

# Reflection and operationalization of the “Common but Differentiated Responsibilities and Respective Capabilities” principle in the transparency framework under the international climate change regime

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## Abstract

“Common but differentiated responsibilities and respective capabilities” (CBDRRC) is the most significant guiding principle in the international climate change regime, created by the United Nations Framework Convention on Climate Change in 1992 and inherited by the Paris Agreement 24 years later. This paper examines the operationalization of the CBDRRC principle in one of the cornerstone rules of the regime—its transparency provisions, both in existing practice under the convention and possible evolvement in negotiations under the Paris Agreement, from the perspectives of both international rule-making and domestic implementation. The authors have found a continuous enhancement of the transparency framework since the 1990s, and gradual consolidation of a bifurcated system between developed and developing countries into a common one. The authors argue that the transparency framework, as part of the procedural rules, should be designed to facilitate transparent information sharing in accordance with substantive commitments under international climate change laws. Thus, it indirectly reflects historical responsibilities for climate change, while the framework should also be designed as feasible and reflective of the respective capabilities of nations. Finally, the evolution of the transparency framework will aim to enact common and enhanced provisions while differentiating between developed and developing countries in the near term, and greater transparency-related capacity-building for developing countries.

*Keywords:* International climate change law; UNFCCC; Paris Agreement; Transparency; Common but differentiated responsibilities and respective capabilities principle

## 1. Introduction

Climate change is a global challenge faced by all nations in common. Scientific research highlights a quickening global temperature rise over the last two centuries, mainly caused by anthropogenic greenhouse gas (GHG) emissions (IPCC, 2014). In 1992 during the Earth Summit in Rio de Janeiro, the United Nations Framework Convention on Climate Change (UNFCCC, hereinafter referred to as “the Convention”) was adopted with an aim to stabilize GHG concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. The Convention recognizes as fundamental the principle of “common but differentiated responsibilities and respective capabilities” (CBDRRC). This principle refers to the fact that the climate change problem “affects and is affected by all nations in common, if not to the same degree, and that the resulting ‘responsibilities’ ought to be differentiated because not all nations should contribute equally to alleviate the problem” (Yamin and Depledge, 2004). It is also a fact that developed countries bear the main responsibility for climate change, inasmuch as they’ve contributed to the largest share of historical GHG emissions. Therefore, the commitments of developed and developing countries on substantive, as well as on procedural, rules occupy a bifurcated system that reflects their differing responsibilities and capacities.

Transparency is one of the pillars of the Paris Agreement adopted in 2015. As the Agreement adopted a bottom-up commitment system, requesting its Parties to contribute to the international climate change regime in a nationally determined way, a robust transparency system was therefore crucial to ensuring the implementation and effectiveness of such a regime (Bodansky, 2016; Rajamani, 2016; Winkler et al., 2017; Lawrence and Wong, 2017). As one of the procedural rules, transparency provisions are also guided by the principles of the Convention and Paris Agreement. However, there is debate on whether the transparency provisions should be guided by all of the principles or some in academia and some in the international climate change negotiations.

In order to understand the rationale on how principles guide transparency rules, and to provide policy recommendations for international practice, the authors have started this paper with an expression of the CBDRRC principle, followed by an analysis of how it is reflected in the evolution of transparency framework during the last two decades. They then identify how different nations’ respective capabilities influence the implementation of

transparency provisions. Last but not least, they provide recommendations on how to operationalize CDDRRC in the enhanced transparency framework of the Paris Agreement.

## 2. The CDDRRC principle and its interpretation

Under the Convention, the commitments of developed and developing country Parties are designed to capture common elements, though in a bifurcated system that reflects their different responsibilities and capabilities.

The commonalities exist in Article 4.1 of the Convention, e.g., all Parties shall publish national GHG inventories, implement measures to mitigate climate change and adaptation, promote and cooperate in technology development, etc. Article 10 of the Kyoto Protocol reaffirms the above commonalities.

