (JI) binding targets under the Kyoto Protocol. Credits are generated by projects or programmes that have been deemed additional, for emission reductions relative to a pre-approved baseline that have been measured and verified

[27] http://ec.europa.eu/clima/news/articles/news_2014121901_en.htm

[28] Carbon Pulse (March 2016): China national ETS launch likely in second half of 2017 –sources http://carbon-pulse.com/17057/

[29] Zhang (2015): Carbon Emissions Trading in China: The Evolution from Pilots to a Nationwide Scheme https://ccep.crawford.anu.edu.au/sites/default/files/events/attachments/2015-04/paper_by_professor_zhang.pdf

[30] Carbon Pulse (March 2016): China national ETS launch likely in second half of 2017 –sources http://carbon-pulse.com/17057/

[31] Carbon Pulse (April 2016): Australian 'soft start' ETS would seek links to international carbon market, but demand seen limited http://carbon-pulse.com/18960/

[32] https://www.ontario.ca/page/cap-and-trade

in accordance with specific standards and procedures. For CDM, these standards and procedures are developed at the international (UN) level while JI projects may apply either national (Track 1) or international (Track 2) rules and procedures. These credits can be transferred to other Parties who may use them for complying with their emission targets under the Kyoto Protocol. By 2016, there were some 7,700 projects registered under the CDM and JI. Of these, some 2,900 had issued CERs and ERUs corresponding to 1,660 MtCO2e in avoided emissions.

Japan has operated its bilateral baseline-and-credit mechanism, the **Joint Crediting Mechanism (JCM)**, since 2013, for the purpose of quantifying Japan's contributions to GHG reductions and removal activities, with the objective of accounting them appropriately as Japan's contribution.[33] Compared with the CDM, JCM relies more on benchmarks and energy efficiency standards as baselines.[34] In contrast with the CDM standards, the JCM standards are host country specific and must be approved bilaterally by the respective Joint Committee (of Japan and the host country). In that respect, JCM resembles Track 1 JI. Through JCM, the Ministry of the Environment of Japan supports part of the initial cost (up to half), with the objective of securing at least half of the issued JCM credits to the government of Japan. The budget for projects starting from 2016 is 6.7 billion JPY (approx. USD 56 million) in total by the fiscal year 2018.[35]

The UN body International Civil Aviation Organization (ICAO) has plans for a **global market-based mechanism for civil aviation** (from 2020). The mechanism, which is expected to be a baseline-and-credit scheme, is due to be voted on at ICAO's full assembly in October 2016, but there has been little technical process by June 2016 and the issue has been controversial for many years.[36] Under the ICAO negotiations, the conceptual basis of the proposed measure has not yet been elaborated in full detail. Preparatory work[37] has identified three design options: global mandatory offsetting, global mandatory offsetting with revenue[38], and global emissions trading. The aviation industry has repeatedly expressed its preference for offsetting, and ICAO has taken note of this position. It is therefore likely that, if adopted, the global MBM will take the form of mandatory offsetting (option 1), and this type of offsetting usually requires credits from a baseline-and-credit mechanism. Details on it are yet to be agreed.[39]

5.2.3 International linkages of existing and emerging schemes

Among the fundamental design parameters of an emissions trading scheme is whether linkages to other cap-and-trade schemes are allowed and whether the import of credits are allowed. Imported credits are typically created in separate baseline-and-credit schemes, such as the CDM. The decision of linkages and credit import can come with a range of conditions, e.g. that linkage is allowed one way only (such as with respect to aviation in the EU ETS whereby industrial installations are not allowed to use EUAs originating from the ETS for aviation emissions but airlines may use EUAs originating from the general ETS for industrial installations) and maximum quotas for the import of credits (as for import of CDM and JI credits into the EU ETS).

Table 1 lists the 16 currently operational trading schemes for greenhouse gas emissions. The EU ETS covers approximately 2,000 $MtCO_2e$ of yearly emissions, which is approximately the

[33] Japan's INDC states: "The Joint Crediting Mechanism (JCM) is not included as a basis of the bottom-up calculation of Japan's emission reduction target, but the amount of emission reductions and removals acquired by Japan under the JCM will be appropriately counted as Japan's reduction". INDC available at: http://www4.unfccc.int/submissions/INDC/Published%20Documents/Japan/1/20150717_Japan's%20INDC.pdf

[34] Carbon Pulse (March 2016): Baby steps for Japan's JCM as it seeks to break new ground http://carbon-pulse.com/17597/

[35] http://gec.jp/jcm/about/index.html

[36] Carbon Pulse (May 2016): ICAO aviation offset market talks yield little progress, seen backtracking on previous agreement http://carbon-pulse.com/19970/,

[37] ICAO. (2013). Report of the Assessment of Market-based Measures. Montreal: International Civil Aviation Organisation.

[38] In offsetting with revenue (Option 2) a levy, fee or share of proceeds is generated that may be used for other purposes, e.g. compensating airlines from developing countries, funding research and development on mitigation options in the aviation sector, or to provide a continuous stream of revenue to fund the administrative structure of the global MBM.

[39] Hermville, L. (2016): Offsetting for International Aviation. The State of Play of Market-Based Measures under ICAO. JIKO Policy Brief No. 01/2016. Available online at: http://www.carbon-mechanisms.de/fileadmin/media/dokumente/publikationen/PB_2016_01_Aviation_bf.pdf

size of the 15 other schemes combined. The currently existing links between emissions trading schemes are those between California and Québec, and Tokyo and Saitama, In California and Québec, a manifestation of the California-Québec link are the joint auctions with a floor price. Most schemes (with the EU ETS as a noteworthy exception) rely on domestic offsets to reduce compliance costs. Domestic offsets link the jurisdiction's ETS sector with the non-ETS sector, expanding the scope of eligible mitigation potential. China's regional pilot schemes are linked indirectly through domestic offsets.

Furthermore, the EU, Swiss and New Zealand[40] ETSs have allowed the import of international (CDM and JI) credits and their compliance use, subject to certain qualitative and quantitative limitations. These schemes are indirectly linked through their acceptance of the same international credit types for compliance in their respective ETSs.

Table 1: Existing carbon trading schemes. Source: ICAP ETS Map[41].

Scheme	Economy wide emissions (in MtCO2e)	ETS coverage	Point of regulation	Linkages	Credit import
EU ETS	4611.6	45%	Downstream	None. Plans exist to link with Swiss ETS.	Credits from CDM and JI with qualitative and quantitative restrictions. Currently insignificant as quantitative limit is almost exhausted.
Swiss ETS	52.6	11%	Downstream	None. Plans exist to link with EU ETS.	CDM with quantitative and qualitative restrictions
California ETS	459.28	85%	Mixed	Link with Québec ETS. Plans to link with further emerging North-American schemes.	Domestic offsets (up to 8% of each entity's compliance obligation)
RGGI[42] (9 US states)	460	20%	Downstream	None to date	A maximum of 3.3% of an entity's liability may be covered with domestic offsets.
New Zealand ETS	81	52%	Upstream, with possibility to op in downstream	None to date	Currently not open to international credits (previously credits from CDM and JI were accepted). Allowances may be granted for entities that voluntarily opt-in register for removal activities
South Korea ETS	688.4	67%	Downstream	None to date	10% of each entity's compliance obligation from domestic activities that meet CDM standards
Kazakhstan ETS	284.3	50%	Downstream	None to date	Domestic offsets are allowed.
Tokyo ETS	70.1	20%	Downstream	Link with Saitama ETS	Domestic offsets in and outside Tokyo
Saitama ETS	39.1	18%	Downstream	Link with Tokyo ETS	Domestic offsets in and outside Saitama.
Québec Cap-and-Trade	78.3	85%	Mixed (fuel distribution upstream)	Link with California ETS	Up to 8% of each entity's compliance obligation with domestic offsets.
Beijing ETS	188.1	40%	Mixed	None to date	Domestic project-based carbon offset credits, up to 5% of the annual allocation

[40] Previously, the New Zealand ETS accepted CDM and JI credits. Since July 2015, it temporarily transitioned to a domestic-only scheme (Source: http://www.mfe.govt.nz/climate-change/reducing-greenhouse-gas-emissions/clean-development-mechanism)

[41] https://icapcarbonaction.com/en/ets-map

[42] https://www.rggi.org/

Chongqing ETS	243.1	40%	Mixed	None to date	Domestic project-based carbon offset credits, up to 8% of the annual allocation
Guangdong ETS	610.5	55%	Mixed	None to date	Domestic project-based carbon offset credits, up to 10% of the annual allocation
Hubei ETS	463.1	35%	Mixed	None to date	Domestic project-based carbon offset credits, up to 10% of the annual allocation
Shanghai ETS	297.7	57%	Mixed	None to date	Domestic project-based carbon offset credits, up to 5% of the annual allocation
Shenzhen ETS	215	55%	Mixed	None to date	Domestic project-based carbon offset credits, up to 10% of the annual allocation

Notes: All schemes have an absolute fixed cap except for the New Zealand scheme which has a variable cap, in order to accommodate carbon sequestration from forestry activities and to enable the full use of international carbon markets. Participation is mandatory in all schemes. Switzerland, New Zealand and South Korea have voluntary opt-in.

5.3 Cooperative approaches in the Paris Agreement

During the negotiations leading to the Paris Outcome, some Parties that were already engaging or planning to engage in international climate cooperation emphasised that cooperative approaches should and would be possible even in the absence of explicit provisions in the Paris Agreement. To them, the purpose of any provisions for cooperative approaches should be to facilitate and provide guidance for various types of international cooperation, rather than to prescribe or exclude any forms of cooperation. Other Parties emphasised the importance of ensuring the environmental integrity of all mitigation outcomes resulting from cooperative approaches that are used towards NDCs. To them, the purpose of any provisions for cooperative approaches should be to safeguard the environmental integrity of such cooperation and, consequently, the collective ambition of the Paris Agreement.

The cooperative approaches under Article 6 of the Paris Agreement represent a carefully crafted compromise package that aims to accommodate the diverse range of existing and emerging forms of international cooperation that could assist Parties in achieving and enhancing the NDCs. Article 6 begins with a general paragraph recognising that "some Parties may pursue voluntary cooperation in the implementation of their [NDCs] to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity". The rest of the article consists of three types of cooperative approaches (described in detail in Chapter 4 above), namely:

- "Cooperative approaches that involve the use of internationally transferred mitigation outcomes [ITMOs] towards NDCs" whereby Parties shall "promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double-counting". (Articles 6.2-6.3, hereafter referred to as ITMO trading)
- A UN-governed "mechanism to contribute to mitigation and support sustainable development" (Articles 6.4-6.7, hereafter referred to as the Paris mechanism)
- A "framework for non-market approaches to sustainable development" to assist in the implementation of NDCs in a coordinated and effective manner, through mitigation, adaptation, finance, technology and capacity-building (Articles 6.8-6.9, not be discussed further in this chapter).

Guidance and rules for these cooperative approaches will be developed in the coming years. The scope and level of detail of the UN guidance and rules remains open for debate.

5.3.1 Potential use of the Paris Agreement's cooperative approaches

According to the International Emissions Trading Association (IETA), 91 of the INDCs submitted by of May 2016 mention the possible use of markets in some manner. This means that nearly half of the Parties of the Agreement are considering to engage in cooperative approaches already during their first NDC period (by 2025 or 2030), either as a buyer, seller, or both. The ways of mentioning market use in INDCs ranges from concrete declarations of e.g. Switzerland, South Korea and New Zealand that they will use international credits to reach part of their NDCs, to the "not ruling out markets" view of e.g. Kenya and Chile.[43] However, the three biggest emitters of greenhouse gases worldwide, USA, China and the EU, have all stated in their current INDCs that they will reach their initial NDCs by domestic measures without international credits. As a general observation, smaller countries or country groups are in favour of using markets while large Parties (including the EU) expect to reach their targets domestically. Even Parties who intend to meet their NDCs domestically may opt to enter international markets as a seller in case of overachievement. In the longer run, positions on utilising cooperative approaches may change. After the update of initial INDCs, or the submission of the next NDC, Parties may revisit their views on the matter. Political and economic realities change, and cooperative approaches can help Parties in reaching or enhancing NDCs more flexibly and cost-effectively.

Under the Paris Agreement, all Parties have mitigation targets in their NDCs and they are expected to raise their ambition level at least every 5 years. Thus, the situation regarding the supply of international credits differs from the situation of e.g. the Kyoto Protocol, where developing countries did not have mitigation targets. The new situation can mean that developing countries wish to use much of the emission reductions achieved towards their own NDC and not sell and transfer them internationally.

Still, it is important to keep in mind that even if a country would sell emission reductions created by e.g. a project or programme under a cooperative approach (ITMO trade or Paris mechanism), it could use part of the mitigation outcome towards its own NDC as well. This has been done already in some cases under the Kyoto Protocol. Finland is one of the prime examples of this: even when Finland had a governmental credit purchase programme in place and acquired credits internationally to achieve Kyoto compliance, at the same time there were three nitrous oxide (N_2O) abatement projects in Finland[44], which created emission reductions to both the buyer country and the seller country, as only part of the credits created by the projects were sold internationally. In this case the projects helped both countries, Finland and the buyer country, to reach their Kyoto targets. This could be a viable case also under the Paris Agreement. The existing cooperative approaches and their viability in being used or creating lessons learned for the new cooperative approaches under the Paris Agreement are discussed below.

The EU's INDC under the Paris Agreement sets a greenhouse gas emission reduction target of at least 40 % below 1990 emissions by 2030. It is specified in the INDC that the EU will reach the 40 % target domestically, without the use of international credits.[45] What the INDC does not spell out, is that if the EU increases its target from 40% by 2030, it could also utilise international credits to fill part of this increased contribution. This was communicated by the EU Commission in February 2015 with the following wording: "Should the outcome of the negotiations warrant a more ambitious target, then the EU should be open to the use of international credits to complement domestic commitments as long as their environmental integrity is fully secured and double counting is avoided".[46]Therefore, the possibility remains that the EU, and Finland, might participate in international cooperation, through ITMO use and the Paris mechanism, to reach its

[43]IETA INDC tracker, available at: https://docs.google.com/spreadsheets/d/1YgIQiiucWW9vuDUAMeRstzzLxTXi6zFWtFVClqtRTe4/edit#gid=0

[44] http://ji.unfccc.int/JI_Parties/DB/5GLNN9ZVU2S0I5Y01R7ELCV22RP9XJ/viewDFP

[45] http://www4.unfccc.int/submissions/INDC/Published%20Documents/Latvia/1/LV-03-06-EU%20INDC.pdf

[46] European Commission Communication: The Paris Protocol – A blueprint for tackling global climate change beyond 2020

NDC target. Another option is to overachieve the NDC target through the use of cooperative approaches.

Interestingly, when the Kyoto Protocol was negotiated, the United States was the main advocate for the market-based flexibility mechanisms, while the EU did not anticipate interest in using them. In the end, the EU was the main user of the mechanisms, while the US remained outside the Kyoto Protocol and its mechanisms. Against this background, the option to use of cooperative approaches should be retained and the relevant rules negotiated as well as possible because the need to use such approaches might appear unexpectedly in the future. The uncertainty of the future, and giving flexibility to countries to operate in the ever-changing economic and political environment is one key rationale for the creating the cooperative approaches.

5.3.2 ITMO activities (Article 6.2)

ITMO activities concern voluntary cooperative approaches involving the use of ITMOs towards NDCs. Under this approach, Parties have a key role in ensuring that the requirements relating to sustainable development, environmental integrity, transparency and robust accounting are met. In the negotiations leading to the Paris Outcome, Parties that most actively advocated ITMO activities include those that are already implementing or planning to implement international linkages of their domestic or regional mitigation schemes (see Table 1 above for more information). In general, these Parties favour limiting the UN's role to developing facilitative guidance to such linkages, focusing on accounting aspects. Other Parties call for a stronger UN role in providing guidance and oversight to ensure the environmental integrity of the ITMOs used towards achieving NDCs. Some oversight and quality control may be addressed through other items, such as accounting and transparency.

Countries with existing or planned schemes with international dimensions are prime candidates for using ITMO activities. In addition to the several countries and sub-national entities with cap-and-trade schemes, this includes countries that engage in the bilateral Joint Crediting Mechanism (JCM) with Japan (see above for further details). Although smaller jurisdictions with limited domestic mitigation potential will benefit more from international linkages than large jurisdictions, ITMO activities candidates also include larger jurisdictions.

The demand for ITMO activities will be influenced by the extent and timing of international linkages between domestic and regional schemes as well as on the rules governing ITMO activities – facilitative guidance may increase the potential demand for ITMO activities while restrictive guidance may limit the potential of eligible ITMO activities and hence reduce the demand for ITMO activities.

It is not clear whether ITMO activities could involve trade of ITMOs associated with Parties' NDCs similar to the trade in Assigned Amount Units (AAUs) under International Emissions Trading of the Kyoto Protocol. Under the Kyoto Protocol, all Parties eligible to trade under Article 17 have targets of identical type, namely absolute, multi-year, economy-wide emission caps that were quantified as Assigned Amounts and translated into AAUs. By contrast, the NDCs under the Paris Agreement are more diverse, and there are no common accounting units under the Paris Agreement.

In case ITMO activities could involve ITMOs associated with Parties' NDCs, prime candidates for such trading could be governments that have stated their intention to rely on international carbon markets to meet their INDC. The major obstacle for this type of trading is the non-compatible baselines.

The baselines used in the INDCs can be roughly split in three categories: absolute; BAU; and no baseline. While technically possible, trading between an economy with an absolute caps and an economy with an intensity-based targets has potential to result in adverse effects, the avoidance of which may necessitate harmonisation of the baselines prior to linking.[47]

Many INDCs stipulate point targets, targets set for a specific year, e.g. the EU has a 40% reduction target for 2030 (relative to 1990). So far, the question of how these point targets translate into carbon budgets has not been addressed. A carbon budget defines permissible emissions over a period of years, e.g. 2020-2030. In the absence of a carbon budget, it is unclear how the requirement of "robust accounting" of Article 6 could be fulfilled. For comparison, under the Kyoto Protocol, each Annex B country was as assigned an initial assigned amount, with the formula *initial assigned amount = base year GHG emissions* * (1-*emission reduction target*) * 5 years.[48] This type of AAU-like assignment could be done in the context of the Paris Agreement for some INDCs. For example, if China is prepared to commit to reduce carbon intensity of GDP by 60 percentage points from the level of 2005 by 2030, along a linear path between 2020 and 2030. Then the carbon budget for 2020-2030 (within which the trading occurs) can be established ex-post based on realised GDP relative to the linear GDP intensity path, to which China would need to commit.

5.3.3 Paris mechanism

The Paris mechanism is a UN-governed scheme for verifying and certifying emission reductions that may be used towards non-host Parties' NDCs, thus implying international transfers. The mechanism could also be applied to international cooperation that does not involve international transfers, for example for the delivery of results-based climate finance. Countries, companies and the civil society may also wish to use the Paris mechanism for their own purposes, for example as a tool to measure the emission reductions of specific mitigation actions. There is broad agreement concerning a strong UN role in developing and governing the Paris mechanism.

In the negotiations leading to the Paris Outcome, Parties that most actively advocated the Paris mechanism include those that have engaged in the Kyoto mechanisms on the buying or selling side. Many developing countries hope to utilise the Paris mechanism to attract international funding for mitigation action, while several small developed countries, including Norway, Switzerland and New Zealand, hope to utilise the Paris mechanism to obtain international credits, thereby enabling higher ambition that what would be possible based only on domestic mitigation potential.

On the demand side, small, ambitious countries with limited cost-effective domestic mitigation potential are prime candidates for using the Paris mechanism. Also countries that provide results-based climate finance may have demand for the mechanism as a measurement and certification tool (e.g. by purchasing and then cancelling units). Jurisdictions with cap-and-trade schemes or other climate policies that may or may not involve ITMO trading may want to complement their schemes with a link to the Paris mechanism. The Republic of Korea, for example, uses the CDM as a tool to certify emission reductions eligible for compliance under its domestic trading scheme. South Africa in turn is planning to allow CDM credits to be used to offset a domestic tax liability.

[47] https://icapcarbonaction.com/ko/component/attach/?task=download&id=241

[48] In other words, the formula assumed that the reduction to the level stipulated by the reduction target occurs instantaneously overnight, e.g. for EU-15, 4265.5 MtCO2 * (1-0.08) * 5 = 19621.4 MtCO2e for the period 2008-2012.

On the supply side, countries with limited potential or capacity to engage in ITMO trading and that wish to attract international funding for mitigation (including public climate finance) are likely candidates for engaging in the Paris mechanism.

An UN-governed mechanism is also valued by many for its international credibility and comparability. These are also important features for the private sector which has been a strong advocate of centralised standards with broad fungibility (i.e. acceptance in different jurisdictions).

5.4 Lessons from existing mechanisms for cooperative approaches under the Paris Agreement

Past experience shows that international cooperation involving the transfer of mitigation outcomes can enhance, implement or undermine collective mitigation efforts, depending on the applicable rules and procedures. Common standards can promote the comparability of cooperative approaches while independent oversight is key to creating trust. Transparency and stakeholder engagement are also central for trust-building as well as for the development of robust standards and the promotion of good practice. Learning-by-doing is an effective but burdensome and time-consuming approach for developing and improving the standards, processes, institutions and capacity necessary for the operationalisation of cooperative approaches.

Cooperative approaches can be powerful in mobilising private sector resources for mitigation, but the power of the signals is intrinsically linked to the ambition and stability of the underlying climate policies and targets which in turn are influenced by prevailing economic and political circumstances.

Below, key lessons from existing cooperative approaches to the development of cooperative approaches under the Paris Agreement are explored, focusing on transparency, accounting, environmental integrity, demand, supply and private sector engagement, as well as co-benefits and versatility.

5.4.1 Lessons on transparency

Transparency concerns the standards, procedures and governance approaches relating to national targets, greenhouse gas emission inventories and mitigation outcomes under cooperative approaches. Transparency is essential for building trust in national systems, data and cooperative approaches, facilitating understanding on how mitigation outcomes are defined and quantified and assessment of the robustness of and comparability across approaches.
Under the Kyoto Protocol, Parties must meet strict criteria relating to transparency to participate in the flexibility mechanisms. The CDM framework is highly transparent, including features, such as the public availability of standards, procedures and CDM project documents as well as extensive global stakeholder consultations. This has allowed research institutions and non-governmental organisations to identify loopholes, and spur reforms that have been ongoing since the inception of the mechanism.[49] The standards developed under the CDM include the most systematic and advanced thinking to date on baselines, additionality and measurement of emission reductions of a project or programme, with common principles but customisable application.[50]

[49] CDC Climat (2012): Climate Report n°37 – 10 lessons from 10 years of the CDM

[50] *Ibid.*

Under the CDM, there are over 180 methodologies for measuring the emission reductions by the projects or programmes currently in place.[51] CDM methodologies apply the principle of conservativeness in dealing with uncertainties in measurement, thereby crediting less emission reductions than what is actually achieved. The methodologies created under the CDM are arguably its primary contribution to the development of any future crediting schemes.

Overall, the amount of experience, evolution and capacity embodied in the CDM, which is the result of an unprecedented collaborative effort of experts, investors and other stakeholders, should be valued in developing any cooperative approaches under the Paris Agreement. In the recent efforts concerning the standardisation and consolidation of CDM rules, the predictability of a project's success in the approval cycle has increased. These efforts can serve as models when developing the rules for the Paris mechanism.[52]

Concerning transparency, JI Track 2 under the Kyoto Protocol as well as the JCM are comparable to the CDM in terms of public availability of information and stakeholder consultations. They also have similar project cycles. However, these mechanisms differ in terms of standards, i.e. additionality determination and baseline and monitoring methodologies. CDM standards are pre-approved while such pre-approval is not required under JI Track 2.

JCM was set up to be a crediting scheme that aims to be easier and more predictable than CDM. It relies on extensive use of standardised approaches, such as standardised baselines, default factors, benchmarking and energy efficiency standards. It also makes extensive use of default values to enhance predictability and shift the burden relating to the application of baseline and monitoring methodologies from project developers to methodology experts.[53] Efforts to develop standardised approaches under CDM has brought the CDM closer to JCM in this respect.

Under JI Track 1, transparency depends on the host country's national procedures, leading to weak transparency in some countries' in terms of both standards and procedures.[54] In context of the JI review, there was broad consensus to introduce a common minimum level of transparency for all JI activities. This includes the public availability of information on activities that are registered or under consideration, approved baselines, the national decision-making process, local stakeholder consultation and rights for directly affected entities to hearings prior to decision-making, timely decisions and appeals of decisions.[55]

Emissions trading schemes generally have a good level of transparency, with detailed information on the standards, procedures and governance publicly available.

5.4.2 Lessons on accounting

A robust accounting framework governing, *inter alia*, the determination of targets (the quantification and recording of the initial Assigned Amount in the case of the Kyoto Protocol), national greenhouse gas registries, tracking of transactions and assessing progress towards targets, is essential for safeguarding the integrity of collective and national mitigation efforts, including

[51] 87 large scale, 94 small-scale and 3 foresty metholologies https://cdm.unfccc.int/methodologies/index.html

[52] Ahonen, H., Raab, U. (2015): Resuscitating the CDM.

[53] IGES (2016): Introduction to the JCM and decision of market mechanism in Paris Agreement http://www.iges.or.jp/files/research/climate-energy/mm/PDF/20160127/1_1_Kuriyama.pdf

[54] Kollmuss, A., Schneider, L, Zhezherin, V. (2015): Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms. Stockholm Environment Institute Working Paper 2015-07. https://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2015-07-JI-lessons-for-carbon-mechs.pdf

[55] FCCC/SBI/2016/L.8, Annex, Part II, paragraphs 13 and 40

avoidance of double-counting. An accounting framework for cooperative approaches concerns the creation, transfer and use of mitigation outcomes within the regime.

Under the Kyoto Protocol, a detailed common accounting framework applies to countries with targets while countries without targets remain outside this framework. The issuance, transfer and use of units under the CDM, JI and IET is also governed by the accounting framework. JI and IET rely largely on the host country while the CDM is governed by a centralized body, responsible for issuance of Certified Emission Reductions into an international CDM registry.

IET allows Parties with Kyoto targets to acquire an unlimited number of Kyoto units from other Parties with Kyoto targets, or transfer Kyoto units to others, up to the limit of the Commitment Period Reserve.[56] IET also provides the framework for secondary transfers of CERs and ERUs and for consolidating any international transfers under Parties' emissions trading schemes within the scope of the Kyoto targets.

Experiences from the Kyoto mechanisms can be useful for the implementation of the Paris Agreement. The JI accounting rules may serve as a model for crediting in the context of quantified emission caps while the CDM model may be relevant for crediting with respect to mitigation activities falling outside the scope of NDCs. The Paris mechanism could also set up a central registry modelled on the CDM registry.

With respect to avoiding double-counting, a JI host country issues Emission Reduction Units (ERUs) by converting these from its Assigned Amount Units (AAUs), thereby avoiding double-counting of the mitigation embodied in the ERUs. Some Parties with targets under the Kyoto Protocol have used JI creatively also as a domestic cross-sectoral mitigation tool by allowing sectors not included in the EU ETS to supply emission reductions to the sectors included in the EU ETS.

Furthermore, in jurisdictions with Kyoto targets, emission allowances issued for regional or national emissions trading schemes correspond to AAUs at the international level. In such contexts, ETS accounting needs to be compatible with the international accounting.

Under the Paris Agreement, the accounting landscape is likely to be more diverse than under the Kyoto context that is divided into countries with identical target types and accounting rules and scope and countries with no targets and no accounting. Elements of the Kyoto Protocol's accounting framework will be relevant to some, but not all contexts under the Paris Agreement. The binary contexts of the Kyoto Protocol – one with absolute, multi-year carbon budgets, and another with no caps – represent the opposite ends of a spectrum of possible contexts that may be included in NDCs. The NDCs may also contain other types of targets, the nature and scope of which may vary across time and countries, and also within countries across sectors. For example, a country may impose an absolute multi-year cap on some sectors while other sectors face an intensity target and certain sectors are not included in the scope of the NDC.

Temporal overlap of the Kyoto and Paris regimes can give rise to the risk of double-counting, if the same mitigation outcome is used under both schemes by different Parties towards compliance. For example, in the case of the market-based mechanism being developed under the ICAO, it remains undecided how to avoid double-counting if CDM credits bought by airlines are simultaneously claimed by CDM countries to meet their INDC targets.

One challenge for consistent accounting under JI is the application of measurement standards of different "granularity" at the project and national (inventory) levels, whereby the project-level

[56] http://unfccc.int/resource/docs/publications/08_unfccc_kp_ref_manual.pdf

calculations indicate a different volume of emission reductions than what shows up in the national inventory.[57] If the inventory reflects only part of the calculated emission reductions, the host country may wish to issue on this lower amount to avoid covering the difference with additional mitigation efforts.

Regarding overall mitigation, the accounting framework could enhance mitigation ambition through the cancellation of credits instead of accounting them towards compliance. Such voluntary cancellation is already available in the CDM registry as well as in national greenhouse gas registries. The CDM registry is also a good example in terms of providing for transparent information on the purposes of cancellation (attestation).[58] Furthermore, the host country may decide to retain part of the emission reductions achieved by the project and use it towards its national target. Many host Parties, including Finland, have done so at their own prerogative, and this opportunity is reflected in the work undertaken on the JI review.[59] Such use of a crediting mechanism beyond offsetting may also be interpreted as representing overall mitigation.

5.4.3 Lessons on environmental integrity

Environmental integrity is essential for safeguarding the integrity and ambition of international cooperative approaches, and vital for their credibility and general acceptance. Lessons from the CDM, JI, IET and emissions trading schemes illustrate that environmental integrity consists of several components. These may differ across contexts and cooperative approaches. Ultimately, environmental integrity is about ensuring that a correct amount of real mitigation is robustly and transparently accounted for.

In the case of baseline-and-credit schemes, environmental integrity can be safeguarded through the demonstration of additionality, the application of robust baselines and monitoring methodologies, as well as through transparent reporting and independent verification. This requires good quality data, strong capacity, time and other resources, and can involve burdensome and costly efforts.

Experiences from the CDM illustrate the challenge of striking a balance between sufficient safeguards for environmental integrity on one hand, and the usability and practicability of the mechanism as well as incentives for mitigation activities on the other. In the case of CDM, environmental integrity is safeguarded through standards and procedures seeking to ensure that emission reductions are real and additional; measured using robust baselines and monitoring methodologies; and independently verified. These have been criticised for being complex, costly and stringent, and often resulting in barriers to carrying out CDM activities and generating CERs successfully.[60] These standards and procedures represent the most systematic and advanced thinking to date on baselines, additionality and measurement of emission reductions of a project or programme, with common principles but customisable application.[61] At the same time, the CDM has also been criticised for failing to ensure environmental integrity.[62] Since CDM reduces emissions in a context where emissions are not capped, measured or accounted for and imports CERs into a capped environment, effectively increasing the cap, it is essential to ensure that CERs represent the correct amount of real mitigation.

[57] Kollmuss, A., Schneider, L, Zhezherin, V. (2015): Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms. Stockholm Environment Institute Working Paper 2015-07. https://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2015-07-JI-lessons-for-carbon-mechs.pdf

[58] https://cdm.unfccc.int/Registry/guidance/index.html#voluntary_cancellation

[59] FCCC/SBI/2016/L.8, Annex, Part II, paragraph 35

[60] Warnecke, C (2014): Can CDM monitoring requirements be reduced while maintaining environmental integrity? https://newclimate.org/2014/01/22/can-cdm-monitoring-requirements-be-reduced-while-maintaining-environmental-integrity/

[61] Ahonen, H., Raab, U. (2015): Resuscitating the CDM.

[62] E.g., Ruthner, L., M. Johnson, B et al. (2011): Study on the Integrity of the Clean Development Mechanism (CDM)

Under JI, the use of the national Track 1 has created significant mistrust in the mechanism, especially in case of countries with surplus emission quotas (so-called hot air).[63] It is worth noting here that the "hot air" was an intentional political deal struck during the Kyoto negotiations, and rules to allow the trading of "hot air" were also intentional. While in theory, environmental integrity of JI is safeguarded by the Kyoto Protocol's transparency and accounting framework, this is not the case in practice. Different project types may also have different levels of environmental integrity.

JI has illustrated that in the absence of ambitious mitigation targets, transparency and robust accounting alone cannot ensure environmental integrity. Independent verification and international oversight are also needed, especially in cases where the host country has low capacity and/or weak incentives to ensure environmental integrity of its mitigation activities at the national level, for example due to unambitious national targets that can be achieved without real mitigation action.[64] According to one study, only one of the six largest project types assessed, N_2O abatement from nitric acid production, had overall high environmental integrity. However, the study also found that countries with no hot air had high environmental integrity, regardless of the project type. [65]
These lessons are reflected in the work done under the JI review, whereby there was a consensus on replacing the two JI tracks by a single track with common minimum criteria for international oversight and validation and verification of JI activities by an (internationally) accredited independent entity.[66] This reform would bring CDM and JI closer to each other in terms of provisions to safeguard environmental integrity.

As for JCM, Japanese regulators have taken a conservative approach to methodologies, partly in response to international concern that the JCM could produce carbon credits with dubious environmental integrity, because it is not governed by the UN. Japanese administrators have also taken an approach that projects should lead to a net reduction in global emissions, similar to the Article 6.4 text in the Paris Agreement. Yuji Mizuno, an international market mechanisms expert at the Japanese Ministry of Environment, stated in a Carbon Pulse interview in April 2016 that "I feel we are much more advanced than the UNFCCC negotiations on the markets. We are already facing in reality issues that [UN negotiators] are going to discuss in the future." Officials are working out how credits from JCM projects should be split between Japanese and the host country NDCs under the Paris Agreement.[67] This is a relevant discussion that countries using the Paris mechanism will have to do. Additionality is also implicitly addressed by this conservative approach.

The work undertaken under the CDM and JI reviews as well as under JCM offers a valuable basis for development of cooperative approaches under the Paris Agreement. Key CDM, JI and JCM institutions, such as the registries, supervisory boards, expert panels, accredited entities and secretariats, offer valuable lessons concerning the appropriate roles and level of oversight of the various bodies; on how to ensure effective operations; and how to avoid micro-management and the politicization of the process. The CDM auditing system has been criticised both for the quality and for slowness of the auditing work, and fluctuating prices between different auditors. This is partly because the most popular Designed Operational Entities (DOEs)

[63] Kollmuss, A., Schneider, L, Zhezherin, V. (2015): Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms. Stockholm Environment Institute Working Paper 2015-07. https://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2015-07-JI-lessons-for-carbon-mechs.pdf

[64] Ahonen, H., Hämekoski, K. (2016): Safeguards and incentives for cross-border mitigation: lessons from JI. In: IETA GHG Market Report 2015/2016. http://www.ieta.org/resources/Resources/GHG_Report/2015/IETA_GHG_Report_2015_web.pdf

[65] Kollmuss, A., Schneider, L, Zhezherin, V. (2015): Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms. Stockholm Environment Institute Working Paper 2015-07. https://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2015-07-JI-lessons-for-carbon-mechs.pdf

[66] FCCC/SBI/2016/L.8, Annex, Part II, paragraphs 14(e), 48-50 and 57-59.

[67] Carbon Pulse (2016): Baby steps for Japan's JCM as it seeks to break new ground. Available at: http://carbon-pulse.com/17597/

have taken on too many projects. Also, because DOEs have a contract with the project proponent, there is also some chance of conflict of interest. One option to better align the incentives of auditors with the objectives of the Paris mechanism and avoid potential conflicts of interest could be that the auditors would be allocated to projects by the governing body (Board) instead of being selected by project developers, and paid using an established fee schedule.

The established structure of the CDM Designated National Authorities (DNAs) may also be utilized in the context of the Paris mechanism. However, the host country context is fundamentally different under the CDM than under the Paris mechanism, and the relevant authorities with an oversight of the NDC may be in different entities than current CDM DNAs.

While the CDM/JI principle of additionality remains relevant also in the future, the existence of NDCs in all countries has significant implications for additionality. The suitability of the current CDM rules includes some challenging when it comes to highly aggregated mitigation efforts and cross-sectoral approaches, as they are focused on single technologies. The additionality tests as well as the methodologies developed under the CDM (including Programmatic CDM) should be further developed to be suitable also for crediting policies, in case it is decided that these are eligible for crediting under the Paris mechanism.

Similarly, while the overarching principles of CDM and JI for baseline setting apply also in the context of the Paris Agreement, the Paris Agreement applies in more diverse contexts. The Paris mechanism will thus need to take into account the diverse and dynamic nature of mitigation contributions in a situation where all parties contribute to mitigation in differing and changing ways. In this light, it is increasingly important to ensure that baselines for crediting the emission reductions take into account the host country's international contributions and domestic climate policies.[68]

Furthermore, in developing the rules for the Paris mechanism, it is important to take into account differences in NDC ambition levels to ensure the robustness of cooperative approaches. Countries with weak baselines in their NDCs should not be able to generate more credits than countries with stringent baselines.

One very central issue in the use of cooperative approaches, including mechanisms, under the Paris Agreement is the prevention of double counting. This could even be more complex as it seems, because while double crediting is somewhat easy to prevent, double claiming is much more difficult, as it would require full international oversight on emissions inventories.[69]

Through international linkages, low-quality credits can undermine the ambition of schemes that accept such unit types for compliance. In general, low-integrity units are generated by cap-and-trade schemes where caps are set above business-as-usual emission levels and/or baseline-and-credit schemes where credits are issued for non-additional projects and/or against inflated baselines (above business-as-usual). In the case of the EU ETS, low-integrity ERUs from countries with large amounts of hot air have been estimated to have undermined the EU ETS emission reduction target by about 400 million tCO_2.[70] Absolute caps and baselines are more susceptible to hot air than intensity targets and baselines.

[68] Ahonen, H., Raab, U. (2015): Resuscitating the CDM.

[69] Michaelowa, A., Hoch, S (2016): Built on Experience – How to transition from the CDM to the Sustainable Development Mechanism under the Paris Agreement.

[70] Kollmuss, A., Schneider, L, Zhezherin, V. (2015): Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms. Stockholm Environment Institute Working Paper 2015-07.
https://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2015-07-JI-lessons-for-carbon-mechs.pdf

Overall, the Paris mechanism should not be seen as a silver bullet for ensuring environmental integrity. A real overall mitigation, that is, an actual positive result for the atmosphere, can occur only if emission reductions are additional, robustly quantified using valid baseline and monitoring methodologies and robustly accounted for.[71] It is important to avoid "taxing" mitigation activities excessively and to note the differences between technologies and policy instruments.[72] Burdensome provisions for overall mitigation may discourage mitigation activities under the Paris mechanism altogether, leading to less mitigation, not more.

5.4.4. Lessons on demand, supply and private sector engagement

The market for mitigation outcomes is a political creation, intended to create a carbon price signal to mobilise private sector resources for identifying and realising of cost-effective mitigation activities.

In the case of cap-and-trade schemes, the policy-maker creates both supply and demand, the former through setting a cap on emissions and issuing a corresponding amount of tradable emission allowances, and the latter through the requirement on covered entities to acquire and surrender allowances corresponding to their emissions. The market determines the price at which emissions remain within the cap. An ambitious cap will lead to a higher market price than a lax cap.
In the case of a (voluntary) baseline-and-credit schemes, demand is external (e.g. governments or entities that are subject to a cap outside the scope of the scheme that accepts credits for compliance use) and supply is generated in response to a price signal by reducing emissions beyond the baseline.

Cooperative approaches need to be both credible and usable in order to generate mitigation outcomes that are accepted by markets with demand and that thereby have an economic value and a price signal. Furthermore, incentives for mitigation actions need to be attractive enough, and they are derived from the value of the emission reductions. This is important to remember also when developing the overall mitigation rules under the Paris mechanism; if emission reductions are "taxed" too high, the incentives for implementing them are eroded. Especially the private sector needs clear, predictable and stable rules and a sufficient price for emission reductions to incentivise the use of mechanisms and investments in mitigation. Finally, to engage the private sector, the risks and uncertainties need to be acceptable relative to the expected benefits of the mitigation activity.

The CDM and JI were designed to engage the private sector on the supply side with governments as buyers that would then use the credits to comply with their Kyoto targets. However, Kyoto credits have also been accepted (with certain restrictions) under domestic and regional cap-and-trade schemes for installations, e.g. in the EU and New Zealand emissions trading schemes, thereby engaging the private sector also on the demand side.[73]

In general, the private sector will invest in an activity if it has confidence in the price signal and access to sufficient benefits during the relevant time horizon to make the investment attractive, taking into account risks and uncertainties.

