Raising Ambition towards the 1.5°C/2°C Goal:
Ratcheting-up Mechanism under the Paris Agreement

Kentaro Tamura, Masahiro Suzuki and Madoka Yoshino
Climate and Energy Area, IGES
1. Introduction

The Paris Agreement is a hybrid of top-down and bottom-up approaches. In discussion over climate change policy, terms of top-down and bottom-up are used in different meanings by different persons. Here, the top-down approach means a target-setting approach based upon science. The Paris Agreement sets the goal of holding the increase in the global average temperature to well below 2 degrees Celsius (°C) above the pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C. On the other hand, the Paris Agreement also reflects political reality: i.e. an international agreement can never “force” countries to reduce emissions. The Paris Agreement lets each country determine its “contribution” (i.e. in a nationally determined manner). This approach based upon “nationally determined contributions (NDCs)” is referred to as a bottom-up approach.

This hybrid approach, however, allows a significant gap between the level of emission reduction which the science suggests to stay within 2°C of warming, and the aggregate of emission reduction which countries can politically promise at this moment. The current aggregated efforts of the Parties' INDCs would result in a 2.7 to 3.7 °C increase (WRI 2015). Even more tellingly, Climate Action Tracker (2015) evaluates major emitters' INDCs, which collectively cover about 81% of global emissions, on the basis of their efforts towards 2°C goal. Out of 32 INDCs assessed, only five are rated as “sufficient”. At least other 26 countries who are rated as or lower than “medium” in their definition, essentially need to raise the level of ambition in their long-term strategies and NDCs by 2020.

To fill the gap, the Paris Agreement crafted a “ratchet-up mechanism” through which Parties will increase ambition over time. At the heart of the successful implementation of the Paris Agreement is therefore whether and how effectively the ratchet-up mechanism can work (IGES 2015). The ratchet-up mechanism consists of three elements: (1) a linkage between a five-year cycle of NDCs and long-term low greenhouse gas emission development strategies (hereafter “long-term strategies” for the rest of the document); (2) an enhanced transparency framework; and (3) the global stocktake. Figure 1 shows how these three elements are expected to work and interact with each other.
Every country has legal obligation to communicate its NDC every five years, and the successive NDC will represent a progression beyond the current NDC. All countries are also requested to formulate and communicate long-term strategies, mindful of 2°C/1.5°C goal. It is expected that formulation of such long-term strategies allow each Party to develop its short-term NDC, which can be consistent with emissions trajectory leading to the 2°C goal.

Under an enhanced transparency framework, all Parties will measure and report their emissions and actions, and such information will be subject to a mutual review process. In this way, everyone knows what others are doing. This process is expected to generate peer pressure for implementing and enhancing mutual actions.

The transparency framework also informs the global stocktake. The global stocktake periodically checks how far current emissions projections diverge from 2°C/1.5°C pathways. The global stocktake will be conducted every five years (two years before Parties have to communicate their successive NDCs) and its outcome shall inform Parties in updating and enhancing their actions and support.

These three elements are key to empowering the ratchet-up mechanism, but further discussion is necessary regarding what role each element can play and how each element relates to the others. The following sections will present important factors of each element in terms of encouraging Parties to raise ambition over time, and identify issues which need further discussion.
2. Linking NDCs and Long-term Strategies

2.1 What’s written in the Paris Agreement?

The Paris Agreement places top-down global goal setting but relies heavily on bottom-up polycentric governance as explained more in detail in the previous section.

It sets the global goal to hold the temperature increase to well below 2 °C while pursuing efforts for 1.5 °C above pre-industrial levels: 2°C/1.5°C global target (Article 2). It also requires parties to develop and submit NDCs every five years in a progressive manner (Article 4, paras. 2,3,9) and, together with COP21 decisions, invites them to “formulate and communicate, by 2020, ‘mid-century (1/CP .21, paras. 35, 36),’ long-term low greenhouse gas emission development strategies, mindful of Article 2” (Article 4, para. 19). The submission is mandatory for NDCs, but not for the long-term strategies, and these contributions and strategies will be developed by each Party through bottom-up target setting and planning at the national level.

2.2 Importance of long-term strategies and its linkage to 2°C/1.5°C and NDCs

The inclusion of the long-term strategies in the Paris Agreement is particularly important for the following three reasons. First, developing the long-term strategies at a national level, while minding the 2°C/1.5°C goal, would provide opportunities to set country specific goal consistent with the global goal and contribute to develop more ambitious and concrete short/mid-term NDCs. Second, by clarifying the final destination of the long-term strategies and how the NDCs are aligned with the strategies, it would alleviate the situation where the “achievement” of NDCs is not legally binding. Third, perhaps most importantly, this strategy-making process encourages Parties to plan and implement more cost-effective, strategic, and sound NDCs with concrete climate policies and tools from broad-range and long-term perspectives. Developing and sharing this long-term vision of a country sends a great signal to businesses and investors to strengthen their investment portfolio towards the realisation of net-zero emissions.