Differentiation exists in the provisions for mitigation, international climate support, transparency, and compliance. The Convention requested that the developed Parties take the lead in mitigation. This was further enhanced in the Kyoto Protocol with an annex establishing quantified emission limitation or reduction commitments for developed Parties only, which bifurcated the system for mitigation commitments by developed and developing Parties. The commitments set by the Kyoto Protocol resulted in a *de facto* bifurcated compliance system. Meanwhile, the Convention, as inherited by the Protocol, requested that only some of the developed Parties provide climate support to developing countries. They set different provisions for developed Parties with regard to information communication and review, compared to developing Parties that evolved to a bifurcated measuring, reporting and verification (MRV) system over the last 20 years.

The reason why these provisions were differentiated has been variously interpreted. Central to international climate negotiations since their establishment has been that the rules and provisions for implementing the Convention should reflect the principle of CDDRRC (Stavins et al., 2014). During negotiations for UNFCCC, developing countries wanted developed countries to take the lead because of their historical responsibilities (Soltau, 2014). However, their negotiator counterparts did not agree on whether developed countries should take the lead because of their “responsibilities,” their “capabilities,” or both. A “constructive ambiguity” using the word “accordingly” provided the drafting solution,<sup>1</sup> without attributing the provision to either “responsibilities” or “capabilities.” A Party could then interpret the basis for the developed countries’ leading role as whichever aspect of the previous sentence it deemed appropriate (Biniaz, 2016). In fact, the only direct link between responsibilities for emissions and developed countries taking the lead on addressing climate change exists in the “Cancun Agreement” (UNFCCC Decision 1/CP.16) which was adopted by the Conference of the Parties of the Convention (COP) in 2010. It states in the chapeau of the section dealing with mitigation and MRV of developed Parties that “(A) acknowledging that the largest share of historical global emissions of GHGs originated in developed countries and that, owing to this historical responsibility, developed country Parties must take the lead in combating climate change and the adverse effects thereof.”

The evolution of CDDRRC in the Paris Agreement highlighted more about capabilities of nations than responsibilities for emissions. Although the Paris Agreement inherited the principle of CDDRRC from the Convention, it added an addendum to the text, “CDDRRC, in the light of different national circumstances.” This addendum was formulated by the “U.S.–China Joint Announcement on Climate Change” in 2014 and subsumed by negotiators into the Paris Agreement in 2015. Although one can argue that historical GHG emission is also part of “national circumstances,” it generally refers to national capacities. Nor did the Paris Agreement inherit the Annexes of the Convention, which provided lists of Parties that became the basis for the bifurcated implementation provisions. Therefore, though the Paris Agreement provides differentiated provisions for developed and developing countries, taking into account their various national capacities, it focuses more on commonalities when it sets obligations to Parties. For example, Article 3 requests all Parties to undertake nationally determined contributions (NDC) covering mitigation, adaptation, finance, technology, capacity building, and transparency.

How to reflect CDDRRC in the transparency provisions sparked a heated debate during Paris Agreement negotiations. Generally speaking, developed countries emphasized more “common” elements, while developing countries stressed “differentiated” ones. Ultimately, the “constructive ambiguity” contributed to the drafting of the Paris Agreement with the word “enhanced” included. “Enhanced” was borrowed again for a U.S.–China proposal and agreed to by all Parties, that established a middle ground between “common” and “differentiated,” and

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<sup>1</sup> Article 3.1 of the Convention states “(T)he Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.”

“provide[d] flexibility to those developing countries that need it in light of their capacities,” as currently stated in Article 13 of the Paris Agreement.

The debate on how the transparency framework under the Paris Agreement should be designed originated from divergent views on whether transparency provisions should reflect differentiated responsibility or respective capabilities. The compromise reached in Paris resulted in Article 13 of the Agreement, with neither a bifurcated system, nor a single common framework, and a transparency framework characterized as neither “common” nor “differentiated,” but “enhanced” (Winkler et al., 2017). Renewed negotiations since 2016 debated “modalities, procedures and guidelines for the transparency framework for action and support, referred to in Article 13 of the Paris Agreement.” These were the specific provisions to implement the Paris Agreement. As the Agreement leaves unresolved the discussion on “common” versus “differentiated,” how best to reflect the CBDRRC principle becomes a fundamental and uncertain issue for ongoing negotiations, with divergent views on whether to be common or bifurcated still on the table. The fundamental matter on the rationale of transparency framework design has still not been addressed.