[71] Raeschke-Kessler, K. (2016). id.

[72] Michaelowa, A., Hoch, S (2016): Built on Experience – How to transition from the CDM to the Sustainable Development Mechanism under the Paris Agreement. In: Carbon Mechanisms Review, Issue 1
http://www.carbon-mechanisms.de/en/2016/new-issue-of-the-carbon-mechanisms-review-published/

[73] Directive 2004/101/EC: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0101

Typically, payments for CERs and ERUs are made ex-post, after the verification and certification of units. This model provides revenue and thus may boost the project's bankability but it does not address barriers relating to the lack of un-front project finance. Furthermore, due to uncertainties relating to the value, volume and timing of the credits, forward purchase agreements are often heavily discounted in financial calculations and rarely qualify as collateral. This model discriminates against the truly additional projects as manifested by their very need of a revenue boost and access to finance.

The CDM evolved into a significant tool for mobilizing climate-friendly investments, as it unleashed over US$400 billion in investments to approximately 7700 projects and programmes, in more than 100 developing countries. Part of this ready-to-go mitigation potential will not materialise due to the low demand and consequent lack of a price signal. The extensive engagement of the private sector in the CDM indicated trust in the long-term demand for emission reductions certified under an international standard.

The EU countries and Japan have historically been the main purchaser of CERs and ERUs. Currently, there are few sources of demand for these units, due to lower emissions by potential buyers as a result of the global recession. The demand for CERs and ERUs in the EU ETS is limited by a quota for CER and ERU imports (for the period 2008-2020) which has been effectively exhausted (90% of the total quota is used).[74] Other reasons for the reduced demand is that the EU has tightened the eligibility requirements of CDM projects, also for use towards non-ETS targets, after the year 2012 to accept new projects only from Least Developed Countries (LDCs).
The lack of demand has extinguished the price signal and brought a booming CDM pipeline rapidly to a halt. This illustrates the dependency of a politically created market on policy decisions, and the influence of external factors such as economic cycles on the price signal. The impact of an external event such as an economic recession can vary according to the details of the schemes and action taken by the regulators.

The main reason for Japan's diminishing demand for CERs and ERUs is that Japan has created its own bilateral mechanism, the JCM. Currently the JCM market faces, as the CDM, lack of demand.[75] However, there are positive expectations that new demand for the JCM credits may emerge from Japan's ten biggest electricity generators and a group of 19 suppliers that recently defined a CO_2 intensity target for electricity. The idea is that companies that fall short of the target have the option to make up for the shortfall with offsets. The JCM also relates to the Paris Agreement, because Japan has listed JCM as a means of achieving its INDC targets.[76]

ICAO is currently a potential source of new demand for CERs created under the CDM. Predictions are that the aviation sector will need offsets corresponding to 30 million tCO_2e in 2021 increasing to 300 million tCO_2e by 2030.[77] However, it is still unclear whether the ICAO will agree on such mechanism, and if CERs are usable as offsets under the mechanism. A fundamental issue is whether CERs will be available to airlines after 2020, as no decision exists whether the Kyoto Protocol mechanisms can continue to exist under the operation of the Paris Agreement. However, in a legal sense, the Kyoto Protocol and in theory also its mechanisms will continue to exist also after 2020.

5.4.5 Lessons on co-benefits

[74] http://www.worldbank.org/content/dam/Worldbank/document/Climate/State-and-Trend-Report-2015.pdf

[75] http://carbon-pulse.com/17597/

[76] http://www4.unfccc.int/submissions/INDC/Published%20Documents/Japan/1/20150717_Japan's%20INDC.pdf

[77] Carbon Pulse (April 2016): Airlines will be CDM's lifeline, but expect CER price slump first, say analysts http://carbon-pulse.com/18995/

Co-benefits beyond climate benefits, including sustainable development, capacity building and technology transfer, can be an important drivers for international cooperation. In fact, under the CDM, co-benefits were the main motivation for host countries to participate in climate cooperation. This is manifested by the dual aim of the CDM to help developed countries in achieving their mitigation targets and to help host countries in achieving sustainable development.

CDM has been criticised for focusing on maximising emission reductions while placing little emphasis on sustainable development benefits. This is at least in part due to the fact that emission reductions have a market value, which increases proportionate to the volume, while this is not the case for sustainable development co-benefits. It is the prerogative of the host country to determine whether a CDM activity helps in achieving sustainable development. Some buyers also apply their own sustainable development assessment as part of their due diligence and priorities.
In recent years, tools for promoting sustainable development have been developed under the CDM, including a voluntary tool to assess sustainable development co-benefits and cooperation with host country DNAs on sharing national practices relating to sustainable development.

Under JCM, Japan is introducing elements relating to co-benefits that are lacking in current CDM and JI, such as a mandatory sustainable development monitoring scheme, which has now been implemented with Indonesia.[78] As fostering sustainable development is one of the aims of the Paris mechanism, there could potentially be requirements for monitoring the sustainable development benefits in addition to the emission reductions.

5.4.6 Lessons on versatility

In addition to their original purpose to be used towards achieving compliance in the buyer country, the CDM and JI have been used in other ways. Examples of this include quantifying the mitigation impacts of (results-based or other) climate finance, and using the mechanism as a search function to identify the most cost-effective mitigation options which otherwise would have been untapped. In the case of using it towards climate finance, that share of credits would be either cancelled or not issued.

Lately the use of CDM has increasingly decoupled from its original use for compliance purposes, to delivering results-based finance to developing countries and achieving voluntary targets, such as offsetting personal or company emissions.[79] Thus, even in the absence of market demand for CERs, the CDM remains a valid tool for quantification and certification of mitigation outcomes, thus serving as a robust model for developing the Paris mechanism.[80]

When applied correctly, JI can be a valuable private sector driven tool for discovering cost-effective mitigation potential, identifying and bridging policy gaps and promoting transition to new policies. For example in Lithuania, JI served as a transitionary tool for incentivising early action ahead of regulation mandating landfill gas capture - after the regulation came into force these activities were removed from being eligible under the JI. Several countries also used JI to realise untapped mitigation potential of nitrous oxide (N_2O) emissions, a very potent greenhouse gas. Finland, among others, set a benchmark for the crediting N_2O emissions, thereby retaining part of the mitigation benefit as a contribution to its national emission reduction target. This

[78] Carbon Pulse (2016): Baby steps for Japan's JCM as it seeks to break new ground http://carbon-pulse.com/17597/

[79] Ahonen, H., Raab, U. (2014): Resuscitating the CDM. http://www.ieta.org/resources/Resources/GHG_Report/2014/ieta%202014%20ghg%20report.pdf

[80] UNFCCC (2014): CDM Fact Sheet Leveraging private finance, delivering verified results. Available online at: http://newsroom.unfccc.int/media/159267/cdm-leveraging-private-finance-and-delivering-results.pdf

could be a viable approach in some cases also under the Paris Agreement, especially in the mitigation of more potent greenhouse gases.[81]

In the context of the Paris Agreement, the Paris mechanism could serve in identifying and covering gaps in mitigation incentives, by measuring emission reductions and giving them a monetary value, and extending those incentives across national and sectoral borders for faster and earlier greenhouse gas mitigation. The mechanism could also serve as tool for quantifying mitigation outcomes of activities supported by climate finance, e.g. through the Green Climate Fund (GCF).

6. Finland's experiences of cooperative approaches and visions for their future use

Parties can have an interest in engaging the in the negotiation and elaboration of rules for international cooperative approaches under Article 6 of the Paris Agreement for at least two distinct reasons:

- they wish to access international cooperation through robust and usable tools as buyers and/or sellers in international carbon markets and/or as providers or recipients of international climate finance and co-benefits, or to have the option of doing so; and
- they wish to increase ambition by creating tools to facilitate international cooperation and safeguard the environmental integrity of ambition by ensuring any Parties that use cooperative approaches do so in a manner that does not undermine the ambition embedded in the Paris Agreement.

Finland may be interested in actively engaging in the negotiations relating to cooperative approaches for both reasons. Cooperative approaches can also promote the flexibility and cost-effectiveness of achieving and enhancing its NDC, which is described below.

6.1 Finland's NDC

Being an EU Member State, Finland's is included in the EU's joint INDC to reduce emissions by at least 40% from 1990 levels by 2030. EU's current INDC states that the reductions of at least 40 % are domestic only, done within the EU borders.[82] This means that utilising cooperative approaches with countries outside the EU is not possible for reaching the -40 % target by 2030. Allocation of this target within the EU is done internally. The INDC will be implemented through the EU ETS with an EU-wide emissions cap for the sectors included in the scheme and through individual targets for each of the 28 Member States, including Finland, in other sectors, such as transport, waste, agriculture and buildings. The Commission's proposal for effort-sharing to distribute the INDC target among Member States has been published on 20 July 2016. Accordingly, Finland's target for sectors not included in the ETS is to reduce emissions by 39 % from the 2005 levels.[83]

The Commission's effort-sharing proposal includes two new minimum annual flexibilities: a 2 % one-off flexibility from the ETS sector to non-ETS sector, and a 1.3 % flexibility from the land

[81] Ahonen, H., Hämekoski, K. (2016): Safeguards and incentives for cross-border mitigation: lessons from JI. In: IETA GHG Market Report 2015/2016. http://www.ieta.org/resources/Resources/GHG_Report/2015/IETA_GHG_Report_2015_web.pdf

[82] Intended Nationally Determined Contribution of the EU and its Member States, available at: http://www4.unfccc.int/submissions/INDC/Published%20Documents/Latvia/1/LV-03-06-EU%20INDC.pdf

[83] European Commission (2016): Factsheet on the Commission's proposal on binding greenhouse gas emission reductions for Member States (2021-2030), http://europa.eu/rapid/press-release_MEMO-16-2499_en.htm

use sector to the non-ETS sector. The first, one-off flexibility would allow a Member State, such as Finland, to achieve its national target by covering some emissions in the non-ETS sectors with EU ETS allowances which would normally have been auctioned to installations participating in the ETS. The second new flexibility allow for access of land use sector credits. This proposal permits up to 280 million tonnes CO_2 to be credited from certain land categories, and the credits to be used towards national targets. In addition, the existing flexibilities of banking, borrowing, buying and selling Annual Emission Allocations (AEAs), which are basically emission allowances for the non-ETS sector, are still in place until 2030.[84]

At the EU level, the ETS sectors will reduce GHG emissions by 43 % from 2005 levels by 2030, meaning that the Member States' non-ETS sectors will need to cut emissions in average by 30% during the same period. As during the current 2013-2020 period, non-ETS targets will be translated into individual binding targets for member states.[85]

Even if the EU and its Member States would not take advantage of the cooperative approaches included in the Paris Agreement or submit a more ambitious NDC in the near future, there are benefits with keeping open the future option to use cooperative approaches, and actively participate in the development of their rules. Keeping open the option to use cooperative approaches is important for three reasons: cooperative approaches increase cost-efficiency of emission reductions; there is significant uncertainty regarding the future and the development of the demand of such cooperative approaches; and using these approaches can be smart from the point of view of risk management.

6.2 Why should Finland consider engaging in cooperative approaches under the Paris Agreement?

The geographical position of Finland in the Arctic region and its cold climate mean that the need for indoor heating is large. Heating is the biggest source of CO_2 emissions from households and also within the public and service sectors in Finland.[86] Electricity consumption per capita is also large in Finland (15,510 kWh/capita in 2013), larger than any other EU country and more than double the consumption of e.g. Germany (7,019 kWh/capita).[87] Electricity consumption in Finland is high because of the energy-intensive industry, which is responsible for about half of total consumption in Finland.[88] Finland, in contrast to many other Nordic countries, does not have untapped resources for non-biomass based renewable energy, such as hydropower (as Norway or Denmark has) or geothermal energy (as Iceland has). If very substantially and too quickly increased, the use of biomass energy affects also Finland's carbon sinks, and thus can increase total emissions[89].

Finland has less remaining cost-effective emission reduction potential than the EU countries in general, as marginal costs for new emission reductions in Finland are high, especially in the Effort Sharing Directive (ESD[90]) sectors. The European Commission has published a study by AEA in 2012 regarding the amount of cost-effective abatement potential (less than €25/ton CO_2e) available in Member States in the ESD sectors.[91] In this study, Finland ranks as one of

[84] *Ibid.*

[85] http://ec.europa.eu/clima/policies/strategies/2030/index_en.htm

[86] Finland's sixth National Communication (2014); National Circumstances http://stat.fi/tup/khkinv/nc6_chapter_2.pdf

[87] World Bank: Electric power consumption (kWh per capita) http://data.worldbank.org/indicator/EG.USE.ELEC.KH.PC

[88] Finland's sixth National Communication (2014): http://stat.fi/tup/khkinv/nc6_chapter_2.pdf

[89] http://www.ilmastopaneeli.fi/uploads/selvitykset_lausunnot/Mets%C3%A4energian%20ilmastovaikutus%2029-1-2013%20korj%201-3-2013.pdf

[90] The ESD covers emissions from all sources outside the EU's Emissions Trading Scheme (ETS), except for international maritime emissions and emissions and removals from land use, land-use change and forestry (LULUCF).

[91] AEA (2012): Analysis of Member States actions to implement the Effort Sharing Decision and options for further communitywide measures, available at: http://ec.europa.eu/clima/policies/effort/docs/esd_emissions_projections_en.pdf

the countries with the lowest remaining cost-effective potential, compared to its total annual emissions (excluding LULUCF). Based on AEA's study, Finland's total cost-effective potential is only 1.5 % of the annual emissions. Lower potential compared to emissions in 2012 was only in Malta and Cyprus (both 1 %), but they are very small countries and not very comparable to Finland. In Table 2, some key countries are compared against Finland regarding the total available cost-effective potential in ESD sectors. From this table it can be seen that e.g. Sweden and Denmark have several times more cost-effective potential (under 25 €/t) than Finland.

Table 2: Remaining cost-effective abatement potential (below 25 €/t) in the ESD sectors in relevant EU countries (2012)[92]

	Remaining cost-effective potential Mt	Total emissions excl. LULUCF, Mt (2012)[93]	Potential / total emissions excl. LULUCF (2012)
Finland	0.95	61	**1.5%**
Sweden	2.72	57.6	4.7%
Denmark	4.29	51.6	8.3%
Estonia	0.49	19.2	2.5%
Belgium	7.79	116.5	6.7%
France	30.07	490.1	6.1%
Germany	32.69	939.1	3.5%
Spain	25.60	340.8	7.5%
UK	32.70	580.8	5.6%
Netherlands	13.62	191.7	7.1%
Poland	12.99	399.3	3.3%
Italy	14.89	460.1	3.2%

In Table 3, Finland's remaining abatement potential is divided between ESD (non-ETS) sectors, and between different cost bands, as percentages of the total remaining abatement potential. The EU27[94] averages of these potentials are presented below Finland in the table. From some of the sectors (industry and waste) the data is not complete, as there was some difficulties in the calculation model used in AEA's study.[95] However, this data gives an indication on the sectors that have the most remaining abatement potential.

From Table 3 it can be seen that in general, Finland has less inexpensive mitigation options (cost bands A and B) and comparably more expensive mitigation options (cost bands C and D) than what was the EU27 in average in 2012. It can also be seen that there are no inexpensive mitigation options for the transport sector in Finland (below 50 €/t CO_2), even though these exist in the EU27. The agriculture and building sectors have based on this data the most cost-effective remaining abatement potential in Finland.

However, figures on cost-effective mitigation potential and ranking between EU member states differs somewhat in different studies, depending on the assumptions and data used. In the European Commission's Impact Assessment for the 2030 climate and energy policy framework[96], when assessing cost-optimal emission reduction sharing between member states from the 2005

[92] *Ibid.* (consultant's own calculations based on figures in the study)

[93] Annual European Union greenhouse gas inventory 1990–2012 and inventory report 2014, available at: http://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2014

[94] Excluding Croatia, as it became a member of the EU in July 2013, after the AEA study was published

95 "There are a variety of countries which appear to have no further potential left such as as Belgium, Bulgaria, Finland, Hungary, Poland, Romania and Slovakia. It is unlikely that those countries do not have any potential left in practice. Most likely this outcome is a consequence of the method that has been used for correcting the potentials, together with some unexplained large differences between the PRIMES 2009 and 2007 baselines which cannot be solely linked to the impact of the economic crisis. Given these methodological limitations, the results at the level of individual Member States should be treated with come caution."

[96] Commission staff working document SWD(2014) 16 final: Impact Assessment – Policy framework for climate and energy in the period 2030-2030

level, Finland is relatively at the same level as Sweden and Denmark. In the table the reference scenario reflects existing policies in member states, and there are different policy scenarios for the emission reductions by 2030.

Table 3: Remaining abatement potential per sector and per cost band in Finland and the EU27 in average (own calculations from figures in AEA's study)[97]

FINLAND

Sector	Cost band A (below 0 €/t)	Cost band B (0-25 €/t)	Cost band C (25-50 €/t)	Cost band D (over 50 €/t)	Total
Building	14.1%	1.7%	0.9%	12.5%	29.1%
Transport	0.0%	0.0%	0.0%	20.0%	20.0%
Agriculture	7.1%	12.0%	17.2%	14.6%	50.9%
Industry	0.0%	0.0%	0.0%	0.0%	0.0%
Waste	0.0%	0.0%	0.0%	0.0%	0.0%
Total	21.2%	13.7%	18.0%	47.0%	100.0%

EU27

Sector	Cost band A (below 0 €/t)	Cost band B (0-25 €/t)	Cost band C (25-50 €/t)	Cost band D (over 50 €/t)	Total
Building	21.1%	0.9%	0.4%	7.3%	29.7%
Transport	2.7%	1.8%	5.9%	14.7%	25.1%
Agriculture	4.8%	7.8%	7.8%	10.3%	30.8%
Industry	10.0%	4.3%	0.0%	0.1%	14.4%
Waste	0.0%	0.0%	0.0%	0.0%	0.0%
Total	38.7%	14.8%	14.1%	32.4%	100.0%

Reasons for Finland's low total remaining abatement potential are diverse, but e.g. Finland's relatively large size and low population density play a role in this, especially in the transport sector. According to a study published by the Finnish Climate Change Panel (Ilmastopaneeli), there would be significant emission reduction potential in the transport sector if the Finnish people would change their behaviour by partly switching the use of private cars to public transport, and learning to drive cars more efficiently.[98] However, changing the people's behaviour on this issue has proved difficult so far. Furthermore, Finland has already implemented many of the mitigation options in industry, transport and the building sectors, so there is a limited amount of "low hanging fruits" left, compared to many other EU countries. This is a key rationale for Finland to consider the future use of cooperative approaches, including ITMO purchase and use of the Paris mechanism.

6.3 Opportunities for Finland to engage in cooperative approaches

Although the EU's current INDC includes a mitigation target that is to be achieved with domestic measures (within the EU) only, there are still options for Finland and other EU Member States to engage in cooperative approaches under the Paris Agreement. Over time, as mitigation targets must become more ambitious, cooperative approaches may emerge as increasingly useful tools.

[97] http://ec.europa.eu/clima/policies/effort/docs/esd_emissions_projections_en.pdf

[98] Ilmastopaneeli (2014): Kuluttajien valinnat pyrittäessä kohti hiilineutraalisuutta – asuminen, liikkuminen, kompensaatiot

There is a range of different situations where Finland could wish to engage in cooperative approaches in the future, such as:

- Finland wants to enhance its ambition beyond its cost-effective domestic mitigation potential;
- Finland wants to achieve its NDC in a situation where its domestic policy fails to deliver the necessary mitigation;
- Finland wants to sell mitigation outcomes associated with over-achievement of its NDC;
- Finland wants to contribute to the development of cooperative approaches to ensure that parties have tools available to enable ambitious climate action and that these tools are robust and do not undermine the ambition of the Paris Agreement;
- Finland wants to apply cooperative approaches for assessing the effectiveness of climate finance and/or delivering results-based climate finance and wants to contribute to making cooperative approaches robust and usable for this purpose;
- Finland wants to develop domestic and/or international capacity on international cooperation, including ensuring environmental integrity, transparency and robust accounting.

In this report, four main options are explored in more detail below.

Any use of cooperative approaches under the Paris Agreement is voluntary, and developing countries do not have to utilise them in case they wish to use the mitigation options domestically towards their NDCs. Thus, cooperation occurs where mutually beneficial opportunities exist and can be realised through joining efforts and resources. Host and partner actors will need to negotiate the sharing of risks, costs and benefits in a way that is mutually beneficial and acceptable to all.

In the decision-making on the use of cooperative approaches by Finland, a balance needs to be struck between primary and secondary benefits of mitigation actions. When using international market-based mechanisms, primary benefits, namely cost savings due to access to cost-effective mitigation, go to the buyer, while secondary (co-) benefits, such as employment generation and future tax revenue, go to the host. Using mechanisms also involves a balance between cost-effectiveness and fairness, including the complex issue of who can and should pay for and benefit from the least-cost mitigation options. In some cases the secondary benefits e.g. on domestic employment can be so significant that it is more rational to implement the mitigation actions domestically instead of purchasing international credits or mitigation outcomes.[99]

Much of the Finnish demand to date has come from the private sector using CDM and JI credits to comply with their obligations under the EU ETS at lower cost. In such cases, the primary benefit of lower costs is reaped by Finnish companies and potentially their employees and customers. Still, the co-benefits of the emission reductions would occur in the host country, and Finland would transition more slowly towards a low-carbon society than if all action were to be domestic. On the other hand, international cooperation allows Finland to enhance its contribution without limiting Finland's ambition by the domestic mitigation potential and the pace of the domestic transition.

6.3.1 Option 1. Preparing for raising the ambition of EUs NDC, including through cooperative approaches

The INDC target of the EU is “at least” 40 % through domestic efforts, thus the EU could potentially submit a more ambitious NDC even for the period until 2030, or raise its ambition from the level of -40 % by the use of cooperative approaches. In the case of submitting a more ambitious NDC, there could be potential for allowing international cooperation. If the EU eventually increases its NDC substantially, it might be attractive for Finland to purchase and transfer mitigation outcomes from other countries or utilise the Paris mechanism for purchasing credits, even before the year 2030. A significant increase in the EU emission reduction target would also generate additional demand for market based cooperative approaches. As Finland has useful experiences from piloting the use of the flexibility mechanisms under the Kyoto Protocol, this could be an area where Finland could do pioneering work also under the Paris Agreement.
In anticipation of an increasingly ambitious EU target, Finland could start scoping options for meeting a more ambitious EU target with various measures such as partly utilising the cooperative approaches under the Paris Agreement.

6.3.2 Option 2. Overachievement of the EU target by using cooperative approaches (use outside the NDC)

Cooperative approaches could be used for over-achieving the non-ETS targets, even if the legally-binding targets should be met with domestic measures only. In any case a governmental buyer such as Finland would use cooperative approaches to meet its non-ETS sector targets (guided by the Effort Sharing Decision (ESD)).

Cooperative approaches, such as the Paris mechanism could also be used as a means to robustly calculate the emission reduction potential and outcome of climate finance. In this case the emission reduction units could be cancelled, and not accounted towards the NDC of the climate finance provider.

In the Kyoto context, Sweden and UK have utilised Kyoto mechanisms to enhance their international target with a more ambitious domestic target and as an MRV tool to deliver results-based climate finance, respectively. These countries, together with three other EU Member States, also overachieved their Kyoto targets and cancelled their surplus AAUs.[100]

The option to utilise cooperative approaches may enable Finland to be more ambitious than what it would be if it was limited to domestic mitigation potential.

6.3.3 Option 3. Using similar approaches inside the EU (use towards the NDC)

There may also be other options for Finland to finance cross-border mitigation projects apart from the cooperative approaches under the Paris Agreement. The EU 2030 climate and energy package has created a possibility for an “ESD-mechanism”, whereby an EU country purchases units from another EU country through projects in the non-ETS sectors.[101] [102] However, this mechanism is not yet operational, and its rules are not yet clear. It could be interesting to study in more detail what possibilities there are for Finland to take advantage of the ESD-mechanism, and what potential there would be on the supply side. A positive element of this mechanism is that it is in line with the EU’s aim to achieve its INDC targets through internal measures. This means that there could be trade of emission reductions within the EU through the ESD-mechanism.

[100] Government of Sweden (2016): “Five EU Member States decide to cancel surplus of Kyoto Protocol units”. Available online at: http://www.government.se/articles/2015/12/five-eu-member-states-decide-to-cancel-surplus-of-kyoto-protocol-units/

[101] http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145355.pdf

[102] There are also other flexibilities for reaching the ESD targets, already in use in the EU. This include e.g. banking and borrowing, and transfers of Annual Emission Allocations (AEAs) between member states. These are discussed in more detail in VTT’s recent report Siljander, Ekholm et al (2016): Flexibilities under the EU’s Effort Sharing Decision towards 2030, available at http://www.vtt.fi/inf/julkaisut/muut/2016/VTT-R-02315-16.pdf

In both cases, i.e. cooperative approaches under the Paris Agreement and the 'ESD-mechanism' within the EU, Finland could consider the same approach it took with respect to JI under the Kyoto Protocol where Finland had N_2O abatement projects that generated emission reductions for both Finland and the buyer country. This could be a viable case especially when reducing the more potent greenhouse gases than carbon dioxide, such as methane, HFCs, or N_2O, because they create a relatively larger amount of $CO2_e$ reductions. When sharing the emission reductions between buyer and seller, it creates a win-win situation for both Parties.

6.3.4. Option 4: Using non-market based approaches under the Paris Agreement

In addition to market-based approaches, Finland could utilise also non-market based approaches under Article 6. Examples of non-market based international approaches that Finland could use for climate change mitigation under the Paris Agreement include for example:

- promoting international fuel efficiency and GHG emission standards for vehicles – the EU[103] and USA[104] are developing and implementing own standards which could be exported to other countries
- promoting international use of more efficient building codes - transferring Finnish expertise on building standards to other countries
- promoting (international) minimum levels for excise duties for e.g. energy products for fuel and transport, and electricity, which are already in place inside the EU[105]
- supporting fossil fuel subsidy reforms.

Other non-market cooperative approaches Finland can use already before 2030 include capacity building for mitigation and adaptation, and international technology transfer. If provided by Finland to developing countries, these do not directly reduce Finland's emissions but can bring other benefits such as export revenues. The Paris mechanism may also be utilised as an MRV tool for non-market-based approaches e.g. for measuring emission reductions of activities supported by climate finance.

6.3.5 Actively participating in the development of the Paris rulebook on cooperative approaches for other reasons

Finland could have an interest in participating in the development of the Paris Agreement's cooperative approaches even in the case it would not use them itself. These incentives could include:

- increasing the level of global mitigation ambition,
- advancing the global pricing of carbon emissions,
- ensuring the environmental integrity, transparency and robust accounting of mitigation actions and transfers of mitigation outcomes,
- enhancing the mitigation of emissions from international transport, including aviation and shipping, and
- sharing lessons from Kyoto mechanisms.

Regarding the advancement of global carbon pricing, the issue is topical also for Finnish internationally competitive industry. If carbon pricing would become global through increasing linking of carbon pricing systems and increasing use of cooperative mechanisms for mitigation, this would be beneficial also for the competitiveness for Finnish industry by creating a more level playing field in industry worldwide.

[103] http://ec.europa.eu/clima/policies/transport/vehicles/cars/index_en.htm

[104] http://www.nhtsa.gov/fuel-economy

[105] http://ec.europa.eu/taxation_customs/taxation/excise_duties/energy_products/rates/index_en.htm

6.4 The governmental buyer's perspective – lessons learned and considerations for the future

Overall, the Paris Agreement is a long-term climate agreement with no expiry date and with a mitigation regime where Parties' contributions will be updated and made more ambitious every five years. Reaching the 1.5°C or 2°C targets included in the Paris Agreement requires extreme cost-efficiency in mitigation. This can be enabled and enhanced through international cooperation. Flexibility in implementing mitigation is essential because of the ever-fluctuating economic situation of countries and uncertainty of the future. In other words, surprises happen and it is important to keep options open for future use of cooperative approaches, even where the immediate political situation is not open to such options.

With joint efforts and resources, international cooperation can promote earlier, faster and more ambitious mitigation, compared with solely domestic efforts, and can avoid lock-in of emission-intensive investments. Mechanisms can be used to incentivize early movers and early action (e.g. landfill gas capture before it becomes mandatory by law), allowing them to finance the necessary investment with the revenue from the sale of emission reductions resulting from early action. The host country can withhold part of the emission reductions towards its national target without any cost, provided that this does not render the activity unfeasible. Over time, the activity may be incorporated into national policy (e.g. N_2O was incorporated into the EU ETS) and no longer eligible for crediting.[106]

Cooperative approaches can be seen as serving three purposes for a governmental buyer:

- **Cost-efficiency** of achieving mitigation targets is increased when there is flexibility in using domestic resources as well as acquiring international mitigation outcomes
- **Flexibility:** Cooperative approaches can work as **buffer against future uncertainty** – using cooperative approaches can be done relatively quickly compared to changing governmental policies, in the case the impact of domestic measures on the emissions is not big enough
- Using cooperative approaches as an **innovation and search tool** and a means to involve the private sector in the mitigation efforts – creation of incentives for the private sector through cooperative approaches can promote the identification of innovative mitigation action which would not necessarily have been discovered or implemented through domestic policies and resources only.

In any case a governmental buyer, such as Finland, would use cooperative approaches to meet its non-ETS sector targets (guided by the Effort Sharing Decision (ESD)), as the achievement of ETS-sector targets are a responsibility of companies regulated by the ETS, and the achievement of non-ETS sector targets are a responsibility of the government.

Benefits for the Finnish cleantech sector

It is also important to note that when other countries actively use cooperative approaches, it can also generate benefits for the Finnish cleantech export industry. An increasing number of mitigation projects under the cooperative approaches means bigger markets for climate-friendly technologies. Demand from both developed and developing countries for Finnish technologies can emerge through its use.

Also, as mentioned above, Finnish industry would benefit from an increasingly level playing field with its global competitors, if carbon pricing initiatives, such as through cooperative approaches

[106] EU's submission (2015) http://www4.unfccc.int/submissions/Lists/OSPSubmissionUpload/75_121_130707288626901101-LV-03-12-%20JI%20submission.pdf

under ITMO trade or the use of the Paris mechanism would become more common. Even though it is unlikely for one global carbon price to emerge, the increasing use of cooperative approaches could still make the playing field more equal worldwide.

Lessons learned from Finland's CDM/JI work

From Finland's perspective the current situation with the development of the Paris mechanism ongoing is in many ways similar to the circumstances when Finland decided to pursue the piloting of the Kyoto Mechanisms. However, this time the valuable lessons learned from using CDM and JI can be utilized both in Finland and internationally in the development of the rules and modalities for the Paris mechanism. From a general point of view, the main lesson from the Finnish Pilot and Purchase Programmes is the difficulty in predicting the development of politically driven carbon markets, related e.g. to the changing political environment globally, in the EU and the host countries, and the frequently changing frameworks for mechanisms on UN and EU levels.

The pioneering Finnish CDM/JI Pilot Programme was launched in 1999 and its operation started in 2000 before the international rules for CDM and JI had been finalised at COP 7. The total budget of the Pilot Programme was €20 million. Finland's early action regarding the implementation of the Kyoto Mechanisms entailed risks and uncertainties related to compliance, but Finland was willing to be one of the forerunners and test and demonstrate how the mechanisms work in reality. Finland's CDM/JI portfolio includes e.g. the first ever registered small-scale CDM project in the world, the Rio Blanco Small Hydroelectric Project, which Finland supported through the registration and verification processes.

As a result of the Pilot Programme and the subsequent Finnish Carbon Procurement Programme (2006-2014, with a total budget of approximately €80 million), the institutional capacity to take advantage of flexible mechanisms increased in both Finland and the host countries. One key part of the capacity-building activities was the development of model carbon trading contracts, which at the same time offer flexibility and are able to sufficiently address and manage risks and uncertainties related to the use of mechanisms. The Pilot Programme used tendering in contracting the projects, but this approach was changed to direct contacting in the Purchase Programme, as the tender processes lacked the flexibility required in an uncertain operational environment.[107]

In addition to the bilateral purchase programme, Finland has been involved in the development of the carbon markets through various initiatives and multilateral carbon funds. Finland has participated in pioneering initiatives such as the Prototype Carbon Fund (PCF) of the World Bank[108] and the Baltic Sea Region Testing Ground Facility (TGF) managed by the Nordic Environmental Finance Corporation[109]. The PCF and TGF were learning by doing initiatives that tested operation of the carbon markets, with the PCF also contributing to methodology development under the CDM. After the initial phase, Finland participated also in several other carbon funds, such as the Future Carbon Fund (FCF) of the Asian Development Bank, many of which still continue operation. This phase was the implementation phase for carbon markets under the Kyoto Protocol, where incentives for mitigation projects were given to countries without a binding emissions cap.

The challenges faced in the purchase programmes, both bilateral and multilateral, can be summarised as follows:

[107] Hanna-Mari Ahonen (2005): The Finnish CDM/JI Pilot Programme – Activities, Experiences and Lessons Learned

[108] https://wbcarbonfinance.org/Router.cfm?Page=PCF

[109] http://www.nefco.org/news-media/publications-reports/brochure/baltic-sea-region-testing-ground-facility-pioneering

- The CDM/JI rules were complicated and changing over time - this caused delays in the projects, which in turn caused problems for annual governmental budgeting;
- The need for emission reduction credits for compliance changed over time;
- The market conditions, including prices for units, changed over time.

The foremost experience from the Finnish Pilot and Purchase Programmes was the complexity of the mechanism rules, and the challenges created by the learning-by-doing approach to developing and frequently adjusting the rules, causing significant and unexpected delays in the projects. The lack of control over the advancement of the projects in the Kyoto process by Finland and the project owners was somewhat a surprise – much also depended on the resources and capacity of the CDM Executive Board (CDM EB), UNFCCC Secretariat and auditors. Concerns over the environmental integrity of certain CDM projects and project types harmed the reputation and undermined the trust in the entire mechanism, illustrating the critical importance of ensuring environmental integrity of the mechanism. To be practical and attractive to the private sector, a mechanism would also require sufficient predictability, standardisation and streamlining.

In the beginning of the Purchase Programme the view of the people working with mechanisms in Finland was that when a project is registered (CDM) or determined (JI), it should be fairly certain that it will generate verifiable emission reductions and that the rest of the Kyoto cycle would be relatively easy. In the end, the experience from the programme was almost the opposite. Contrary to COP/MOP guidance, the increasingly detailed CDM rules were applied retroactively by the DOEs and the CDM EB to early projects, creating multiple-year delays in the verification of emission reductions.

One key experience from the Finnish programmes related to governmental budget challenges; as the Kyoto cycle of the projects is so unpredictable, and registrations as well as verifications of projects can take multiple years, the governmental annual budgeting proved difficult. The relevant Ministries reported as a key lesson learned from the budgeting point of view that the governmental funds which were once tied to an Emission Reduction Purchase Agreement (ERPA) could not be re-used for mechanism purchases in the case of ERPA termination. This proved to be a challenge, as several ERPAs in the Finnish portfolio had to be terminated for various reasons, and thus the funds released from terminated ERPAs could not be invested in other projects. Contracting projects in their early stage is risky, as there are no guarantees that the project will ever be registered or create certified emission reductions. Therefore, if such procurement is continued in Finland at some stage under the Paris Agreement, it would be important to secure the funds to be used for mechanisms, even in the case of some projects being terminated. It is important to note that secured long-term funding is essential for the coordinated and efficient application of the project-based mechanisms, which do not necessarily follow governmental budget cycles.[110]

Despite the many challenges, some of the projects in the Finnish portfolio exceeded expectations concerning benefits to local communities, and building expertise of the project developers. For example in the Ningxia solar cooker project[111] in China and the Rio Blanco hydropower project[112] in Honduras generated substantial social and environmental co-benefits, in addition to the emission reductions. In the Rio Blanco project the project owners decided to improve the local conditions by e.g. planting 10 trees for every tree that was cut down in the building of the hydropower plant. The Ningxia project improved of the quality of life of women because of increased indoor air quality and less time used for cooking. The households also saved a consid-

[110] *Ibid.*

[111] https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1250391250.34/view

[112] https://cdm.unfccc.int/Projects/DB/DNV-CUK1101980215.28/view

erable amount of money annually when the need to purchase coal was removed or significantly reduced because of the solar cookers. With the money saved the households financed e.g. their children's education.

A successful project demands long-term commitment from all parties involved, which means that creating sufficient incentives is crucial. In the case of the Ningxia project, the CDM revenue has proved to be a modest and unsecure incentive for the project owner, because the delays in the project approval process have reduced and delayed the revenues of the project. The project owner's perseverance and commitment, and inclusion of the relevant local actors (e.g. staff of the local Rural Energy Office) in monitoring of the emission reductions of the project, have pushed the project successfully through the Kyoto cycle. For especially this type of small projects that are clearly additional and that generate substantial co-benefits, the project approval cycle should be made easier and the revenues more reliable under the Paris Agreement. The standardisation of CDM rules has somewhat improved the situation already compared to the time of the project's registration.

Another positive example, of a project that required minimal attention from the buyer of the emission reductions but advanced well in approval cycles, is the Pakri wind power JI project[113] in Estonia. This project was implemented through Track 1 of the JI, but with third party determination and verification of emission reductions, according to Estonia's JI procedures. The project owner managed the project through the approval cycle efficiently, and nearly without any help from Finland, as they had also several other JI projects, and staff knowledgeable of JI rules. A lesson from the Pakri project is that when the project owner or developer has a high level of expertise, language skills and maintains good communication with the buyer of the credits, using mechanisms can be very efficient and cost-effective. In the case of Pakri, cultural similarities between Finland and Estonia helped partly in maintaining efficient communication between parties.[114]

Finnish multilateral initiatives on carbon markets

After the purchase programme has drawn to a close, the carbon market development initiatives that Finland participates in have moved to a new phase where the host countries receive support for creating incentives for mitigation through carbon markets and carbon pricing. One example of this is the World Bank–led Partnership for Market Readiness (PMR), in which Finland takes part. The PMR supports countries in assessing, preparing and implementing carbon pricing instruments. The PMR focuses on the technical side of market readiness, such as systems for measurement, reporting and verification (MRV), data collection, baseline setting, policy mapping and impact assessment, and regulatory institutions. It also serves as a platform for countries to share knowledge and work together to shape the future of cost-effective climate change mitigation. It also aims to share insights and lessons learned with the international community, including the UNFCCC negotiations. Currently there are 18 countries implementing PMR-supported activities, and 13 donors contributing to funding the activities.[115]

In April 2016 Finland joined the Carbon Pricing Leadership Coalition, an initiative outside the UN system aiming at influencing UN negotiations on cooperative approaches and increasing general awareness on carbon pricing instruments. The Coalition launched officially at the UNFCCC COP 21 in Paris, and it consists currently of 25 national and subnational governments (such as Sweden, UK, Canada and Mexico), around 90 private sector partners (such as Fortum and Nordea from Finland) and 32 strategic partners (such as the OECD and World Resources

[113] http://ji.unfccc.int/JIITLProject/DB/PEQCYG2JZJG47KNMS3QHP58DR22ZFD/details

[114] GreenStream Network (2014): Kioton mekanismien osto-ohjelman kahdenkeskisen hankinnan loppuraportti 1.3.2006 - 31.12.2013

[115] https://www.thepmr.org/system/files/documents/PMR_Booklet%20June%202.pdf

Institute).[116] Related to the Coalition, the World Bank together with International Monetary Fund set also a high-level Carbon Pricing Panel, consisting of leaders such as German Chancellor Angela Merkel and Canadian Prime Minister Justin Trudeau. The Panel set on 21 April 2016 landmark global goals for pricing carbon pollution – the targets include doubling areas implementing carbon pricing initiatives by 2020 and doubling them again by 2030. The carbon pricing initiatives can include e.g. Emissions Trading Schemes and carbon taxes.[117]

Through actively participating in the Carbon Pricing Leadership Coalition as well as the Partnership on Market Readiness, Finland could play an influential role also outside the UNFCCC negotiations in developing the technical details of the cooperative approaches as well as the enhancing global political action relating to e.g. linking carbon markets and working out how existing carbon pricing systems could work under the Paris Agreement. Through the PMR Finland can support the establishment of new emissions trading schemes and the development of the rules of such schemes in a way that they could be more easily linked with other schemes in the future. The World Bank is also leading an initiative on linking of emissions trading systems, called Networked Carbon Markets[118], which studies options for linking carbon markets under the Paris Agreement.