The importance of developing long-term strategies officially appeared in the climate negotiation arena for the first time at COP15 in Copenhagen. At COP16, the Cancun Agreements signalled that developed countries “should” develop Low Emission Development Strategies and Plans (LEDS) while the developing countries are “encouraged” to do so (1/CP.16, paras. 45 and 65). However, there was no common understanding or guidance established on the definition, the target, or the submission deadline of the LEDS. The Paris Agreement greatly advances this situation by encouraging “all” Parties to develop and communicate “mid-century” long-term
strategies “by 2020” “mindful of Article 2”.

This provides a significant opportunity for countries to start aligning the three key elements: (1) global target; (2) long-term strategy; and (3) short/mid-term actions in their domestic climate policies in order to realise net zero emissions in the second half of this century.

2.3 Challenges

First of all, it is not straightforward to translate the global temperature goal into country-specific long-term goal. Various interpretation and numerous emissions pathways are possible. One possible way is that the allocation of a global 2°C carbon budget among countries based upon various equity and other indicators can provide benchmarks to which each Party can refer when setting a country-specific long-term goal (Tamura et al. 2013). But, given the magnitude of the decarbonising transformation, inclusive multi-stakeholder engagement processes are required to discuss the final destination of the long-term strategies, to generate common understanding about how to achieve it, and, more fundamentally, to promote social acceptance of long-term decarbonisation.

Second, even in the Paris Agreement, the development of long-term strategies is only “encouraged” and there is no common understanding on the definition. In addition, there has been no guideline for the scope or the content being crafted or, needless to say, communicated. Furthermore, the linkage between the 1.5°C/2°C goal, long-term strategies and NDCs is still ambiguous and open to various interpretations. The absence of these details or additional set of rules, if not communicated soon, would hinder the momentum that the Paris Agreement has established and leave the significant gap between the top-down and bottom-up approaches unresolved.

Thus, there is still room for further clarification in terms of the definition of the long-term strategies, and its role in achieving 1.5°C/2°C goal, and its relationship with NDCs. A broad association of the three key elements has been crafted in the Paris Agreement. However, it is not forged strong enough to ensure that all Parties have the common understanding on the importance of linking them. Therefore, there is a significant need for further discussions and shared understanding on the roles of the long-term strategies in association with the 2°C/1.5°C goal and NDCs. In addition, a significant challenge remains as to how to explore ways to ensure that while parties develop various strategies and take diverse actions, they are on the same path to the 2°C/1.5°C goal.

It is also important to be reminded that universal participation in this process is key. Thus countries with experiences in formulating and linking these kind of strategies and plans such as developed countries should spearhead this linking process, share knowledge and expertise with the rest of the world, and encourage other countries to join the process.
2.4 Issues to be Discussed Further

In order to empower the ratchet-up mechanism, all Parties should develop and communicate their long-term strategies. In order to promote this, a guideline for long-term strategies should be developed at the earliest time possible, with a view to allowing Parties to have sufficient time to formulate long-term strategies by 2020.

The guideline should 1) further clarify the definition of “long-term low GHG emission development strategies”; 2) further articulate its relationship with the purpose of the Paris Agreement and with the NDCs. Establishing these links is key.; and 3) highlight the importance of providing projection on cumulative emissions up to 2050 and beyond.

Developed nations should show leadership by spearheading this linking process, by sharing their knowledge and expertise with the rest of the world. In addition, emerging economies like China, which underscored the importance of formulating and making available mid-century strategies for the transition to low-carbon economies, mindful of the below 2°C global temperature goal under the 2015 U.S.-China Joint Presidential Statement on Climate Change (White House 2015), should take the lead in developing long-term strategies consistent with 1.5/2.0°C goal. Through the linking process, NDCs should be considered as stepping-stones to achieve long-term strategies. Parties may consider explaining these steps for years 2025/2030, 2035, 2040, 2045 as future “intended” NDCs within its strategy. By doing so, Parties can effectively update their NDCs to achieve their long-term targets, illustrated by the long-term strategies.