### **3. Reflection of the CBDRRC principle in transparency framework**

Transparency provisions are widely applied in international laws, hailed as an attribute of good governance. However, a clear definition of “transparency” is still complex and unsettled. The term “transparency” is borrowed from physics, which is often cited as a metaphor, implying visibility in contexts related to the behavior of individuals or groups, and beyond that, openness, communication, and accountability. Tzanakopoulos (2013) defines transparency as “a general right of access to information held by those exercising public powers and in relation to the exercise of these public powers, irrespective of motives or specific interest on the part of those requesting access to the information.” Creamer and Simmons (2013) characterize transparency as “the dissemination of regular and useful information.” Peters (2013) defines transparency as a “culture, condition, scheme or structure in which relevant information (for example on law and politics) is available.” Schnackenberg and Tomlinson (2016) state, “transparency is the perceived quality of intentionally shared information from a sender.” These definitions echo with the practice of the existing transparency framework under the Convention. The Convention has required the information provided by the Parties to be “transparent, consistent, comparable, complete, and accurate,” since its first reporting guidelines (UNFCCC, 1999). It is now usually referred to as TACCC (transparency, accuracy, completeness, consistency, comparability) principle, in the context of discussing the climate change transparency framework.

The practice under the Convention is to some extent in line with the academic definition of “transparency,” but different terms have been coined during the last two decades. Transparency framework refers to a set of arrangements ensuring the submission and quality of information provided by Parties within the context of the Convention. According to existing practice, several terms are used to address transparency, e.g., “communication” (Article 12) and “consider” (Article 10), both used in the Convention; and “report and review,” widely used in the guidelines adopted by the COP. “measuring, reporting and verification” (MRV) was created by the 13th Conference of Parties (COP13) in 2007, while “international assessment and review,” (IAR) and “international consultation and analysis” (ICA) were adopted by COP16 in 2010. “Reporting, monitoring, and evaluation” was created by COP17 in 2011, while the Paris Agreement uses the expression of providing “information, review, and consideration.”

The above transparency-related terms, as used in practice, fall into four categories: 1) to obtain information, either by direct monitoring or mathematic calculation and measurement; 2) to report the information to the international community; 3) to verify the quality of information reported; and 4) to make an assessment based on the information. Accordingly, the term “transparency framework” in this paper covers all processes related to the four categories above.

During the past 26 years, the transparency framework under the Convention has experienced continuous evolution. The original reporting and review provisions under the Convention (Article 12) and the Kyoto Protocol (Articles 5, 7, and 8) were further enhanced by provisions adopted by the COP and Conference of the Parties, serving as the meeting of the Parties to Kyoto Protocol (CMP), especially the Cancun Agreement with several supplementary items adopted in subsequent COPs. As shown in Table 1, many of the provisions have been updated several times. Provisions for developed countries are updated more frequently than for developing countries. Table 1 also shows that transparency provisions for developed countries are wider ranging than for developing countries, e.g., there are specific provisions for developed Parties on GHG inventory reporting, and their review covers more information than for developing Parties. Although this table includes compliance as part of its assessment, it should be noted that compliance is widely regarded as another mechanism closely related to, but outside the transparency

framework. Therefore, this paper will not delve into that.

**Table 1. Existing provisions of the international climate change transparency framework**

Category	Mechanism	Developed countries	Developing countries
Measuring	GHG inventory	<u>IPCC 1996, 2000, 2006, 2013</u>	<u>IPCC 1996, 2000</u>
Reporting	National inventory report	3/CP.5, 18/CP.8, <u>24/CP.19</u>	No specific provision
Reporting	National Communication	A/AC.237/55, 9/CP.2, <u>4/CP.5</u>	10/CP.2, <u>17/CP.8</u> (including inventory)
Reporting	Cancun tools: BR and BUR	BR: <u>1/CP.16, 2/CP.17, 19/CP.18, 9/CP.21</u>	BUR: <u>1/CP.16, 2/CP.17</u>
Reporting	Information under Kyoto Protocol	<u>15/CMP.1</u>	Not applicable
Review	GHG inventory	6/CP.5, 19/CP.8, <u>13/CP.20</u>	Not applicable
Review	National Communication	2/CP.1, 23/CP.19, <u>13/CP.20</u>	Not applicable
Review	Cancun tools	IAR: <u>2/CP.17, 13/CP.20</u>	ICA: <u>2/CP.17</u>
Review	Information under Kyoto Protocol	<u>22/CMP.1</u>	Not applicable
Assessment	Cancun tools	IAR: <u>2/CP.17</u>	ICA: <u>2/CP.17</u>
Assessment	Compliance	<u>27/CMP.1</u>	Not applicable

Note: 1) underlined provisions are in use; 2) IPCC refers to methodologies developed by the Inter-Governmental Panel on Climate Change, and the methodologies have been fully or partially updated several times, as indicated by years; 3) BR= Biennial Report, BUR= Biennial Update Report, IAR= International Assessment and Review, ICA= International Consultation and Analysis.