6.5 Analysis of situation post-2030 regarding Finland's use of cooperative approaches

Finland has a long-term mitigation target already set in its Climate Change Act (Ilmastolaki[119], which came into force in June 2015) of 80 % reduction from 1990 levels by 2050. Achieving this target is not restricted to domestic measures only, so cooperative approaches could potentially be used also in this context. In a situation where the EU NDC target for 2050 would be less ambitious than the Finnish -80% target, Finland could potentially purchase international credits for achieving part of its additional own target, even in the case the EU's NDC would entail domestic reductions only. This is however still uncertain, as political decisions on the use of international credits in Finland or the EU after 2030 have not yet been taken. Also, the EU has set itself a long-term goal of reducing greenhouse gas emissions by 80-95% when compared to 1990 levels by 2050.[120] Still, it has not been decided if this goal will directly be transferred to the NDC by 2050.

As described above, Finland's use of cooperative approaches does not need to be confined to market-based approaches only. The use of the Paris mechanism as a measuring tool for providing climate finance is one option Finland could use also in the post-2030 period and the other non-market based approaches listed in the previous section apply also for this period.

7. Conclusions for Part 1: Connections between the tasks and the road ahead in 2016-2020

Achieving the ultimate objective of the Convention and the temperature goal in the Paris Agreement, significant and timely mitigation is needed. Parties need to implement their initial NDCs and enhance their ambition over time until a sufficient level of mitigation is reached. Par-

[116] http://www.carbonpricingleadership.org/

[117] http://www.worldbank.org/en/news/press-release/2016/04/21/leaders-set-landmark-global-goals-for-pricing-carbon-pollution

[118] World Bank: The Networked Carbon Markets Initiative, March 2016: http://pubdocs.worldbank.org/pubdocs/publicdoc/2016/3/162841457735232763/NCM-initiative-pitchbook.pdf

[119] Ilmastolaki, available at: http://www.finlex.fi/fi/laki/alkup/2015/20150609

[120] https://ec.europa.eu/energy/en/topics/energy-strategy/2050-energy-strategy

ties need tools that facilitate and incentivise the implementation and enhancement of their contributions, as well as enable tracking progress towards and assessing the sufficiency of these contributions individually and collectively.

The global stocktake is hoped to play an important role in aligning the individual bottom-up NDCs with emissions reductions required to reach the collective objective of limiting global mean temperature increase to below 2°C or to 1.5°C. Whether the stocktake will inform individual Parties on whether and how much they should increase their ambition level, however, remains open. Given the legal design of the Paris Agreement, taking note of the outcomes of the stocktake and ratcheting up the ambition level will ultimately remain at the responsibility of Parties, respectful of the bottom-up approach. Requiring parties to state how the stocktake's results have been taken into account in subsequent NDCs, and also the analyses by non-Party actors, could insert pressure on individual Parties towards increasing their ambition levels.

The only formal mechanism included in the Paris Agreement for gradually increasing ambition is the requirement for consecutive NDCs to exhibit progression over the previous NDCs and reflect the Party's highest possible ambition. This requirement does not, however, specify the magnitude of the progression beyond it being the Party's highest ambition. Further, progression can be difficult to determine for certain types of mitigation targets – e.g. intensity targets or BAU-based targets – or if the targets' scope or type changes between consecutive NDCs.

To assessing Parties' mitigation contributions and their impact transparently, it is essential to define mitigation targets in the NDCs. Due to the bottom-up nature of NDCs, the mitigation targets in Parties' NDCs include diverse definitions, cover emission sources with varying scopes, and are based on disparate data, methods and assumptions. Significant improvements from the current INDCs can be achieved with very basic set of mandatory requirements, e.g. those suggested in paragraph 27 of Decision 1/CP.21: the reference point, scope and coverage of emission sources, assumptions and used methodological approaches.

The obligation for mandatory, periodical emission reporting for all Parties that join the Agreement marks a significant change from the current state, in which only Annex I Parties have provided annual emission inventories. Under the Paris Agreement, Parties are obliged to track and report the progress towards their NDC's objectives. Transparent reporting is critically important for the tracking of progress towards Parties' mitigation objectives, and having official emission estimates also improves the coherence of external analyses by non-Parties. However, a large number of developing countries will require significant support from more developed countries to satisfy this requirement. This has also been noted in the Agreement and Decision, which establishes a Capacity-building Initiative for Transparency and request support from the Global Environment Facility for this initiative.

The mitigation challenge is undoubtedly vast. While the mitigation targets towards years 2025 and 2030 in the submitted INDCs still include the possibility of limiting warming to below 2°C – provided that rapid emission reductions are carried out globally also after 2030 – keeping temperature increase well below 2°C or close to 1.5°C will require a substantially higher level of ambition and faster action.

Stabilizing greenhouse gas emissions at the current level until 2030 would roughly double the mitigation efforts needed in 2030. This would help considerably in achieving the below 2°C target, but the 1.5°C target would remain out of reach under realistic assumptions on post-2030 action. Having a reasonable (50%) chance to keep the end-of-century temperature increase at 1.5°C would require immediate peaking and rapid decline of global emissions. Regarding the Parties' NDC targets for 2030, the aggregate emission level should be roughly one third lower

than the level implied by the current INDCs. Whether and how such a significant increase in ambition can be facilitated through the stocktake remains to be seen.

International cooperation is essential for achieving necessary mitigation in a timely and effective manner, and the Paris Agreement includes tools to facilitate so-called cooperative approaches whereby “some Parties may choose to pursue voluntary cooperation in the implementation of their NDCs to allow for higher ambition […] and to promote sustainable development and environmental integrity” (Art 6.1).

International cooperation, while key to implementing the Paris Agreement, could also undermine the ambition embedded in the Paris Agreement, for example if the mitigation outcomes associated with the international cooperation are false, exaggerated and/or counted more than once. This is why the robust accounting and the avoidance of double counting are key issues in the development of the cooperative approaches under the Paris Agreement.

In the road ahead, when developing the rulebook during the years 2016-2020 for implementing the Paris Agreement, it is essential to remember that the Paris Agreement is very much about coordination and linkages between different topics. Under the Paris Agreement, the topics of mitigation, transparency, adaptation, finance, capacity building, technology and the cooperative approaches all link together, and it is important to keep track in the negotiations on each topic what goes on under the other relevant issues. Many of these topics could be coordinated e.g. under the non-market approaches of Article 6. It is also vital to remember, that the work programmes on creating the rulebook, started by the Paris Agreement and the Paris Decision, might not cover all details that need to be worked out for the successful implementation of the Paris Agreement. All in all, as the Paris Agreement is the first global climate agreement that relies largely on a bottom-up approach to mitigation, it entails different challenges when compared with the top-down world of the Kyoto Protocol. These relate especially to the level of ambition of mitigation actions, transparency and how the cooperative approaches can be used in a robust manner in a world of differing nationally determined contributions. Some new challenges might still come up in subsequent negotiations, as all the details and definitions of each subject are not yet clear.

There are various reasons why Finland may wish to engage in cooperative approaches. Although the current EU targets are domestic in nature, the increasingly ambitious future targets may include the option to utilise cooperative approaches. In the meantime, Finland may wish to, *inter alia*, voluntarily utilise cooperative approaches to overachieve and enhance its international target, to deliver results-based climate finance and to develop domestic and international capacity for robust cooperative approaches.

PART 2. FINANCE, TECHNOLOGY, CAPACITY BUILDING, ADAPTATION, LOSS & DAMAGE, LAND USE AND FORESTRY, FACILITATING IMPLEMENTATION AND COMPLIANCE

8. Introduction: The Paris Outcome and the related UNFCCC framework and process

At the Paris climate conference (COP 21) in December 2015, 195 countries adopted the first-ever global climate deal with legally-binding commitments for all Parties. Key elements of the Paris Outcome consist of the Paris Agreement - a new, legally-binding international climate treaty - and COP decision 1/CP.21 on the Adoption of the Paris Agreement (referred to as Paris Decision in this report). A key part of the Paris Outcome, while not annexed to the actual Paris Agreement and thus their content is not legally binding, are the intended nationally determined contributions (INDCs) submitted before and during the Paris conference. These will become nationally determined contributions (NDCs) when Parties ratify or accept the Paris Agreement. Broadly speaking the Paris Outcome can be said to include also the commitments and announcements made by various governments and stakeholders, such as cities, businesses and civil society.[121]

The United Nations Framework Convention on Climate Change (UNFCCC), which was adopted in 1992 at the Rio Earth Summit and entered into force in March 1994, was the first step in global climate agreements. The UNFCCC still forms a framework for the Paris Agreement, and its bodies Subsidiary Body for Scientific and Technological Advice (SBSTA) and Subsidiary Body for Implementation (SBI), together with the new Ad Hoc Working Group on the Paris Agreement (APA), are tasked to create the exact “rulebook” on how to implement the Paris Agreement. However, one key difference between the UNFCCC and the Paris Agreement is the differentiation of countries – the Convention was clearly differentiated to developed (Annex I) and developing (non-Annex I) countries, but the Paris Agreement creates a common framework for all Parties, with some flexibility for developing countries.

The first legally binding agreement under the Convention was the Kyoto Protocol, which was adopted in 1997 and entered into force in 2005. There are positive and negative lessons to be learned from the Kyoto Protocol and its rules, e.g. on transparency and accounting, and these can help in the negotiations of the Paris work programme. These rules and processes to be negotiated before the entry into force of the Paris Agreement need to be strong and effective, in order to promote ambitious climate action and accelerate it in the coming years to reach the global emission reduction targets set in the Paris Agreement.

The first post-Paris climate negotiations were held in Bonn, Germany for two weeks in May 2016. In Bonn the discussions on how to actually negotiate and create the rules and modalities demanded by the Paris work programme were started. In the May Bonn session, the APA held its first session. The work will continue in COP 22 in Marrakech in November 2016. In the Bonn session, the Marrakech conference was hailed to be the “Action COP”, to really provide concrete steps towards the implementation of the Paris Agreement and the acceleration of climate action worldwide.

[121] Kulovesi, K., Vihma, A., Laine, A et al (2016): Results of the Paris COP 21 climate negotiations

The first Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) will be held in conjunction with the first Conference of the Parties (COP) after the Paris Agreement enters into force. The first CMA could already be held in Marrakech COP 22, if enough Parties[122] ratify the Agreement by 7 October 2016. The possible early entry into force of the Paris Agreement before the year 2020 sets some challenges to completing the Paris work programme and tasks for the Paris rulebook in time before their scheduled adoption. [123] Key work to be adopted in CMA 1 include the topics discussed in this report, such as:

- The development of modalities, procedures and guidelines for transparency of action and support (including finance, technology and capacity building)
- Recommendations on enhancing the institutional arrangements for capacity-building
- The development of modalities and procedures for the effective operation of the committee to facilitate implementation and promote compliance of the Paris Agreement.
- Develop modalities to recognize the adaptation efforts of developing country Parties, and further guidance for adaptation communications
- Develop modalities for the accounting of financial resources provided and mobilized through public interventions
- Recommendation on the technology framework.[124]

In the Bonn May 2016 conference the APA discussed options for the possible suspension of the first CMA to ensure that this rulebook can be fully developed and all key Parties can participate in the decision making. If suspended, CMA 1 would continue in conjunction with the subsequent COP. Another option could be using the first CMA to carry the work programme forward and extend the mandate of the APA.[125] In any case, it is important for the successful implementation of the Paris Agreement to have enough time to negotiate the rulebook to make robust, clear and acceptable to all Parties.

This report is the second part of the "Implementation of the Paris Agreement" report. The first part[126] assessed mitigation contributions, transparency, global stocktakes and cooperative approaches. This second part assesses the means of implementation (finance, technology and capacity building), adaptation, loss & damage, forestry and land use as well as facilitating implementation and compliance.

[122] At least 55 Parties representing at least 55 % of global greenhouse gas emissions, see Article 21.1 of the Paris Agreement

[123] UNFCCC (April 2016): Entry into force of the Paris Agreement: legal requirements and implications http://unfccc.int/files/paris_agreement/application/pdf/entry_into_force_of_pa.pdf

[124] UNFCCC (July 2016): Paris Agreement progress tracker http://unfccc.int/files/paris_agreement/application/pdf/progress_tracker_180716_1530.pdf

[125] Earth Negotiations Bulletin, Bonn May 2016 summary: http://www.iisd.ca/download/pdf/enb12676e.pdf

[126] Laine, A., Ekholm. T., Magnusson R, Ahonen, H.. et al (2016): Implementation of the Paris Agreement. Part 1: Mitigation contributions, transparency, global stocktakes, cooperative approaches and mechanisms.

9. Climate finance

Climate finance was one of the central issues in the negotiations for the Paris Agreement. Finance is a key means of implementing the Agreement, and many of the INDCs by developing countries have indicated targets conditional on access to finance, among others. The Paris Agreement stipulates that developed countries shall continue to provide funding for developing countries to mitigate and adapt to climate change in continuation of their existing commitments under the Convention.[127] A new feature in the Paris Agreement is that also other Parties are encouraged to provide or continue to provide finance voluntarily.[128] Also the transparency of financial flows to developing countries and reporting on the support received are enhanced under the Paris Agreement.

9.1 Tasks related to the implementation of the Paris Agreement regarding climate finance and transparency of financial support

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21[129]

Article 2.1

This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: […] (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Articles 9.1 and 9.2

9.1: Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention.
9.2: Other Parties are encouraged to provide or continue to provide such support voluntarily.

Article 9.3

As part of a global effort, developed country Parties should continue to take the lead in mobilizing climate finance from a variety of sources, instruments and channels, noting the significant role of public funds, through a variety of actions, including supporting country-driven strategies, and taking into account the needs and priorities of developing country Parties. Such mobilization of climate finance should represent a progression beyond previous efforts.

Article 9.4

The provision of scaled-up financial resources should aim to achieve a balance between adaptation and mitigation, taking into account country-driven strategies, and the priorities and needs of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change and have significant capacity constraints, such as the [LDCs] and [SIDS], considering the need for public and grant-based resources for adaptation.

Article 9.5
Developed country Parties shall biennially communicate indicative quantitative and qualitative information related to paragraphs 1 and 3 of this Article, as applicable, including, as available, projected levels of public

[127] Article 9.3 of the Paris Agreement.

[128] Article 9.2 of the Paris Agreement.

[129] http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf

financial resources to be provided to developing country Parties. Other Parties providing resources are encouraged to communicate biennially such information on a voluntary basis.

Article 9.6

The global stocktake referred to in Article 14 shall take into account the relevant information provided by developed country Parties and/or Agreement bodies on efforts related to climate finance.

Article 9.7

Developed country Parties shall provide transparent and consistent information on support for developing country Parties provided and mobilized through public interventions biennially in accordance with the modalities, procedures and guidelines to be adopted by the [CMA], at its first session, as stipulated in Article 13.13. Other Parties are encouraged to do so.

Article 9.8

The Financial Mechanism of the Convention, including its operating entities, shall serve as the financial mechanism on this Agreement.

Article 9.9

The institutions serving this Agreement, including the operating entities of the Financial Mechanism of the Convention, shall aim to ensure efficient access to financial resources through simplified approval procedures and enhanced readiness support for developing country Parties, in particular for the [LDCs] and [SIDS], in the context of their national climate strategies and plans.

Article 10.5

Accelerating, encouraging and enabling innovation is critical for an effective, long-term global response to climate change and promoting economic growth and sustainable development. Such effort shall be, as appropriate, supported, including by the Technology Mechanism and, through financial means, by the Financial Mechanism of the Convention, for collaborative approaches to research and development, and facilitating access to technology, in particular for early stages of the technology cycle, to developing country Parties.

Articles 13.9 and 13.10

13.9: Developed country Parties shall, and other Parties that provide support should, provide information on financial, technology transfer and capacity-building support provided to developing country Parties under Articles 9, 10 and 11.
13.10: Developing country Parties should provide information on financial, technology transfer and capacity-building support needed and received under Articles 9, 10 and 11.

Articles 13.11

Information submitted by each Party under paragraphs 7 and 9 of this Article shall undergo a technical expert review, in accordance with decision 1/CP.21.[…]

Decision 1/CP.21, paragraph 52

Decides that, in the implementation of the Agreement, financial resources provided to developing countries should enhance the implementation of their policies, strategies, regulations and action plans and their climate change actions with respect to both mitigation and adaptation to contribute to the achievement of the purpose of the Agreement as defined in Article 2.

Decision 1/CP.21, paragraph 53

Also decides that, in accordance with [Article 9.3], developed countries intend to continue their existing collective mobilization goal through 2025

in the context of meaningful mitigation actions and transparency on implementation; prior to 2025 the [CMA] shall 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.

Decision 1/CP.21, paragraph 54

Recognizes the importance of adequate and predictable financial resources, including for results-based payments, as appropriate, for the implementation of policy approaches and positive incentives for [REDD+], and the role of conservation, sustainable development of forests and enhancement of forest carbon stocks; as well as alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests; while reaffirming the importance of non-carbon benefits associated with such approaches; encouraging the coordination of support from, inter alia, public and private, bilateral and multilateral sources, such as the [GCF], and alternative sources in accordance with relevant decisions by the [COP].

Decision 1/CP.21, paragraph 55

Decides to initiate, at its [22nd] session, a process to identify the information to be provided by Parties, in accordance with [Article 9.5] with the view to providing a recommendation for consideration and adoption by the [CMA] at its first session.

Decision 1/CP.21, paragraph 56

Also decides to ensure that the provision of information in accordance with [Article 9.7] shall be undertaken in accordance with modalities, procedures and guidelines referred to in paragraph 96 below.

Decision 1/CP.21, paragraph 57

Requests [SBSTA] to develop modalities for the accounting of financial resources provided and mobilized through public interventions in accordance with [Article 9.7] for consideration by the [COP 24] (November 2018), with the view to making a recommendation for consideration and adoption by the [CMA] at its first session.

Decision 1/CP.21, paragraph 58

Decides that the [GCF] and the [GEF], the entities entrusted with the operation of the Financial Mechanism of the Convention, as well as the Least Developed Countries Fund and the Special Climate Change Fund, administered by the [GEF], shall serve the Agreement.

Decision 1/CP.21, paragraphs 59 and 60

59: Recognizes that the Adaptation Fund may serve the Agreement, subject to relevant decisions by the [CMP] and [CMA].
60: Invites the [CMP] to consider the issue referred to in paragraph 59 and make a recommendation to the [CMA] at its first session.

Decision 1/CP.21, paragraph 61

Recommends that the [CMA] shall provide guidance to the entities entrusted with the operation of the financial mechanism of the Convention on the policies, programme priorities and eligibility criteria related to the Agreement for transmission by the [COP].

Decision 1/CP.21, paragraphs 62

Decides that the guidance to the entities entrusted with the operations of the Financial Mechanism of the Convention in relevant decisions of the [COP], including those agreed before the adoption of the Agreement, shall apply mutatis mutandis.

Decision 1/CP.21, paragraphs 63

Also decides that the Standing Committee on Finance shall serve the Agree-

ment in line with its functions and responsibilities established under the [COP].

Decision 1/CP.21, paragraph 64

Urges the institutions serving the Agreement to enhance the coordination and delivery of resources to support country-driven strategies through simplified and efficient application and approval procedures, and through continued readiness support to developing country Parties, including [LDCs] and [SIDS], as appropriate.

Decision 1/CP.21, paragraph 89

Decides that, in accordance with Article 13, paragraph 2, of the Agreement, developing country Parties shall be provided flexibility in the implementation of the provisions of that Article, including in the scope, frequency and level of detail of reporting, and in the scope of review, and that the scope of review could provide for in-country reviews to be optional, while such flexibilities shall be reflected in the development of modalities, procedures and guidelines referred to in paragraph 91 below;

Decision 1/CP.21, paragraph 90

Also decides that all Parties, except for the least developed country Parties and small island developing States, shall submit the information referred to in Article 13, paragraphs 7, 8, 9 and 10, of the Agreement, as appropriate, no less frequently than on a biennial basis, and that the least developed country Parties and small island developing States may submit this information at their discretion;

Decision 1/CP.21, paragraph 91

Requests the Ad Hoc Working Group on the Paris Agreement to develop recommendations for modalities, procedures and guidelines in accordance with Article 13, paragraph 13, of the Agreement, and to define the year of their first and subsequent review and update, as appropriate, at regular intervals, for consideration by the Conference of the Parties, at its twenty-fourth session, with a view to forwarding them to the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement for consideration and adoption at its first session;

Decision 1/CP.21, paragraph *94*

Requests the Ad Hoc Working Group on the Paris Agreement, in developing the modalities, procedures and guidelines referred to in paragraph 91 above, to consider, inter alia: […]
(d) Support provided, enhancing delivery of support for both adaptation and mitigation through, inter alia, the common tabular formats for reporting support, and taking into account issues considered by the Subsidiary Body for Scientific and Technological Advice on methodologies for reporting on financial information, and enhancing the reporting by developing country Parties on support received, including the use, impact and estimated results thereof;

Decision 1/CP.21, paragraph 110

Encourages the operating entities of the Financial Mechanism of the Convention to engage in the technical expert meetings and to inform participants of their contribution to facilitating progress in the implementation of policies, practices and actions identified during the technical examination process.

Decision 1/CP.21, paragraph 114

Resolves the enhance the provision of urgent and adequate finance, technology and capacity-building support by developed country Parties in order to enhance the level of ambition of pre-2020 action by Parties, and in this regard strongly urges developed country Parties to scale up their level of financial support, with a concrete road map to achieve the goal of jointly providing USD 100 billion annually by 2020 for mitigation and adaptation while significantly increasing adaptation finance from current levels and

to further provide appropriate technology and capacity-building support.

Decision 1/CP.21, paragraph 115

Decides to conduct a facilitative dialogue in conjunction with the [COP 22] to assess the progress in implementing decision 1/CP.19, paragraphs 3 and 4, and identify relevant opportunities to enhance the provision of financial resources, including for technology development and transfer, and capacity-building support, with a view to identifying ways to enhance the ambition of mitigation efforts by all Parties, including identifying relevant opportunities to enhance the provision and mobilization of support and enabling environments.

The Paris Agreement includes the goal of making climate finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.[130] It requires developed countries to provide financial resources to assist developing country Parties in mitigation and adaptation, and to take the lead in mobilizing climate finance from various sources.[131] These finance flows should aim to achieve a balance between mitigation and adaptation.[132]

The Paris Decision retains the US$100 billion annual finance mobilization goal for developed countries until the year 2025, "in the context of meaningful mitigation actions and transparency on implementation". Prior to 2025, the CMA must set a new collective goal of at least the same annual amount.[133] In the section on enhanced pre-2020 action, the Paris Decision urges developed countries to scale up their financial support and provide a concrete roadmap on how the US$100 billion annual goal will be reached. In a new development, developing countries are encouraged to provide finance on a voluntary basis[134]. The Financial Mechanism of the Convention shall serve also the Paris Agreement.[135]

The Paris Agreement requires developed countries to report biennially on support for developing country Parties provided and mobilized through public interventions.[136] Developing countries are also encouraged to report biennially on the financial support needed and received.[137] This information will go through technical expert reviews.[138] In a new development in Paris, qualitative and quantitative information on expected public finance flows shall also be reported biennially by developed countries, and other Parties are encouraged to report such information.[139] The information on projected finance will be considered during the global stocktakes, where the amount of finance is assessed on a global level.[140]

The Paris Outcome on climate finance should be seen in context of the objectives mentioned in the Paris Agreement, including the long-term temperature goals[141] and the goal of balancing emissions and sinks in the second half of the century[142]. The key for successful implementation of these goals is to shift global finance flows from activities that drive climate change towards solutions addressing it. To reach these goals, there is a need for significant up-scaling of global

[130] Article 2.1c of the Paris Agreement

[131] Article 9.3 of the Paris Agreement

[132] Article 9.4 of the Paris Agreement

[133] Decision 1/CP.21, paragraph 53

[134] Article 9.2 of the Paris Agreement

[135] Article 9.8 of the Paris Agreement

[136] Article 9.7 of the Paris Agreement

[137] *Ibid.*

[138] Article 13.11 of the Paris Agreement

[139] Article 9.5 of the Paris Agreement

[140] Article 9.6. of the Paris Agreement

[141] Article 1.a of the Paris Agreement

[142] Article 4.1 of the Paris Agreement

climate finance. Still, the Paris outcome is mainly procedural in this regard as COP 21 left the decision on a new collective climate finance goal to be taken before the year 2025.[143] However, it was decided that there should be no backtracking from the current annual finance target of US$100 billion, which was agreed by COP 15 in Copenhagen and formally adopted by COP 16 in Cancun.

With respect to future negotiations concerning the implementation of the Paris Agreement, questions concerning the scale of funding and the respective roles of public and private climate finance can be expected to remain controversial. Concerning sources of climate finance, what is remarkable in the Paris Agreement is that for the first time, also developing countries are encouraged to provide finance to other developing countries.

Besides scale, the contribution of climate finance to the achievement of the purpose of the Paris Agreement depends on the effectiveness of its use. To assess the consistency of finance flows with low-emissions and climate-resilient development pathways, information on the use, impact and results of climate finance is required. The Paris Decision provides that financial resources provided to developing country Parties "should enhance" the implementation of their climate policies, strategies and actions and presents the mobilization goal "in the context of meaningful actions and transparency of implementation". However, the extent of UN guidance on reporting and assessing the use, impacts and results – and thereby the effectiveness – of climate finance remains to be negotiated as part of the modalities for the broader transparency framework.

So far, most of climate finance has gone towards climate change mitigation.[144] Increasing the share of adaptation finance was a key issue in the negotiations for the Paris Agreement, and it was agreed in Paris that finance should achieve a balance between mitigation and adaptation, but the Paris Agreement or Decision do not define what constitutes a "balance" in this regard. The Paris Agreement distinguishes between public financial resources provided to developing country Parties and climate finance mobilized through public interventions by developed country Parties. Mobilization and provision of climate finance can mean different things in this context, which is discussed in more detail in section 2.2. Developed country Parties are currently working on the roadmap on how to provide such support.[145] The roadmap will likely discuss different methodological and quantitative elements of climate finance.

Regarding transparency of support provided and received, progress on this issue was already made at COP 16 in 2010, resulting in the inclusion of financial support provided in developed countries' Biennial Reports and support received a part of developing countries' biennial update reports (BURs) under the UNFCCC. Rules on the contents of the Biennial Reports and BURs were defined by COP 17. The first set of developed country Biennial Reports had to be submitted by January 2014. The first BURs by developing countries were expected by end of 2014, but only 32 developing country Parties have submitted their report by May 2016. Under the Paris Agreement, the biennial reporting (including on finance) is expected to be further enhanced. Besides volumes of financial flows, the Paris Decision aims to enhance developing country reporting on the use, impact and estimated results of the support received, which is important information for assessing the effectiveness of climate finance in contributing to the purpose of the Paris Agreement.[146] Another important new issue in the Paris Agreement is the forward-looking biennial reporting on public finance that developed country Parties expect to provide. Guidance and rules on this are yet to be developed. The process on the development will start in Marrakech COP 22 in 2016.

[143] Decision 1/CP.21, paragraph 53

[144] Climate Policy Initiative (2015): Global landscape of climate finance http://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2015/

[145] Decision 1/CP.21, paragraph 114

[146] Decision 1/CP.21, paragraph 94(d)

Key features of the item

According to the Paris Agreement and Decision, the financial resources provided to developing countries should enhance the implementation of their NDCs, including policies, strategies, regulations, action plans and actions with respect to both mitigation and adaptation.[147] The institutions serving the Agreement, including those of the Financial Mechanism, shall pay special attention to ensuring efficient access to financial resources through simplified approval procedures and enhanced readiness support for developing country Parties, in particular for the Least Developed Countries (LDCs) and Small Island Developing States (SIDS).[148]

The $100 billion annual finance goal is to be provided through a variety of instruments, sources and channels.[149] The Agreement specifically mentions the role of public finance and grant-based funding for adaptation, but also the results-based payments for mitigation through the REDD+ mechanism[150] as financial instruments. The Paris Outcome mentions the Green Climate Fund (GCF) and the Global Environment Facility (GEF), which are the operational entities of the Financial Mechanism, as well as the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF), administered by the GEF, as serving the Agreement as channels.[151] The SCCF finances adaptation, technology transfer, economic diversification as well as mitigation in selected sectors. Unlike the LDCF, which is specifically dedicated to the urgent needs of the Least Developed Countries, the SCCF is open to all vulnerable developing countries.[152] The guidance to the operational entities of the Financial Mechanism, including those agreed before the Paris Agreement, shall apply *mutatis mutandis*.[153] It is still unclear if Kyoto Protocol's Adaptation Fund will serve the Agreement, this will be decided later by the CMP and CMA.[154]

In addition to the GEF, which is currently undergoing its 6th replenishment cycle where $4.43 billion have been pledged for the period 2014-2018[155], the Green Climate Fund (GCF) is expected to be a major channel of climate finance under the Paris Agreement. So far $10.3 billion is pledged to the GCF, of which approximately $168 million is currently committed to 8 projects (as of June 2016).[156] Thus the start of the operation of the fund has been relatively slow, but for the year 2016 the GCF has set a target to approve projects worth $2.5 billion.[157]
The Standing Committee on Finance will also serve the Paris Agreement, in line with its previously established functions and responsibilities.[158] The Standing Committee on Finance assists the COP in exercising its functions in relation to the Financial Mechanism, in e.g. improving coherence and coordination in the delivery of climate finance, mobilization of financial resources, and transparency of support provided to developing country Parties.[159] These issues are of increased importance under the Paris Agreement as the transparency requirements for finance given and received are enhanced.

[147] Articles 9.1 and 9.4 of the Paris Agreement, as well as Decision 1/CP.21, paragraph 52

[148] Article 9.9. of the Paris Agreement

[149] Article 9.3 of the Paris Agreement

[150] REDD+ = Reducing Emissions from Deforestation and Forest Degradation

[151] Decision 1/CP.21, paragraph 58

[152] https://www.thegef.org/gef/SCCF

[153] Decision 1/CP.21, paragraph 62

[154] Decision 1/CP.21, paragraph 59

[155] https://www.thegef.org/gef/GEF_Replenishment

[156] http://www.greenclimate.fund/ventures/portfolio

[157] http://www.nature.com/news/green-climate-fund-vows-to-up-its-game-1.19627

[158] Decision 1/CP.21, paragraph 63

[159] http://unfccc.int/cooperation_and_support/financial_mechanism/standing_committee/items/6877.php

Scope of the tasks

Regarding climate finance, the scope of the tasks set by the Paris Agreement and Decision set tasks cover mainly three topics:

1. Setting targets and roadmaps for scaling up climate finance;
2. Reporting and accounting rules for finance; and
3. Institutional arrangements.

Regarding targets, the CMA shall set the new collective finance mobilization goal before the year 2025.[160] This could mean that the target should be set in the CMA held in conjunction with COP 30 in 2024. Regarding the new collective finance goal, it is still unclear how the goal will be decided, what timeframe it will cover, and which countries are expected to participate in meeting it. Therefore the discussions on this topic needs to start early enough so that the CMA can determine the new goal before 2025. The process could include e.g. assessing finance needs of developing countries identified in reporting, and the outputs of the global stocktake.[161] The pre-2020 ambition section of the Paris Agreement makes the requirements more stringent for developed countries to communicate their plans for reaching the current $100 billion annual finance mobilization target by 2020. There is no date set for providing the roadmap for achieving the target. However, developed countries are "strongly urged" to provide the roadmap[162], and this should happen soon in order to be able to meet the annual target by 2020. It is understood that developed countries are working to present a first version of the Roadmap by COP 22.

The Paris Decision also states that, in conjunction with COP 22 in Marrakech, there will be a facilitative dialogue to assess progress with implementing the enhancement of pre-2020 ambition in the provision of finance.[163] In the Bonn May 2016 session, an annual workshop on long-term finance, as mandated by the Lima COP Decision 5/CP.20, was held with the focus of adaptation finance. Following the workshop, a summary report will be prepared for consideration by the COP 22.[164]

On the second topic of reporting and accounting rules, the first session of the CMA is tasked with adopting the modalities, procedures and guidelines for the transparent and consistent information on finance that developed country Parties shall provide biennially.[165] Until the new reporting and accounting guidance is in place, developed countries will continue to report based on the existing requirements.[166] In the first meeting of the APA in the Bonn May 2016 session, Parties were tasked to submit their views on the modalities, procedures and guidelines for transparency of action and support, including finance, by 30 September 2016.[167] The Marrakech COP 22 in November 2016 is tasked to initiate a process to identify the forward-looking information to be provided by developed Parties (and other voluntary Parties) biennially on the projected levels of public financial resources to be provided to developing country Parties.[168]
The discussions on the accounting rules for finance provided and mobilized by public resources under the Paris Agreement have started in a promising manner, which is a positive sign considering that there is a lack of consensus on what exactly counts as climate finance and how it should be counted. The SBSTA 44 held in Bonn in May 2016 started the discussions on the

[160] Decision 1/CP.21, paragraph 53

[161] World Resources Institute (2016): Staying on track from Paris: Advancing the Key Elements of the Paris Agreement

162 Decision 1/CP.21, paragraph 114

[163] Decision 1/CP.21, paragraph 115

[164] http://unfccc.int/cooperation_support/financial_mechanism/long-term_finance/items/9518.php

[165] Article 9.7 of the Paris Agreement

[166] https://unfccc.int/files/paris_agreement/application/pdf/entry_into_force_of_pa.pdf

[167] http://unfccc.int/resource/docs/2016/apa/eng/l03.pdf

[168] Article 9.5 of the Paris Agreement and paragraph 55 of the Paris Decision

modalities for the accounting of financial resources provided and mobilized through public interventions. Parties were tasked to submit their views on the issue by 29 August 2016. In the submissions Parties are asked to cover the challenges and information gaps of the existing accounting modalities, what new modalities are needed for the accounting under the Paris Agreement and how accounting is integrated in the transparency framework. Discussions will be continued in Marrakech COP 22, where also an in-session workshop on finance accounting will be held. The SBSTA tasked the secretariat to write a technical paper on the issue by SBSTA 46 (May 2017).[169] The modalities will be finalised for consideration of COP 24 in 2018.[170]

Regarding institutional arrangements, there is also a work programme starting in Marrakech. COP 22 should mandate the APA (invited by the Kyoto Protocol's CMP 11) to undertake preparatory work on whether and how the Adaptation Fund could serve the Paris Agreement, and to forward a recommendation to the CMP for adoption no later than CMP 15 in 2019.[171] The decision on the role of the Adaptation Fund also needs to be adopted by the first session of the CMA. The CMA shall also provide guidance to the operational entities of the Financial Mechanism (GCF and GEF) on the policies, programme priorities and eligibility criteria to apply for their work under the Paris Agreement. However, there is not set date for this guidance.[172]

Tasks and questions to be resolved, that are not timed, but need to be clarified by the Parties in future years include, e.g.:

- What constitutes a balance between funding for mitigation and adaptation? How is the balance expected to be reached?
- What are the respective roles of private and public finance to achieve the long-term finance goal for developed countries?
- How will the simplified approval procedures and enhanced readiness support[173] for developing countries be ensured in the operation of the Financial Mechanism?

Links with other topics/tasks

Tasks regarding climate finance are linked to almost all aspects of the Paris Agreement, given that finance is a central element in facilitating the implementation of the Paris Agreement. Questions concerning finance are also directly linked to issues related to enhanced transparency of action and support.[174] The information on finance to be reported through the enhanced transparency framework is linked to the global stocktakes, and technical expert reviews.
Finance is also directly linked to the provisions on technology and capacity building. Article 10.5 related to technology provides that efforts to accelerate, encourage and enable innovation shall be supported through financial means by the Financial Mechanism. Capacity building efforts shall, according to Article 11.5, be enhanced through appropriate institutional arrangements established under the Convention to support the Paris Agreement. These include also the Financial Mechanism and other financial institutional arrangements.

Finance naturally also links to mitigation and adaptation. Many Parties have set in their INDCs mitigation and adaptation targets, which are conditional on receiving financial support. Finance also links to the cooperative approaches for mitigation. The mechanism established in Article 6.4 of the Agreement could e.g. be used also as a measurement tool for the impacts of climate finance. Furthermore, it has been agreed in Article 6.6 of the Paris Agreement that the mecha-

[169] http://unfccc.int/resource/docs/2016/sbsta/eng/l05.pdf

[170] Decision 1/CP.21, paragraph 57

[171] Decision 1/CMP.11, paragraph 9

172 Decision 1/CP.21, paragraph 61

[173] Decision 1/CP.21, paragraph 64

[174] Article 13 of the Paris Agreement

nism established in Article 6.4 will provide a source of finance for adaptation for particularly vulnerable Parties through its share of proceeds.[175] Mitigation and cooperative approaches are discussed in detail in the first part of this report.

9.2 Finland's role in the provision of climate finance

9.2.1 Recent estimates of the amount of global climate finance

There is no common agreement on what counts as climate finance, neither within the UNFCCC nor the Paris Agreement. As consequence, estimates of its amount vary significantly. Here, three recent estimates of the size of global climate finance are presented: the estimate by the Climate Policy Initiative (CPI)[176], the estimate by the OECD from 2015[177], and the estimate by the World Resource Institute (WRI)[178]. These sources use as basis e.g. the information from the Biennial Reports that Parties have submitted to the UNFCCC, as well as OECD DAC data. They also make varying assessments on private finance volumes. A useful way to consolidate different estimates is to think along relevant dimensions along which the individual financial activities can be categorised. Examples of the dimensions are as follows.

1. Source: Public money, private money
2. Objective: mitigation, adaptation
3. Source/recipient: from developed to developing countries, between developed countries, between developing countries
4. Type of instrument
    a. Different forms of equity
    b. Different types of loans, which may or may not have concessional elements
    c. Guarantees and other insurance type of instruments
    d. Grants, which may or may not be subject to achievement of certain milestones
    e. Results-based payments, such as commitments to pay for the achievement of certain outcomes, e.g. a commitment to pay a fixed price for verified emissions reductions
5. Additionality: is the financing additional?[179]
6. Fossil fuels: is the investment related to combustion of fossil fuels, e.g. high efficiency coal fired power generation?
7. ODA: is the financing counted as Official Development Assistance (ODA)?
8. Weight: degree to which mitigation or adaptation is a principal goal of the financed activity
9. Mobilisation: how much other financing, and from what sources, is mobilised?

CPI employs a very broad definition of climate finance, including recipients in developed countries, and reports that in 2014 total global climate finance was 391 USD billion, of which 243

[175] Article 6.6. of the Paris Agreement: "The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement shall ensure that a share of the proceeds from activities under the mechanism referred to in paragraph 4 of this Article is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation"

[176] Climate Policy Initiative (2015): Global landscape of climate finance. http://climatepolicyinitiative.org/wp-content/uploads/2015/11/Global-Landscape-of-Climate-Finance-2015.pdf

[177] OECD (2015): Climate Finance in 2013-14 and the USD 100 billion goal - A report by the OECD in collaboration with Climate Policy Initiative. https://www.oecd.org/environment/cc/OECD-CPI-Climate-Finance-Report.pdf

[178] M.I. Westphal, P. Canfin, A. Ballesteros,and J. Morgan (2015): Getting to $100 Billion: Climate FinanceScenarios and Projections to 2020. https://www.wri.org/sites/default/files/getting-to-100-billion-final.pdf

[179] The question of additionality in the context of climate finance is controversial. Examples of proposed definitions are counting only finance above 0.7 percent of a developed country's gross national income and counting only non-ODA finance (WRI, 2015)

USD billion came from private sources (62%). The following shows a breakdown across sectors. It also shows what sources are not captured by CPI.

Table 4: Climate finance captured by CPI, for the year 2014, in USD billion, including financing of activities in developed countries.

Sector	*Private sources*	*Public, Direct Foreign Investments (DFI) and international finance*	*Public, domestic finance*
Renewable energy	243	49	N/A
Energy efficiency	> 90	26	N/A
Transport	N/A	21	N/A
Land Use	>4	7	N/A
Adaptation	N/A	25	N/A

Notes: Within country finance from public sources is not captured by CPI (2015),"adaptation investments data remain elusive".

In comparison, OECD only consider financing mobilised from developed countries for the benefit of developing countries, which is estimated at 61.8 USD billion in 2014, i.e. short of the 100 USD billion goal. In contrast with the estimate by CPI, OECD reports that of the 61.8 USD billion only 16.7 USD billion (27%) is from private sources. This discrepancy illustrates the large differences in statistics.

Table 5: Climate finance reported by OECD, for the year 2014, in USD billion, includes only financing from developed countries to developing countries.