As in the case of NDCs, Parties may update their long-term strategies at any time, reflecting the most recent national conditions such as improvement in capacity and availability of technologies.
3. Enhanced transparency framework

3.1 What is an enhanced transparency framework?

The Paris Agreement establishes an “enhanced transparency framework for action and support, with built-in flexibility which takes into account Parties’ different capacities” (Article 13, para. 1). The purpose of the framework for transparency of mitigation action is to “provide a clear understanding” of action, to “track progress towards achieving Parties’ individual NDCs” and to “inform the global stocktake” (Article 13, para. 5). This new framework is to build on the current measurement, reporting and verification (MRV) system but will eventually supersede the MRV system established under the Cancun Agreements and subsequent decisions (Decision 1/CP.21 para. 99).

The need for more transparency first of all relates to NDCs themselves, i.e. the transparency and clarity of NDCs. Regarding this, all Parties have legal obligation to account for their NDCs (Article 4, para. 13). A five-year cycle of NDCs is established, and each Party shall communicate each successive NDC to “represent a progression” from the one before. When they communicate their successive NDCs, they shall also provide the information necessary for clarity, transparency and understanding (Article 4, para. 8). However, as in previous COPs, at COP21 it was again not possible to agree on specific information requirements for the NDCs that allow to easily understand and evaluate them (Obergassel et al 2016). Instead, Parties could agree on optional contents of information in the same way as a COP20 decision (Decision 1/CP20, para. 14). That is to say, such information may include, as appropriate, inter alia, quantifiable information on the reference point, time frame for implementation, scope and coverage, planning processes, assumptions and methods, and how the NDC is fair, ambitious and contributes toward the objective of the Convention (Decision 1/CP21, para. 27). Further guidance on (1) features of NDCs, (2) information needed to understand NDCs and to track their implementation, and (3) accounting for NDCs to be developed in the coming years (Decision 1/CP21, paras 26, 28, 31).

In terms of transparency on the implementation of NDCs, the Paris Agreement for the first time establishes a universal system. Though currently there are separate reporting and review systems for Annex I Parties and non-Annex I Parties, the enhanced transparency framework under the Paris Agreement will be applied to all Parties, with flexibility in terms of the scope and frequency of reporting and the scope of reviewing. Namely, each Party shall regularly provide: (1) a national inventory; and (2) information needed to track progress made in implementing its NDCs (Article 13, para. 7), and all Parties except LDCs and SIDS shall submit this information at least every two years (Decision 1/CP21, para. 90).

A two-step review and consideration process, which applies to all the Parties, has also been agreed (Article 13, para. 11). As the first step, information submitted by each Party shall go through a “technical expert review,” which will identify areas of improvement for the Parties, review consistency with the modalities and guidelines to be developed and assist developing country Parties to identify capacity-building needs (for those that need it). The
second step is that each Party shall participate in a “facilitative, multilateral consideration of progress” on implementation and achievement of NDCs.

Though Parties agreed to establish the universal system, there is no convergence of views on what the built-in flexibility will look like in practice. The flexibility is provided to developing countries that need it in light of their capacities. Indeed, the APA1 revealed the clear tension among Parities on this topic.

3.2 Why does transparency matter?

By letting every Party know what others are doing, the transparency framework aims to not only build mutual trust and confidence, but also allow peer pressure to be generated. Transparency is expected to form the basis of the so-called “reciprocity” in which a country adjusts its actions reflecting others’ (Axlerod 1984). Reflecting on the division of Marshall Plan aid among European countries and the “burden-sharing exercise” of NATO, Thomas Scheling, a Nobel economics prize laureate, attributed their success to the process of reciprocal scrutiny and cross-examination, and proposed that a climate regime should take on a similar process in which actions committed by nations would be observed, compared and examined by each other (Scheling 2002). According to this line of thought, by improving mutual understanding about NDCs and their implementation, the transparency framework can provide a foundation for collective action to increase the ambition level of NDCs.

The transparency framework is to provide inputs to the global stocktake, another key element of the ratchet-up mechanism. Such inputs could include GHG inventories and projections of anticipated GHG trajectories. Currently, estimating the aggregate effects of INDCs is challenging, since INDCs vary considerably in types and metrics (UNFCCC 2016). By having common modalities, procedures and guidelines for accounting and reporting could therefore facilitate the global stocktake (Briner 2016).