The reporting and review requirements for developed and developing countries are common but explicitly bifurcated to reflect the CDRRC principle prior to 2010. According to Articles 4.1 and 12 of the Convention, all Parties are obligated to report their activities in implementing the Convention through National Communication (NC) and national inventories. Developed countries are required to submit stand-alone national GHG inventory reports (NIR) on an annual basis. Reporting guidelines for these have been updated numerous times in order to apply up-to-date methodologies developed by the IPCC, while developing countries are only required to submit inventory information together with the NC. The NCs cover a wider range of activities including mitigation actions, vulnerabilities and adaptations as well as support provided or received, and are submitted by all countries every four years.<sup>2</sup> For developing countries the support they have received for the preparation of NCs is a precondition. All the reporting documents from developed countries are subject to review carried out by international technical expert teams, but reviews do not apply to developing countries, as shown in Table 2.

**Table 2. Common but bifurcated reporting and review practice under the existing transparency framework**

		Developed countries	Developing countries
Reporting	GHGs Inventory	annual, mandatory, stand-alone report	biennial, mandatory, as part of NC or BUR
	Mitigation target and actions	biennial, mandatory, as part of NC or BR	biennial, mandatory, as part of NC or BUR
	Adaptation actions	once every four years, mandatory, as part of NC	once every four years, mandatory, as part of NC
	Support provided to developing countries	biennial, mandatory, as part of NC or BR	not applicable, or voluntarily reporting
	Support needed and received	not applicable	biennial, non-mandatory, as part of NC or BUR
Review	GHGs Inventory	annual, mandatory	not applicable
	Mitigation target and actions	biennial, mandatory	biennial, mandatory
	Adaptation actions	once every four years, mandatory	not applicable
	Support provided to developing countries	biennial, mandatory	not applicable
	Support needed and received	not applicable	biennial, mandatory
Multilateral consideration		biennial, mandatory	biennial, mandatory

Note: 1) For developing countries, the preparation and submission of NC and BUR shall take into account the prompt provision of financial resources to cover the

<sup>2</sup> In fact, the frequency of NC submission is fixed as once every four years after 2010, and before that it is the COP that decides the due date of submission at a round-by-round basis.

agreed full costs incurred by the Party, as decided by the Convention and Decision 1/CP.16; 2) NC= National Communication, BR= Biennial Report, BUR= Biennial Update Report.

Generally speaking, developed countries are requested to submit information more frequently, and to provide greater details than developing countries. The specific reporting content and review process differ between developed and developing countries, which is in line with the differentiated nature of their commitments of substance, e.g., mitigation and support, under the Convention, as well as the lower capacities of developing countries (Yamin and Depledge, 2004; Rajamani, 2012).

Since 2010, the evolution of transparency provisions have become symmetrical between developed and developing countries. New provisions were negotiated under the Bali Action Plan mandated by COP13 in 2007 and adopted in 2010. The negotiation outcome introduced a parallel system with similar reporting and review processes but captured in different texts for the two categories. Together with previous transparency provisions still in use for developed countries, the reporting process includes NIR, NC and newly introduced Biennial Reports (BR). All reports must undergo an IAR process which includes two steps: 1) a review by an international expert team, and 2) a multilateral assessment by Parties. The developed Parties to the Kyoto Protocol need also report information and require review according to the Protocol's provisions, while temporal coincidence with the Convention reporting and review process. For developing countries, the reporting process only includes NC and a newly introduced Biennial Update Report (BUR). Only the BUR will undergo an ICA, which include two steps: 1) technical analysis by an international team of experts, and 2) facilitative sharing of views among Parties. In sum, the existing transparency framework under the Convention is a bifurcated system with commonalities, which has already shown a tendency of convergence along with its enhancement.