Source	*Sub-source*	*Amount in 2014*
Public	Bilateral finance	23.1
	Multilateral climate change funds	2.0
	Multilateral Development Banks	18.0
	Specialised United Nations Bodies and other multilateral organisations	0.4
	Export credits	1.6
Private	Mobilised through bilateral channels	8.1
	Mobilised by MDBs	8.6
SUM	SUM	61.8

WRI has made four scenarios for the volume of climate finance in 2012. The public sources are sequenced in the order that WRI consider the most-to-least likely to be included in the definition of climate finance. The sequencing does not reflect any agreement of what count as climate finance. The scenarios used by WRI are as follow.

- Scenario 1: Developed country climate finance only (based on the countries' biennial reports to the UNFCCC)
- Scenario 2: Scenario 1 + leveraged private sector investment

- Scenario 3: Scenario 2 + multilateral development bank (MDB) climate finance (weighted by developed countries' capital share) + combined leveraged private sector investment
- Scenario 4: Scenario 3 + climate-related official development assistance (as compiled by the OECD, and adjusted for overlap with the country biennial reports).

Table 6: Climate finance in 2012 reported by WRI, in USD billion, for the medium assumption of leveraged private investments (low and high assumptions are omitted from the table for clarity).

Sector	*Scenario 1*	*Scenario 2*	*Scenario 3*	*Scenario 4*
Developed Country Climate Finance	17	17	17	17
Leveraged Private Sector Investment	.	21	42	42
Multilateral Development Bank Climate Finance	.	.	15	15
Climate-related official development assistance (ODA)	.	.	.	10
SUM	17	38	74	84

Notes: With the low assumption with respect to leveraged private capital, total climate finance of Scenario 4 amounts to 68 USD billion. Also, Developed Country Climate Finance and Climate-related ODA are mostly overlapping categories, as most of developed country climate finance counts as ODA.

In Scenario 3, the private investments represent 57% of total climate finance, In Scenario 4 private investments represent 50% of total climate finance. The shares are much higher than the shares reported by OECD. The sums of Scenarios 3 and 4 are reasonably close with estimate reported by OECD for the total climate finance from developed to developing countries. Both estimates fall short of the 100 USD billion goal.

9.2.2 Effectiveness of climate finance

Besides tracking climate finance dollars, there is increasing awareness about, and demand for, transparent, consistent and coherent approaches to measure, monitor and evaluate the results of international climate finance. If climate finance is to achieve its goal of being consistent with a low-emission and climate-resilient development pathway, it is crucial to understand how support is used, what works and what not, and why. This enhances the effective use of scarce resources, including through the replication of effective approaches.[180]

The main driver for estimating the use, impacts and results of climate finance has thus far been the need by climate finance providers to assess whether their scarce tax dollars are put to good use and indeed contribute to achieving the intended objectives relating to mitigation and adaptation. Recipient countries also benefit from the assessment and enhancement of effectiveness through improved decision-making and prioritisation of policies, realisation of benefits of effec-

[180] B. Buchner et al. (2012): Public Climate Finance: A Survey of Systems to Monitor and Evaluate Climate Finance Effectiveness. CPI Report. Available online at: http://climatepolicyinitiative.org/wp-content/uploads/2012/07/Public-Climate-Finance-Survey.pdf

tive policies, and access to further support as a transparent track record of well-spent climate finance dollars builds international trust.[181]

Despite the growing recognition of the need for transparent, consistent and coherent assessment of climate finance effectiveness, no common system or standard currently exists. Instead, recipients and providers of climate finance apply their own systems, some building on DAC Rio Markers.[182]

The development of common, transparent, consistent and comparable approaches to estimating the results of climate finance would benefit climate finance providers and recipients alike. Information on climate finance effectiveness would serve as valuable input for the global stocktake. The Paris Agreement calls for considering enhanced reporting by developing countries on the use, impacts and results of support received as part of the modalities, procedures and guidelines for transparency. However, it is unclear whether and when detailed UNFCCC guidance will be elaborated.

Methodologically, it may be challenging to estimate the results attributable to certain policy interventions or achieved under certain NDC types. The experience gained and methodologies developed under the Kyoto Protocol's CDM may be useful for estimating the emission reduction impact of supported climate actions at the project or programme scale.[183] The mechanism established under Article 6.4 of the Paris Agreement may also serve as a tool for measuring the mitigation outcomes of mitigation actions funded by climate finance.

According to a framework developed by the Overseas Development Institute (ODI) for analysing the effectiveness of climate finance, climate finance is unlikely to be effective unless it:

- works at a diversity of scales;
- strengthens underlying policy, regulations and governance;
- catalyses wider action, particularly private sector;
- supports innovation; and
- fosters national ownership.[184]

The framework can be used to assess different components of effective spending (mobilisation, governance, allocation, disbursement, and monitoring, evaluation and learning) and the effectiveness of the outcomes (scale, enabling environments, catalytic impacts and sustainability, innovation and national ownership). It has been applied to a number of multilateral climate finance funds. The study concluded that, while the effectiveness of climate fund activities was largely found to be positive, there was scope for further improvement by taking more risk, supporting innovation and national stakeholders, using the right types of finance for the appropriate purpose, creating incentives for new partnerships, and setting a high bar for the ambition of supported programmes and, last by not least, understanding impacts.[185] Effectiveness can also

[181] Discussions during the Global Forum on the Environment and Climate Change organised by the Climate Change Expert Group (CCXG) - March 2016. Summary available online at: http://www.oecd.org/environment/cc/Summary-Breakout-1-2-CCXG-March2016.pdf.

[182] S.Y. Zou & S. Ockeden (2016).What Enables Effective International Climate Finance in the Context of Development Co-operation? OECD Development Co-Operation Working Paper 28. Available online at: http://www.oecd-ilibrary.org/docserver/download/5jlwjg92n48x.pdf?expires=1473159538&id=id&accname=guest&checksum=66F34A268622940B75E2BDE1B4BFB8B0

[183] G. Briner & S. Moarif (2016): Unpacking Provisions Related to Transparency of Mitigation and Support in the Paris Agreement. Climate Change Expert Group Paper No. 2016(2). Available online at: http://www.oecd-ilibrary.org/docserver/download/5jlww004n6nq.pdf?expires=1473160374&id=id&accname=guest&checksum=D848CA1BB256B998E2AAF57E98E0BFE6

[184] S. Nakhooda (2013): The effectiveness of international climate finance. Working Paper 371. Overseas Development Institute (ODI). Available online at: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8344.pdf.

[185] S. Nakhooda et al. (2014): Climate finance: is it making a difference? A review of the effectiveness of Multilateral Climate Funds. ODI. Available online at: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9359.pdf.

be improved by promoting complementary efforts, coordination, simultaneous and sequential actions, and facilitation of lessons-sharing.[186]

9.2.3 Mobilisation of private investment

A key question in the context of climate finance is the roles of public and private finance, specifically how to leverage public capital with private investments. In short, the private sector will seek reasonable expected profits for their investments, taking risk and return into account. In unpredictable or unstable circumstances, the private sector values flexibility to adjust long-term investment strategies as a risk mitigation measure. Public funding can mobilize private sector finance to climate-friendly activities by helping to mitigate risks and/or boost revenues of such activities. To be effective, public interventions should avoid over-subsidisation and market distortions.

As shown in the previous subsection, the CPI, OECD and WRI have reported very different figures for the share of private investments of total climate finance. The large variability is attributable to different assumptions.

WRI[187] defines leverage as the total amount of private financing that is mobilized per dollar of public or quasi-public support and note that leverage may vary considerably across technologies, instruments and recipient countries. The UN High-level Advisory Group on Climate Change Financing estimates a leverage factor of between 3 and 4 of lending per paid-in resources. In their estimate of the volume of climate finance from private sources, WRI employs three leverage factors: 1.1, 1.6, and 3.0 for mitigation. For adaptation, the leverage factor applied by WRI varies between 0 and 1. In the estimate by WRI, it is specifically noted that the leverage factors for adaptation are “are simply assumptions, given the dearth of empirical data”. The question of using public capital to mobilise private investment is closely related to the question of what financing instruments to use in allocating public funds. In simplified terms, all financing fall into one of the following categories: equity, loans, guarantees and grants. In addition, there are results based payments, which are not a financing instrument as such, but which may be used to improve the expected cash flow of an activity, and thus enable it to attract equity.

Types of financing instruments

Equity: Equity is the shareholders’ contribution to company. Equity is typically not repayable. The shareholders get their revenues in form of dividend payments or by selling their shares. Equity is the most risky form of capital because shareholders are served only after all other claims and liabilities have been settled.

Debt: In contrast with equity, debt is repayable. Debt is always payable before equity and thus comes with less risk than equity. Typically, financing with debt is cheaper than financing with equity. There are many forms of debt. Senior debt is one form of debt. It is served before junior (or subordinate) debt.

Grants: Grants are provided upfront. Typically, there are is no repayment obligation nor any transfer of control.

Guarantees: Guarantees can be viewed as a form of indirect financing. Guarantees cover a portion of a loss for a lender in case of default. The guarantee may provide full coverage or be limited to some specific events.

Results-based payments: Results-based payments are not a financing instrument per se, but may be used to improve the cash flow of activities to enable to activities to attract both equity and debt.

[186] S.Y. Zou & S. Ockeden (2016).What Enables Effective International Climate Finance in the Context of Development Co-operation? OECD Development Co-Operation Working Paper 28. Available online at: http://www.oecd-ilibrary.org/docserver/download/5jlwjg92n48x.pdf?expires=1473159538&id=id&accname=guest&checksum=66F34A268622940B75E2BDE1B4BFB8B0

[187] M.I. Westphal, P. Canfin, A. Ballesteros,and J. Morgan (2015): Getting to $100 Billion: Climate Finance Scenarios and Projections to 2020. https://www.wri.org/sites/default/files/getting-to-100-billion-final.pdf

The following table shows a breakdown of global climate financing per financing instrument. The table includes also activities financed in developed countries. The table shows that public sector relies heavily on project-level loans; low-cost debt accounts for 69 billion USD (47% of public sector finance) and market rate debt accounts for 69 billion USD (39% of public sector finance). Grants account for 14 billion USD (10% of public sector finance). While the share of grants is comparatively low, they may have a higher leverage factor than loans. Risk management instruments, such as credit guarantees, account for 1 billion USD (1% of public funds). The private sector relies on a combination of balance sheet equity, which accounts for 175 billion USD (72% of private sector finance) and project-level market rate debt, accounts for 44 billion USD (18% of private sector finance).

Table 7: Breakdown of climate finance volumes in 2014 reported in CPI[188] per instrument in USD billion, including financing of activities in developed countries.

Category	*Sub-category*	*Public*	*Private*
Equity	Balance sheet financing	3	175
	Project level equity	2	23
Loan	Project-level low-cost debt	69	0
	Project level market rate debt	58	44
Grants	Grants	14	0
.	Risk management	1	0
SUM	SUM	147	242

At the centre of leveraging private capital is the question of who bears what risk. Normally, a project is financed with a combination of equity and loan. In many mitigation, and adaption activities especially, the problem is that cash flow is insufficient to generate sufficient return to own equity. The cash flow can be improved if the project obtains low-cost debt, through a concessional load or a credit guarantee, or if payments for environmental outcomes enter the as additional sources of income.

9.2.4 Challenges in climate finance tracking and reporting

The fundamental challenge of climate finance tracking is that there is no universal definition of what counts as "climate finance".[189] However, terminology is not the only issue hampering climate finance tracking. The World Resource Institute (WRI) held three workshops from March 2012 to February 2013 where they invited representatives of finance and climate-related government entities from Asia, Africa and Latin America. These workshops identified nine challenges in effectively monitoring climate finance:

- Inconsistent definitions and criteria to define climate finance
- Inconsistent markers, indicators, and codes to characterize financial data (e.g., by sector and activity)
- Insufficient institutional arrangements, including unclear roles and responsibilities of different ministries

[188] Climate Policy Initiative (2015): Global landscape of climate finance. http://climatepolicyinitiative.org/wp-content/uploads/2015/11/Global-Landscape-of-Climate-Finance-2015.pdf

[189] Watson, C., Nakhooda, S., Caravani, A. & Schalatek, L. 2012. " The practical challenges of monitoring climate finance: Insights from Climate Funds Update. *Climate Finance Policy Brief*. Available at: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7665.pdf

- Insufficient technical processes and systems to identify and record climate finance expenditures
- Lack of information on climate finance provided by non-governmental actors
- Lack of capacity to monitor different financial instruments
- Limitations on the availability of private financial data
- Lack of transparency and predictability on the part of development partners contributing climate finance
- Limited use by development partners of developing country national systems and different administrative requirements by each development partner.[190]

These points address multiple issues ranging from inconsistent definitions to the lack of data to the lack of capacity to monitor finances. This suggests that the issue in climate finance tracking is the system's incapability to gather essential information from both public and private sources in an efficient manner.

In order to expand on some of the most common challenges in climate finance tracking, in the following the challenges faced by three literature sources presented above in section 2.2.1 are discussed and compared. The following three tables present the challenges identified by each source for three categories of climate finance:

1. Official climate finance from developed countries to developing countries (ODA & non-ODA)
2. Multilateral Development Bank Climate Finance (MDB)
3. Leveraged Private Sector Investment.

Table 8. Official climate finance from developed countries to developing countries (ODA & non-ODA)

Literature source	Stated challenges
Climate Policy Initiative (CPI), *Global Landscape of Climate Finance 2015 (2015) & A Closer Look at the Landscape 2015 Methodology (2015)* [191]	• Geographical coverage differs between data sources. • Different exclusions from Climate Finance estimates further affect results. • Details on recipients is not consistently tracked and reported in all data sources causing gaps in knowledge.
World Resource Institute (WRI), *Getting to $100 Billion: Climate Finance Scenarios and Projections to 2020 (2015)*[192]	• Difficult to accurately assess how much is ultimately given as grants. Given funds can later be disbursed in other financing forms such as loans. • Information from different data sources is not always comparable.
Organization for Economic Co-operation and Development (OECD), *Climate Finance in 2013-14 and the USD 100 Billion Goal (2015)*[193]	• No universally accepted reporting methods or definitio on "Climate Finance". • Results vary between organizations. • Lack of details and danger of double counting.

[190] Tirpak, Dennis, Louise Brown, and Athena Ronquillo-Ballesteros. 2014. "Monitoring Climate Finance in Developing Countries: Challenges and Next Steps." Working Paper. Washington, DC: World Resources Institute. Available online at http://www.wri.org/sites/default/files/wri13_monitoringclimate_final_web.pdf.

[191] Buchner, B., Trabacchi, C., Mazza, F., Abramskiehn, D. and Wang, D. (2015) Global Landscape of Climate Finance 2015. Climate Policy Initiative. See also: CPI, A Closer Look at the Landscape 2015 Methodology (2015).

[192] Westphal, M., Canfin, P., Ballesteros, A., and Morgan, J. (2015). Getting to $100 Billion: Climate Finance Scenarios and Projections to 2020.World Resources Institute.

[193] OECD (2015), "Climate finance in 2013-14 and the USD 100 billion goal", a report by the Organisation for Economic Co-operation and Development (OECD) in collaboration with Climate Policy Initiative (CPI).

Different sources of climate finance data give different results on the overall volume of finance. This is because they use, *inter alia*, varying definitions, exclusions and different geographical coverage. While this is not necessarily an issue when the data sources are clearly stated, it does create the risk of making the results incomparable.

Another issue identified by all three assessed literature sources are gaps in knowledge. Even meticulously tracked and gathered data can potentially have limited information on the recipients and on how the money is ultimately disbursed. Following how the money is disbursed is crucial for climate finance tracking, but this can be a challenge as financial instruments used can change during the course of the financing process, e.g. from a developed country governmental budget to a Multilateral Development Bank, which disburses the money to a developing country. If a part of the finance given as grant by the developed country is then later disbursed via a different financial instrument, such as a loan, it might become increasingly challenging to track climate finance and the actual amount given through each financial instrument. The other previously identified issue with gaps in knowledge is that there does not always seem to be enough information gathered on the recipients of finance. Generally, sources of finance are better tracked than the exact recipients. This causes challenges in reporting finance given and received under the Paris Agreement.

Both of these issues increase the risk of double counting. If the data from different sources is not easily comparable, there is a change that this could lead to false results. Any possible gaps in data can create increased uncertainty which in turn hampers any actions to avoid double counting.

Table 9. Multilateral Development Bank Climate Finance (MDB)

Literature source	Stated challenges
Climate Policy Initiative (2015)	Data gathered from the group of MDBs reflects their process-based approach to adaptation finance tracking. This approach can have differences to other methods.
World Resource Institute (2015)	Not all of MDB's climate finance can be attributed to the developed countries as developing countries also fund the MDBs.
Organization for Economic Co-operation and Development (2015)	The complex structure of the MDBs make it challenging to define how much of the finances can be attributed to the developed countries.

Unlike the official climate finance from developed countries to developing countries, the issue with MDB finance is not the availability of data, but rather the complex structure of the MDBs. Both developed and developing countries finance MDBs. Development banks use their capital in multiple ways to advance their climate policies, such as leveraging additional financing from the private sector. It is therefore challenging to say how much of the MDB climate finance could be attributed to the developed countries.

Depending on the source, tracking and calculating adaptation finance can vary. Some MDBs and the members of the International Development Finance Club have established "Common Principles for Tracking Adaptation Finance" which provides guidelines for adaptation tracking. OECD Development Assistance Committee (OECD DAC) has also been refining the Rio Mark-

ers to reflect the MDBs' principles.[194] However, this further illustrates the issue of having multiple different markers in use. While MDBs can potentially offer a significant amount of data, its usability might be lessened if the markers are not easily comparable.

Table 10. Leveraged Private Sector Investment

Source	Challenges
Climate Policy Initiative (2015)	Details on recipients is not consistently tracked and reported in all data sources causing gaps in knowledge.
World Resource Institute (2015)	Calculating leverage is challenging and the data on leverage factors is limited. Mostly done for mitigation projects, little on adaptation. Also, depending on the methods used, analysis may vary, e.g. some include mobilised public finance.
Organization for Economic Co-operation and Development (2015)	Limited amount of data available with limited coverage.

9.2.4 Challenges in tracking private finance flows

Monitoring private finance is perhaps the greatest challenge in climate finance tracking. It is very challenging to accurately state how much private money has been leveraged by public funding. The idea behind leveraging private investments by using public money is to attract investments from private individuals and organisations in projects that would otherwise not have received private funding or would not have existed at all. However, the issue is that it is challenging to say how much of these investments would have been made regardless of the project receiving public funding. Also, calculating factors for the actual leveraging effect can be difficult.

The biggest issue with monitoring leveraged private sector finance is the risk of double counting. If a project is funded by more than one public source, there is a chance that the project's private investments are reported as mobilised private funding by multiple sources. There are incentives for all the public sources (e.g. different countries) involved to state that the private capital was leveraged through their own funding commitment. If this is done more than once, it creates the issue of double counting in total leveraged finance.

The private sector is a large network of varying organisations and individuals that do not have all of the same reporting responsibilities as public financing sources. Individuals and non-governmental institutions have a range of freedom that allows them to invest without as scrupulous monitoring as with public finances. Additional information on climate related private investments could help with the issue of double counting. However, gaining this information could prove to be a significant challenge.

The international community has gained significant experience with leveraging private investments to mitigation projects and programmes under the Kyoto Protocol's Clean Development Mechanism (CDM).[195] Under the CDM, governments purchased emission reduction credits from projects that reduce emissions beyond baseline levels, thereby boosting the bankability of mitigation activities. The 7,731 projects registered under CDM to date represent over 420 billion

[194] Buchner, B., Trabacchi, C., et al. (2015) Global Landscape of Climate Finance 2015. Climate Policy Initiative. See also: CPI, A Closer Look at the Landscape 2015 Methodology (2015).

[195] Note: While the public funding used to purchase CDM credits does not qualify as climate finance to the extent these credits are used by the buyer for their UN compliance, the private finance leveraged for the underlying project is of interest in this context. Also, if these credits are cancelled, such CDM payments qualify as a results-based climate finance.

USD of (mostly private) investment.[196] On average, each public dollar used to purchase CDM credits has mobilised 10 USD of private sector investment in the underlying mitigation project.[197]

9.2.5 How should climate finance be tracked?

Overall, there are many different parties in the field of climate finance including both sources and receivers, some with different strategic incentives that cause separation in tracking methods. This leads to the main challenges for climate finance tracking, which are, as shown above, the lack of common methodology and overall capacity. This could be remedied by agreeing on a globally harmonised methodology for marking and tracking climate-related finance. By having a similar unified methodology for finance, all finances could potentially be marked in a way that allows for easier tracking of multiple different instruments and their receivers. This would produce invaluable data that in turn would aid future financing. However, creating parameters that would work in all cases is a challenge as climate related projects and their funding vary greatly. Therefore there still is not a clear definition what is and what is not within the area of climate finance.

However, despite the challenges there have been attempts to address the issue. For instance, based on the feedback and ideas of the countries participating in the workshops, WRI is developing an Initial Good Practice Guidance which would provide a suggestions for a definition of climate finance, common indicators, markers, criteria, and principles. The work will be published online and is expected to evolve with time and experience.[198]
There are also other similar initiatives, such as the one involving the World Bank. In 2015 more than two dozen of the world's largest development finance institutions agreed upon common set of principles regarding climate finance tracking. The issue with this is that the principles only cover mitigation actions and are not yet applicable for leveraged private financing.[199] While this can be seen as a definite step forward, it is not yet at the level that it could cover the needs previously presented here.

9.3. Finland's role in the global climate finance landscape

In the following the role of the public sector and the private sector of Finland is discussed.

9.3.1 Public sector

Public funding is provided through a number of sources. In the following a selection of these sources is presented.

Development Aid (Ministry for Foreign Affairs of Finland)[200]

Mitigation and adaptation have a central role in many of the activities that fall under Finland's Official Development Assistance[201]. Finland uses the so-called Rio markers to track mitigation and adaptation-related finance of ODA contributions. In estimating total contributions to climate

[196] UNEP DTU CDM/JI Pipeline Analysis and Database, updated 1 August 2016. Available online at http://www.cdmpipeline.org.

[197] UNFCCC, 2014. "CDM Fact Sheet Leveraging private finance, delivering verified results." Available online at http://newsroom.unfccc.int/media/159267/cdm-leveraging-private-finance-and-delivering-results.pdf.

[198] Tirpak, Dennis, Louise Brown, and Athena Ronquillo-Ballesteros. 2014. "Monitoring Climate Finance in Developing Countries: Challenges and Next Steps." Working Paper. Washington, DC: World Resources Institute. Available online at http://www.wri.org/sites/default/files/wri13_monitoringclimate_final_web.pdf.

[199] The World Bank, Developing Common Principles for Tracking Climate Finance. Available online at: http://www.worldbank.org/en/news/feature/2015/04/03/common-principles-for-tracking-climate-finance

[200] Based on interview of Johanna Pietikäinen, Ministry for Foreign Affairs.

[201] http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/fi_br2_tk_20151217_final.pdf

finance, individual activities are given weights between 10% and 100%, based on whether mitigation or adaptation is the principle objective or a significant objective.

Climate-related financing that fall under ODA are exclusively distributed in the form of grants. The financing channels and instruments are very similar to those employed by other donor countries. Finland does not estimate nor report the volumes of leveraged private finance, however, some specific examples have been given as part of the national reports to the UNFCCC. Finland used to employ an interest subsidy instrument, as part of official development aid. However, its use has been suspended.[202] In practice, aid will still be channelled through this instrument under the existing loan agreements for some years in to the future.

Bilateral co-operation projects account for about a half of the climate related ODA funding, though there are yearly variation[203]. An example of energy related mitigation activity is the Energy and Environment Partnership (EEP) project, which began in Central America in 2003 and has since been replicated in the Mekong region, southern and eastern Africa, Indonesia and the Andes. An example of an adaptation activity is the co-operation between the Finnish Meteorological Institute (FMI) and the South Pacific Regional Environmental Programme (SPREP) and the Pacific national meteorological services since 2009.

A recent development in Finnish development aid are the large cuts to the development aid budget. These cuts were announced by the government elected in 2015. In addition, a part of the grant based development aid budget will be transformed into loans for financial investments, among others, for capitalising Finnfund.

Finnfund[204]

The Finnish Fund for Industrial Cooperation (Finnfund) is a state-owned company that finances projects in developing countries. The available financing instruments include equity, loans and guarantees. Currently, equity and loans are utilised to equal extents. Grants are used seldom. Finnfund's loans have an average maturity of 6-8 years, some have a maturity in excess of 10 years. Finnfund always finances certain identifiable projects. Both Greenfield and capacity expansions are eligible. Finnfund can never be the sole investor, there must always be other sources of equity.

Finnfund makes investments on market-based terms. However, Finnfund operates in capital-constrained markets. Finnfund makes investments on market-based terms. However, Finnfund operates in capital-constrained markets. Even if there are sufficient funds for providing equity in these markets there may not be access to debts. Many markets in which Finnfund operates may seem challenging for commercial bank because of the political risk. The mandate of Finnfund does not allow first-loss arrangements. Naturally, with equity investments, Finnfund bears a higher risk than the lenders (jointly with the other equity investors).

For comparison, Denmark is experimenting with public-private partnership model between the Danish government and pension funds under the Danish Climate Investment Fund, the objective of which has been to leverage public money by creating a structure that is attractive for pension funds. In the model, the Danish government will forgo returns until private investors have received a six per cent return on their investments.[205] Typically there are severe limitations

[202] See subsection on Finnvera for details on the interest subsidy instrument that Finland have employed.

[203] http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/fi_br2_tk_20151217_final.pdf

[204] Based on interview of Hanna Skelly, Finnfund.

[205] http://www.businessgreen.com/bg/interview/2335501/pensiondanmark-chief-how-to-plug-the-billion-dollar-climate-finance-gap

to the investment strategies of pension funds. This type of arrangements may alleviate those limitations.

According to Finnfund, small projects, i.e. projects with a total funding requirement of 0.5-1 EUR million, are at a disadvantage because of disproportionally large transaction costs. Small projects face the same due diligence requirements as large projects.

Finnvera[206]

Finnvera is an official Export Credit Agency (ECA). The State of Finland is responsible for all guarantees issued by Finnvera. Credits issues by Finnvera cover some 4% of Finnish exports. The main instrument employed by Finnvera is buyer credit guarantee (in 90% of all cases), in which Finnvera guarantees the loan taken by the buyer, loan is given by a commercial bank. As a consequence of the financial crises and stricter bank requirements, obtaining loans in some markets have become more challenging. As a consequence, Finnvera also arranges loans. Finnvera borrows the money from the market and lends it though commercial banks. The loan comes coupled with an export credit from Finnvera.

Finnvera operates within the OECD Arrangement on Export Credits, which regulates, among others, the minimum premiums rates (i.e. the price of the export credit). EU has implemented the agreement into law. Finnvera bases the premium on the risk of default. However, mitigation and adaption projects may be given a longer credit period, e.g. 18 years instead of 12 years. The longer loan maturity extends the horizon over which the profitability of the project is assessed.
That a public entity in Finland would pay the premium for the export credit is not permitted. However, paying the premium with from funds classified as ODA is possible. Finland has a long history, dating back to the 80s, of an interest subsidy instrument. Currently the use of the instrument is suspended.[207] There are plans within the government of reinstating the instrument. The use of development aid to pay for credit premiums is regulated in the OECD Arrangement on Export Credits. The objective of these regulations is to prevent governments from using development aid for subsidising exports.

Related to export credits, recently, the participants to the OECD Arrangement on Officially Supported Export Credits agreed on restrictions on official export credits for the least efficient coal-fired power plants, effectively removing support for large super and sub-critical coal-fired power plants.[208] This decision is a clear signal from export credit providers to financiers on the type of technology that is preferred.

Finnpartnership[209]

Finnpartnership is a programme the purpose of which is to promote business partnerships between Finnish companies and those in developing countries. While elements of mitigation and adaptation are present in many projects supported by Finnpartnership, promoting mitigation and adaptation are not part of the primary mandate. The share of projects that have mitigation elements is between 4-10 % depending on whether mitigation is a primary objective, secondary objective or a co-benefit. Prominent examples of projects with a strong mitigation element are waste-to-energy projects and projects related to the production of biofuels.

[206] Based on interview of Pekka Karkovirta, Finnvera.

[207] http://formin.finland.fi/public/download.aspx?ID=155769&GUID=%7BDC4ACCCD-AC7C-4CCD-8AB2-91B88692BE61%7D

[208] http://www.oecd.org/newsroom/statement-from-participants-to-the-arrangement-on-officially-supported-export-credits.htm

[209] Based on interview of Siv Ahlberg, Finnpartnership

Finnpartnership provides grants to cover costs, among others, for capacity building, feasibility studies and impact assessments. The grant covers 30/50/70/85 % of the expenses, depending on the size of the applicant and the target country. Grants may also be provided for financing pilot projects (for a maximum amount of 400,000 euros) and for training of employees of the company located in the developing country. All grants are provided ex-post based on accrued and approved expenses. Depending on the type of project, the grant may qualify as climate finance directed from a developed country for the benefit of a developing country.

Finnpartnership operates in markets that may be viewed as challenging for many Finnish companies. Thus, it is believed that the project that it finances are additional, in the sense that they would not have been implemented in a business as usual scenario.

9.3.2 Private sector

Commercial bank operating on the financial market (Nordea) [210]

Nordea's involvement in climate finance is mainly through green bonds. Nordea has facilitated the issuance of bonds for its customers in Norway and Denmark as well as for international banks, as EIB, KfW and African Development Bank. However, a large of share of these bonds are used to finance investments is developed countries, and thus do not count as climate finance for the benefit of developing countries.

In addition to green bonds, Nordea manages funds that invest in equity in developing markets, such as Emerging Stars that invests in listed stocks. Part of this activity may count as climate finance.

Of Nordea's lending to large corporations, it is not possible to say what counts as climate finance. The distinction is easier to make for project finance activities, such as investment in wind power or other projects with a clear climate benefit.

Currently green bonds make up 1% of the bond market. It would be preferable that the green bonds would be a transitory instrument and that in the long run all bonds should satisfy certain green requirements. From the market perspective, in Europe (and in Finland especially), the bottleneck is the lack of green assets. Another bottleneck is the financing need, which should be in excess of 100 EUR million if financed by issuance of a bond.

Currently, no premium is paid for green bonds. The bond price is determined solely by the creditworthiness of the issuer. From the perspective of the financial markets a green bond that relies on a subsidy comes with a political risk. Investors dislike political risk. The questions is what happens if the subsidy is withdrawn within the maturity of the bond? It would be better to address the problem of GHG emissions through the energy market by pricing CO2 emissions. From the perspective of pension funds the problem is that they are expected to produce a certain yield, which cannot be compromised on arguments of the investment being green.

An example of a non-market based instrument to promote green investments is the requirement in France of large corporations to publish their carbon footprints, In the long run, this may steer investors to more green assets.

[210] Based on interview of Aila Aho, Nordea

Finnish pension fund

Pension funds manage large asset portfolios on behalf of their customers (employees, current and future pensioners). Finnish law requires that the investment activity undertaken by the pension funds must be profitable and secure. Pension funds may be involved in climate finance through different channels. Below are presented two.

First, through investments in listed stocks of companies whose business model contain mitigation or adaption elements. Some of these firms may grow faster than the market, and as such may be good investments candidates.

Second, through investment in green bonds. However, the bonds must be financially sound. A perceived problem with the current green bond market is the lack of standardisation. Certifications vary, some green bonds are not certified at all. Some bonds identify the specific projects, some just identify the type projects that will be financed. There are also examples of refinance of existing assets with green bonds. If for whatever reason, a requirement was establish that institutional investors must hold a certain share of green bonds, the questions arise if the current supply of green bonds is sufficient (pension funds can only invest in existing assets).

Denmark's experiment with a public-private partnership model between the government and pension funds is interesting. However, the primary objective, the solvency of the pension, must not be jeopardised. In such a public-private partnership model, the question arises that what more efficient, that the government money is given directly or that it is coupled with money from pension funds.

9.4 Conclusions on climate finance

Quantifying the amount of climate finance from public and private sources comes with a number caveats. The first caveat is the lack of a shared view of what constitute climate finance. Parties to the Paris Agreement may have an interest to promote different definitions of climate finance; developed countries may have an incentive to push for a broad definition for what is counted towards the $100 billion goal, and the countries that receive finance may wish that the money would be only public finance. The second caveat is that the amount and the type of finance from public sources is dependent on when and at which point it is measured, e.g. whether it is the capital to an IFI that is measured or whether it is the loans granted by the IFI that are measured. The third caveat is that amount of private capital is very much dependent on what leverage ratios are assumed. Even with unambiguous definition of climate finance, there is no exact way of estimating the leveraged private investment, because the amount of private investment that would take place in the absence of the public financing is not known. The fourth caveat is that there is real risk of double counting, or even triple counting, of the leveraged private investment if a project receives public funding from more than one source because it may be in the interest of all public financers to take credit of the leveraged private investment.

In line with the international trend, current climate finance from public sources in Finland cover the whole spectrum of financing instruments, equity, loans, grants and guarantees. Climate finance that fall under ODA is delivered exclusively in the form of grants, and per definition is not repayable. Finnfund provides both equity and debt. Finnpartnership provides grants to cover a part of expenses for projects that promote partnership between Finnish companies and companies located in developing countries. Finnvera provides guarantees, mainly in the form of buyer credit guarantees. A defining feature of the financing provided by Finnfund and Finnvera is that leeway with respect to the terms of the financing is severely restricted by their mandate.

Finnfund makes investments on market-based terms. Its mandate does not allow for first-loss structures. Finnvera, on the other hand, are obliged to comply with the OECD Arrangement on Export Credits, which sets a minimum levels, among others, for the premium rates. That a public entity in Finland would pay the premium is not permitted.

Finnish pension funds manage large asset portfolios on behalf of their customers, and are as such a potential source for private climate finance. However, as with Finnfund and Finnvera, their leeway with respect to the terms of the financing is severely restricted by their mandate. Finnish law requires that the investment activity undertaken by the pension funds must be profitable and secure.

Public climate finance, whether for mitigation or adaptation, is a market intervention. A market intervention seeks to correct a market failure. The question in what form public finance should be provided is closely related to the question of what the market failure is. The market failure may be related to the lack of a market for the environmental outcome that the projects generate or to an imperfect capital market. In case of an imperfect capital market, guarantees given by a creditworthy counterparty may be a very effective. An area where Finland could possibly contribute is the public-private partnerships pioneered by the Danish Government, by guaranteeing pension funds and other private investors a predetermined return on their investment. Another field on which Finland could contribute is in the financing of projects with a total funding requirement of 0.5-1 EUR million. These projects are typically at a disadvantage because of disproportionally large transaction costs. The transaction costs could be reduced by streamlining of the financing process.

10. Land use and forestry

The Paris Agreement contains a stand-alone article on forests. Furthermore, the main outcome in Article 5 of the Paris Agreement forces the international community to look beyond forest carbon long associated with REDD+ and climate change negotiations, and recognize the significance forests play in also adapting to climate change and providing non-carbon benefits. In this report, the focus is on tropical forests and forestry.

Stopping deforestation with a tropical focus was officially included in the UNFCCC agenda at COP 11 in Montreal in 2005 with the introduction of Reducing emissions from Deforestation (RED). As the UNFCCC negotiations developed so did the scope and ambition of stopping deforestation. In the Bali Action Plan (COP 13), the '+' was added, emphasizing the conservation and sustainable management of forests, and the enhancement of carbon stocks.

Thereafter, the COP addressed methodological issues in Copenhagen (COP 15), established definitions of the five REDD+ activities[211] and FRELs/RELs in Cancun (COP 16), and adopted the "Framework for REDD+" in Warsaw (COP 19) in 2013. The Warsaw REDD+ Framework includes five main points:

- the work program on results-based financing
- coordination of support for implementation (e.g. institutional arrangements)
- modalities for country level forest monitoring systems

211 Decision 1/CP.16 (2010), paragraph 70, in the COP defines REDD+ activities as: a) reducing emissions from deforestation; b) reducing emissions from forest degradation; c) conservation of forest carbon stocks; d) sustainable management of forests; and e) enhancement of forest carbon stocks.

- guidelines and procedures for the technical assessment of Forest Reference Emission Levels and/or Forest Reference Levels (FRELs/FRLs)
- modalities for Monitoring, Reporting and Verification (MRV).

The Warsaw Framework for REDD+ completed what was needed for an international agreement to implement policy approaches and positive incentives for activities in relation to REDD+. The Paris Agreement reinforces the significance of the Warsaw Framework for REDD+ beyond 2020.

The IPCC recently confirmed in the Fifth Assessment Report[212] (AR5) that tropical deforestation and forest degradation represent 'the largest and most variable single contributor' to emissions from land use change and that the 'AFOLU (Agriculture, Forestry and Other Land Use) sector accounts for about a quarter[213] of net anthropogenic GHG emissions mainly from deforestation, agricultural emissions from soil and nutrient management and livestock'. Therefore the Paris Agreement, with its specific inclusion on forests and ecosystems in Article 5, will continue to facilitate the momentum needed to address one of the largest and most complex sectors contributing to climate change.

10.1 Tasks related to the implementation of the Paris Agreement regarding land use and forestry

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 5.1

Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in Article 4, paragraph 1(d), of the Convention, including forests.

Article 5.2

Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the Convention for: policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches.

Decision 1/CP.21, paragraph 54

Recognizes the importance of adequate and predictable financial resources, including for results-based payments, as appropriate, for the implementation of policy approaches and positive incentives for reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks; as well as alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests; while reaffirming the importance of non-carbon benefits associated with such approaches; encouraging the coordination of support from, inter alia, public and private, bilateral and multilateral sources, such as the Green Climate Fund, and alternative sources in accordance with relevant decisions by the Conference of the Parties.

212 IPCC. (2013). Climate Change 2013: The Physical Science Basis. Fifth Assessment Report of the Intergovernmental Panel on Climate Change. (Vol. I). Cambridge, New York: Cambridge University Press, p. 50

213 ~10 – 2 Gt $CO2_{eq}$/year

Article 5.1 of the Paris Agreement addresses the scope of the agreement through reference to Article 4 Paragraph 1 (d) of the Convention, providing that:

> *All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall (d) Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems.*

The reference to Convention Article 4.1(d) has important implications for the scope of the Paris Agreement through the inclusion of biomass, forests and oceans, as well as specific reference to ecosystems. It brings oceans and coastal and marine ecosystems within the scope of Article 5 of the Paris Agreement, moving its scope beyond land and forests to encompass the biosphere.

The Paris Agreement references the Warsaw Framework for REDD+ as well as related guidance and decisions by the COP. It also recognizes alternative policy approaches, such as Joint Mitigation and Adaptation (JMA), and the importance of incentivizing non-carbon benefits.[214] No direct reference to agriculture is made in the Paris Agreement or included in Article 5.

The Paris Decision does not include a separate section on forest issues, but REDD+ and forests are recognised under the Finance section which mentions the importance of adequate and predictable finance, including for results based payments to support REDD+ and forests. The relevant paragraph 54 refers to the GCF as a possible source of finance along with bilateral, multilateral, public and private as well as alternative sources consistent with COP decisions. The issue of markets is not mentioned in paragraph 54 of the Paris Decision, though all the activities of the Warsaw REDD+ Framework are referenced. The paragraph refers to “alternative approaches in accordance with relevant decisions of the COP”. Market based and non-market based approaches are distinguished and referenced in relation to REDD+ finance under the Warsaw REDD+ Framework, 13/CP.19 and 14/CP.19. Therefore, Paragraph 54 leaves open the future option to consider markets for REDD+, but provides no further clarity on it. The use of markets for reducing land based emissions through results-based payments has come under intense scrutiny in recent years, and has been a dividing feature in the climate change negotiations.

Paragraph 54 of the Paris Decision is in alignment with the second paragraph of Article 5 of the Paris Agreement, which reinforces the role of the Warsaw Framework for REDD+. However, paragraph 54 is not aligned with Article 5.1 as the scope of the first paragraph is very broad and goes beyond the Warsaw Framework on REDD+ to include oceans as well as marine and coastal ecosystems. Discussions on the role of coastal ecosystems, also known as “blue carbon”, have taken place recently under the SBSTA, however no decisions have resulted, as the science is yet to catch up with the policy.

Key features of the item

One of the key features of Article 5.2 the Paris Agreement is that it reinforces the significance of the Warsaw Framework for REDD+ and ensures the continuity and priority of halting deforestation and forest degradation and enhancing carbon stocks, up to and beyond 2020. The role of

[214] Article 5.2 of the Paris Agreement

forests, ecosystems and approaches to conserve and manage them is further elevated because they are placed in their own stand-alone article, separate from mitigation and adaptation.