3.3 Challenges

Given the fact that the INDCs submitted to date vary in terms of, for example, their base years, target years, types of mitigation goal (e.g. base year emissions target, base year intensity target, baseline target, peak-year target, and policies or measures), it is necessary to establish a common framework in order to improve comparability of the NDCs. In particular, it is difficult to quantify the emission reductions of some types of mitigation goals such as baseline target and peak-year target, based upon the current set of information provided by INDCs. On the other hand, a certain level of flexibility needs to be given in light of diverse capabilities. Therefore, a key challenge is how it can improve the comparability of NDCs, while allowing a certain level of flexibility to accommodate diverse capacities.
In addition, there is a need to reach a common understanding on several key issues. Such issues include how to understand the expected cumulative impact of NDCs, how to assess "progression", and how NDCs are accounted for. There are also issues which are currently out of the negotiation mandates, but worth exploring. In particular, it is important to identify not only mitigation potential, but also the non-climate opportunities and benefits that NDCs can bring. The New Climate Economy Report (2014), for example, identified diverse sectors in which ambitious mitigation actions can deliver benefits, including urban development, local air pollution and congestion, energy security, energy efficiency, agriculture, fiscal reform, financial innovation and technological innovation. Specifying concrete benefits that fit with each Party's national interests and priorities can move beyond the traditional burden/effort-sharing discussion, motivate an increase in mitigation efforts (IGES 2015). The transparency framework, together with the global stocktake, can be designed to facilitate such benefit-oriented discussion.

3.4 Issues to be Discussed Further

For improved comparability and increased reliability of the aggregated effects of NDCs, further guidance on their features should be developed, including identification of information and accounting rules.

An expert review process should be designed as a learning process. By identifying areas for improvement and making technical suggestions, it enables Parities (developing country Parties in particular) to provide "quantifiable" and "aggregatable" information on their NDCs over time.

The facilitative, multilateral consideration of progress should provide Parties and stakeholders with better understanding about the level of ambition of each NDC, how one NDC compares with others, and the aggregate effects of NDCs on global GHG emissions. The multilateral consideration should be conducted through grouping discussions based on the type of mitigation goal. Since each type has its own challenges in terms of formulating, implementing and reporting, such grouping can provide a mutual learning process, as well.

The grouping based upon different types of mitigation goal can also be a one way of flexibility or differentiation under the transparency framework. In addition to merits mentioned above, types of NDCs generally reflect national social and economic circumstances. Thus, such grouping is more relevant than binary differentiation (developed countries vs developing countries).

In parallel with the formal multilateral consideration process, an informal process of making equity-based assessment and assessing mitigation potential of NDCs should be established. A consortium of climate policy research institutions with good regional representation should play a key role in such a process. The Deep Decarbonization Pathways Project (DDPP), the Modelling and Informing Low-Emission Strategies (MILES) project and International Research Network for Low-carbon Societies (LSC-RNet) could be models for such consortium.
4. Global Stocktake

4.1 What is the global stocktake?

The objective of the global stocktake is to take stock of the overall progress towards the purpose and long-term goals of the Paris Agreement. By doing so every five years, Parties as well as the world as a whole will be able to check whether individual and collective efforts are being made in the right direction and at the right speed. Successfully conducting the global stocktake will be crucial to achieve the 2°C/1.5°C goal through enhancing ambitions of Parties’ NDCs.

4.2 What is already decided?

Article 14 of the Paris Agreement sets out that the Parties take stock of the implementation of the Agreement to assess the collective progress towards achieving the purpose of the Agreement and its long-term goals.

The purpose of the agreement is to “strengthen the global response to the threat of climate change, in the context of sustainable development and poverty eradication” (Article 2).

Long-term goals are:

- holding the increase in the global average temperature to well below 2 °C and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels;
- increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low GHG development, in a manner that does not threaten food production;
- making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development.

It is decided that the global stocktake will take place every five years starting in 2023 (Paris Agreement Article 14, para 2). Parties also agreed that the outcome of the global stocktake shall inform Parties in updating and enhancing their actions and support, and in enhancing international cooperation (See Paris Agreement Article 4, para 9 and Article 14, para 3). A short list of sources of inputs have been decided, including: (a) information on the overall effect of the NDCs; (b) the latest reports of the IPCC; and (c) reports of the SBs (1/CP.21, para 99).

The agreement also requires Parties to submit their NDCs by 2020 and every five years thereafter (1/CP.21 para 23 and PA Article 4, para. 9). As the global stocktake takes place two years ahead of the deadline for Parties to update or communicate their NDCs in 2025, it gives Parties sufficient time to decide a way to reflect the outcome of the global stocktake into their successive NDCs.
4.3 Challenges

Modalities

Only the purpose of the global stocktake has been decided so far. Everything else including the details of the modalities are supposed to be developed by the first CMA (1/CP.21, para 101). Parties need to decide on elements of the modalities including: timeline of process (e.g. when the first meeting will take place, and how many meetings should be conducted); who will conduct the global stocktake (e.g. committee or open participation); how to organise (e.g. how to take up various information, presentations, workshops, closed meetings or open discussions); how to report the outcome (e.g. who will prepare reports on what form, whether the Parties will review the report or not, and how to communicate); how to act based on the outcome (e.g. how will the outcome be communicated, who will take what actions, and how will the actions be reviewed).