The tendency of convergence in a transparency framework from a bifurcated system reflects the melding of commitments on substance between developed and developing Parties, and represents the narrowing of relative gaps of national capacities on climate change transparency. The rationale behind the bifurcated design is, on the one hand, that developed and developing Parties take *de facto* bifurcated commitments on substance under the Convention and its Kyoto Protocol. For mitigation, since developed countries are expected to take the lead, and the Kyoto Protocol sets quantified emission limitation or reduction commitments only for developed Parties, they are requested to take more robust transparency provisions on GHG inventory and mitigation actions. Similarly, on international climate change support, as only developed Parties have the obligation to provide support, the transparency provisions are also set only for them. On the other hand, national capacities related to transparency of these two groups in general varied significantly at the close of the 20<sup>th</sup> century.

The evolution toward a symmetrical design is also due to changes in these two factors. In the Cancun Agreement, developed Parties were requested to accept quantified economy-wide emission reduction targets (QEERTs) for 2020, and at the same time, developing countries were similarly requested to take nationally appropriate mitigation actions (NAMAs). Although QEERTs and NAMAs are still bifurcated and they have been symbolically captured in two different documents (UNFCCC, 2011a, 2011b), the new provisions on mitigation indicate a tendency toward convergence. To reflect this change and the situation that many developing countries are believed to have much higher capacities than 20 years ago, the new transparency provisions for developed and developing Parties have become more symmetrical as well.

#### **4. Respective capabilities in the current practice**

The differences in implementation of transparency provisions between developed and developing countries, and sometimes within the developing countries themselves, reflect different capacities. At a time of increasing demand for transparency of developing countries, capacity building needs for an effective domestic transparency system rank among the core literature topics and recommendations on enhancement of domestic practices. Some literature focuses on a specific design related to domestic systems in different contexts. They include the evaluation of different MRV systems in major developed and developing countries, based on a set of indicators (Falconer et al., 2012; Koakutsu et al., 2012), the highlighting of best practices, and capacity building needs in developing countries. As for individual countries, a series of studies on MRV-related activities were conducted in South Africa, at a national level, extending to MRV of a specific sector, emphasizing the need to develop a coherent MRV approach based on existing systems, in a government-coordinated effort (Boyd et al., 2014b). Some studies paid attention to multi-level MRV system design by exploring how local MRV efforts could inform the national transparency framework (Boyd, 2012). It can be seen from the literature that the capacities of developing countries could be strengthened in three main aspects: institutional, technical, and experiential, to participate in the

international transparency regime. This section summarizes the state of knowledge relating to domestic transparency systems, focusing on the respective capacities among different countries, and highlighting the constraints, barriers and best practices of developing countries.

#### *4.1 Institutional capacity*

Institutional capacity refers to working mechanisms and related human, technical and financial resources. One of the key elements affecting the working mechanism of a domestic transparency system is whether it is embedded in legislation (Hinostroza et al., 2012). In the European Union, for example, the Regulation (EU) No 525/2013 provides the legal basis for establishing a mechanism for monitoring and reporting GHG emissions and other relevant information at the national and Union levels. Another example is the GHG Emissions Trading Scheme (Amendment) and National Emissions Inventory Regulations, a law passed in the UK and enacted specifically for national inventory purposes, such as penalties for failure to comply and authority for entry to obtain information that's required or necessary for verification (UK, 2005). Although it lacks direct legislation, the U.S. Environmental Protection Agency successfully promulgated "Mandatory Reporting of Greenhouse Gases", an agency-level regulation covering CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub> and F-gases from 41 categories, after CO<sub>2</sub> was classified as an air pollutant by the Supreme Court. This regulation established a holistic monitoring, reporting and verification, and archive system for GHG reporting at the facility level.

Another aspect of the institutional capacity is the human and financial resources one country is able to allocate for this process. All developed countries were required to designate a single national entity with overall responsibility for the national inventory to ensure sufficient capacity to submit the report, including data collection and arrangements for the technical competence of the staff. Although it varies across different countries, most developed nations have permanent offices and staff to perform the function of inventory compiling. In addition, many developed countries have established stable inter-ministerial working mechanisms for reporting. For example, Canada has a designated focal point in each relevant ministry to facilitate the NC/BR compilation. Japan has not only a regular inter-ministerial meeting for NC/BR reporting but also a Commission on GHG estimation methodologies, and a Quality Assurance Working Group on GHG inventory. All of the above were made possible for not only a robust legislation system, but adequate resources allocated by the government.