Article 5 of the Paris Agreement recognises an additional role for forests and specifically refers to Joint Mitigation and Adaptation (JMA) approaches for the integral and sustainable management of forests, while reaffirming the importance of associated non-carbon benefits. It can be argued that Article 5 of the Paris Agreement provides a full range of ecosystem options for both mitigation and adaptation. Prior to the Agreement, the role of adaptation was recognized, but it was seen as a "co-benefit" of a mitigation, rather than a strategic action to optimize the potential benefits from ecosystems. By recognizing the equal contribution of both mitigation and adaptation, the Paris Agreement makes it more likely that both benefits will be monitored and measured.

For example, countries with dry forests that provide important ecosystem services and livelihood benefits generally enjoy limited benefits under REDD+ as a mitigation instrument because their carbon stocks are limited. To illustrate the point, one can take the IPCC AFOLU Guidance (2006) default factors assigning the above ground biomass in forests (Tonnes dry mass per hectare) (Table 4.7 in the IPCC Guidance 2006). For the countries in the tropical domain, the ecological zones of tropical rain forest are compared with tropical dry forest for Asia (insular). In Asia's tropical forests, the IPCC lists that above ground biomass in forests is somewhere between 280-520 tonnes of dry mass per hectare, while in tropical dry forests in Asia (insular), it is significantly less with above ground biomass listed as 160 tonnes of dry mass per hectare.

Under a scheme for payments of results for REDD+, dry forests, and low carbon forests, yield limited revenue from carbon payments and therefore are less attractive to support. However, these types of dry forests with low carbon stocks are also under threat from degradation and deforestation. Also under threat are the livelihoods and other non-carbon benefits (such as non-timber forest products: roots, bark, mushrooms etc.) that they support. By going beyond the mitigation role which measures carbon, and assigning an equal recognition on adaptation, it is likely that dry forests and forests with naturally low carbon stocks will also benefit from the implementation of Article 5 of the Paris Agreement and the accompanying support that can be directed through both mitigation and adaptation. There are many other examples where the logic of joint mitigation and adaptation can be applied, however that is not the focus of this paper.

To be able to deliver mitigation, adaptation and non-carbon benefits from forests, climate financing will be needed. Paragraph 54 of the Paris Decision is central to the success of ensuring a future for the world's forests. The reference to the different types of financing options and approaches, which can be applied for REDD+, JMA and sustaining forests, is broad.
The UNEP (2011) estimated that approximately US$64 billion is invested in forests annually, of which 28% is spent on forest management and the remainder is invested in forest product processing and trade. The report estimated that an additional investment of US$40 billion per year is needed for reforestation and to incentivize landholders to conserve their forests. The World Bank also recognized the gap between what needs to be done to sustain the world's forests and the scale of financing needed to achieve the objective. A recent PROFOR publication *Private Financing for Sustainable Forest Management and Forest Products in Developing Countries – Trends and Drivers*, noted, "Sustainable forest management needs between US$70 billion and US$160 billion each year to be implemented properly. But official development assistance to forestry only covers about 1% of the estimated total financing need" (see Castren et al 2014).

Section 3.3 discusses how Finland has become a globally respected powerhouse for knowledge on sustainable forest management, and how Finland has already transformed the forestry prac-

tices of many of its recipient countries through long-term bilateral assistance directed at implementing sustainable forest management. Given the notable cuts to the official development budget, the unforeseen advantages that many of the countries engaging in REDD+ and benefiting from Finnish aid would suggest that continuing to support forestry through bilateral development cooperation, and through other means, would be a strategic priority, and future efforts could also integrate the role of adaptation in these programs.

Scope of work programme

Decisions adopted by COP 21 in Paris provide further clarity on the Warsaw Framework for REDD+, noting that with respect to methodological guidance under the SBSTA, the work program was concluded. Decision 16/CP.21 decided to conclude the consideration of alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, in the context of decision 1/CP.18, paragraph 39.
Decision 17/CP.21 decided that there is no need for further guidance pursuant to decision 12/CP.17, paragraph 6, to ensure transparency, consistency, comprehensiveness and effectiveness when informing on how all the safeguards are being addressed and respected. Decision 18/CP.21 noted that the SBSTA agreed to conclude its work on methodological issues related to non-carbon benefits from the implementation of the activities referred to in decision 1/CP.16, paragraph 70.

These above decisions reinforce the completeness of the Warsaw Framework for REDD+ as the first international arrangement on how to address deforestation forest degradation as well as conserve, enhance and sustain forest resources.

The main remaining issue for REDD+ and for the implementation of the Paris Agreement relates to finance. As part of the Warsaw REDD+ Framework, a work programme on results-based finance to progress the full implementation of the REDD+ activities were agreed under the COP decision 9/CP.19. The decision, among other things reaffirmed that results-based finance may come from a wide variety of sources, including public and private, bilateral and multilateral, including alternative sources, and including the Green Climate Fund. The decision requested the Standing Committee on Finance to consider the issue of financing for forests in its work on coherence and coordination.

The Standing Committee on Finance considers the coherence and coordination of forest finance. It has been charged with preparing recommendations for COP 22, including draft guidelines to the operating entities of the Financial Mechanism. Coinciding with the Bonn Intersessional in May 2016, the Standing Committee organized a side event for “enhancing coherence and coordination for forest finance” to take stock on, and exchange views and information on forest finance, including results-based payments. Presentations were made by the GCF, which is yet to operationalize payments for results, as well as UN-REDD, UNFF, Nicaragua and CONAFOR from Mexico.

A Finnish Government representative is the Co-chair and member to the Standing Committee on Finance, which is already a good example on how Finland is contributing to the implementation of the work programme.

There is further opportunity for Finland to showcase its successes with engaging and facilitating private public partnerships that can contribute to sustaining the world’s forests. Headquartered in Finland, the Nordic Climate Facility (NCF) finances projects that have a potential to combat climate change and reduce poverty in low-income countries. The Facility is financed by the Nordic Development Fund (NDF). NCF promotes technological innovation in areas susceptible to

climate change such as: energy, transport, water and sanitation, health, agriculture, and forestry and other areas related to natural resource management. NCF provides co-financing in the form of grants that can function as seed funding for the best proposals submitted. A requirement is that the recipient has own means to put forward for the project.

Links with other programmes

The work on forests for climate change are linked with other programs. Firstly, many developing countries reference forests (and agriculture) either in adaptation and/or mitigation in their INDCs. However there are also numerous INDCs that do not include estimations of emissions or removals for the land sector in their INDCs. According to FAO (2016[215]) *The Agriculture Sectors in INDCs: Analysis*, 94% of the 188 INDCs submitted include the agriculture sector in their mitigation and/or adaptation contributions. The report also found that 80% of countries pointed to agriculture and/or the LULUCF sector as a means of mitigating climate change. Developing countries put a strong emphasis on the agriculture sectors in their contributions, for example, 92% of countries from sub-Saharan Africa refer to these sectors under mitigation contributions. Countries rarely included quantified sector specific targets for agriculture and/or LULUCF. However, many countries included sector specific actions for agriculture and LULUCF (policies and measures). 130 INDCs included an adaptation section in their submission. Of this, 95% referred to crops and livestock, and 83% referred to the role of forests in adapting to climate change.

Forests will play a key role in at least 50 INDCs from developing countries, and that as the implementation of the Paris Agreement furthers its work, many issues will require clarity on how to apply and report on contributions to the Paris Agreement based on the INDCs. Agriculture, not being mentioned in the Paris Agreement, but featuring extensively in developing country INDCs will certainly be a point for further work and clarity, however linkages for agriculture, outside the references in the preamble to food security, are not mentioned in the Paris Agreement.

As presented above, there is now a strong linkage between the work program on forests and the Finance Mechanism. Further clarity, in the form of recommendations will be presented at COP 22.

There are two areas in the Paris Agreement with direct implications for the accounting of emissions and removals from land and forestry. These are Article 4 and Article 13 of the Paris Agreement. In addition, the Paragraph 31 of the Paris Decision requests the *Ad Hoc* Working Group on the Paris Agreement (APA) to elaborate guidance for accounting for Parties NDCs.

10.2 Tasks related to accounting of land use and forestry emissions and sinks

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 4.13

Parties shall account for their [NDCs]. In accounting for anthropogenic emissions and removals corresponding to their [NDCs], Parties shall promote environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting, in accordance with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.

In the context of their [NDCs], when recognizing and implementing mitigation

[215] FAO (2016) *The Agriculture Sectors in INDCs: Analysis. http://www.fao.org/3/a-i5687e.pdf*

actions with respect to anthropogenic emissions and removals, Parties should take into account, as appropriate, existing methods and guidance under the Convention, in the light of the provisions of paragraph 13 of this Article.

Article 13.7 (a)

Each Party shall regularly provide the following information:

(a) A national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases, prepared using good practice methodologies accepted by the Intergovernmental Panel on Climate Change and agreed upon by the Conference of the Parties serving as the meeting of the Parties to this Agreement;

Decision 1/CP.21, paragraph 31

Requests the [APA] to elaborate, drawing from approaches established under the Convention and its related legal instruments as appropriate, guidance for accounting for Parties' [NDCs], as referred to in Article 4, paragraph 13, of the Agreement, for consideration and adoption by the [CMA] at its first session, which ensures that:

(a) Parties account for anthropogenic emissions and removals in accordance with methodologies and common metrics assessed by the Intergovernmental Panel on Climate Change and adopted by the [CMA];

(b) Parties ensure methodological consistency, including on baselines, between the communication and implementation of [NDCs];

(c) Parties strive to include all categories of anthropogenic emissions or removals in their [NDCs] and, once a source, sink or activity is included, continue to include it;

(d) Parties shall provide an explanation of why any categories of anthropogenic emissions or removals are excluded.

Article 4.13 of the Paris Agreement is directed at all Parties. It references existing methods and guidance under the Convention. The methods and guidance already exist under the Convention because they are in relation to national GHG inventories, National Forest Monitoring Systems and the development of Forest Reference Emission Levels/ Forest Reference Levels. This is referring to the Good Practice Guidance (GPG) from the IPCC, which is outlined below in further detail. In addition, Article 4.13 provides the principles for the accounting of emissions in NDCs. Five of the seven principles are consistent with the IPCC guidance, namely: transparency, consistency, comparability, completeness and accuracy. In addition, Article 4.13 notes two principles not included in the IPCC GPG. They are environmental integrity and ensuring the avoidance of double counting.

Accounting methods have evolved, been updated and further elaborated under the IPCC, as the science has developed over the past twenty years. The following guidance is available with respect to land and forests accounting under the IPCC:

- The *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands* (*Wetlands Supplement*) extends the content of the *2006 IPCC Guidelines* by filling gaps in coverage and providing updated information reflecting scientific advances, including updating emission factors. It covers inland organic soils and wetlands on mineral soils, coastal wetlands including mangrove forests, tidal marshes and seagrass meadows and constructed wetlands for wastewater treatment. The coverage of the *2006 IPCC Guidelines* on wetlands was restricted to peatlands drained and managed for peat extraction, conversion to flooded lands, and limited guidance for drained organic soils.
- The *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol* (*KP Supplement*) provides supplementary methods and *good prac-*

tice guidance for estimating anthropogenic greenhouse gas emissions by sources and removals by sinks resulting from land use, land-use change and forestry (LULUCF) activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol for the second commitment period. It revises and updates Chapter 4 of the *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (*GPG-LULUCF*) which provides supplementary methods and *good practice* guidance related to LULUCF activities based on the general greenhouse gas inventory guidance provided in its other chapters and the rules governing the treatment of LULUCF activities in the first commitment period of the Kyoto Protocol.

- IPCC (2006) Guidelines for National Greenhouse Gas Inventories Volume 4. Agriculture, Forestry and Other Land Use (AFOLU). Building on previous guidance, these guidelines include new sources and gases as well as updates to the previously published methods whenever scientific and technical knowledge have improved since the previous guidelines were issued.
- IPCC (2003) *Definitions and Methodological Options to Inventory Emissions from Direct Human-induced Degradation of Forests and Devegetation.* Guidance on possible methodologies for estimation of greenhouse gas emissions or removals provided in this report draws substantively on the *GPG-LULUCF*.
- *IPCC (2003) Good Practice Guidance for Land Use, Land-Use Change and Forestry* (*GPG-LULUCF*) (2003) *GPG-LULUCF* provides supplementary methods and good practice guidance for estimating, measuring, monitoring and reporting on carbon stock changes and greenhouse gas emissions from LULUCF activities under Article 3, paragraphs 3 and 4, and Articles 6 and 12 of the Kyoto Protocol.
- IPCC (1996) The *IPCC Guidelines for National Greenhouse Gas Inventories – (*Revised). The *IPCC Guidelines* were first accepted in 1994 and published in 1995. In 1997 in Kyoto reaffirmed that the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* should be used as "methodologies for estimating anthropogenic emissions by sources and removals by sinks of greenhouse gases" in calculation of legally-binding targets during the first commitment period. The *Revised 1996 IPCC Guidelines* contain three volumes, each of which provides assistance to the analyst in the preparation of national GHG inventories.

The 2006 and 2013 Guidance documents issued by the IPCC usually form the foundation of reporting for most GHG inventories in relation to land and forestry. The guidance publications of IPCC and the Paris Agreement, focus on reporting of anthropogenic emissions and removals, and otherwise contain very specific methods for accounting force majeure events.

Distinguishing human induced changes, and explicitly excluding *force majeure* natural disturbances is very important in accounting emissions and removals from land and forests. Understanding the implications that this has on global warming pathways is also important. Natural disturbances and *force majeure* events, such as melting of permafrost in Russia or bush/forest fires in Australia driven by high temperatures and long dry periods can lead to the release of large emissions from land and forests as well affecting the permanence of forests. Climate change and its impacts are expected to further exacerbate natural disturbances, which have the potential to release large emissions.

Article 13.7a of the Paris Agreement requires all Parties to prepare a national inventory report based on the IPCC guidance listed previously. The IPCC has inventory software based on the guidance from 2006 to assist countries in preparing their national inventory report.[216] Paragraph

[216] http://www.ipcc-nggip.iges.or.jp/software/index.html

31 of the Paris Decision requests the APA to elaborate guidance for accounting for Parties NDCs.

Key features of the item

The process of submitting a national contribution or commitment is referred to as a "cycle". The aim of having a cycle is to encourage greater ambition from NDCs over time, and to enable an agreement that remains dynamic in the longer term. Dynamism is understood as a process that allows mitigation contributions or commitments under the new agreement to respond and adapt to changing needs, circumstances, technology changes, and knowledge. The key feature of the accounting rules presented in the Paris Agreement and supporting decision is that they are presenting the opportunity to create a level playing field and responsibility for reporting for emissions and removals in subsequent NDC submissions. This is evident from reference to requirements that firstly, do not distinguish between Annex I and non-Annex I countries.

In the lead up to COP 21, a number of studies conducted reviews of INDCs and found that there was high degree of variability of methods used or not used, categories and sectors included, and variable explanations when categories will or will not be reported in the future[217]. This was to be somewhat expected, because there were no agreed rules on INDC submission, reporting format or methodological application prior to submission. Therefore, the request to have guidance developed by the APA based on the four issues outlined in Paragraph 31 of the Paris Decision is an achievement. This was to be somewhat expected, because there were no agreed rules on INDC submission, reporting format or methodological application prior to submission. Therefore, the request to have guidance developed by the APA based on the four issues outlined in Paragraph 31 of the Paris Decision is an achievement.

The second key feature of the Paris Agreement is the specific reference in Article 4.13 to the avoidance of double counting. This means that the Paris Agreement, firstly, prevents the transfer, or double offsetting, of removals. For example, there are a number of donor countries which support emission reductions and buy verified emission reductions from the voluntary carbon market. Under the Paris Agreement, the ownership of the emission reduction credits will need to be agreed to avoid double counting the emission reductions. Registries will help avoid this problem. Secondly, avoiding double counting will be a challenge when emission reductions overlap with sectors. For example, improved cook stoves have been shown to be an effective mitigation intervention to reduce emissions from forests and land, but can also be used to reduce emissions from the energy sector. It is not clear how this type of an example will be treated in reality of future NDCs, but ensuring the avoidance of double counting is an important principle which will deserve future guidance in forthcoming negotiations.

The final key feature of the Paris Agreement and Decision is the commitment to improve transparency. Detailed discussion on transparency and methods is provided in Chapter 2 of the Volume 1 of this report.[218] Thus far, the APA has invited Parties to submit their views on the development of accounting rules by the end of September 2016[219], and therefore further indications on the work programme are expected to be clarified at COP 22 in Marrakech.

Overall, the APA work programme to develop a common transparency system is ambitious. It is expected to be agreed by 2018 and include land use accounting and reporting, resulting in new MRV systems. On the ground, most of the MRV systems will continue as usual if they use and

[217] http://cleantechnica.com/2015/11/23/not-good-enough-meta-analysis-climate-indc-studies/

[218] Laine, A., Ekholm. T., Magnusson R., Ahonen, H. et al (2016): Implementation of the Paris Agreement. Part 1: Mitigation contributions, transparency, global stocktakes, cooperative approaches and mechanisms.

[219] http://unfccc.int/resource/docs/2016/apa/eng/02.pdf

comply with the IPCC guidance. However, the negotiation of accounting rules in previous negotiation sessions under the Kyoto Protocol have proven to be riddled with complexity and disagreement. Methods and guidance on how to account natural disturbances have historically been contentious. That debate is avoided with the specific reference to anthropogenic emissions and removals in the Paris Agreement. There are hopes by developing countries that the result will be an all-inclusive accounting approach that can be consistent with REDD+. That would see the same accounting rules applied to both developed and developing countries. The following table summarizes the scope of the existing land sector reporting and accounting arrangements under the UNFCCC comparing requirements for national GHG inventories, Kyoto Protocol Commitment Period 1(KPCP1) and Commitment Period 2 (KPCP2), the CDM and REDD+.

Table 1 The scope of existing land sector reporting and accounting arrangements

Land Use Change/ Activity	GHG Inventories	KPCP1	KPCP2	CDM	REDD+
Afforestation	Included	Mandatory	Mandatory	Yes	Voluntary
Reforestation	Included			Yes	Voluntary
Deforestation	Included			N.A.	Voluntary
Forest Management	Included	Voluntary		N.A.	Voluntary
Cropland Management	Included		Voluntary	N.A.	N.A.
Revegetation	Included			N.A.	
Wetlands, Wetlands drainage, rewetting	Included	N.A.	Voluntary	N.A.	
Enteric fermentation	Included	Mandatory	Mandatory	Yes	
Manure Management	Included			Yes	
Soil Management	Included			Yes	
Biomass Burning	Included			Yes	
Rice Cultivation	Included			Yes	
Liming and Urea Use	Included			N.A.	

Source: OECD 2014[220]

At the moment, the accounting rules under the Kyoto Protocol have shaped many of the GHG inventory decisions, methods and approaches under Annex I countries who use different rules and guidance from developing countries for land and forestry emissions. For example, under the Kyoto Protocol, the accounting of the LULUCF sector is restricted to net emissions and removals from specific activities that are defined under Article 3, paragraphs 3 and 4. Conversely, Non-Annex I countries implementing REDD+ also have flexibility in applying GHG accounting rules in the formulation of their FREL/FRL. This is because guidance and modalities on REDD+ measuring, reporting and verification, as well as national forest monitoring systems was agreed well before the Paris Agreement, and work has already commenced in many countries implementing REDD+. The rules applied for forestry and land accounting therefore need harmonization, if they are to be applied across all countries for the purpose of reporting emissions and removals in forthcoming NDCs.

Finland, through its bilateral and multilateral development cooperation has already played a key role in developing national forest monitoring systems of Nepal, Lao PDR, Vietnam, Zambia, Tanzania, Peru, Sudan, as well as those countries getting support under REDD+ multilateral programme such as UN-REDD, the Forest Carbon Partnership Facility and the Forest Investment Program.

[220] http://www.oecd.org/env/cc/(2014)6%20Planting%20the%20Foundations-rev-FINAL.pdf

Links with other programmes

The work programme on elaborate guidance for accounting emissions and removals is closely related to the work on NDCs as well as transparency of emissions and removals and the global stocktake. The elaboration of guidance for accounting emissions in NDCs shares linkages with forests and the Warsaw REDD+ Framework referenced in Article 5. The work will also share linkages with previous decisions, especially under the Kyoto Protocol. For instance, under the Kyoto Protocol, rules have been established for LULUCF activities, while non-CO2 emissions from agriculture are treated the same way as other inventory categories for national accounting purposes (see table above). In addition, project level land accounting methodologies have also developed under the Clean Development Mechanism (CDM). These CDM methodologies are somewhat more aligned with REDD+ accounting methods, and apply a baseline instead of the forest reference (emission) level to benchmark emissions performance. Baselines and reference levels and their technical assessment could provide a common ground to start discussions on linking the many different methods and rules. What will be important going forward, is that future accounting rules will apply one set of rules across all countries.

10.3 Utilising Finland's expertise on forests and forestry accounting in the implementation of the Paris Agreement

Finland is recognised to have a well-developed human resource base and expertise in forestry. This makes Finland well positioned to take on responsibilities in the post-Paris negotiation process, and use its policies, experts and innovations to support the implementation of the Paris Agreement, especially with respect to forestry. This section will outline how Finland has built, and continues to build, world class forestry expertise. This section will also outline how Finland's policies, especially in development co-operation have, and hope to continue, that legacy of expertise, given the important role forests will play in the future implementation of the Paris Agreement and Finland's bioeconomy. The section will include some after thoughts on what Finland can do heighten its influence over the coming years.

9.3.1 Using Finland's world class forestry expertise in the Paris Agreement implementation process

To be able to lay claim to owning world class expertise in forestry, a nation must invest in knowledge and education. Policies and plans need to be crafted with visions of excellence – and not just once or over a decade; these visions need to include a consistent commitment. Finland has consistently invested in knowledge and education for sustainable forest management, and innovative bio-products. For example, Finland's National Forest Program 2010 specified that Forest Know-how will be strengthened by continued improvement of forest-related know-how through a stronger innovation based on research, education and expanding internationalisation (Ministry of Agriculture and Forestry 2001[221]). However, one of the key issues that will undermine the continuation of this strong national interest in the near future is the diminishing financial support for the forest sector in development cooperation. While some other European countries have increased their focus and financial support towards stopping deforestation of tropical forests, Finland recently has scaled back its commitments and ambition.

Finland's National Forest Programme 2015 (NFP 2015) continues to focus on building skills, expertise and the acceptability of the forest sector, as well as including priority on enhancing climate and energy related benefits from forests, and promoting sustainable forest management in international forestry (Ministry of Agriculture and Forestry 2008[222]). The National Forest Strat-

[221] Ministry of Agriculture and Fortestry (2001) Finland's National Forest Programme 2010.

[222] Ministry of Agriculture and Forestry (2008) Finland's National Forest Programme 2015.

egy 2025 (NFS 2025) makes further commitments to maintaining a future of world class forestry expertise, noting that: “The Parliament’s position stresses Finland’s natural capabilities and expertise as a leading forestry country in the world, increasing the use of wood as a raw material, facilitating generation changes to promote active entrepreneurship based on forest use, and creating preconditions for new investments”. At the heart of the NFS 2025 is the vision that: sustainable forest management is a source of growing welfare.
Finland’s world class forestry expertise has been designed to implement sustainable forest management. Both domestically, and perhaps more crucially to climate change, abroad, in the form of REDD+ and ecosystem based adaptation.

Finnish Development Cooperation and Bilateral Cooperation

Finnish development cooperation and bilateral cooperation has been geared towards sustainable forest management over several decades, which has been used to alleviate poverty and address environmental issues in developing countries. Finland’s long term cooperation partners, which have benefited from sustainable forest management programs include Kenya, Tanzania, Zambia, Mozambique, Vietnam and Nicaragua. Finland has also had bilateral cooperation on sustainable forest management with Laos, Peru and the Western Balkan region. Many of the projects implemented build capacity and strengthen institutions to support sustainable forest management. Several case examples of how Finland’s bilateral cooperation has supported sustainable forest management and REDD+ are presented in the boxes below.

Title of Project: **Sustainable Forestry and Rural Development (SUFORD) project (2009-2013) and Scaling Up Participatory Sustainable Forestry Management (SUPSFM) in Lao PDR (2014-2018)**

Co-Financers: Ministry for Foreign Affairs of Finland with the World Bank (Forest Investment Program)

The Government of Finland has been supporting sustainable forest programs in Lao PDR since the mid-1990s with a focus on community based forestry. Continuing this legacy, the SUFORD project (2003-2008) and SUFORD Additional Financing (AF) supported participatory sustainable forestry management in four provinces (Savannakhet, Khammouane, Saravane, and Champasack). From 2009 - 2013, it expanded into five more provinces (Bolikhamxay, Vientiane, Xayaboury, Attapue, and Xekong). The current five-year phase (2014-2018), SUFORD Scaling Up UP (SUFORD-SU) has expanded into another three provinces (Bokeo, Luang Namtha and Oudomxay). The project objective is to execute REDD+ activities through participatory sustainable forest management in priority areas and to pilot forest landscape management in four provinces. SUFORD-SU is contributing towards the national forestry and climate change program on Reducing Emissions from Deforestation and forest Degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (REDD+). A total of 1.2 million hectares in 16 Production Forest Areas were already covered with forest management plans during previous phases of the project. Under SUFORD Scaling Up forest management plans will be prepared for additional 1.1 million hectares. The project will benefit an estimated 424,000 beneficiaries, of which 145,000 are women and 157,000 belong to ethnic groups. The projects have included extensive work on building forest inventories and collecting data, which can now be used as part of the Monitoring, Reporting and Verification (MRV) for REDD+.

Title of Project: Forest Resource Assessment in Nepal (2010-2015)

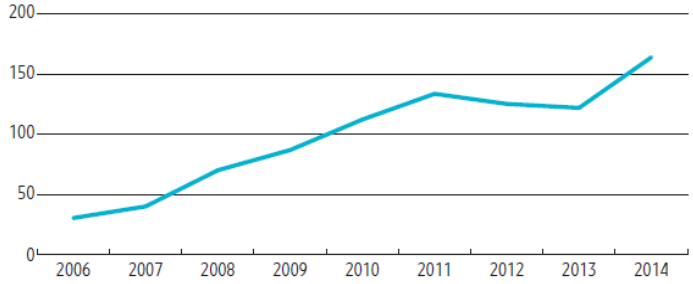
Financier: Ministry for Foreign Affairs of Finland

The Government of Finland has been supporting the development of the national forest inventory in Nepal since the mid-1990s. This project built on those achievements and continued the aim of improving the provision of adequate forestry data and its processing for national forest policy development and for national forestry sector decision-making. Technical Assistance was directed to four components: implementation of national forest resource assessment (FRA), implementation of national forest cover mapping, development of forest information system (FIS) research and development, and project management. In addition to the traditional forest inventory data, there are equal interests to obtain information concerning carbon content, forest biodiversity, human and biotic pressure and the soil among others as elements of the forest characteristics. Updated, systematic data is needed for future climate change and REDD projects as well. The project produced data for REDD baseline development in Nepal.

Finland has reciprocal forest cooperation agreements with Russia, China, Brazil, Mexico, Indonesia and Turkey – these countries comprising mostly of BRICS and MINTS[223] are emerging economies with high economic potential and important forest resources. Sustainable forest management, education, research and inventories for forest resources, forest planning, certification and management are principle themes of cooperation. This is an important aspect of how Finland moves forward in supporting these countries as there are several trends that are relevant.

Trend 1: Finnish Aid for Trade (AFT) has increased. Finland, over the past decade, has more than doubled its AFT, from an average of EUR 68.8 million per year in 2006–2008 to around EUR 152.7 million per year in 2013.

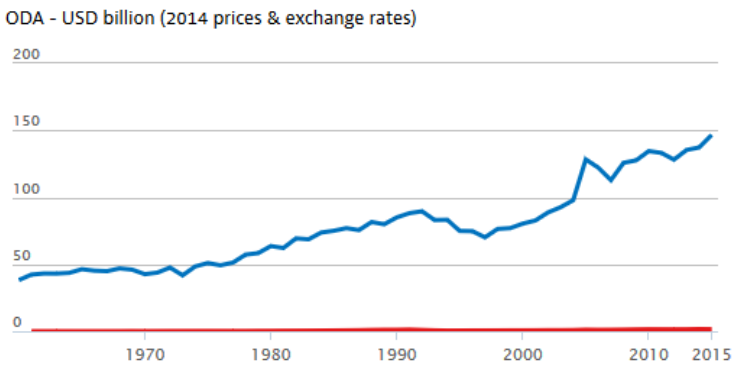
Figure 1. Developments in Finnish Aid for Trade Disbursements 2006-2014[224]



In the independent review of Finnish Aid for Trade it was found that the focus of Finland on its value added sectors of Forestry, Energy, Environment and ICT had contributed to increased effectiveness in AFT projects in these sectors, because more available knowledge and expertise was available to implement them. Highlights of the report showed that for the forestry sector, the Finnish supported AFT interventions have led to a significant size and improved quality of reforested land in Tanzania. Finland's expertise in Water, Forestry and ICT sectors were also highly appreciated by the Vietnamese counterparts (Ministry for Foreign Affairs 2016). There was further consensus in other independent reviews that the combination of Finnish expertise on forestry, long-standing engagement at the project level and active cooperation with key global actors have produced many successful investments" and it underlines that "in private sector development Finland has much to offer" (Reinikka 2015[225]).

Trend 2: Finnish Official Development Assistance (ODA) has generally increased over the decades, but policy has recently changed, and the trend will reverse.

Figure 2. ODA Disbursements for Finland 1960-2015 [226]



[223] Goldmann Sachs term

[224] Ministry for Foreign Affairs of Finland (2016) Evaluation: Finnish Aid for Trade 2012-2015. Helsinki, Ministry of Foreign Affairs of Finland.

[225] Reinikka, R. (2015). Results on the Ground: An independent review of Finnish Aid, Helsinki: Ministry of Foreign Affairs of Finland

[226] http://www2.compareyourcountry.org/oda?cr=20001&cr1=oecd&lg=en&page=1

In 2016, the development cooperation appropriations in the budget amount to EUR 818 million. According to the Finnish Government's budget proposal, the appropriations for development cooperation will be subject to EUR 200 million cuts annually beginning in 2016 as a part of the general government adjustment measures. In addition to this, EUR 130 million of grant aid will be converted into loans and capital investment and channelled to the developing countries through enterprises committed to corporate social responsibility. The new government has also decided to stop the channelling of revenue from auctioning allowances under EU emissions trading into development cooperation, which will result in a considerable reduction of funds available for development cooperation. In 2014, for example, the amount of emissions trading revenue channelled into development cooperation was EUR 69 million, (Ministry for Foreign Affairs 2016b[227]). ODA finance for forestry and agriculture (8% of ODA) are included in those budget appropriations. Future resource limitations for bilateral technical assistance will create a future challenge for Finland and how it can support developing countries implement REDD+ under the Paris Agreement.

Despite the cuts, Finland still continues to build and invest in forest expertise for sustaining its domestic bioeconomy, and maintaining its influence in international forestry. Therefore, it will be key to understand how the shift between ODA and the use of new modalities of cooperation focusing on economic cooperation and business partnerships will align with the implementation of REDD+ efforts. Providing technical assistance to REDD+ countries through bilateral development cooperation would be a strategic response to the Paris Agreement and sustainable the world's forests.

Recently the Ministry for Foreign Affairs noted that in Myanmar, Finland's future cooperation in the area of natural resources will focus on sustainable forest management. Transferring Finnish expertise on forest information systems, forest inventory and REDD+ is expected to be a core part of that cooperation.

Recent momentum, in response to global deforestation with a focus on the private sector, has focused on deforestation free supply chains. This also presents an additional opportunity for Finnish companies producing, supplying and consuming commodities such as cocoa, coffee, rubber and timber to contribute to the implementation of the Paris Agreement, as well as other global initiatives, such as the New York Declaration on Forests, Global Consumer Goods Forum and Science Based Targets Initiative. Finnish companies such as Stora Enso, Outokumpu Oyj have already signed onto the Science Based Targets Initiative.
At home, Finland is preparing a new generation of foresters, and building key knowledge on forests for all school students starting with programs designed to attract the interest and build the knowledge of students. As of 2016, the nationwide forest quiz has seen one million Finns take part over the last 35 years. In 2016, 28,000 high school students between 13 and 15 years of age participated in the Forest Quiz organized by the Finnish Forest Association and the Association of Biology and Geography Teachers (BMOL). The aim of the Forest Quiz is to increase the adolescents' understanding of forests. The questions, formulated by biology teachers and forestry experts, open up different perspectives on sustainability. Included are topics dealing with forest nature, nature conservation, forest management, timber processing and the recreational use of forests (Kauppi 2016[228]). This is important because as it is also potentially helping young people to become interested to work in the forest sector and bioeconomy, and therefore grooming the thinking of its next generation workforce.

[227] http://formin.finland.fi/public/default.aspx?contentid=328885&contentlan=2&culture=e

[228] Kauppi, A. (2016) How to make Young People Interested in Forestry – arrange a forest quiz! Article prepared for the Finnish Forests Association. Helsinki, Finland. Available at: http://www.smy.fi/en/artikkeli/how-to-make-young-people-interested-in-forestry-arrange-a-forest-quiz/

10.3.2 Utilizing Finnish expertise to develop carbon accounting rules for forests and land use

Finland has established a strong pool of experts within the Government, Research, Academia and the private sector that have previously and can continue to contribute to global and EU level processes for developing carbon accounting rules for forests and land. One of the key challenges going forward for negotiating and developing the sink accounting rules under the Paris Agreement will be developing guidance for the harmonisation of practices from the field level to the modelling and generation of data to be used in forthcoming inventory reports and NDCs.

In the past Finland led a similar process that harmonized common reporting on forest inventories and carbon pools across Europe in 2004-2008. The project described in the Box below is known as COST E43, see Tomppo et al (2010)[229], and was financed by the EU and was listed as a success story by the European Science Foundation and the COST office. Finland chaired and led the project and the Finnish Forest Research Institute committed considerable staff resources to ensure the success of the project.

Just prior to starting the work on COST E43, the EU had absorbed 10 new Member States, some of whom were unfamiliar with the reporting requirements within the EU, and used very different definitions and forest inventory methods. It is a situation that is quite applicable to the current situation for the NDCs, now that there is an indication that guidance will be expected to produce common rules that are applicable to all. Finland's research community and forest inventory experts are in a good position to lead and manage a similar process.

***Harmonisation of National Forest Inventories in Europe: Techniques for Common Reporting*: COST E43 (2004-2008)**

The main objectives of the COST E43 Action were to improve and harmonise the existing national forest resource inventories in Europe and to support new inventories in such a way that inventories will meet national, European and global level requirements in supplying up-to-date, harmonised and transparent forest resource information for decision (policy) making, and to promote the use of scientifically sound and validated methods in forest inventory designs, data collection and data analysis. The main benefits of the Action were improved quality of European level forest resource and forest environment data, as well as improved ability of the Member States' National Forest Inventories to meet both national, European and international requirements for up-to-date forest information.

For what needs to be done with the carbon accounting rules in the future discussions for the implementation of the Paris Agreement correspond closely to two of the working groups under the COST E43 project. The working group on estimating procedures for carbon pools and carbon pool changes focused on the definitions and measurements of those forest inventory variables that are related to the estimation of forest carbon pools and changes in those pools. At the time of the work, new guidelines for GHG reporting in the LULUCF sector were issued by the IPCC and these were taken fully into account. Also at that time, there was an urgent need to harmonise reporting for the EU in individual member states. This motivation is therefore very similar to that currently needed to harmonise the accounting rules for forests and land use in NDCs.

The working group for harmonised definitions and measuring practices under COST E43 was tasked to give operative guidelines for the interpretation of existing definitions and find recommendations on new definitions and measuring practices to be applied in National Forest Inventories. Researchers detailed definitions and measurement or assessment protocols, in order to identify causes of discrepancy between different National Forest Inventory outputs and discuss their harmonisation. This was limited to only three major data or variables, as it is mainly devoted to establishing a framework for the discussion. The worked ended up forming the crucial part of National Forest Inventory methodology. Inventory designs, e.g., sampling based inventory vs. stand level inventory, inventory frequencies, data collection methods and analyses were considered.

229 Tomppo, E., Gschwantner, Th., Lawrence, M. & McRoberts, R.E. (eds.) 2010. National Forest Inventories - Pathways for common reporting. Springer, 612 p. ISBN 978-90-481-3232-4http://link.springer.com/book/10.1007%2F978-90-481-3233-1

In addition to European efforts on forest inventories, Finland has also supported global efforts through UN agencies, such as FAO. These efforts have been directed at key developing countries that are developing and providing data for their forest inventories to support reporting on climate change, forests, biodiversity and can be used for sustainable forest management. The Box below describes the Finnish-FAO program's work on Open Foris.

Finland-FAO Forestry Program: Sustainable Forestry Management in a Changing Climate 2009-

The programme aims at strengthening the FAO resources and capacity in methodological and tool development at FAO headquarters and five pilot countries (Ecuador, Peru, Tanzania, Viet Nam and Zambia). Special emphasis is in providing tools and methods for multi-purpose forest inventories and for REDD+ monitoring and climate change adaptation, supporting the collection of quality forest resources data on which to base policy decisions in forestry and establishing closer links between NFMAs and NFPs. The programme collaborates with UN-REDD, bilaterally funded NFMA/NFI projects, international organizations and NGOs.

One of the key outputs was Open Foris. It is an FAO-led initiative to develop, share and support specialized software tools required by countries and institutions to implement multi-purpose forest inventories. It is a set of free and open-source software tools that facilitates flexible and efficient data collection, analysis and reporting. These tools are used to support countries in gathering, producing and disseminating reliable information on the state of forest resources that is vital to decision makers and other stakeholders. Remote sensing image processing tools are included in Open Foris, as well as tools for international reporting such as for REDD+ MRV and FAO Forest Resource Assessment, conducted every five years.

10.4 Conclusions on forestry and land use

The main outcome concerning forests and land use in Paris Agreement forces the international community to look beyond forest carbon long associated with REDD+, and recognize the significance forests play in also adapting to climate change and providing non-carbon benefits. Future work to support the implementation of REDD+ will focus on enhancing the coordination and coherence on forest finance. There are important linkages between the implementation of the Warsaw REDD+ Framework and future NDCs, but further clarity will be needed on accounting rules. Agriculture featured extensively in developing countries INDCs for mitigation and/or adaptation, but with no reference in the Paris Agreement directly to agriculture, linkages will fall on future COP Decisions.

Finland has maintained a commitment to building world class expertise for its forest sector. This is reflected in the litany of national forest programs and strategies which prioritise the building of expertise to respond to future opportunities and challenges, nationally and internationally. Finland's bioeconomy strategy will also benefit from much of the expertise from the forest sector. Finland's decades of development cooperation has built a legacy of sustainable forest management in countries such as Tanzania, Lao PDR, Vietnam and Nepal. Key aspects of those programs focused on forest information systems and forest inventories, which are currently being used by those countries in monitoring and reporting their forests, as well as managing their forests – the decades of engagement have placed these countries in an advantageous position for the future implementation of REDD+ and their future nationally determined contributions under the Paris Agreement. Arguably, the most strategic response to the Paris Agreement for sustaining forests around the world would be to direct technical assistance through bilateral development cooperation to key REDD+ countries that can benefit from Finnish forest expertise.

11. Technology development and transfer

Technology development and transfer plays an important role in the implementation of the Paris Agreement. According to the Article 10 of the Agreement, Parties share a long-term vision on the importance of fully realizing technology development and transfer, covering both adaptation and mitigation. The Agreement recognizes that accelerating and enabling innovation is critical for an effective, long-term global response to climate change and sustainable development. Still, technology has been a sensitive issue in the climate negotiations, and the advancement of technology development and transfer under the UNFCCC has been rather slow. Recent progress includes establishment of the Technology Mechanism in the 2010 Cancun Agreements. Two key components of the Technology Mechanism are the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN).[230] As the Parties agreed in Paris that the Technology Mechanism will serve also the Paris Agreement, its role in facilitating and promoting technology development and transfer will be enhanced.

The roles of the TEC and the CTCN are complementary. The TEC is the policy arm of the Technology Mechanism, and consists of 20 technology experts representing both developing and developed countries. The TEC provides analysis on e.g. technology needs and technical issues and makes recommendations on e.g. how to overcome barriers to technology development and transfer. The TEC is also mandated to further implement the Technology Transfer Framework (TTF), which consists of e.g. technology needs assessments and mechanisms for technology transfer.