From the preliminary discussion that took place in May, some Parties pointed out that lessons can be learned from the experience of the structured expert dialogue of the 2013-2015 review on the long-term global goal. Due to its openness and balanced approach, for example inviting both IPCC and non-IPCC experts and listening to Parties’ views carefully etc., the final report of the review received considerable acceptance by Parties. The outcome of the review led to setting the 1.5°C/2°C global goal. Therefore, the modalities of the global stocktake should also be designed to ensure acceptability and ownership of Parties on its outcome. This is essential to encourage Parties to take further actions based on the outcome of the global stocktake.

Sources of inputs

Discussion on the sources of inputs also began in May. Some sources are already listed in the decision (1/CP.21, para 99). However, due to time limitations, Parties did not go into a substantial discussion and therefore could not come to a notable outcome. The meeting ended by requesting a submission on sources of inputs as well as on modalities from Parties and observers ahead of COP22 in Marrakesh.

During the meeting, Parties also discussed how the inputs from IPCC could inform the global stocktake, as mandated by COP to report on this matter to the APA by its second meeting. IPCC announced that they would develop a special report on 1.5°C by 2018 and to adjust their 6th assessment cycle to align with the timing of the first global stocktake. Although many Parties welcomed this information, they did not reach a consensus on this agenda, and again concluded by requesting Parties and observers to make another submission ahead of Marrakesh.

In conclusion, it is still very unclear on how and what kind of outcomes the global stocktake aims to generate with what information, and how Parties will act on its outcome. Thus, various proposals from diverse stakeholders will be particularly important to start building
the details especially on the modalities and sources of inputs to enable the global stocktake to enhance ambitions of Parties’ NDCs.

4.1 Issues to be Discussed Further

The global stocktake should be designed to: 1) clarify where progress has been made and where challenges exist; 2) estimate the global cumulative emissions projections based on the best available data and science; 3) identify gaps and ways to address them and 4) display opportunities for Parties on where they can work collectively and individually. In order to achieve these points, the following factors of the global stocktake are essentially important to empower the ratchet-up mechanism.

On the sources of inputs, there is a significant lack of country-specific information to understand how far the current emission projections diverge from 1.5°C/2°C pathways. Therefore, in addition to the cumulative knowledge on climate science like IPCC, country-specific data needs to be regularly updated and accumulated including the data on current and projected cumulative emissions of each Party. As challenges exist for developing countries in producing and collecting national data, capacity building on measuring and reporting emission data will be essential. Paris Agreement decided to establish the capacity-building initiative for transparency (CBIT) and requested the Global Environment Facility (GEF) to support its establishment (GEF 2016). Through initiatives such as the CBIT can support Parties improve their data overtime.

In order to aggregate Parties’ efforts, synthesis of NDCs is a key input. For adequately aggregate effects of NDCs, Parties should communicate NDCs with enhanced clarity and transparency. In addition, a communication process should be established for long-term strategies. COP should consider making a synthesis report of the communicated long-term strategies as well.

On the modalities of the global stocktake, Parties should discuss and decide when to start, how to organise, who should participate, how to develop and communicate the outcome, and what actions to take based on the outcome.

In considering the modalities, ownership and political attention are important factors. To promote ownership on the outcome of the global stocktake, it is important that the process is inclusive and open without deciding on specific constituting members. One way of conducting the global stocktake is to comprise the process of two phases: 1) technical dialogue phase; and then 2) political decision-making phase.

Technical dialogue should be organised and conducted in a facilitative manner, as an exchange between experts and Parties without political interference, aiming to translate the best available information and science into actionable knowledge for Parties. Key topics are gaps in emission reduction, areas of mitigation potentials including potential sectors and available technology, international cooperation, and information gaps to improve the process of the global stocktake.
Political decision-making should involve ministerial-level and develop political decisions on actions based on the technical work. This will contribute to ensure the level of political attention and political will in raising ambition in NDCs following the global stocktake.
5. References


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Institute for Global Environmental Strategies (IGES)
Programme Management Office (PMO)
2108-11 Kamiyamaguchi, Hayama, Kanagawa, 240-0115, Japan
Tel: 046-826-9601  Fax: 046-855-3809  E-mail: pmo-info@iges.or.jp
www.iges.or.jp

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