Most developing countries, by contrast, lack legislative support for their transparency system, leaving their domestic transparency systems at very premature stages, in general. Even with laws in place, developing countries typically struggle with limited human and financial resources to maintain sustainable transparency systems. Other competing priorities, such as poverty reduction, education and medical care, invariably outweigh the resources invested for climate change. Many developing countries suffer from frequent staff-changes and a lack of permanent offices for GHG inventory and NC/BUR reporting. Some institutional barriers, such as manpower shortages, could be temporarily addressed by external support in the way of GEF funds and bilateral cooperation projects, while other obstacles—lack of coordination among ministries and departments, for instance—could only be improved by the country itself. Coordination among different jurisdictions and capacity-building of local personnel are among the highest priorities in almost all developing countries (Elsayed, 2013).

With all the above institutional barriers, some best practices have been observed in developing countries with great interest in tracking obligatory GHG targets and domestic climate actions. Boyd has conducted a systematic comparative analysis of major emerging economies, including China, India, Brazil, and South Africa, concluding that political system, national development goals, national and sectoral climate change objectives, sub-national targets are the key dominants that influencing institutional arrangements for domestic transparency systems (centralized or decentralized) in these countries (Boyd et al., 2014a). Some developing countries employ a certain extent of legislation to regulate the MRV practice under the transparency system. For example, In South Africa, the Department of Environmental Affairs (DEA) is mandated by the Air Quality Act (Act 39 of 2004) to formulate, coordinate and monitor national environmental information, policies, programs, and legislation. The DEA, which is supported by the Constitution and other relevant legislation and policies, oversees the collection and coordination of all climate change-related information, including GHG emissions, mitigation and adaptation-related actions (South Africa, 2014). China does not have a framework legislation for climate change but is gradually establishing its national transparency system mandated by the Five-Year-Plan adopted by the People's Congress. It's now resulting in a preliminary, three-tiered MRV system (China, 2016). This centralized approach, where the transparency system is designed and implemented by the central government, and complemented by provincial actions and efforts, allows for better coordination of multi-level efforts and a maximum exploitation of resources for transparency

system design.

#### *4.2 Technical capacity*

Technical capacity refers to the collection, coordination and application of data and information, as well as the methodologies applied for inventory modeling of policies or actions. Most developed countries have established national platforms for compiling GHG emissions. The Australian GHG Emissions Information System (AGEIS), for example, is embedded with Australia's inventory estimation method, with the function of inventory estimation, quality control, data archive, and production of the common reporting tables required by the UNFCCC (Australia, 2017). Few developing countries have a regular national database for GHG collection and calculation. Their national inventory compilations often lack long-term mechanisms for activity data and country-specific emission factor collection. Another technical capacity is the use of IPCC guidelines. According to a study conducted by OECD, among 83 developing countries who submitted their inventories during 2015–2018 as part of the NC, 43 used Revised IPCC 1996 Guideline and Good Practice Guidance, while 19 used a combination of Revised IPCC 1996 and 2006 Guidelines. Twenty-one countries used the IPCC 2006 Guidelines exclusively (Ellis et al., 2018). The great variety of circumstances in developing countries increases the difficulty in inter-comparability. Some developing countries producing high quality national reports are supported by developed countries, employing similar methodologies. That said, for information other than GHG emissions, such as national circumstances, mitigation actions, and adaptation efforts, there is no consistent international methodology.

Due to the increased frequency and enhanced requirements under UNFCCC, some developing countries are developing their own national MRV databases or platforms to track GHG emissions and climate change actions for BURs. For example, South Africa established its National Climate Change Response Database in 2009 to monitor GHG emissions. However, the system remains without an evaluation function and is not yet in a position to evaluate the impacts of policies, or measures to achieve by national GHG emission targets. A new M&E (Monitoring and Evaluation) System, under construction, was commissioned in 2018 (South Africa, 2014). Brazil and China are both developing their respective national databases and information centers for inventories and actions (Brazil, 2014; NDRC and NBSC, 2013), although they are far less mature or comprehensive than those in developed countries. For developing countries without comprehensive databases or platforms for regular mechanisms, much effort still has to go to the coordinated collection of data and information.