The CTCN, on the other hand, is the operational arm of the Technology Mechanism, launched in 2014 and hosted by UNEP. The CTCN provides free technical assistance (up to $250,000 per request) for developing countries in technology issues, and mobilizes its global network of experts to design and deliver tailored solutions to suit local needs.[231] In addition to technical assistance, the CTCN also provides knowledge sharing as well as collaboration and networking services. It can help “matchmaking” between technology companies and advisors and the developing countries.[232]

11.1 Tasks related to the implementation of the Paris Agreement regarding technology development and transfer

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 10.1

Parties share a long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce [GHG] emissions.

Article 10.2

Parties, noting the importance of technology for the implementation of mitigation and adaptation actions under this Agreement and recognizing existing technology deployment and dissemination efforts, shall strengthen cooperative action on technology development and transfer.

Article 10.3

[230] UNFCCC Technology Mechanism homepage, http://unfccc.int/ttclear/templates/render_cms_page?TEM_home

[231] *Ibid.*

[232] CTCN progress report 2014-2015: https://www.ctc-n.org/sites/www.ctc-n.org/files/ctnc_progressreport_01dec_complete_screen_final_a4.pdf

The Technology Mechanism established under the Convention shall serve this Agreement.

Article 10.4

A technology framework is hereby established to provide overarching guidance to the work of the Technology Mechanism in promoting and facilitating enhanced action on technology development and transfer in order to support the implementation of this Agreement, in pursuit of the long-term vision referred to in [Article 10.1].

Article 10.5

Accelerating, encouraging and enabling innovation is critical for an effective, long-term global response to climate change and promoting economic growth and sustainable development. Such effort shall be, as appropriate, supported, including by the Technology Mechanism and, through financial means, by the Financial Mechanism of the Convention, for collaborative approaches to research and development, and facilitating access to technology, in particular for early stages of the technology cycle, to developing country Parties.

Article 10.6

Support, including financial support, shall be provided to developing country Parties for the implementation of this Article, including for strengthening cooperative action on technology development and transfer at different stages of the technology cycle, with a view to achieving a balance between support for mitigation and adaptation. The global stocktake referred to in Article 14 shall take into account available information on efforts related to support on technology development and transfer for developing country Parties.

Articles 13.9 and 13.10

13.9: Developed country Parties shall, and other Parties that provide support should, provide information on financial, technology transfer and capacity-building support provided to developing country Parties under Articles 9, 10 and 11.
13.10: Developing country Parties should provide information on financial, technology transfer and capacity-building support needed and received under Articles 9, 10 and 11.

Article 13.11

Information submitted by each Party under paragraphs 7 and 9 of this Article shall undergo a technical expert review, in accordance with decision 1/CP.21.[…]

Decision 1/CP.21, paragraph 65

Takes note of the interim report of the Technology Executive Committee (TEC) on guidance on enhanced implementation of the results of technology needs assessments as referred to in document FCCC/SB/2015/INF.3.

Decision 1/CP.21, paragraph 66

Decides to strengthen the Technology Mechanism and requests the [TEC] and the Climate Technology Centre and Network (CTCN), in supporting the implementation of the Agreement, to undertake further work relating to, inter alia:

a) Technology research, development and demonstration;
b) The development and enhancement of endogenous capacities and technologies.

Decision 1/CP.21, paragraph 67

Requests the [SBSTA 44] (May 2016) to initiate the elaboration of the technology framework established under [Article 10.4], of the Agreement and to report its findings to the [COP], with a view to the [COP] making a recommendation on the framework to the [CMA] for consideration and adoption at its first session, taking into consideration that the framework should facili-

tate, inter alia:

- *a) The undertaking and updating of technology needs assessments, as well as the enhanced implementation of their results, particularly technology action plans and project ideas, through preparation of bankable projects;*
- *b) The provision of enhanced financial and technical support for the implementation of the results of the technology needs assessments;*
- *c) The assessment of technologies that are ready for transfer;*
- *d) The enhancement of enabling environments for and the addressing of barriers to the development and transfer of socially and environmentally sound technologies.*

Decision 1/CP.21, paragraph 68

Decides that the [TEC] and the [CTCN] shall report to the [CMA], through the subsidiary bodies, on their activities to support the implementation of the Agreement.

Decision 1/CP.21, paragraph 69

Also decides to undertake a periodic assessment of the effectiveness of and the adequacy of the support provided to the Technology Mechanism in supporting the implementation of the Agreement on matters relating to technology development and transfer.

Decision 1/CP.21, paragraph 70

Requests the [SBI 44] to initiate the elaboration of the scope of and modalities for the periodic assessment referred to in paragraph 69 above, taking into account the review of the [CTCN] as referred to in decision 2/CP.17, annex VII, paragraph 20 and the modalities of the global stocktake referred to in Article 14 of the Agreement, for consideration and adoption by the [COP 25] (November 2019).

Decision 1/CP.21, paragraph 109

Resolves to strengthen, in the period 2016–2020, the existing technical examination process on mitigation as defined in decision 1/CP.19, paragraph 5(a), and decision 1/CP.20, paragraph 19, taking into account the latest scientific knowledge, including by:[…]

(c) Requesting the [TEC] and the [CTCN] in accordance with their respective mandates:

- *(i) To engage in the technical expert meetings and enhance their efforts to facilitate and support Parties in scaling up the implementation of policies, practices and actions identified during this process;*
- *(ii) To provide regular updates during the technical expert meetings on the progress made in facilitating the implementation of policies, practices and actions previously identified during this process;*
- *(iii) To include information on their activities under this process in their joint annual report to the [COP];*

(d) Encouraging Parties to make effective use of the [CTCN] to obtain assistance to develop economically, environmentally and socially viable project proposals in the high mitigation potential areas identified in this process.

It was agreed at COP 21 that the Paris Agreement shall strengthen cooperative action on technology development and transfer. Parties also agreed that the existing Technology Mechanism established under the Convention will serve also the Paris Agreement, and a new technology framework was established to provide guidance for the Technology Mechanism's activities.[233] Support shall be provided to developing country Parties for the implementation of the technology-related Article 10 of the Agreement, including for strengthening cooperative action on tech-

[233] Articles 10.3-10.4 of the Paris Agreement

nology development and transfer at different stages of the technology cycle, with a view to achieving a balance between support for mitigation and adaptation.[234]

The transparency of technical and financial support given and received is enhanced in the Paris Agreement. Developed countries shall, and developing countries should, provide information on technology transfer support provided to developing country Parties. Information on technology transfer will be assessed in both the global stocktake[235] and in technical expert reviews[236].
The establishment of the technology framework is a key outcome from Paris. It signifies that the Technology Mechanism should focus more than before on facilitating implementation, and presents an opportunity to strengthen technological cooperation worldwide, and promote research and use of innovative technologies in concrete projects, more than before under the Kyoto Protocol. It also stresses the importance of use and development of local, endogenous technologies of developing countries.

Key features of the item

The new technology framework will provide overarching guidance to the Technology Mechanism in promoting and facilitating enhanced action in order to support the implementation of the Paris Agreement,[237] in pursuit of the long-term vision on the importance of fully realizing technology development and transfer.[238] The Technology Mechanism will also undertake additional responsibilities under the Paris Agreement, including conducting further work on the development and enhancement of endogenous capacities and technologies, as well as technology research, development and demonstration.[239]

The technology framework is tasked with providing concrete guidance to the Technology Mechanism and with facilitating, *inter alia,* the assessment of technologies that are ready for transfer, and enhanced implementation of the results of technology needs assessments, particularly technology action plans and project ideas, through preparation of bankable projects.[240] The framework should also address barriers to the development and transfer of socially and environmentally sound technologies.[241] The TEC and the CTCN shall report to the CMA, through the Subsidiary Bodies, on their activities to support the implementation of the Agreement.[242] In the Paris Decision, Parties also agreed to undertake periodic assessments of the effectiveness of, and the adequacy of the support provided to, the Technology Mechanism in supporting the implementation of the Agreement.[243] The results of the periodic assessments can further contribute to the guidance given to the Technology Mechanism to make it more effective.

The global stocktake referred to in Article 14 shall take into account available information on efforts related to support on technology development and transfer for developing country Parties.[244] Information submitted by each Party on technology support given and received shall also undergo a technical expert review.[245]

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[234] Article 10.6 of the Paris Agreement

[235] Article 10.6 of the Paris Agreement

[236] Article 13.11 of the Paris Agreement

[237] Article 10.4 of the Paris Agreement

[238] Arcticle 10.1 of the Paris Agreement

[239] Decision 1/CP.21, paragraph 66

[240] Decision 1/CP.21, paragraph 67

[241] Ibid.

[242] Decision 1/CP.21, paragraph 68

[243] Decision 1/CP.21, paragraph 69

[244] Article 10.6 of the Paris Agreement

[245] Articles 13.9 – 13.11 of the Paris Agreement

In the pre-2020 period, the TEC and the CTCN are requested to engage in the technical expert meetings as well as enhance their efforts to facilitate and support Parties in scaling up the implementation of policies, practices and actions identified during this process.[246] The Paris Decision also encourages developing countries to make effective use of the CTCN to obtain technical assistance.[247]

One key challenge for the implementation of the Paris Agreement will be how to support the additional responsibilities of the Technology Mechanism and enhance technology development and transfer to the level needed to reach the long-term temperature goal. Without adequate financial support and operational link between the Financial Mechanism and the Technology Mechanism the Paris Agreement's vision for enhanced technology cooperation will be difficult to achieve.[248] Effective coordination between the two mechanisms is essential, and is receiving increased attention, including through Decision 13/CP.21[249] recognizing the importance of and the need for defined, mutually beneficial and functional linkages of the technology and finance mechanisms.

Technology framework

According to the task set by the Paris Decision, SBSTA 44 initiated the consideration of the Technology Framework, including how it should enhance the work of the Technology Mechanism.[250] The Parties shared their initial views on the technology framework at SBSTA 44, and this input was reflected in an annex to the draft decision[251] on the matter. Parties were also invited to submit their views by 15 September 2016 on the elaboration of the technology framework, including the contents, features and characteristics, the purpose and the themes of the technology framework in order for the UNFCCC Secretariat to prepare a compilation of the submissions for consideration at SBSTA 45. SBSTA 44 also requested the Secretariat to prepare an information note mapping climate technology development and transfer activities and initiatives under and outside the Convention relevant to the implementation of the Paris Agreement. This will form part of the inputs to the deliberations on the elaboration of the technology framework at SBSTA 45 (November 2016). Parties also noticed that modalities to periodically update the technology framework should be defined.[252] The SBSTA is to report its findings to the COP with view to the COP making a recommendation on the framework to CMA 1.[253]

Technology Mechanism

The Paris Decision states that a periodic assessment will be undertaken of the effectiveness of the Technology Mechanism, and the adequacy of the support provided to it.[254] The Decision requested the SBI 44 to initiate the elaboration of the scope of and modalities for the periodic assessment for consideration and adoption by COP 25 (November 2019).[255] According to the draft decision by the SBI 44, this elaboration should take into account the review of the CTCN, the work on the technology framework, the development of the modalities of the global stock-

[246] Decision 1/CP.21, paragraph 109

[247] *Ibid.*

[248] World Resources Institute (2016): Staying on track from Paris: Advancing the Key Elements of the Paris Agreement

[249] http://unfccc.int/resource/docs/2015/cop21/eng/10a02.pdf#page=28

[250] Decision 1/CP.21, paragraph 67

[251] http://unfccc.int/resource/docs/2016/sbsta/eng/l08.pdf

[252] http://unfccc.int/resource/docs/2016/sbsta/eng/l08.pdf

[253] Decision 1/CP.21, paragraph 67

[254] Decision 1/CP.21, paragraph 69

[255] Decision 1/CP.21, paragraph 70

take and the work under the transparency framework. The SBI invited Parties and observer organizations to submit their views on the scope and modalities for the periodic assessment by 25 January 2017, and the secretariat to prepare a synthesis report of those views for consideration at SBI 46 (May 2017).[256]

Decision 13/CP.21 establishes a process on how the linkages between the Financial Mechanism and the Technology Mechanism will be enhanced. The decision invites the GCF Board to provide its recommendations on the issue of linkages for consideration of COP 22 in November 2016. A technical workshop on the issue was held in the Bonn May 2016 session, which aimed to e.g. identify ways to enhance cooperation and collaboration between the TEC, CTCN and the operating entities of the Financial Mechanism.[257]

According to World Resources Institute, tasks and questions to be resolved, that are not timed, but need to be clarified by Parties in future years include, e.g.:

- What is the estimated level of additional finance needed by the Technology Mechanism to enhance its operation, along the guidance from the technology framework? How will the Technology Mechanism receive additional financial support from the Financial Mechanism or other sources?
- How are "socially and environmentally sound technologies" defined in the context of the technology framework?
- How will Parties concretely move to advance and support specific technology activities?
- How to make Technology Needs Assessments useful, practical and linked to finance? What are the barriers faced by the implementation of the activities mentioned in the assessments, and how they could be overcome?[258]

Links with other topics/tasks

Technological innovation, enhanced use of endogenous technologies and transfer of technologies internationally are key means of achieving the global temperature targets and adaptation targets set by the Paris Agreement. The most obvious links of technology development and transfer are with finance and capacity building. The links between these topics are also inscribed in the Paris Agreement and decision. However, technology development and transfer also connects closely to enhancing mitigation and adaptation, and using cooperative approaches to mitigation (including market and non-market approaches).

11.2 Finland's possibilities to utilise the Technology Framework

The technology framework is a work in progress. For the purposes of this report, it is interpreted as the broad range of activities to promote technology co-operation in the emerging post-Paris climate architecture. To better understand the potential role of Finland in supporting, and benefitting from, technology-related activities, three complementing perspectives may be helpful: 1) the Technology Mechanism, 2) financing mechanisms and 3) Finnish technology strengths. We will briefly consider each of them.

1) Technology Mechanism

The CTCN network consists of a broad range of climate technology institutions and stakeholders from various fields interested and involved in CTCN activities. The CTCN could benefit Finn-

[256] http://unfccc.int/resource/docs/2016/sbi/eng/l05.pdf

[257] http://unfccc.int/ttclear/templates/render_cms_page?s=events_ws_tmfm

[258] World Resources Institute (2016): Staying on track from Paris: Advancing the Key Elements of the Paris Agreement

ish companies in at least three distinct ways. First, more Finnish institutions could be encouraged to join the CTCN network. Members of the network gain pre-qualified access to competitive bidding for the delivery of CTCN technical assistance services.[259] Currently the network has 170 members, including Gaia, GreenStream, Motiva and NEFCO from Finland.[260] Additional Finnish consultancies and research institutes could be encouraged to join. However, contracts tend to be rather small.

Second, Finland could review the technology needs submitted by CTCN recipients and identify areas where Finnish companies could play an active role. Requests are posted online[261] and some other countries (e.g. Japan and the Republic of Korea) already systematically follow them. Possible areas particularly suitable for Finland could include industrial energy efficiency, smart grids, combined heat and power (CHP) and bioenergy (see below for areas of Finnish expertise).

Public authorities such as Finnpartnership[262] could play a matchmaking role, connecting needs and providers. Finnish companies could then provide their expertise with public funding from export promotion, development co-operation (e.g. Finnfund and export credits) or both. Technology support through CTCN can be counted towards ODA and climate finance commitments, at least before new rules to implement the Paris Agreement are formed. This kind of support could be instrumental for opening new markets for Finnish products and services. An interesting case to look at is the pilot initiative under the CTCN Private Sector Engagement (PSE) programme supporting six East African countries on energy, agriculture and water management. Third, Finland could actively submit technologies to the CTCN technology library.[263] In addition to compiling information into a catalogue, the relevant authority would need to screen the information so that it is up to date, reliable and compatible with the needs of the library. The work could be coordinated and, to some extent, conducted by the National Designated Entity (NDE) at the Ministry of Economic Affairs and Employment. Finpro's Cleantech Finland and possibly the new emerging markets programme could serve as the operative arm. Finnfund seems to be currently the most promising source of domestic funding, provided that there is a clear business case for Finnish companies.

More generally, it should be noted that CTCN operates with relatively modest resources, although technology co-operation is an explicit commitment under both the UNFCCC and the Paris Agreement. Finland should consider extending and increasing its voluntary contribution, currently at just €200,000. Finland should also support efforts to secure more permanent resources from other sources, for example the Green Climate Fund (GCF).

2) Financing mechanisms

With respect to the UNFCCC's Financial Mechanism, the GEF has allocated a total of nearly three billion US dollars to support climate activities since its inception and leveraged more than US$15 billion in co-financing. In recent years GEF has invested approximately US$250 million dollars annually in various climate-related projects.[264] The GEF-6 Climate Change Mitigation Strategy supports innovation and technology transfer at key early and middle stages. The sup-

[259] Climate Technology Centre & Network. CTCN. https://www.ctc-n.org/sites/www.ctc-n.org/files/ctcn_brochure_eng_web_singlepage_final.pdf.

[260] List of network members. CTCN. Read on July 23rd, 2016. https://www.ctc-n.org/network/network-members.

[261] Technical Assistance published. CTCN. Read on July 27th, 2016. https://www.ctc-n.org/technical-assistance/data.

[262] http://www.finnpartnership.fi/www/en/index.php.

[263] About the Technology Library. Read on July 27th, 2016. CTCN. https://www.ctc-n.org/technology-library-0.

[264] Technology Transfer for Climate Change. Read on July 30th, 2016. GEF. https://www.thegef.org/gef/technology_transfer.

port addresses elevated risks associated with innovation, mitigates the barriers of technology transfer and pilots promising approaches.[265]

GEF Partner Agencies will make proposals for specific projects with private sector partners and national governments. To access GEF-funded projects, the first step is to contact the national focal point in the target country.[266] The Finnish focal point is based in the Ministry of Foreign Affairs.[267] The GCF has recently dispatched its first batch of funding, totalling about quarter of a billion dollars. By the end of 2016, the Fund hopes to have approved projects worth 2.5 billion US dollars.[268] The Fund engages directly with both the public and private sector in transformational climate-sensitive investments. The GCF has the capacity to bear climate-related risk, allowing it to leverage and crowd in additional financing. The Fund aims for a balance between mitigation and adaptation investments. Project proposals can come from various directions to the National Designated Authorities (NDA) in developing countries. Accredited entities (AE) – such as multilateral development banks and ministries – evaluate the proposals. The projects are approved by the GCF Board. [269]

Additionally multilateral development bank technology programmes (e.g. World Bank Group infoDev[270]) and international co-operative initiatives (e.g. Mission Innovation[271] Finland is already joining and Breakthrough Energy Coalition[272]) could provide platforms for Finnish technologies. This potential should be explored further.

3) Finnish technology strengths

Relative to its size, Finland is one of the leading cleantech countries globally. The country has a lot to gain from increased interest and investment in low-carbon solutions. A recent report looking at 100 Finnish climate solutions identified “a clean dozen”: twelve clusters of solutions in which Finland has particular competence.[273] These are:

- efficient energy production
- efficient buildings
- smart energy solutions
- biofuels
- wind and solar power
- efficient shipping
- electric transport
- wood materials
- sustainable forestry
- climate-smart food
- climate education
- efficient policies.

[265] *Ibid.*

[266] The GEF and the Private Sector. Read on July 30th, 2016. GEF. https://www.thegef.org/gef/privatesector.

[267] Focal Point List. Read on July 31st, 2016. GEF. https://www.thegef.org/gef/focal_points_list.

[268] GCF Board approves projects worth $250M and prepares for leadership transition. Press release July 1, 2016. Green Climate Fund. http://www.greenclimate.fund/-/gcf-board-approves-projects-worth-250m-and-prepares-for-leadership-transition.

[269] Green Climate Fund Insight. An introduction to GCF. GCF 2016. http://www.greenclimate.fund/documents/20182/194568/GCF_INSIGHT_2016/dc2b945f-d96a-4f6d-9eeb-3960beee919a.

[270] About infoDev. Read on July 29th, 2016. http://www.infodev.org/about.

[271] About Mission Innovation. Read on July 29th, 2016. http://mission-innovation.net/about.

[272] Introducing the Breakthrough Energy Coalition. Read on July 29th, 2016. http://www.breakthroughenergycoalition.com/en/index.html.

[273] Oras Tynkkynen: Kokoaan suurempi Suomi. Miten voimme vauhdittaa maailman ilmastotyötä ja nostaa esiin suomalaisia ilmastoratkaisuja. Kesäkuu 2016. Tyrsky-Konsultointi Oy 2016. http://www.ym.fi/download/noname/%7BB754352F-F5E4-4283-9F29-AED9A079CABD%7D/119822.

These baskets of solutions should be cross-referenced against the technology needs of recipient developing countries (see above). Recognising the small size of Finland and general lack of available resources, it might make sense to focus strategically on a few areas, or even just one. One model to be emulated could be the work Iceland has been doing to promote geothermal power in East Africa.[274] Work should also leverage on the activities already carried out by Cleantech Finland and other institutions working in the field.

Conclusions on technology development and transfer

Technology development and transfer plays an important role in the implementation of the Paris Agreement. Its role is further enhanced by creating the new technology framework, to provide guidance for the Technology Mechanism's activities. One key challenge will be, how to support the additional responsibilities of the Technology Mechanism under the Paris Agreement and enhance technology development and transfer to the level needed to reach the long-term temperature goal. Without adequate financial support and a pragmatic and cooperative link between the Financial Mechanism and the Technology Mechanism this enhanced technology vision will be difficult to accomplish. Effective coordination between the mechanisms is essential, and it is starting to be addressed more since Paris.

Finland could benefit from the enhanced Technology Mechanism in several ways; Finland could review the technology needs submitted by CTCN recipients and identify areas where Finnish companies could play an active role. Public authorities could play a matchmaking role, connecting needs and providers. Finnish companies could then provide their expertise with public funding from export promotion, development co-operation or both. Also, Finland could actively submit technologies to the CTCN technology library. In addition to compiling information into a catalogue, the relevant authority would need to screen the information so that it is up to date, reliable and compatible with the needs of the library. The work could be coordinated and, to some extent, conducted by the National Designated Entity (NDE) at the Ministry of Economic Affairs and Employment. Finpro's Cleantech Finland and possibly the new emerging markets programme could serve as the operative arm.

12. Capacity building

Enhancing capacity of all countries to implement mitigation and adaptation actions is a central means to achieve the long-term temperature and adaptation goals of the Paris Agreement. Capacity building has historically held a relatively low profile in the global climate negotiations and the related institutional structure. In recent years, after the establishment of the Durban Forum on Capacity Building[275] in 2011 and the UN online portal for capacity building[276] the issue has gained more attention. However, the concrete effects in developing countries have remained relatively limited so far.

The Paris Agreement, however, gives a lot of weight to capacity building as a key means of implementation and addresses the issue through a separate provision in Article 11. The Agreement pays special attention to the situation of countries with the lowest capacities, namely the Least Developed Countries (LDCs) and Small Island Developing States (SIDS). The transparency of capacity building actions is enhanced under the Paris Agreement, so it can be expected that there will be more information available on the actions in this field. It can also be expected

[274] The Geothermal Exploration Project. Read on July 23rd, 2016. ICEIDA. http://www.iceida.is/english/partner-countries/regional-cooperation.

[275] http://unfccc.int/cooperation_and_support/capacity_building/items/6802.php

[276] http://unfccc.int/capacitybuilding/core/activities.html

that there will be more capacity building for developing countries for enhancing their skills on emissions accounting and reporting.

Capacity building is currently delivered through bilateral and multilateral efforts, both within and outside the UNFCCC regime. Under the UNFCCC, more than 12 thematic bodies and operating entities undertake some type of capacity building in developing countries.[277] Outside of the Convention, UN agencies, other international organizations and institutions, academia and civil society also undertake capacity building initiatives and projects.[278] The capacity-building actions under the Convention are guided by the Framework for Capacity Building in Developing Countries agreed in the Marrakech Accords (2001).[279]

12.1 Tasks related to the implementation of the Paris Agreement regarding capacity building

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 11.1

Capacity-building under this Agreement should enhance the capacity and ability of developing country Parties, in particular countries with the least capacity, such as the [LDCs], and those that are particularly vulnerable to the adverse effects of climate change, such as [SIDS], to take effective climate change action, including, inter alia, to implement adaptation and mitigation actions, and should facilitate technology development, dissemination and deployment, access to climate finance, relevant aspects of education, training and public awareness, and the transparent, timely and accurate communication of information.

Article 11.2

Capacity-building should be country-driven, based on and responsive to national needs, foster country ownership of Parties, in particular, for developing country Parties, including at the national, subnational and local levels. Capacity-building should be guided by lessons learned, including those from capacity-building activities under the Convention, and should be an effective, iterative process that is participatory, cross-cutting and gender-responsive.

Article 11.3

All Parties should cooperate to enhance the capacity of developing country Parties to implement this Agreement. Developed country Parties should enhance support for capacity-building actions in developing country Parties.

Article 11.4

All Parties enhancing the capacity of developing country Parties to implement this Agreement, including through regional, bilateral and multilateral approaches, shall regularly communicate on these actions or measures on capacity-building. Developing country Parties should regularly communicate progress made on implementing capacity-building plans, policies, actions or measures to implement this Agreement.

Article 11.5

[277] These include the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention (CGE), the Least Developed Countries Expert Group (LEG), the Adaptation Committee, the Executive Committee of the Warsaw International Mechanism for Loss and Damage, the TEC and the CTCN, the Standing Committee on Finance (SCF), the GCF and the Executive Board of the Clean Development Mechanism (CDM).

[278] World Resources Institute (2015): How to strengthen the institutional architecture for capacity building to support the post-2020 climate regime http://www.wri.org/sites/default/files/How_to_Strengthen_the_Institutional_Architecture_for_Capacity_Building_to_Support_the_Post-2020_Climate_Regime.pdf

[279] http://unfccc.int/resource/docs/cop7/13a01.pdf#page=5

Capacity-building activities shall be enhanced through appropriate institutional arrangements to support the implementation of this Agreement, including the appropriate institutional arrangements established under the Convention that serve this Agreement. The [CMA] shall, at its first session, consider and adopt a decision on the initial institutional arrangements for capacity-building.

Articles 13.9 and 13.10

13.9: Developed country Parties shall, and other Parties that provide support should, provide information on financial, technology transfer and capacity-building support provided to developing country Parties under Articles 9, 10 and 11.
13.10: Developing country Parties should provide information on financial, technology transfer and capacity-building support needed and received under Articles 9, 10 and 11.

Article 13.11

Information submitted by each Party under paragraphs 7 and 9 of this Article shall undergo a technical expert review, in accordance with decision 1/CP.21. For those developing countries that need it in the light of their capacities, the review process shall include assistance in identifying capacity-building needs […]

Article 13.15

Support shall also be provided for the building of transparency-related capacity of developing country Parties on continuous basis.

Decision 1/CP.21, paragraphs 71 and 72

71: Decides to establish the Paris Committee on Capacity-building whose aim will be to address gaps and needs, both current and emerging, in implementing capacity-building in developing country Parties and further enhancing capacity-building efforts, including with regard to coherence and coordination in capacity-building activities under the Convention.

72: Also decides that the Paris Committee on Capacity-building will manage and oversee the work plan mentioned in paragraph 73 below.

Decision 1/CP.21, paragraph 73

Further decides to launch a work plan for the period 2016-2020 with the following activities:

- *a) Assessing how to increase synergies through cooperation and avoid duplication among existing bodies established under the Convention that implement capacity-building activities, including through collaborating with institutions under and outside the Convention;*
- *b) Identifying capacity-building gaps and needs and recommending ways to address them;*
- *c) Promoting the development and dissemination of tools and methodologies for implementation of capacity-building;*
- *d) Fostering global, regional, national and subnational activities;*
- *e) Identifying and collecting good practices, challenges, experiences, and lessons learned from work on capacity-building by bodies established under the Convention;*
- *f) Exploring how developing country Parties can take ownership of building and maintaining capacity over time and space;*
- *g) Identifying opportunities to strengthen capacity at the national, regional and subnational level;*
- *h) Fostering dialogue, coordination, collaboration and coherence among relevant processes and initiatives under the Convention, including through exchanging information on capacity-building activities and strategies of bodies established under the Convention;*
- *i) Providing guidance to the secretariat on the maintenance and further development of the web-based capacity-building portal.*

Decision 1/CP.21, paragraphs 74 – 81

74: Decides that the Paris Committee on Capacity-building will annually focus on an area or theme related to enhanced technical exchange on capacity-building, with the purpose of maintaining up-to-date knowledge on the successes and challenges in building capacity effectively in a particular area.

75: Requests the [SBI] to organize annual in-session meetings of the Paris Committee on Capacity-building.

76: Also requests the [SBI] to develop the terms of reference for the Paris Committee on Capacity-building, in the context of the third comprehensive review of the implementation of the capacity-building framework, also taking into account paragraphs 71-75 above and paragraphs 79-80 below, with a view to recommending a draft decision on this matter for consideration and adoption by the [COP 22].

77: Invites Parties to submit their views on the membership of the Paris Committee on Capacity-building by 9 March 2016.

78: Requests the secretariat to compile the submissions referred to in paragraph 77 above into a miscellaneous document for consideration by the [SBI 44].

79: Decides that the inputs to the Paris Committee on Capacity-building will include, inter alia, submissions, the outcome of the third comprehensive review of the implementation of the capacity-building framework, the secretariat's annual synthesis report on the implementation of the framework for capacity-building in developing countries, the secretariat's compilation and synthesis report on capacity-building work of bodies established under the Convention and Kyoto Protocol, and reports on the Durban Forum and the capacity-building portal.

80: Requests the Paris Committee on Capacity-building to prepare annual technical progress reports on its work, and to make these reports available at the sessions of the [SBI] coinciding with the sessions of the [COP].

81: Decides, at [COP 25], to review the progress, need for extension, the effectiveness and enhancement of the Paris Committee on Capacity-building and to take any action it considers appropriate, with a view to making recommendations to the [CMA 1] on enhancing institutional arrangements for capacity-building consistent with Article 11, paragraph 5, of the Agreement

Decision 1/CP.21, paragraphs 82 and 83

82: Calls upon all Parties to ensure that education, training and public awareness, as reflected in Article 6 of the Convention and in Article 12 of the Agreement are adequately considered in their contribution to capacity-building.

83: Invites the [CMA 1] to explore ways of enhancing the implementation of training, public awareness, public participation and public access to information so as to enhance actions under the Agreement.

Decision 1/CP.21, paragraphs 84 - 88

84: Decides to establish a Capacity-building Initiative for Transparency in order to build institutional and technical capacity, both pre- and post-2020. This initiative will support developing country Parties, upon request, in meeting enhanced transparency requirements as defined in Article 13 of the Agreement in a timely manner.

85: Also decides that the Capacity-building Initiative for Transparency will aim:

- ***a) To strengthen national institutions for transparency-related activities in line with national priorities;***
- ***b) To provide relevant tools, training and assistance for meeting the provisions stipulated in Article 13 of the Agreement;***
- ***c) To assist in the improvement of transparency over time.***

86: Urges and requests the Global Environment Facility to make arrangements to support the establishment and operation of the Capacity-building Initiative for Transparency as a priority reporting-related need, including

through voluntary contributions to support developing country Parties in the sixth replenishment of the [GEF] and future replenishment cycles, to complement existing support under the [GEF].

87. Decides to assess the implementation of the Capacity-building Initiative for Transparency in the context of the seventh review of the Financial Mechanism.

88. Requests that the [GEF], as an operating entity of the Financial Mechanism, include in its annual report to the [COP] the progress of work in the design, development and implementation of the Capacity-building Initiative for Transparency referred to in paragraph 84 above starting in 2016.

The Paris Agreement states that capacity building should help developing countries, especially countries with least capacities such as LDCs and SIDS, to effectively implement action on climate change mitigation and adaptation.[280] All Parties should cooperate to enhance the capacity of developing country Parties, and developed countries should enhance their support for capacity building action. It should also facilitate technology development and transfer, access to climate finance, education and training, and the transparent communication of information.[281] Capacity building should be country-driven and based on actual needs.[282] It should foster developing country ownership at the national, subnational and local levels. Capacity building should be guided by lessons learned, and should be an effective, participatory and iterative process, and take gender issues into account.[283]

Key features of the item

The Paris Agreement requires all Parties to periodically submit increasingly ambitious NDCs[284] and to account for their NDCs[285]. However, countries are not all at the same stage of development, nor do they have the same capabilities. Developed country governments, together with other stakeholders such as the private sector and non-governmental organisations, need to increase their support for developing countries to help them build the right domestic conditions for climate action. The Paris Agreement increases the weight of the capacity building framework compared to e.g. the Kyoto Protocol. Under the Paris Agreement, where all countries contribute to climate change mitigation and have binding requirements to communicate and maintain NDCs, the need for capacities to implement the Agreement increase substantially.

The Paris Decision establishes two significant new capacity building related initiatives: the Paris Committee on Capacity-building, which will address gaps and needs in implementing capacity-building in developing country Parties and further enhance those efforts[286], and the Capacity-building Initiative for Transparency, supported by the GEF, which will improve developing countries' abilities to account and report for their emissions and support received.[287] In addition to the new initiatives, the suitable institutional arrangements for capacity building established under the Convention will serve the Paris Agreement.[288]

All Parties enhancing the capacity of developing country Parties have to regularly communicate on these actions or measures, and developing countries should report on the advancements

[280] Article 11.1 of the Paris Agreement

[281] Article 11.1 of the Paris Agreement

[282] Article 11.2 of the Paris Agreement

[283] Article 11.3 of the Paris Agreement

[284] Articles 4.2 and 4.3 of the Paris Agreement

[285] Article 4.13 of the Paris Agreement

[286] Decision 1/CP.21, paragraphs 71 - 81

[287] Decision 1/CP.21, paragraphs 84 - 88

[288] Article 11.5 of the Paris Agreement

made.[289] Also, under the Paris transparency framework, capacity building support needs to be reported, and it goes through a technical review process.[290] Capacity building support can also be assessed in the global stocktakes, rules for which are going to be adopted at the first session of the CMA.[291]

Some appropriate arrangements under the Convention, which could support the Paris Agreement, include for example the Least Developed Country Expert Group (LEG), whose mandate was extended in Paris[292] and the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention (CGE)[293]. A decision on the appropriate institutions was not yet taken in Paris, but was tasked for consideration and adoption by CMA 1.[294]
The new Paris Committee for Capacity Building will coordinate and support the work of the different institutions, and find synergies between them.[295] The Committee will annually focus on an area or theme related to enhanced technical exchange on capacity-building, with the purpose of maintaining up-to-date knowledge on related successes and challenges.[296] The Paris Committee on Capacity-building will also manage and oversee the work plan mentioned in paragraph 73 of the Paris Decision.[297]

The Capacity-building Initiative for Transparency is an important initiative in the world of the bottom-up NDCs of the Paris Agreement, where all countries need to report on their emissions, and such reporting is prerequisite for the credibility of such bottom-up approach. The capacities to do this differ between countries, and it is key that developing countries receive support in their accounting and reporting, especially in the early years of implementing the Paris Agreement.

Scope of the tasks

Work plan on capacity building

The Paris Decision also launches a work plan for the period of 2016-2020 on capacity building.[298] The Paris Committee on Capacity-building will manage and oversee the work plan. The work plan includes e.g. the following:

- Assessing synergies between existing institutions, and collaborating with institutions outside the Convention.
- Fostering dialogue and coordination between the relevant initiatives under the Convention
- Identifying gaps and needs, and finding solutions for addressing them
- Promoting development of capacity building tools and methodologies
- Fostering global, regional, national and subnational activities
- Identifying experiences and lessons learned
- Exploring how developing countries could take ownership of capacity building and maintenance

[289] Article 11.4 of the Paris Agreement

[290] Articles 13.9-13.11 of the Paris Agreement

[291] Decision 1/CP.21, paragraphs 99-101

[292] Decision 19/CP.21 , http://unfccc.int/resource/docs/2015/cop21/eng/10a03.pdf

[293] http://unfccc.int/national_reports/non-annex_i_natcom/cge/items/2608.php

[294] Article 11.5 of the Paris Agreement

[295] Decision 1/CP.21, paragraphs 71-73

[296] Decision 1/CP.21, paragraph 74

[297] Decision 1/CP.21, paragraph 72

[298] Decision 1/CP.21, paragraph 73

- Providing guidance for the maintenance and development of the web-based portal.[299]

Paris Committee on Capacity Building

Parties submitted their views by March 2016 on the membership of the Paris Committee on Capacity-building. The terms of reference for the Paris Committee, including the membership issues, were discussed by SBI in the May 2016 session in Bonn, and a recommendation on these was forwarded to COP 22 for consideration. In the context of developing the terms of reference, the third comprehensive review of the implementation of the framework for capacity-building under the Convention was taken into account.[300] In addition, Parties were asked to submit their views on the annual focus area of the Committee for the year 2017 by 29 August 2016.[301] The Paris Decision requests the Committee to further develop and adopt its working modalities and procedures at its first meeting, which will be organised by the SBI in conjunction with the SBI 46 in May 2017.

The Paris Committee on Capacity-building has to prepare annual technical progress reports on its work, and to make these reports available at the sessions of the SBI held in conjunction with the COP sessions.[302] COP 25 to be held in 2019 will review the progress, effectiveness and need for extension of the Committee, and will make recommendations to CMA 1 on enhancing institutional arrangements for capacity-building.[303]

Capacity-building Initiative for Transparency

The GEF is requested by the Paris Decision to make arrangements to support the establishment and operation of the Capacity-building Initiative for Transparency as a priority, including through voluntary contributions in the sixth replenishment cycle of the GEF (until June 2018[304]) and future replenishment cycles. The implementation of the Initiative will be assessed in the context of the seventh review of the Financial Mechanism (likely to be done in conjunction with COP 27 in 2021[305]). The GEF, as an operating entity of the Financial Mechanism, is also requested to include the progress of work in the design, development and implementation of the Initiative in its annual report to the COP.[306]

Other issues

The Paris Decision also invites CMA 1 to explore ways of enhancing the implementation of training, public awareness, public participation and public access to information so as to enhance actions under the Agreement. This connects also with the work under the Article 6 of the Convention on education, training and awareness-raising. COP 22 is expected to give a boost to capacity building and education issues, as there is a number of initiatives and dialogues on this issue launched in the past year.[307] According to the World Resources Institute, COP 22 could decide to take for example the following actions on this issue:

[299] Decision 1/CP.21, paragraph 73

[300] http://unfccc.int/resource/docs/2016/sbi/eng/l21.pdf

301 http://unfccc.int/resource/docs/2016/sbi/eng/l24.pdf ja http://unfccc.int/resource/docs/2016/sbi/eng/l24a01.pdf

[302] Decision 1/CP.21, paragraph 80

[303] Decision 1/CP.21, paragraph 81

[304] https://www.thegef.org/gef/GEF_Replenishment

[305] The 6th review will be completed in COP 23 in 2017, and the reviews are conducted every 4 years http://unfccc.int/cooperation_support/financial_mechanism/review/items/3658.php

[306] Decision 1/CP.21, paragraph 86-88

[307] These include e.g. the recommendations made by 750 education experts from 22 countries who met in India in January 2016 and adopted he Ahmedabad Framework for action, as well as work done under the International Labour Organization and the UN Alliance on Climate Change Education, Training and Public Awareness. Source: WRI 2016

- Securing funding for climate change education
- Including education and capacity building in updated national climate plans (including future NDCs)
- Promoting the greening of enterprises, workplace practices and labour market actions.[308]

Links with other topics/tasks

Capacity building is linked to nearly all areas of the Paris Agreement, as developing countries need support in implementing their NDCs and accounting for their emissions. Capacity building links directly to finance and technology, as these are often all applied together in the same actions or projects in developing countries. In a technology transfer project, there is often also a capacity building component on how to utilise the technology efficiently and correctly. Technology and capacity building projects are often also funded at least partly by public climate finance. Capacity building also links with mitigation, adaptation and the transparency framework in an integrated manner. Capacity enhancement is critical in achieving the mitigation and adaptation goals of the Paris Agreement. The Capacity-Building Initiative for Transparency is the most concrete link with the transparency framework, and the initiative is also directly connected with mitigation. Also, there is a link between capacity building and the facilitative nature of the compliance and implementation mechanism, which is discussed below in Chapter 8.

12.2 How could Finland provide increased capacity building under the Paris Agreement?

Typical capacity bottlenecks in developing countries regarding the implementation of the Paris Agreement can be expected to include challenges with complying with the new transparency framework, including preparation of NDCs and accounting for them. There are also challenges with implementation of mitigation and adaptation actions because of lack of technical expertise, suitable technical solutions, lack of access to finance and in-depth knowledge of the potential and feasibility of mitigation and adaptation actions. The Paris Agreement places particular emphasis on capacity building to help developing and emerging countries put appropriate transparency measures in place – acknowledging that it took developed countries approximately 15 years[309] to build their greenhouse gas emission inventory systems to the level they are today. The enhanced capacity-building framework of the Paris Agreement, through increasing global interest in capacity building activities, could provide opportunities to match Finnish expertise with developing country capacity building needs more effectively than e.g. under the Kyoto Protocol.

The Paris Committee on Capacity Building is tasked to address gaps and needs related to capacity building[310], and maintaining up-to-date knowledge on the successes and challenges in building capacity effectively in a particular area of its annual theme[311]. In this work also the need for special know-how in sectors where Finland has strong expertise, can come up. Successful capacity building exercises that Finland has participated in could also be promoted in the upcoming work of the Paris Committee, if opportunities for this arise.

Finland has significant expertise, and could provide expertise and technical assistance to developing countries in terms of implementing and accounting for their NDCs. The Capacity-

[308] World Resources Institute (2016): Staying on track from Paris: Advancing the Key Elements of the Paris Agreement

[309] http://www.wri.org/sites/default/files/How_to_Strengthen_the_Institutional_Architecture_for_Capacity_Building_to_Support_the_Post-2020_Climate_Regime.pdf

[310] Decision 1/CP.21, paragraph 71

[311] Decision 1/CP.21, paragraphs 74

building Initiative for Transparency, funded by the GEF, will increase capacity building in the field of greenhouse gas **emissions accounting and reporting** and also increase funding for such actions. There is long-standing expertise from Finland regarding accounting and reporting, and Finland has also been active in the negotiations on this topic in the UNFCCC framework. Examples from institutions from Finland that are experts in this field are Statistics Finland,[312] the Finnish Environment Institute (SYKE) and private companies in the field of emissions measurement, reporting and verification (MRV). Statistics Finland participates actively in the global climate negotiations as part of the Finnish delegation, for example in the development of accounting rules under the Paris Agreement.
Finnish organisations could help developing countries in setting up their accounting and reporting systems. Cooperation with other developed countries in providing the support can be fruitful in providing capacity building to developing countries. Examples of recent capacity-building related cooperation in this field with Finnish participation include the NAMA[313] Readiness programmes of the Nordic Partnership Initiative in Peru[314] and Vietnam[315]. In these programmes, the Nordic countries supported the development of MRV systems for the municipal waste sector in Peru and the cement sector in Vietnam. The systems produce data for the emission inventories of the countries, and are thus related to the accounting under the Paris Agreement. Lessons learned from the NAMA Readiness programmes could also be used in the development of the transparency framework and accounting for NDCs in developing countries.[316] Similarly, lessons learned from Finland's CDM/JI pilot and procurement programmes (1999-2006 and 2006-2014), on the design of mitigation projects as well as the MRV of their emission reductions, could be utilised in the development of transparency frameworks for NDCs and climate finance in developing countries. Implementation of concrete projects can be an effective way of building capacity and institutions and road-testing standards and procedures.

Finland has special expertise in the field of **forestry and land use accounting**. It has long-term expertise and technologies for e.g. forest cover calculation through satellite imaging, setting forest management reference levels and estimating the impact of forests as sinks. Institutions working in this field in Finland include e.g. the Natural Resources Institute of Finland (LUKE), and consultancy firms such as Indufor, ForestCalc, Finnmap, Camaleonte and Saffron Consulting. Finland has been active also in the EU discussions and global climate negotiations in this topic.

Finland is also a world-leader in **sustainable forest management** practices. In the field of forestry and land use, for example on achieving a closed fuel cycle and thus decreasing the environmental effects of the forest industry, Finland could also provide capacity building to other countries. Forestry expertise of Finland is discussed in more detail in chapter 3.3 above.

Regarding adaptation, Finland could provide capacity building and technology transfer e.g. in the field of **meteorology and early warning systems.** An example of institutions carrying out such work include the Finnish Meteorological Institute[317] (Ilmatieteen Laitos) who provide international consultancy to national hydrometeorological services, ministries, municipalities, energy companies and equipment manufacturers worldwide. The Meteorological Institute has already done several ODA-financed "IKI" projects[318], which are bilateral projects between Finnish gov-

[312] http://www.stat.fi/tup/index_en.html

[313] NAMA = Nationally Appropriate Mitigation Action

[314] Peru Waste Sector NAMA readiness programme: http://norden.diva-portal.org/smash/get/diva2:883562/FULLTEXT02.pdf

[315] Vietnam Cement Sector NAMA programme: http://norden.diva-portal.org/smash/get/diva2:818886/FULLTEXT01.pdf

[316] Laine, A., Wiesmann, J. (2016): Nordic Partnership Initiative: Measurement, Reporting and Verification in NAMAs: Lessons for NDCs http://www.ndf.fi/sites/ndf.fi/files/news_attach/namas.pdf

[317] http://en.ilmatieteenlaitos.fi/international-consulting-services

[318] IKI = Instituutioiden välisen yhteistyön instrumentti, http://formin.finland.fi/public/default.aspx?contentId=324351&nodeId=49356&contentlan=1&culture=fi-FI

ernmental organisations and developing country governmental organisations, in this field. Another Finnish institution is Vaisala[319], who provide meteorological equipment, related training and technical support.

Another adaptation-related field is **flood warning,** expertise for which can be found through the Finnish Water Forum.[320] Previously mentioned institutions Finnish Meteorological Institute and Finnish Environment Institute are also experts in this field. Furthermore, Finland has special expertise in combining ICT solutions with water management, which can also provide mitigation or adaptation benefits.

In the field of energy, Finland has special expertise and knowledge in e.g. **co-generation of electricity and heating/cooling.** A related expertise field are expertise in building district heating/cooling networks. Nordic countries, such as Finland are experts in producing electricity efficiently through co-generation, where also the by-product of the electricity production is used. Institutions providing services in this field in Finland include e.g. Finnish energy utilities and Pöyry, who could also help developing countries in setting up such systems in suitable areas, and train them to utilise these systems efficiently.

Another energy-related field where Finland has world-class expertise is **energy efficiency**. For example Motiva[321] carries out energy audits in industry. In the audits the most suitable mitigation options are discovered, including their impacts on CO_2 emissions, which helps planning and implementing emission reduction actions by increasing energy efficiency. Motiva has already done many energy audits in developing countries, and also organizes basic and follow-up training for energy auditors.

In the field of **circular economy and resource efficiency** Finland could also help developing countries in making their economies more efficient. Circular economy is a novel economic model in which the focus is on reusing materials and value, and on creating added value in products through services and smart solutions. One institution working in this field is Finnish Innovation Fund Sitra[322]. According to Sitra's Mari Pantsar, the action plan for the circular economy being compiled in Finland has also attracted a lot of international interest. "We have everything needed to become a leading circular economy country and share our competence with others. However, we have to be quicker than the others because we aren't the only country interested in being the leader."[323]

As a leading country in education and high-quality public schools, Finland could also increasingly export its **climate change education** models and materials to developing countries. According to the Ministry of Education and Culture of Finland, the key words in Finnish education policy are quality, efficiency, equity and internationalisation.[324] These concepts also apply to climate change education; it should be available to all in an efficient way and in high quality.

In a report commissioned by Sitra, the level of climate change education in Finnish Universities was assessed, and areas of improvement were found e.g. in cooperation between different institutions and availability of basic climate education for all students.[325] On the basis of the

[319] http://www.vaisala.com/en/weather/Pages/default.aspx

[320] http://www.finnishwaterforum.fi/en/

[321] http://motiva.fi/en/areas_of_operation/energy_auditing

[322] http://www.sitra.fi/en/ecology/circular-economy

[323]http://www.sitra.fi/en/news/well-being-data/more-productivity-through-sustainable-growth-sitra-experts-participate-oecd

[324] http://www.minedu.fi/OPM/Koulutus/?lang=en

[325] Liljeström, E., Monni, S. (2015): Ilmastoalan yliopisto-opetuksen nykytila Suomessa http://www.sitra.fi/julkaisut/Muut/Ilmastoalan%20koulutuksen%20nykytila%202015.pdf

study, Sitra is currently putting together online open-course materials on the basics of climate change, which will be accessible to everyone. The course materials will be made available online from autumn 2016. The learning package is being assembled by researchers and teachers from the University of Helsinki and the Lappeenranta University of Technology in co-operation with institutions including the Helsinki Metropolia University of Applied Sciences, the University of the Arts Helsinki and the Finnish Meteorological Institute.[326]

Making best use of limited resources

In political realities of limited resources and competing priorities, the effectiveness of climate cooperation is key for making best use of scarce resources. Building on existing initiatives, strengths and cooperation, and mainstreaming climate considerations into operations, can offer opportunities for resource-effectiveness. As the Paris Agreement is a long-term instrument, Finland should keep in mind how to answer to the needs arising from the Agreement in an effective way in the future, despite current financial challenges. In the current period with the budget cuts in place it is especially important to focus on the effectiveness of the actions, to create as much value-added with the constricted resources as possible. In this work also the private sector has a key role, as it can make business sense for private actors to provide capacity building for developing country actors on e.g. technical issues related to their own technologies, which can at least in some cases be calculated as capacity building. The private sector can also help the governmental organisations in situations where there is lack of human resources in the public sector related to these issues.

The grants provided by Finnpartnership, and the cooperation supported by the grants, provide an existing platform for the provision of capacity building. Currently, mitigation is an element in 4-10 % of the projects supported by Finnpartnership. Ways to increase this share are may be worth to study.

Conclusions on capacity building

The Paris Agreement has universal requirements to all countries to submit increasingly ambitious NDCs, and to account for and report their climate actions. However, countries are not all at the same stage of development, nor do they have the same levels of capabilities. The Paris Decision establishes two significant new capacity building related initiatives: the Paris Committee on Capacity-building, which will address gaps and needs in implementing capacity-building in developing country Parties and further enhance those efforts, and the Capacity-building Initiative for Transparency, which will improve developing countries' abilities to account and report for their emissions and support received. These developments bring capacity building to the forefront of the implementation of the Paris Agreement, as its role has been somewhat limited in the earlier climate agreements. Finland has significant expertise in many of the fields important to implement the Paris Agreement, and despite the country's small size, Finland can provide expertise and technical assistance to multiple developing countries in implementing and accounting for their NDCs. This report assesses some of the areas Finland has special expertise in.

13. Adaptation

In terms of climate change adaptation, the Paris Agreement marks a new era by establishing a long-term global goal for adaptation on par with a long-term mitigation goal. In Article 7.1, Parties agree on a goal "on adaptation of enhancing adaptive capacity, strengthening resilience

[326] http://www.sitra.fi/en/blog/carbon-neutral-industry/preparing-online-learning-materials-climate-education-testers-now

and reducing vulnerability to climate change with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2". As a result, the status of adaptation has been significantly elevated in comparison to what it was when the UNFCCC was adopted in 1992. The Paris Agreement also recognises the link between adaptation and mitigation, including in Article 7.4 where it highlights that "greater levels of mitigation can reduce the need for additional adaptation efforts." The Agreement also points out that "greater adaptation needs can involve greater adaptation costs"[327] and calls for countries to identify and inform about vulnerabilities that should be prioritized and addressed to promote greater climate resilience.

Furthermore, the Paris Agreement seeks to strengthen Parties' adaptation planning processes. For example, Parties should submit and periodically update an adaptation communication, which will be made publicly available through a registry maintained by the Secretariat.

13.1 Tasks related to the implementation of the Paris Agreement regarding adaptation

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 7

1. Parties hereby establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2.

2. Parties recognize that adaptation is a global challenge faced by all with local, subnational, national, regional and international dimensions, and that it is a key component of and makes a contribution to the long-term global response to climate change to protect people, livelihoods and ecosystems, taking into account the urgent and immediate needs of those developing country Parties that are particularly vulnerable to the adverse effects of climate change.

3. The adaptation efforts of developing country Parties shall be recognized, in accordance with the modalities to be adopted by the [CMA] at its first session.

4. Parties recognize that the current need for adaptation is significant and that greater levels of mitigation can reduce the need for additional adaptation efforts, and that greater adaptation needs can involve greater adaptation costs.

5. Parties acknowledge that adaptation action should follow a country-driven, gender- responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate.

6. Parties recognize the importance of support for and international cooperation on adaptation efforts and the importance of taking into account the needs of developing country Parties, especially those that are particularly

[327] Article 7.4 of the Paris Agreement.

vulnerable to the adverse effects of climate change.

7. Parties should strengthen their cooperation on enhancing action on adaptation, taking into account the Cancun Adaptation Framework, including with regard to:

(a) Sharing information, good practices, experiences and lessons learned, including, as appropriate, as these relate to science, planning, policies and implementation in relation to adaptation actions;

(b) Strengthening institutional arrangements, including those under the Convention that serve this Agreement, to support the synthesis of relevant information and knowledge, and the provision of technical support and guidance to Parties;

(c) Strengthening scientific knowledge on climate, including research, systematic observation of the climate system and early warning systems, in a manner that informs climate services and supports decision-making;

(d) Assisting developing country Parties in identifying effective adaptation practices, adaptation needs, priorities, support provided and received for adaptation actions and efforts, and challenges and gaps, in a manner consistent with encouraging good practices; and

(e) Improving the effectiveness and durability of adaptation actions.

8. United Nations specialized organizations and agencies are encouraged to support the efforts of Parties to implement the actions referred to in paragraph 7 of this Article, taking into account the provisions of paragraph 5 of this Article.

9. Each Party shall, as appropriate, engage in adaptation planning processes and the implementation of actions, including the development or enhancement of relevant plans, policies and/or contributions, which may include:

- *a) The implementation of adaptation actions, undertakings and/or efforts;*
- *b) The process to formulate and implement national adaptation plans;*
- *c) The assessment of climate change impacts and vulnerability, with a view to formulating nationally determined prioritized actions, taking into account vulnerable people, places and ecosystems;*
- *d) Monitoring and evaluating and learning from adaptation plans, policies, programmes and actions; and*
- *e) Building the resilience of socioeconomic and ecological systems, including through economic diversification and sustainable management of natural resources.*

10. Each Party should, as appropriate, submit and update periodically an adaptation communication, which may include its priorities, implementation and support needs, plans and actions, without creating any additional burden for developing country Parties.

11. The adaptation communication referred to in paragraph 10 of this Article shall be, as appropriate, submitted and updated periodically, as a component of or in conjunction with other communications or documents, including a national adaptation plan, a nationally determined contribution as referred to in Article 4, paragraph 2, and/or a national communication.

12. The adaptation communications referred to in paragraph 10 of this Article shall be recorded in a public registry maintained by the secretariat.

13. Continuous and enhanced international support shall be provided to developing country Parties for the implementation of paragraphs 7, 9, 10 and 11 of this Article, in accordance with the provisions of Articles 9, 10 and

11.

14. The global stocktake referred to in Article 14 shall, inter alia:

(a) Recognize adaptation efforts of developing country Parties;
(b) Enhance the implementation of adaptation action taking into account the adaptation communication referred to in paragraph 10 of this Article;
(c) Review the adequacy and effectiveness of adaptation and support provided for adaptation; and
(d) Review the overall progress made in achieving the global goal on adaptation referred to in paragraph 1 of this Article.

Decision 1/CP.21, paragraphs 41-46

41. Requests the Adaptation Committee and the Least Developed Countries Expert Group to jointly develop modalities to recognize the adaptation efforts of developing country Parties, as referred to in Article 7, paragraph 3, of the Agreement, and make recommendations for consideration and adoption by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its first session;

42. Also requests the Adaptation Committee, taking into account its mandate and its second three-year workplan, and with a view to preparing recommendations for consideration and adoption by the [CMA] at its first session:

(a) To review, in 2017, the work of adaptation-related institutional arrangements under the Convention, with a view to identifying ways to enhance the coherence of their work, as appropriate, in order to respond adequately to the needs of Parties;

(b) To consider methodologies for assessing adaptation needs with a view to assisting developing country Parties, without placing an undue burden on them;

43. Invites all relevant United Nations agencies and international, regional and national financial institutions to provide information to Parties through the secretariat on how their development assistance and climate finance programmes incorporate climate-proofing and climate resilience measures;

44. Requests Parties to strengthen regional cooperation on adaptation where appropriate and, where necessary, establish regional centres and networks, in particular in developing countries, taking into account decision 1/CP.16, paragraph 30;

45. Also requests the Adaptation Committee and the Least Developed Countries Expert Group, in collaboration with the Standing Committee on Finance and other relevant institutions, to develop methodologies, and make recommendations for consideration and adoption by the [CMA] at its first session on:

(a) Taking the necessary steps to facilitate the mobilization of support for adaptation in developing countries in the context of the limit to global average temperature increase referred to in Article 2 of the Agreement;

(b) Reviewing the adequacy and effectiveness of adaptation and support referred to in Article 7, paragraph 14(c), of the Agreement;

46. Further requests the Green Climate Fund to expedite support for the least developed countries and other developing country Parties for the formulation of national adaptation plans, consistent with decisions 1/CP.16 and 5/CP.17, and for the subsequent implementation of policies, projects and programmes identified by them;

The Paris Agreement recognizes the need to address a range of areas for adjustment to the impacts of climate change across ecological social and economic dimensions. According to the definition by the IPCC, adaptation refers to “adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change".[328] The Paris Agreement aligns its scope with the IPCC definition on adaptation in the sense that it recognizes the need to address areas for adjustment to the impacts of climate change. With respect to the ecological context of adaptation, Articles 7.2 and 7.5 of the Paris Agreement recognise and acknowledge the need for ecosystem-based adaptation efforts. This means taking an ecosystem-oriented approach to use of the environment, along with building greater resilience into the management of ecosystems. Article 7.9 points to the role of the need to build ecological resilience as an adaptation action, based on the assessments of impacts and vulnerabilities of ecosystems to climate change.

The Paris Agreement recognises the social adjustments needed with respect to climate change. Paragraph 2 of Article 7 recognises that long-term adaptation responses need to protect people and livelihoods. Paragraph 5 of Article 7 further elaborates to acknowledge the importance that social principles need to play in adaptation responses through gender-responsive and participatory approaches. Further acknowledgement is given for the need to consider vulnerable groups. Depending on the adaptation need, vulnerable groups could include, for example, refugees, internally displaced, elderly, indigenous peoples etc. As part of the adaptation response, national prioritised actions are expected to focus on responding to the needs of the most vulnerable people and places, and be informed through vulnerability assessments.

The economic dimension of climate change is addressed in the Paris Agreement in Paragraphs 1 and 4. Paragraph 1 notes that adaptation should contribute to sustainable development, noting the global temperature goal referred to in Article 2. Paragraph 4 recognizes that the current and future needs for adaptation within the economic context are linked with the realities of mitigation ambition. Paragraph 4 presents the reality that future costs for medium and long run efforts on adaptation will reflect to what extent mitigation efforts to meet the global temperature goal in the short run are successful. The Paris Agreement does note the need to recognise the efforts of developing countries and will assess the adequacy and effectiveness of support in the global stocktake.[329]

In addition to addressing the social, ecological and economic context of adaptation, the Paris Agreement also outlines that Parties should take into account the Cancun Adaptation Framework. Very concisely, the Cancun Adaptation Framework lists a series of actions for information sharing, strengthening institutions, strengthening scientific knowledge, assisting developing countries and improving the effectiveness and durability across the social, ecological and economic dimensions of adaptation.

The Paris Decision contains considerable emphasis and onus on Parties to view adaptation as one of the key elements of the agreement. Adaptation features as a stand-alone sub-section under Section III.

Key features of the item

The Paris Agreement and Decision include an extensive list of issues relating to adaptation and how all Parties should go about implementing these points.[330] Some of the features, for exam-

[328] IPCC 2001, Third Assessment Report

[329] Article 14 of the Paris Agreement

[330] Article 7 of the Paris Agreement and paragraphs 41-46 of the Decision 1/CP.21

ple, including those recognising the joint role of adaptation with respect to ecosystems, the biosphere and forests are covered under Chapter 3. Some features with respect to finance and mitigation are also covered in other sections of this report. Therefore, to keep this section somewhat concise, this Chapter focuses on features that are unique to adaptation or signify a significant or important development with respect to adaptation will be analysed that are of core interest to Finland.

Adaptation and Indigenous Knowledge – Paragraph 5 of Article 7 in the Paris Agreement reiterates language contained in the Cancun Adaptation Framework (Paragraph 12). It is one of the few parts of the Agreement that recognizes the role of indigenous knowledge, alongside science-based knowledge, on adaptation. Paragraph 12 of the Cancun Adaptation Framework states that adaptation in accordance with the Convention should follow a "participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems…based on and guided by…traditional and indigenous knowledge".[331]

There are concerns from indigenous peoples groups as to what extent this part of the Paris Agreement will be supported and implemented. The acknowledgement of the role of indigenous peoples' knowledge alongside science-based knowledge in the Paris Agreement does not reflect the current distance between these two bodies of knowledge. Currently there is very limited contribution by indigenous peoples to literature, and specifically scientific publications like the IPCC AR5, and available research on adapting to climate change.

Although it has long been recognised that Indigenous Peoples, as a group, are vulnerable to the impacts of climate change and that their accumulated knowledge can provide valuable lessons for adaptation, the contribution gap indicates that these vulnerabilities are not able to be presented in a balanced manner in concert with science-based knowledge in implementing the Paris Agreement (Ross 2009[332]). Indicative of this is the lack of a specific chapter on the vulnerabilities of Indigenous People in the IPCC AR5, though there are references throughout the report. Article 7.5 of the Paris Agreement contains the soft language text that Parties "should" and Parties "acknowledge" this role of indigenous knowledge. This means that it will ultimately depend on whether acknowledgement provides a strong enough impetus for inclusion in actions, given the "country-driven" nature of that paragraph in the Paris Agreement.

Article 7.8 is the only reference in the Paris Agreement that specifically encourages UN Organizations and Agencies to respond to the Paris Agreement. Article 7.8 cross-references to Articles 7.5 (i.e. on the principles of engagement) and 7.7 (i.e. on the direction of engagement) demonstrating the Agreement's clear definition regarding the role and expectations on adaptation for these UN agencies. An increasing number of UN agencies have been and continue to be actively engaged in addressing climate change with a focus on adaptation. These include UNEP, FAO, IPCC, UNDP, UN University and, of course the UNFCCC. A considerable portion of support and finance for adaptation planning, implementation and research has been, and will be, delivered to developing countries through these UN Organisations.

Article 7.9 places responsibilities on all Parties to undertake the planning and implementation of adaptation actions by using strong language such that "each Party shall" undertake the "development or enhancement of relevant plans, policies and/or contributions". The paragraph goes on to outline what those actions might include, but does not distinguish between developing countries or vulnerable groups directly, as do Articles 7.2, 7.3 and 7.6. Article 7.9 does however place emphasis of Governments leading national processes to implement adaptation.

[331] Paragraph 12 of the Cancun Adaptation Framework

[332] Salick J, Ross N (2009) Traditional peoples and climate change introduction. Global Environmental Change-Human and Policy Dimensions 19:137–139

Article 7.9 emphasises the role of adaptation planning processes and implementing actions, such as include National Adaptation Plans (NAPs) as well as National Adaptation Programmes of Action (NAPAs) for the LDCs. To generalise, NAPs help countries to conduct adaptation planning in the context of medium- and long-term impacts of climate change and helps countries to integrate climate change into the national decision-making context.

Finland's National Climate Change Adaptation Plan 2022[333], currently serves as the national adaptation plan and is a robust example of what might be required under the Paris Agreement. The Plan is particularly relevant example for countries looking at how to monitoring and evaluate adaptation policies, plans and measures, see Annex II of the Plan. The vulnerability of the Sami Indigenous People and their ecosystem and livelihoods are also mentioned in the Plan[334].

Paragraphs 10-12 of Article 7 detail the modalities for communicating adaptation efforts under the UNFCCC. They provide several references on how Parties can communicate adaptation to the UNFCCC including national communications (i.e. on countries' priorities, needs, plans and actions) and nationally determined contributions outlined in Article 4.2.

Finland communicates issues related to its adaptation planning and implementation in its national communications to the UNFCCC. Finland's 6th National Communication (2013[335]) references Finland's National Strategy for Adaptation to Climate Change (2005[336]), and notes that Finland has advanced adaptation in the water sector, and that adaptation measures have already been launched in the energy sector (Government of Finland 2005). In the 6th communication, climate-related risk assessment has been strengthened for the agriculture sector, and Finnish research has already identified adaptation measures within the forest sector (Government of Finland 2013). The communication notes that other sectors such as mining, industry and health had conducted risk assessments and were addressing adaptation in their relevant contexts. A key area of concern in Finland, however, was that "most insurance companies are still operating at a low adaptation level" (Government of Finland 2013).

The most recent submission by the EU's undertakings in adaptation planning (according to paragraph 12 of Decision 1/CP.20) contains several references to Finland's adaptation planning, noting the process of extensive stakeholder engagement, and streamlined adaptation planning across policies and sectors (Submission by Latvia and the European Commission on behalf of the European Union and its Member States, 2015[337]).

Under the Paris Agreement, a global stocktake process has been agreed on, to review all aspects of the Paris Agreement implementation that will occur every five years. Further evidence that adaptation is now of equal importance with mitigation, is that the global stocktake will include adaptation (see Article 14.1). The global stocktake is expected provide basis for discussion on where developing countries are in their adaptation efforts and review the support for adaptation. The stocktake may have important implications for the future distribution and allocation of climate finance. If, for example, the stocktake reveals that nationally determined contributions collectively lead to a temperature increase of above 2 degrees Celsius, a stronger focus will need to be placed fairly quickly on adapting to that scenario. In this sense, the global goal for adaptation will also be reviewed at the global stocktake.

[333] MMM (2014) Finland's National Climate Change Adaptation Plan 2022. Ministry of Agriculture and Forestry. Helsinki, Finland.

[334] *Ibid*.

[335] Government of Finland (2013). Finland's Sixth National Communicationunder the United NationsFramework Convention on Climate Change. Committee for Preparing the Sixth National Communication. Helsinki, Finland.

[336] Government of Finland (2005). Finland's National Strategy for Adaptation to Climate Change. Ministry of Agriculture and Forestry of Finland. Helsinki, Finland.

[337] http://unfccc.int/files/focus/adaptation/undertakings_in_adaptation_planning/application/pdf/20150602_eu.pdf

Scope of the tasks

Implementation of adaptation arrangements is done through multiple work programmes under the UNFCCC, which evolved prior to the Paris Agreement. Three important milestones that provide the foundations for the work programme on adaptation under the UNFCCC include the LDC Work Programme, the Nairobi Work Programme and the Cancun Adaptation Framework.

Least Developed Country Work Program (LDCWP) includes work related to the LDCWP, Least Developed Countries Fund (LDCF), Guidelines for the preparation of National Adaptation Programs of Action (NAPAs) and Least Developed Countries Expert Group (LEG). COP7 in Marrakesh acknowledged the specific circumstances and vulnerably of LDCs to climate change. It recognized that widespread poverty limits the capacity to adapt to climate change, and that resources for infrastructure, economic development and human development limits LDCs capacity to participate effective in the climate change process. From this, the LDC work Program was established, see Decision 5/CP.7. The work program includes:

- Strengthening existing and, where needed, establishing, national climate change secretariats and/or focal points to enable the effective implementation of the Convention and the Kyoto Protocol, in the LDC Parties;
- Providing training, on an ongoing basis, in negotiating skills and language, where needed, to develop the capacity of negotiators from the LDCs to participate effectively in the climate change process;
- Supporting the preparation of NAPAs;
- Promotion of public awareness programmes to ensure the dissemination of information on climate change issues;
- Development and transfer of technologies, particularly adaptation technology (in accordance with decision 4/CP.7);
- Strengthening of the capacity of meteorological and hydrological services to collect, analyse, interpret and disseminate weather and climate information to support implementation of NAPAs.

The Nairobi Work Programme was established by COP 11 through Decision 2/CP.11, as a mechanism under the Convention to facilitate and catalyse the development and dissemination of information and knowledge that would inform and support adaptation policies and practices.

The Cancun Adaptation Framework was established at COP16 in 2010 and contains 5 clusters: Implementation, support, stakeholder engagement, principles and institutions. The establishment of an Adaptation Committee to enhance work on adaptation in a coherent manner evolved under the framework.

The above is just a summary of the many streams of work that are on-going under adaptation. Decision 1.CP/21 presents a way forward with respect to the work programme on adaptation, but leaves many of the details to be agreed upon as discussions advance. Given the different groups set up under adaptation as outlined above (e.g. Adaptation Committee), and the enhanced role of adaptation now presented in the Paris Agreement and Decision, specific requests have been made to several groups to further the work programme, as outlined below.

Paragraph 41 of Paris Decision requests the Adaptation Committee and the LDC Expert Group to jointly develop modalities to recognize the efforts of developing countries with respect to Article 7.3 of the Paris Agreement. This action will facilitate reporting and recognition of the “adaptation efforts of developing country Parties” and review of the “effectiveness and adequacy of support” for adaptation actions under Article 7.14 of the Paris Agreement for the global stock-

take. Paragraph 45 is also directed at the Adaptation Committee and the LDC Expert Group jointly, to collaborate with the Standing Committee on Finance and other institutions to develop methodologies and make recommendations in preparation for the global stocktake. The first action for the groups will be to make recommendations how to facilitate the mobilization of support for adaptation in developing countries, which is expected to be considered in the context of the global temperature goal from Article 2 of the Paris Agreement. In connection with this, the groups will also review the adequacy and effectiveness of support.

Paragraph 42 of the Paris Decision requests the Adaptation Committee to prepare a set of recommendations for consideration. The first is in relation to the need to review, in 2017, the work of adaptation-related institutional arrangements under the convention, and identify ways to enhance coherence of their work. This is important as there are now many different expert groups, work streams and work programmes for adaptation under the Convention, which are also mixed with loss and damage. In addition to the work programmes outlined above, work programmes under adaptation also include loss and damage, and Technical examination process on adaptation (TEP-A). The request also asks the Adaptation Committee to consider methodologies for assessing adaptation needs with a view to assist developing countries, without placing undue burden on them.

Paragraph 43 is directed at United Nations agencies and international, regional and national institutions to provide information on how their development assistance and climate finance programmes incorporate clime proofing and climate resilience measures. Some programs under the UN already have these measures incorporated into their mandates. For example, the Food and Agriculture Organization of the United Nations responds by making agriculture, forestry and fisheries more productive, sustainable and resilient to climate change. The International Fund for Agricultural Development builds climate resilience of smallholder farmers in developing countries while at the same time reducing poverty, enhancing biodiversity, increasing yields and lowering emissions[338]. Paragraph 43 strengthens the accountability and transparency of the UN agencies and other relevant institutions for ensuing that the finance delivered effectively respond and consider the challenges of climate change.

Links with other topics/tasks

Adaptation (Article 7) shares linkages with many other topics and tasks under the Paris Agreement. Adaptation is referenced in its role under joint mitigation and adaptation for the integrated sustainable management of forests (Article 5) -.indicating its importance to climate change initiatives in sustainable forest management. Mitigation (Article 4) notes that “co-benefits” resulting from adaptation actions can also contribute to mitigation outcomes. Adaptation is mentioned in reference to voluntary cooperation (Article 6) between country Parties on their activities, and in support from developed countries under Finance (Article 9) in balancing between mitigation and adaptation.

Under Article 9 specific reference was made as to the importance of grant-based support to small islands and Least Developed Countries for adaptation. Technology (Article 10), Capacity Building (Article 11), and Transparency (Article 13) also provide reference the application to adaptation actions by country Parties. It is also linked with the global stocktake (Article 14), with four tasks to conduct on adaptation during the stocktaking. Finally, adaptation is linked with the global temperature goal (Article 2) such that as the goal is increasingly exceeded more resources for adaptation will be required. Adaptation is not referenced in Article 8 on Loss and Damage.

[338] UN CEB (2014): How the UN System Supports Ambitious Action on Climate Change, available at: https://www.unsceb.org/CEBPublicFiles/CEB%202014%20How%20the%20UN%20System%20Supports%20Ambitious%20Action%20on%20Climate%20Change_en.pdf

13.2 How could Finland influence the development of the adaptation provisions?

There are several fronts for which Finland can influence the development of the adaptation provisions in the Paris Agreement.

Continue integrating climate change into development cooperation: According to Finland's 6th National Communication, Finland already supports long-term measures that reduce the vulnerability of people and communities to natural disasters. Since 2004, Finland has supported the United Nations Office for Disaster Risk Reduction (UNISDR) with approximately €1 million worth of support per year (2012-2013 allocations). Finland has further participated and/or is currently participating as a multilateral development donor, partner and observer on adaptation through the Adaptation Fund, Nordic Development Fund, and the World Bank Consultative Group of the Global Facility for Disaster Reduction. Within bilateral cooperation, Finland stood out as one of the leading countries within the OECD in terms of percentage that had adaptation related aid bilateral commitments. The percentage could be high because the general committed allocation was comparatively low compared with other countries in the OECD (OECD 2013[339]).

Build capacity through development cooperation technical assistance targeted for the forest sector for diversification of livelihoods and nutrition. This is one of the most common requests made across all the regions as a climate change adaptation measure. This is largely in response to the diminishment and disappearance of certain traditional foods, plants, animals and medicines. Many Indigenous communities are now being forced to reconsider food and livelihood sources (Indufor 2015[340]). For further details on how Finland's bilateral cooperation is supporting the implementation of the diversification of livelihoods through its focus on forests, see section 3.3.

Finland has potential to support the further provisions of the Paris Agreement through its research on indigenous knowledge and adaptation practices both in Finland, the Arctic region, and in long-term development partner countries, as explained below.

Engagement with global partners through high-level intergovernmental forums. Finland has been an active participant in strengthening and supporting arctic institutional arrangements like the Arctic Council and Nordic Council of Ministers on adaptation.[341] Additionally, it has had a role in IASC, a non-governmental artic research organization. This broad engagement on arctic regional adaptation has resulted in the Arctic Climate Impact Assessment (ACIA)[342], an important document in Finland's National Strategy for Adaptation to Climate Change[343]. Finland's contributions to arctic intergovernmental cooperation extend to its support of research expertise with facilitates like the Arctic Centre, which have given it an important role in formulating interdisciplinary research on global change impacts to the region and its ecological and socioeconomic responses to a changing climate[344].

Adaptation approaches through science-based knowledge in the Arctic. Through participation in and contributions towards regional and national channels, mechanisms and organizations, Finland has activity fostered a strong science-based approach to adaptation in the arctic.

[339] https://www.oecd.org/dac/environment-development/Adaptation-related%20Aid%20Flyer%20-%20March%202014%20v2.pdf

[340] http://static1.squarespace.com/static/5627862ce4b07be93cfb9461/t/579a360cd482e9936050a628/1469724172890/Technical+Assistance+and+Capacity+Building+Needs+Assessment+-+Exec+Summary+%282%29.pdf

[341] http://www.arctic-council.org/index.php/en/about-us/member-states/finland

[342] http://www.acia.uaf.edu/

[343] http://ilmastotyokalut.fi/files/2014/10/MMMjulkaisu2005_1a-1.pdf

[344] http://www.arcticcentre.org/EN

These have included Nordic Centers of Excellence under NordForsk[345] and the Academy of Finland[346], which aim to produce science-based knowledge that support country and regionally-driven approaches to the resilience of socioeconomic and ecological systems that underlay regional adaption. Other research funding and support can be found through various domestic and international programs and foundations that aim to continue to strengthen Finland's role as a global leader in climate change-based research.

Support for and promotion of local indigenous knowledge and other vulnerable arctic inhabitants. There are many culturally important ecosystem values both for Finns and the indigenous Sami who inhabit the Arctic regions in Finland, and more broadly in Norther Europe. For example, Finland has provided research and technical support for developing participatory approaches to Sami reindeer management for adapting to the changing climate[347]. There has also been a key role for gender responsive actions, which have included the 2002 gender equality titled *Taking Wing* and through the recommendations, that were put forward at the Third Ministerial meeting of the Arctic Council under Finland's chairmanship, for integrating gender equality into in all initiatives[348].

Finland has built a series of policies and plans which can provide good examples to countries as they go forward and plan and implement their adaptation actions. Finland, as an Arctic country has some unique vulnerabilities to climate change, but can also provide exceptional learning opportunities to other Arctic countries, especially with respect to its research on vulnerable ecosystems and participatory approaches to planning adaptation.

Conclusions

The Paris Agreement elevates adaptation to be of equal importance to that of mitigation. The economic, social and ecological dimensions of adaptation are considered with strong references to principles for which adaptation should be based upon. Gender-responsive participatory processes that focus on the needs of vulnerable groups was a well-received acknowledgement, but there are vulnerable groups, such as indigenous peoples' representative bodies, that feel that there is no obligation on Parties to actually ensure that their needs and knowledge must be considered. The stocktaking session in coming years is expected to be a defining moment for adaptation support, as the world takes stock on what developing countries have done to adapt to climate change, and whether the support and actions are adequate and effective. A number of countries referenced adaptation under their INDC submissions and further work is expected to be done on clarifying the reporting guidance on adaptation in forthcoming NDCs. Adaptation has become a very broad pillar of the convention, and therefore there are many levels and linkages with other work programmes and actions under the Paris Agreement.

Finland has built a series of policies and plans which can provide good examples to countries as they go forward and plan and implement their adaptation actions. Finland, as an arctic country has some unique vulnerabilities to climate change, but can also provide exceptional learning opportunities to other Arctic countries, especially with respect to its research on vulnerable ecosystems and participatory approaches to planning adaptation.

[345] https://www.nordforsk.org/en/news/nok-112-million-awarded-to-four-new-nordic-centres-of-excellence-in-arctic-research

[346] http://www.aka.fi/en/research-and-science-policy/centres-of-excellence/

[347] http://www.arcticcentre.org/EN/communications/arcticregion/Arctic-Indigenous-Peoples

[348] https://www.mfa.is/media/nordurslodir/Gender-Equality-in-the-Arctic.pdf

14. Loss and damage

Loss and damage plays a prominent role in the Paris Agreement through a stand-alone article. Article 8 of the Agreement sets out a number of potential areas of cooperation that Parties may pursue with respect to loss and damage. Loss and damage is viewed as a response to climate change alongside mitigation and adaptation.

Loss and damage was initially considered in context of adaptation. In the Paris Agreement, the issue has been distinguished from adaptation by acknowledging that loss and damage associated with the adverse effects of climate chance includes, in some cases, more than what can be reduced by adaptation. There was no definition for loss and damage agreed under the UNFCCC regime at the time of writing this report. It should be noted that the absence of definition is due to a lack of agreement between Parties on what should constitute loss and damage.

The Warsaw International Mechanism for Loss and Damage, agreed under 2/CP.19, and 2/CP.20, and initiated as part of the Cancun Adaptation Framework (CAF) with 1/CP.16, is the main instrument under the UNFCCC to promote implementation of approaches to loss and damage. The Paris Agreement reinforces the role of the Warsaw International Mechanism (WIM) as the implementing instrument for loss and damage.

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 8 of the Paris Agreement

1. Parties recognize the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage.

2. The Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts shall be subject to the authority and guidance of the [CMA] and may be enhanced and strengthened, as determined by the [CMA].

3. Parties should enhance understanding, action and support, including through the Warsaw International Mechanism, as appropriate, on a cooperative and facilitative basis with respect to loss and damage associated with the adverse effects of climate change.

4. Accordingly, areas of cooperation and facilitation to enhance understanding, action and support may include:

1. ***(a) Early warning systems***
2. ***(b) Emergency preparedness***
3. ***(c) Slow onset events***
4. ***(d) Events that may involve irreversible and permanent loss and damage***
5. ***(e) Comprehensive risk assessment and management***
6. ***(f) Risk insurance facilities, climate risk pooling and other insurance solutions***
7. ***(g) Non-economic losses***
8. ***(h) Resilience of communities, livelihoods and ecosystems.***

5. The Warsaw International Mechanism shall collaborate with existing bodies and expert groups under the Agreement, as well as relevant organizations and expert bodies outside the Agreement.

Decision 1/CP.21, paragraph 47-51

47. Decides on the continuation of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts, following the review in 2016.

48. Requests the Executive Committee of the Warsaw International Mechanism to establish a clearing house for risk transfer that serves as a repository for information on insurance and risk transfer, in order to facilitate the efforts of Parties to develop and implement comprehensive risk management strategies.

49. Also requests the Executive Committee of the Warsaw International Mechanism to establish, according to its procedures and mandate, a task force to complement, draw upon the work of and involve, as appropriate, existing bodies and expert groups under the Convention including the Adaptation Committee and the Least Developed Countries Expert Group, as well as relevant organizations and expert bodies outside the Convention, to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change.

50. Further requests the Executive Committee of the Warsaw International Mechanism to initiate its work, at its next meeting, to operationalize the provisions referred to in paragraphs 48 and 49 above, and to report on progress thereon in its annual report.

51. Agrees that Article 8 of the Agreement does not involve or provide a basis for any liability or compensation.

The Paris Agreement recognizes the importance of loss and damage in the context of extreme weather events and slow onset events. It also recognizes that avoiding, minimizing and addressing loss and damage is ingrained in sustainable development.[349] The Paris Agreement asserts that the WIM is subject to the authority of the COP and CMA.[350] The Agreement points to the role of the WIM as a source for facilitating understanding, action and support on loss and damage.[351]

The Agreement identifies where efforts can commence on loss and damage, that is, through facilitation and cooperation. Specific reference is made to the WIM as the modality to facilitate and cooperate.[352] Enhancing understanding, actions and support for loss and damage were the modes identified for implementing Article 8.

Article 8.4 of the Paris Agreement builds on Decision 2.CP/19 (Warsaw international mechanism for loss and damage associated with climate change) and includes eight possible focal areas for enhanced understanding, action and support, namely: a) Early warning systems; (b) Emergency preparedness; (c) Slow onset events; (d) Events that may involve irreversible and permanent loss and damage; (e) Comprehensive risk assessment and management; (f) Risk insurance facilities, climate risk pooling and other insurance solutions; (g) Non-economic losses; and (h) Resilience of communities, livelihoods and ecosystems.

The list is by no means exhaustive, and during the negotiation process on this item of the Paris Agreement, there were calls, particularly by small islands to include an international climate displacement mechanism for loss and damage, and the inclusion of financial compensation for permanent losses. These points were not included in the final outcome, but they are important

[349] Article 8.1 of the Paris Agreement

[350] Article 8.2 of the Paris Agreement

[351] Article 8.3 of the Paris Agreement

[352] Article 8.4 of the Paris Agreement

for understanding the request under the Paris Decision paragraph 49 to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change. Furthermore, the Paris Decision indicates that Parties "agree that Article 8 of the Agreement does not involve or provide a basis for any liability or compensation". This further clarifies the scope on the financial expectation associated with loss and damage.

This point has been historically highly divisive in the UNFCCC negotiations, and was born from discussions initiated by AOSIS in 1991 to require mandatory payments by developed countries to compensate losses suffered by vulnerable countries. The discussions have evolved since then and leading into Paris there were divisions between developing countries, as well as developed countries on whether there was a role for liability and compensation.

Finally, in order to support the implementation of Article 8, the Paragraphs 47-51 of the Paris Decision outline several actions, to progress understanding on the areas identified in Article 8. This includes the establishment of a clearing house for risk transfer that will serve as a repository for information on insurance and risk transfer.[353] The clearing house is expected to facilitate the efforts to develop and implement comprehensive risk management strategies. To further inform future work on loss and damage, the Executive Committee of the WIM was requested to develop recommendations on integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change.[354]

Analysis on the scope

As explained above, the Paris Agreement specifies eight focus areas for action, support and enhanced understanding on loss and damage. Not all focus areas have been presented with a formal definition under the Convention, Agreement, or previous COP Decisions, therefore other sources or the authors' interpretation have been used to describe the key features:

1. Early warning systems: The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare to act promptly and appropriately to reduce the possibility of harm or loss[355] .
2. Emergency preparedness: Climate related disaster risk management from plan to response.
3. Slow onset events: These include "sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification".[356]
4. Events that may involve irreversible and permanent loss and damage: While there is no clear distinction between losses and damages in either the literature or under the Convention, irreversible and permanent loss and damage examples include loss of life, injury or livelihood from a climate related event. Sea level rise, for example could cause the irreversible and permanent loss of a territory or an ecosystem.
5. Comprehensive risk assessment and management: Comprehensively reducing, preparing for, and financing climate-related risk, while tackling the underlying risk drivers, including climate-related and socio-economic factors[357].

[353] Paragraph 48 of Decision 1/CP.21

[354] Paragraphs 47-51 of Decision 1/CP.21

[355] IPCC AR5

[356] Decision 1/CP.16, paragraph 25

6. Risk insurance facilities, climate risk pooling and other insurance solutions; Climate tailored insurance services covering the full range of insurance products from micro insurance to property insurance, weather derivatives, and include the newer "mixed" insurance parameters which can cover livelihoods insurance and ecosystems insurance.

7. Non-economic losses: Non-economic losses are the remainer of items that are not economic items such as loss of resources, goods and services that are commonly traded in markets. The characteristics include items that are not commonly traded on markets, have no market price, but play a key role and effect on human welfare. Non-economic losses occur in three distinct areas: private individuals, society and the environment. More specifically, non-economic losses can be understood as losses of, *inter alia,* life, health, displacement and human mobility, territory, cultural heritage, indigenous/local knowledge, biodiversity and ecosystem services [358].

8. Resilience of communities, livelihoods and ecosystems: Building on the definition developed by the Arctic Council[359], resilience refers to the capacity of social economic and environmental systems to cope with the event, trend or disturbance responding or reorganizing in ways that maintain essential function, identity and structure, while also maintain capacity for adaptation learning.

Some work and clarity over the last two years has led to definitions and understanding on non-economic losses, financial instruments and slow onset events, as described and referenced above. With the exception of slow onset events, which was defined in 1/CP.16 paragraph 25, these definitions have not come through COP Decisions. The definitions and subsequent work for non-economic losses and financial instruments have been advanced by several expert meetings and meetings of the WIM Executive Committee and the IPCC.
Through 2.CP/19, the WIM is expected to implement approaches to address loss and damage by:

1. Enhancing knowledge and understanding of comprehensive risk management approaches; this includes furthering the understanding of the risk of slow onset events, non-economic losses and how the impacts of climate change are affecting patterns of migration, displacement and human mobility.
2. Strengthening dialogue, coordination, coherence and synergies among relevant stakeholders.
3. Enhancing action and support, including finance, technology and capacity–building. This includes the provision of technical assistance and financial support, as well as transfer technology, knowledge and building capacity.

Parties to the UNFCCC are also free to address loss and damage through actions. The UNFCCC has identified a set of actions[360] which include:

- Assessing the risk of loss and damage
- Identifying options and designing and implementing country-driven risk management strategies and approaches
- Systematic observation and data collection of the impacts of climate change
- Promoting an enabling environment that would encourage investment and the involvement of relevant stakeholders in climate risk management
- Involving vulnerable communities and populations, civil society, the private sector and other relevant stakeholders, in the assessment of and response to loss and damage

[357] Mechler R, Bouwer LM, Linnerooth-Bayer J, Hochrainer-Stigler S, Aerts JCJH, Surminski S, Williges K (2014) Managing unnatural disaster risk from climate extremes. Nat Clim Change 4(4):235–237. doi: 10.1038/nclimate2137

[358] http://unfccc.int/files/adaptation/workstreams/loss_and_damage/application/pdf/background_information.pdf

[359] http://www.arctic-council.org/arr/wp-content/uploads/2012/01/SPM.pdf

[360] http://unfccc.int/adaptation/workstreams/loss_and_damage/items/8132.php

- Enhancing access to, sharing and the use of data, at the regional, national and subnational levels, to facilitate the assessment and management of climate-related risk.

Many of the most vulnerable countries to climate change (SIDS, LDCs) will have limited capacity to initiate and implement most of the actions in the list above without technical assistance or financial support. Some countries are getting assistance from multilateral funds (e.g. Adaptation Fund) to be able to address and implement loss and damage within the context of adaptation. Bilateral co-operation programs as well as multilateral and regional programs have in recent years addressed key actions such as improving the systematic observation of the impacts of climate change and improving ecosystem resilience. The reference to risk insurance facilities continued to spur the interest of the insurance sector, who have long followed the climate change negotiations. They see Article 8 of the Paris Agreement as a key opportunity for engagement and provision of new insurance tools and services

Though outside the UNFCCC, coinciding with COP 21 in Paris, momentum further gathered in the insurance sector as G7 States made a joint statement for InsuResilience, an Initiative on Climate Risk Insurance. The States (Canada, France, Germany, Italy, Japan, United Kingdom and USA) pledged USD 420 million to support the implementation of the InsuResilience program. The objective of InsuResilience is to increase the availability of risk transfer and insurance for poor and vulnerable people by 2020 (Climate-insurance.org[361]).

Key features of the item

There are two key features of loss and damage in the Paris Decision to further the work on loss and damage. These are 1) The establishment of a clearing house for risk transfer; and 2) Establish a task force to complement existing bodies and expert groups under the Convention including the Adaptation Committee and the Least Developed Countries Expert Group. The task force is mandated to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change. To respond, a work program on displacement, migration and human mobility commenced in 2016.
The details of the features are not yet available. The work will be overseen by the Executive Committee to the WIM that meets once a year. Their next meeting is scheduled for September 2016.

Scope of the tasks

Paragraph 50 of the Paris Decision requests the Executive Committee to the Warsaw International Mechanism for Loss and Damage to initiate its work programme for loss and damage for the features listed above. Post Paris, the next meeting of the Executive Committee will be in September 2016.

However, there is a two-year work plan available for the Executive Committee of the WIM, based on COP Decision 2.CP/19 (see FCCC SB 2014/4[362]). For reference, this report will refer to it as the work plan (2014-2016). The two-year work plan (2014-2016) developed in 2014 is for the implementation of the WIM and takes into account issues outlined in 3.CP/18. The work plan (2014-2016) of the Executive Committee contains nine areas of action:

- Action area 1: Enhance the understanding of how loss and damage associated with the adverse effects of climate change affect particularly vulnerable developing countries, segments of the population that are already vulnerable owing to geography, socioeco-

[361] ttp://www.climate-insurance.org/fileadmin/mcii/pdf/COP-21/Joint_Statement_G7_InsuResilience.pdf

[362] http://unfccc.int/resource/docs/2014/sb/eng/04.pdf

nomic status, livelihoods, gender, age, indigenous or minority status or disability, and the ecosystems that they depend on, and of how the implementation of approaches to address loss and damage can benefit them

- Action area 2: Enhance the understanding of, and promote, comprehensive risk management approaches (assessment, reduction, transfer, retention), including social protection instruments and transformational approaches, in building long-term resilience of countries, vulnerable populations and communities
- Action area 3: Enhance data on and knowledge of the risks of slow onset events and their impacts, and identify ways forward on approaches to address slow onset events associated with the adverse effects of climate change with specific focus on potential impacts, within countries and region
- Action area 4: Enhance data on and knowledge of non-economic losses associated with the adverse effects of climate change and identify ways forward for reducing the risk of and addressing non-economic losses with specific focus on potential impacts within regions
- Action area 5: Enhance the understanding of the capacity and coordination needs with regard to preparing for, responding to and building resilience against loss and damage associated with extreme and slow onset events, including through recovery and rehabilitation
- Action area 6: Enhance the understanding of and expertise on how the impacts of climate change are affecting patterns of migration, displacement and human mobility; and the application of such understanding and expertise
- Action area 7: Encourage comprehensive risk management by the diffusion of information related to financial instruments and tools that address the risks of loss and damage associated with the adverse effects of climate change to facilitate finance in loss and damage situations in accordance with the policies of each developing country and region, taking into account the necessary national efforts to establish enabling environments. These financial instruments and tools may include: comprehensive risk management capacity with risk pooling and transfer; catastrophe risk insurance; contingency finance; climate-themed bonds and their certification; catastrophe bonds; and financing approaches to making development climate resilient, among other innovative financial instruments and tool
- Action area 8: Complement, draw upon the work of and involve, as appropriate, existing bodies and expert groups under the Convention, as well as relevant organizations and expert bodies outside the Convention at all levels, as the Executive Committee executes the above-mentioned elements of the work plan
- Action area 9: Develop a five-year rolling work plan for consideration at COP 22 building on the results of this two-year work plan to continue guiding the implementation of the functions of the Warsaw International Mechanism.

The work plan (2014-2016) and its action areas maintained relevance in the lead up to, and after, the Paris Agreement. The action areas are well aligned with the focal areas and features listed for loss and damage in the Paris Agreement and the accompanying COP decision. Action area 2 Enhance the understanding of, and promote, comprehensive risk management approaches and Action area 7 Encourage a comprehensive risk management by the diffusion of information related to financial instruments, is complementary to the feature for establishing a

clearing house risk transfer that serves as a repository for information on insurance and risk transfer.[363]

For Action area 6, of the work plan (2014-2016) is aligned and complementary to the feature of developing recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change.[364] The identification of follow up actions for action area 6 is expected to take place in the latter part of 2016.

During the Bonn inter-sessional meeting May 2016, discussions continued on the loss and damage work programme with no decision in sight. There were concerns on taking decisions before the results of the review of the WIM are presented at COP 22 in Marrakesh. The report is expected to update the international community on progress made under the WIM since 2014, on early warning systems, emergency preparedness, slow onset events, and the other areas for enhanced understanding, action and support under the Paris Agreement. The report is expected to reveal the reasons for delays and inefficiencies in the operationalization of the WIM, which was agreed more than two years ago.

Links with other topics/tasks

Loss and damage evolved from negotiations on adaptation with its work initiated within the Cancun Adaptation Framework. Therefore, loss and damage has an important and strong link with the work and agreement on adaptation (Article 7). Specific reference is made to the resilience of communities, livelihoods and ecosystems and discussions during the negotiations have referenced the permanent loss and damage to ecosystems and land (sea level rise), therefore there is an inferred linkage to REDD+ and Joint Mitigation and Adaptation (Article 5) in the Paris Agreement.

14.1 How could Finland influence the development of the loss and damage provisions?

During the Bonn discussions, there were multiple concerns voiced for the urgent need to develop food security early warning systems and monitor the loss and damage for agriculture. This could be something that is addressed through Finnish Bilateral Development Cooperation. Finland has a number of rural development support programs within its larger land based official development assistance for its key partners. In addition, Finland is part of FAO, which hosts the Global Early Warning and Information System on Food and Agriculture. Finland has been the top ranked country according to the Food Security Risk Index in 2010[365] and could be in a very good position to share experiences and advise on the development of global systems for early warning with respect to agriculture.

Conclusions on loss and damage

The Paris Agreement reinforces the role for the need to recognize Loss and Damage with its own stand-alone article separating it from adaptation. While no definition of loss and damage has been agreed at the UNFCCC, it is more commonly being addressed as the third pillar of climate change, alongside mitigation and adaptation. The establishment of a clearing house for risk transfer is expected to facilitate the efforts to develop and implement comprehensive risk management strategies in order to prevent loss and damage and/or respond when such impacts

[363] Paragraph 48 of decision 1/CP.21

[364] Paragraph 49 of decision 1.CP/21

[365] https://www.maplecroft.com/about/news/food-security.html

occur. It is generally recognized across Parties that to be able to address the issues of loss and damage, there needs to be a thorough understanding on how to avert, minimize and address the displacement related to the adverse impacts of climate change. This is particularly applicable to small islands and the slow onset event of sea level rise. The work program for loss and damage will be further elaborated in the lead up to Marrakesh, when the results from the review of the WIM will be presented.

15. Facilitating implementation and compliance of the Paris Agreement

The effectiveness of the Paris Agreement will depend partly on the extent to which the Parties follow up on their obligations, including those related to NDCs.[366] This highlights questions concerning implementation and compliance, addressed in Article 15 of the Agreement.
During the negotiations for the Paris Agreement, Parties put forward divergent views concerning the degree to which the Agreement's provisions would create legal obligations. For example, some Parties called for binding mitigation targets, while others were in favour of voluntary goals. Similarly, they held different views concerning the establishment of a compliance mechanism. While many favoured the creation of a committee or standing body, some suggested considering the multilateral consultative procedure under Article 13 of the UNFCCC, or not including any provisions on compliance in the new Agreement.[367]

As a result of lengthy negotiations, Article 15.1 of the Paris Agreement establishes a mechanism "to facilitate implementation of and promote compliance with the provisions of the Agreement." According to Article 15.2, the mechanism will consist of a committee that will be expert-based and facilitative in nature, and "function in a manner that is transparent, non-adversarial and non-punitive." Notably, Article 15 contains no references to specific categories of countries, such as developed or developing ones. Article 15.2 mandates the committee, however, to pay particular attention "to the respective national capabilities and circumstances of Parties."[368] As detailed below, Parties also reached agreement on the detailed composition of the expert-based committee.

The detailed modalities and procedures of the committee were left for adoption by CMA 1. In practice, these will be developed by the APA.

Scope of the item

Relevant articles of the Paris Agreement and decision 1/CP.21

Article 15

1. A mechanism to facilitate implementation of and promote compliance with the provisions of this Agreement is hereby established.
2. The mechanism referred to in paragraph 1 of this Article shall consist of a committee that shall be expert-based and facilitative in nature and function in a manner that is transparent, non-adversarial and non-punitive. The committee shall pay particular attention to the respective national capabilities and circumstances of Parties.
3. The committee shall operate under the modalities and procedures adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement at its first session and report annually to the Conference of the

[366] Christina Voigt, "The Compliance and Implementation Mechanism of the Paris Agreement," 25(2) *RECIEL* (2016), 161-173.

[367] Voigt, at p. 163.

[368] Article 15.2 of the Paris Agreement

Parties serving as the meeting of the Parties to this Agreement.

Decision 1/CP.21, paragraph 102-103

102. Decides that the committee referred to in Article 15, paragraph 2, of the Agreement shall consist of 12 members with recognized competence in relevant scientific, technical, socioeconomic or legal fields, to be elected by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the basis of equitable geographical representation, with two members each from the five regional groups of the United Nations and one member each from the small island developing States and the least developed countries, while taking into account the goal of gender balance;
103. Requests the Ad Hoc Working Group on the Paris Agreement to develop the modalities and procedures for the effective operation of the committee referred to in Article 15, paragraph 2, of the Agreement, with a view to the Ad Hoc Working Group on the Paris Agreement completing its work on such modalities and procedures for consideration and adoption by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its first session.

Compliance mechanisms are typical for multilateral environmental agreements (MEAs).[369] Compliance committees can be found, *inter alia*, under the Montreal Protocol on Substances that Deplete the Ozone Layer[370], the Minamata Convention on Mercury[371] and the Kyoto Protocol[372]. Compliance committees under various MEAs differ from each other, for example, in terms of how they aim to promote parties' compliance. Under the Kyoto Protocol, for example, the Compliance Committee has two branches, Facilitative and Enforcement, which provide both facilitative and punitive actions to promote and enforce compliance. The existing compliance mechanisms under the various MEAs can provide useful lessons for Parties to consider when finalising negotiations of the compliance and implementation mechanism under the Paris Agreement.

The compliance committee to be established under the Paris Agreement will work in a non-punitive manner. Its work must also be transparent and non-adversarial while taking into account the respective national capabilities and circumstances of Parties.[373]

Concerning the committee's detailed composition, it was agreed in Paris that the committee will be composed of 12 members with recognized competence in relevant scientific, technical, socio-economic or legal fields. The committee's members will be elected by the CMA. The elected members must be of equitable geographical representation, with two members each from the five United Nations regional groups and one member from each the LDCs and SIDS, taking into account the goal of gender balance.[374]

The APA is in the process of negotiating the detailed modalities and procedures of the committee for adoption by CMA 1. At its first meeting in May 2016, the APA to requested its Co-Chairs to prepare by 30 August 2016, a set of guiding questions to assist Parties in further developing their conceptual thinking on features and elements of the committee to facilitate implementation and promote compliance.[375] During these negotiations, Parties will need to reach agreement on various important issues. These could include the question of triggers (i.e. how issues will be

[369] Ellen Hey, Advanced Introduction to International Environmental Law (2016), pp. 112-113.

[370] Annex II : Non-compliance procedure (1998) sections 5-16, Montreal Protocol

[371] Article 15.1-15.3 Minamata Convention on Mercury, text available at: http://www.mercuryconvention.org/Portals/11/documents/Booklets/Minamata%20Convention%20on%20Mercury_booklet_English.pdf

[372] Decision 27/CMP.1, Annex II. Compliance Committee

[373] Article 15.2 Paris Agreement

[374] Decision 1/CP.21, paragraph 102

[375] Items 3 to 8 of the agenda. *Draft conclusions proposed by the Co-Chairs*. UN Doc. FCCC/APA/2016/L.3. 26 May 2016.

taken up by the committee); the committee's architecture (for example whether it will have one or more branches); how the committee will function; and what consequences it may apply.

Key features of the item

While the Paris Agreement and the Paris Decision include a general description on the mechanism's composition and nature, several key issues were left for further negotiation. These include the committee's architecture; as well as triggers, in other words, how proceedings under the mechanism will be launched.

Not many detailed proposals concerning the design of the compliance and implementation mechanism are available yet. Here, we will identify some key issues and discuss those proposals already found in literature.

Architecture

When considering the architecture and functions of the compliance and implementation mechanism to be created under the Paris Agreement, it is important to highlight the legal nature of the provisions included in the Paris Agreement. While the Kyoto Protocol contains legally-binding emission reduction targets for Annex I Parties to achieve during a specified commitment period, the Paris Agreement creates legal obligations of a more procedural nature.

According to Oberthür and Boodle, for example, the careful wording used in the Paris Agreement does not constitute clear obligation of results, meaning that only the processes, such as reporting, are obligatory.[376] In a similar vein, Voigt indicates that "the substance of the mitigation, adaptation and finance obligations is not binding and left to the sovereign discretion of the Parties."[377] However, many of the procedural obligations created by the Paris Agreement regarding NDCs are "comparatively strong."[378] According to Voigt, these include, *inter alia*, the following:

- 'Each Party shall prepare, communicate and maintain successive nationally determined contributions' (Article 4.2).
- 'Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions' (Article 4.2).
- '. . . all Parties shall provide information necessary for clarity, transparency and understanding . . .' (Article 4.8).
- 'Each Party shall communicate a [NDC] every five years . . .' (Article 4.9).
- 'Each Party's successive [NDC] will represent a progression beyond the Party's then current [NDC] and reflect its highest possible level of ambition' (Article 4.3).
- 'Parties shall account for their [NDCs] . . . In accounting, Parties shall promote environmental integrity, transparency, accuracy, completeness, comparability and consistency' (Article 4.13).
- 'Each Party shall regularly provide information on national inventories and information necessary to track progress made in implementing and achieving its [NDC] . . .' (Article 13.7).[379]

[376] Oberthür, S. & Bodle, R. Legal Form and Nature of the Paris Outcome. *Climate Law,* 6 (2016), 40-57.

[377] Voigt at p. 166.

[378] Daniel Bodansky, "The Legal Character of the Paris Agreement," RECIEL 25(2) (2016), at p. 146.

[379] Voigt, p. 166.

When designing the mechanism, a detailed legal analysis of the provisions of the Paris Agreement will be needed to identify, *inter alia,* which provisions lay down binding obligations for Parties.
Voigt has put forward a detailed proposal concerning the design of the implementation and compliance mechanism. She proposes the creation of a committee with *compliance branch* and *implementation branch* mirroring the legal architecture of the Paris Agreement.[380]

The compliance branch would determine whether Parties are in compliance with their obligations and address cases where they are not.[381] Having regard to the wording of the Paris Agreement, the compliance branch would focus on *promoting* Parties' compliance, and not punish or sanction them for non-compliance.[382] According to Voigt, "the compliance branch should seek to determine the cause of non-compliance and work with the party to rectify the problem."[383] The committee could request the Party to develop a compliance action plan in which the Party should provide an analysis of the causes of non-compliance, a description of the measures taken to restore compliance and a timetable for the implementation of the measures, which must not exceed the a given time period.[384] Interestingly, Voigt also suggests that should the Party still be in non-compliance after the previously mentioned time period, the committee could consider issuing declaration of non-compliance.[385] This, however, could be a problematic idea due to the committee's non-punitive manner of working.[386]

The implementation branch, then, would be a facilitative forum for Parties to discuss and address issues relating to the implementation of the Paris Agreement.[387] Its focus would be on those provisions of the Paris Agreement that do not create binding obligations, addressing issues, such as challenges that Parties face when implementing their NDCs.[388] The implementation branch could be connected to the enhanced transparency framework under which the Parties shall regularly provide information concerning their NDCs and implementation.[389] If the provided information shows that a Party is making little or no progress, the Party in question could be offered recourse to the implementation branch to seek advice, recommendation and/or support regarding its challenges.[390]

Triggers

The question of triggers relates to the question as to how issues will be taken up by the committee. In compliance mechanisms under other MEAs, triggers have varied. These include, *inter alia*, a written notification from the Party itself (Party trigger), a written notification from a Party regarding another Party (Party-to-Party trigger), an expert review that identifies an issue (expert review) and a compliance committee beginning action based on the Party's submitted reports (Secretariat-trigger).[391]

[380] Voigt p. 166.

[381] Ibid, p. 167

[382] Ibid.

[383] Ibid.

[384] Ibid.

[385] Ibid.

[386] Article 15.2, Paris Agreement.

[387] Voigt, 167

[388] Voigt, p.167

[389] Ibid.

[390] Ibid.

[391] United Nations Environment Programme (2007), Compliance Mechanism under Selected Multilateral Environmental Agreements

In the case of the Paris compliance and implementation mechanism, it is important to account for the dual task of the mechanism; the committee must facilitate implementation and promote compliance. According to the Article 4.2 of the Paris Agreement, all Parties shall communicate their NDCs. However, achieving the objectives of these voluntary contributions is left to the sovereign discretion of the Parties.[392] This means that should committee recognise an issue with one of the Parties in regard to their NDC, the committee's mandate is to only facilitate implementation. To what extend the committee shall go with facilitation depends on the definition of the mandate. Considering the wording used within the Paris Agreement and Paris Decision, it could be that the committee would aim to support the Party to reach their objectives in light of their respective national capabilities and circumstances on a case-to-case basis.

Taking all of this into account with the fact that all Parties are bound to biennially report their situation, it might be worth to have the mechanism to work on expert review and self-triggers. A review by van Asselt *et al* discusses the possibility of linking the technical expert review under Article 13 with the committees work by notifying both the Party and committee of any possible improvements.[393] In addition to this, another important trigger would be the Party trigger where any Party could approach the committee and request their expertise.

In Voigt's proposal, the compliance branch could take up issues on the basis of a Party trigger, Party-to-Party trigger, Secretariat-trigger and when triggered by the CMA.[394] With respect to the implementation branch, the triggers could be Party trigger and expert review.[395]
As shown above, MEAs have had varying triggers. These triggers include, *inter alia*, the following:

- Party trigger. With party trigger the procedures are started with by a written submission from a party or a group of parties with respect to their own implementation efforts/relevant actions. Such self-trigger allows for a party to inform the respective mechanism of any possible issues with implementation/actions. The mechanism can then take necessary actions to facilitate the party's actions with respect to the situation.

- Party-to-party trigger. This trigger allows for another party or a group of parties to begin the procedures with a written submission with respect to another party or a group of parties. Party-to-party trigger allows for another party member to notify the mechanism should they identify a problem with another party's compliance. The mechanism then contacts the party which the notification submitted to the mechanism concerns and begins the necessary actions.

- Expert review. Expert review triggering allows for a mandated experts to review submitted material from the party in order to evaluate their compliance. With this trigger the party's information will come under scrutiny by an impartial third party. If triggered by the expert review, the mechanism will have an expert defined issue which to address.

- Secretariat trigger. A trigger based on the submissions of the party allows the mechanism to monitor the party's situation and initiate actions by itself without party's request. This kind of trigger allows the mechanism to work even when no party member or an outside trigger would.

[392] Voigt, p. 166

[393] Harro van Asselt, Thomas Hale, Meinhard Doelle, Achala Abeysinghe, Manjana Milkoreit, Caroline Dihl Prolo, Bryce Rudyk (2016) Maximizing the Potential of the Paris Agreement: Effective Review of Action and Support in a Bottom-up Regime. Discussion brief.

[394] Voigt, 167-168

[395] Ibid. (Voigt, 168-169)

Scope of the tasks

At the time writing APA is working on the details regarding the compliance and implementation mechanism. Decision 1/CP.21 requested the APA to develop the modalities and procedures for the effective operation of the committee by the first meeting of the CMA.[396] These modalities and procedures could address, *inter alia*, competence, triggers, scope, architecture, individual tasks, meeting schedule and other practical arrangements. The date for guiding questions to assist Parties in further developing their conceptual thinking on features and elements of the committee to facilitate implementation and promote compliance is 30 August 2016.[397]

Considering the task ahead for APA, it is quite likely that they will build a lot of the Paris Compliance Committees structure upon what is already known regarding previous similar mechanisms. Here it becomes crucial that they look especially at the Kyoto Protocol and how its compliance mechanism worked in order to avoid some of the pitfalls. They must also take into account the legal nature of the Paris Agreement and the concept of paying particular attention to the respective national capabilities and circumstances of Parties when designing the mechanism.

Links with other topics/tasks

The compliance mechanism links together with several parts of the Paris Agreement. Transparency and global stocktake are crucial for compliance under the agreement. Other relevant links are the other mechanisms dealing with finances and technology as these can all potentially work together for a much better implementation of the NDCs. Finally, the overall field of compliance should be developed with capacity building as these areas are closely linked with practical implementation. Another possibility is that the committee could work as a link between Parties and the Finance and Technology mechanisms. If the Party in question was deemed to be in need of financial or technological support in implementing its own voluntary contribution, the Paris Compliance Committee could issue a formal recommendation for the respective mechanism. However, this could potentially lead to Parties having a negative incentive that could potentially reduce domestic implementation measures.[398] It would therefore be necessary for the committee to only endorse those Parties for extra aid who are deemed as otherwise unable to reach reasonable implementation while paying particular attention to the respective national capabilities and circumstances of Parties.

Conclusions

The Paris Agreement's Article 15.1 establishes a compliance mechanism. Article 15.2 defines this as an expert based committee which shall work in a transparent, non-adversarial and non-punitive manner while paying particular attention to the respective national capabilities and circumstances of Parties. The Paris Decision sets more criteria for the committee, including, *inter alia*, the competence and geographical distribution of the members and the goal of gender balance. The APA is currently in the process of negotiating the detailed modalities and procedures of the committee for adoption by CMA 1, meaning that many of the details concerning the functioning of the committee are still unknown. Therefore, there is no clear definition of the mechanism's design or overall competence. Other questions relating to the committee concern, *inter alia*, the design and triggers of the mechanism.
The committee has a dual mandate of facilitating implementation and promoting compliance and based on this Voigt has made a two branch design suggestion that reflects this mandate. With respect to the triggers, Voigt's suggestion presents different set of triggers for each branch ac-

[396] Decision 1/CP.21, section 104

[397] Items 3 to 8 of the agenda. *Draft conclusions proposed by the Co-Chairs*. UN Doc. FCCC/APA/2016/L.3. 26 May 2016.

[398] *Voigt, p. 167*

cording to their function. In regard to the other topics, the compliance of the Paris Agreement links to the Finance and Technology mechanisms, transparency and capacity building.

16. Conclusions for Part 2

The adoption of the Paris Agreement was a major turning point in global climate policy; for the first the world has agreed on a climate agreement under which all Parties have legally binding procedural obligations to mitigate climate change and adapt to its consequences. The Agreement thus gives momentum to climate action worldwide and seeks to initiate a change in financial flows towards a low-carbon future.

Still, the work is far from done. Details on how to implement the Paris Agreement will be negotiated in the coming years in the form of rules, procedures and modalities. This work, to be undertaken mainly by the APA, is a complicated matrix of tasks, which relate to each other in several ways, and require many types of expertise from all Parties to be completed.

It is vital to keep in mind the risk that the "spirit of Paris" may fade over time, and the numerous tasks to be done are not executed in the best possible way. There could be a new division between countries on how they see Agreement, and how the details should be formed. If this risk were to materialise, the achievement of the long-term global goal to limit temperature rise well below 2 degrees would be compromised. To avoid this, all countries must keep focus to complete the tasks, and cooperate with each other in a constructive manner.

Even though the Paris Agreement creates a common framework for climate action for all countries, its applicability differs between topics. In the case of several of the topics assessed in this report, e.g. climate finance, technology development and transfer and capacity building, a major division still exist in the Paris Agreement in the requirements for developed and developing countries. In general, developed countries are required to provide financial, technical and capacity building support to developing countries, and other Parties are just encouraged to do so. Interestingly, it is still somewhat unclear, which Parties actually count as developing and developed countries, as the Annexes of the Convention are not mentioned in the Paris Agreement, and there are no exact country lists in the Agreement. There could potentially be changes to which countries are seen as developing countries in the future under the Paris Agreement, as national circumstances of countries change over time. This is one of the major issues to still be negotiated after Paris, even though it is not yet part of the official work programme.

There are complex links between many of the topics of the Agreement; for example climate finance encompasses nearly all aspects of the Agreement, as developing countries need financial resources to fully implement the Agreement. Also, e.g. the enhanced transparency framework relates to almost all other parts of the Agreement, from mitigation and adaptation to financial, technology and capacity building support.

Quantifying the amount of **climate finance** from public and private sources comes with a number caveats. The primary caveat is the lack of a common definition of what constitutes as climate finance, and in case of private finance the challenge is the lack of data. The Parties to the Paris Agreement have an incentive to disagree on the definition of climate finance; developed countries may have an incentive to push for a broad definition for what is counted towards the $100 billion goal, and the countries that receive finance may wish that the money would be only public finance.

Finland provides many types of public and private climate finance to developing countries. In line with the international trend, current climate finance from public sources in Finland cover the whole spectrum of financing instruments; equity, loans, grants and guarantees. A defining feature of Finnish public funding (e.g. Finnfund and Finnvera) is that leeway with respect to the terms of the financing is severely restricted by their mandate. First-loss structures or paying a premium are often not permitted. Also for Finnish pension funds, their room to manoeuvre is restricted by their mandate, which is to be profitable and secure. An area where Finland could possibly contribute is the public-private partnerships pioneered by the Danish Government, by guaranteeing pension funds and other private investors a predetermined return on their investment. Another field on which Finland could contribute is in the financing of projects with a total funding requirement of 0.5-1 EUR million. These projects are typically at a disadvantage because of disproportionally large transaction costs.

The main outcome concerning **forests and land use** in Paris Agreement forces the international community to look beyond forest carbon long associated with REDD+, and recognize the significance forests play in also adapting to climate change and providing non-carbon benefits. Future work to support the implementation of REDD+ will focus on enhancing the coordination and coherence on forest finance. There are important linkages between the implementation of the Warsaw REDD+ Framework and future NDCs, but further clarity will be needed on accounting rules. Agriculture featured extensively in developing countries INDCs for mitigation and/or adaptation, but with no reference in the Paris Agreement directly to agriculture, linkages will fall on future COP Decisions.

Finland has maintained a commitment to building world class expertise for its forest sector. This is reflected in the litany of national forest programs and strategies which prioritise the building of expertise to respond to future opportunities and challenges, nationally and internationally. Finland's bioeconomy strategy will also benefit from much of the expertise from the forest sector. Finland's decades of development cooperation has built a legacy of sustainable forest management in countries such as Tanzania, Lao PDR, Vietnam and Nepal. Key aspects of those programs focused on forest information systems and forest inventories, which are currently being used by those countries in monitoring and reporting their forests, as well as managing their forests – the decades of engagement have placed these countries in an advantageous position for the future implementation of REDD+ and their future nationally determined contributions under the Paris Agreement. Arguably, the most strategic response to the Paris Agreement for sustaining forests around the world would be to direct technical assistance through bilateral development cooperation to key REDD+ countries that can benefit from Finnish forest expertise.

Technology development and transfer plays an important role in the implementation of the Paris Agreement. Its role is further enhanced by the creation of a new technology framework, tasked with providing guidance for the Technology Mechanism's activities. One key challenge will be, how to support the additional responsibilities of the Technology Mechanism under the Paris Agreement and enhance technology development and transfer to the level needed to reach the long-term temperature goal. Without adequate financial support and a direct operational link between the Financial Mechanism and the Technology Mechanism this enhanced technology vision will be difficult to accomplish. Effective coordination between the mechanisms is essential, and it is starting to be addressed more since Paris.
Finland could benefit from the enhanced Technology Mechanism in several ways; Finland could review the technology needs submitted by CTCN recipients and identify areas where Finnish companies could play an active role. Public authorities could play a matchmaking role, connecting needs and providers. Finnish companies could then provide their expertise with public funding from export promotion, development co-operation or both. Also, Finland could actively submit technologies to the CTCN technology library. In addition to compiling information into a cata-

logue, the relevant authority would need to screen the information so that it is up to date, reliable and compatible with the needs of the library. The work could be coordinated and, to some extent, conducted by the National Designated Entity (NDE) at the Ministry of Economic Affairs and Employment. Finpro Cleantech Finland and possibly the new emerging markets programme could serve as the operative arm.

The Paris Agreement includes universal requirements to all countries to submit increasingly ambitious Nationally Determined Contributions (NDCs), and to account for and report their climate actions. However, countries are not all at the same stage of development, nor do they have the same levels of capabilities. The Paris Decision establishes two significant new **capacity building** related initiatives: the Paris Committee on Capacity-building, which will address gaps and needs in implementing capacity-building in developing country Parties and further enhance those efforts, and the Capacity-building Initiative for Transparency, which will improve developing countries' abilities to account and report for their emissions and support received. These developments bring capacity building to the forefront of the implementation of the Paris Agreement, as its role has been somewhat limited in the earlier climate agreements. Finland has significant expertise in many of the fields important to implement the Paris Agreement, and despite the country's small size, Finland can provide expertise and technical assistance to multiple developing countries in implementing and accounting for their NDCs. This report assesses some of the areas Finland has special expertise in.

The Paris Agreement elevates **adaptation** to be of equal importance to that of mitigation and seeks to enhance Parties' adaptation planning and reporting through a cyclical approach. The economic, social and ecological dimensions of adaptation are considered with strong references to principles for which adaptation should be based upon. Gender-responsive participatory processes that focus on the needs of vulnerable groups was a well-received acknowledgement, but there are vulnerable groups, such as indigenous peoples' representative bodies, that feel that there is no obligation on Parties to actually ensure that their needs and knowledge must be considered. The stocktaking session in coming years is expected to be a defining moment for adaptation support, as the world takes stock on what developing countries have done to adapt to climate change, and whether the support and actions are adequate and effective. A number of countries referenced adaptation under their INDC submissions and further work is expected to be done on clarifying the reporting guidance on adaptation in forthcoming NDCs. Adaptation has become a very broad pillar of the convention, and therefore there are many levels and linkages with other work programmes and actions under the Paris Agreement.

Finland has built a series of policies and plans which can provide good examples to countries as they go forward and plan and implement their adaptation actions. Finland, as an arctic country has some unique vulnerabilities to climate change, but can also provide exceptional learning opportunities to other Arctic countries, especially with respect to its research on vulnerable ecosystems and participatory approaches to planning adaptation.

The Paris Agreement reinforces the role of **Loss and Damage** with a stand-alone article separating the issue from adaptation. While no definition of loss and damage has been agreed at the UNFCCC, it is more commonly being addressed as the third pillar of climate change, alongside mitigation and adaptation. The establishment of a clearing house for risk transfer is expected to facilitate the efforts to develop and implement comprehensive risk management strategies in order to prevent loss and damage and/or respond when such impacts occur. It is generally recognized that to be able to address loss and damage, there needs to be a thorough understanding on how to avert, minimize and address the displacement related to the adverse impacts of climate change. This is particularly applicable to small islands and the slow onset event of sea

level rise. The work program for loss and damage will be further elaborated in the lead up to Marrakesh, when the results from the review of the WIM will be presented.

The Paris Agreement establishes a **compliance mechanism**. It is defined as an expert-based committee which shall work in a transparent, non-adversarial and non-punitive manner while paying particular attention to the respective national capabilities and circumstances of Parties. The Paris Decision sets more criteria for the committee, including, *inter alia*, the competence and geographical distribution of the members and the goal of gender balance. The APA is currently in the process of negotiating the detailed modalities and procedures of the committee for adoption by CMA 1, meaning that many of the details concerning the functioning of the committee are still unknown. Therefore, there is no clear definition of the mechanism's design or overall competence. Other questions relating to the committee concern, *inter alia*, the design and triggers of the mechanism. The committee has a dual mandate of facilitating implementation and promoting compliance, and based on this Voigt has made a two branch design suggestion that reflects this mandate. With respect to the triggers, Voigt's suggestion presents different set of triggers for each branch according to their function. In regard to the other topics, the compliance of the Paris Agreement links to the Finance and Technology Mechanisms, transparency and capacity building.

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