#### *4.3 Experience under the UNFCCC regime*

The third capacity is related to the experience of reporting and participating in the current UNFCCC regime review. Practice with the existing transparency framework shows significant gaps between developed and developing countries. Since the first submission and review of NIRs, BRs and NCs by developed countries in 1994, it was clear that their compliance with international transparency requirements would be a process of continuous improvements, in the quality of reporting and increasingly standardized procedures. Most developed countries have so far submitted seven rounds of NCs, as well as annual NIRs, since 1990. The first and second BRs submitted by developed countries in 2014 and 2016 have completed the review process. The technical expert review of the seventh NCs and the third BRs are underway.

For developing countries, the submission years of NC and BUR are at quite different stages and the reported GHG inventory also varies a lot due to different national circumstances. Among all 154 non-Annex I Parties to the Convention, generally considered the developing countries, only Mexico has submitted its fifth NC, and only the Republic of Moldova, Uruguay and UAE has submitted its fourth NC, only 60 have submitted their third NCs, and only 19 have submitted their second BUR (UNFCCC, 2018a, 2018b). As for GHG inventories, Republic of Korea covers a time frame of 1990–2014, plus its most recently submitted BUR in 2017 provides the most consistent time series information in the developing world. The GHG inventories compiled by the Mexico and Brazil cover a time series of 1990–2013, respectively. Singapore, as a small country, and Namibia, as a less developed country, have submitted three NCs and the two BURs. Up to now, a total of 45 developing countries have submitted first BURs, which have either undergone or will undergo the ICA process.

The effectiveness of implementation of transparency provisions is disproportionate to national capacities as perceived by the outside world. As shown in Table 3, several small and/or less developed countries, e.g., Iceland, Liechtenstein, Namibia, and Singapore, have implemented transparency provisions quite well. Yet, neither China nor India has met the due date for submission of the first BUR, which was December, 2014, while the U.S. hasn't

submitted its seventh NC and third BR, for which the due date was 1 January 2018. The reason is that small countries have less data and information to collect, and some of the least developed enjoy well-organized, bilateral support from developed countries to help them compose their inventories and national reports, instead of participating in complicated multilateral financial mechanisms.



**Table 3. Implementation of climate change transparency provisions of selected Parties to the UNFCCC**

Party	GHG Inventory <sup>a</sup>		Review	National Communication		Requirement under Cancun Agreement	
	Submission year	Inventory year		Submission year <sup>b</sup>	Review	BR/BUR Submission year	IAR/ICA
United States	2000–2018	1990–2016	9 centralized, 3 in-country, 1 desk	1994, 1997, 2002, 2007, 2010, 2014	6 in-country	2014, 2016	2 rounds completed
European Union	2000–2018	1990–2016	10 centralized, 3 in-country	1996, 1998, 2001, 2006, 2009, 2014, 2017	6 in-country, 1 centralized (4th)	2014, 2016, 2017	3 rounds in process
Iceland	2000–2018	1990–2016	8 centralized, 4 in-country, 1 desk	1996, 1997, 2003, 2006, 2010, 2014, 2018	6 in-country, 1 centralized (4th)	2014, 2016, 2018	3 rounds in process
Liechtenstein	2005–2018	1990–2016	7 centralized, 2 in-country	1995, Unclear, 2002, 2006, 2010, 2013, 2017	4 centralized	2014, 2016, 2017	3 rounds in process
Brazil	2004, 2010, 2014, 2016, 2017	1990–2013	None	2004, 2010, 2016	None	2014, 2017	2nd round in process
India	2004, 2012, 2016	1994, 2000–2010	None	2004, 2012	None	2016	1st round completed
Mexico	1997, 2001, 2006, 2009, 2012, 2015	1990–2013	None	1997, 2001, 2006, 2009, 2012	None	2015	1st round completed
Namibia	2002, 2011, 2014, 2015, 2016	1994, 2000–2012	None	2002, 2011, 2015	None	2014, 2016	2nd round in process
Republic of Korea	1998, 2003, 2012, 2014, 2017	1990–2014	None	1998, 2003, 2012	None	2014, 2017	1st round completed
Singapore	2000, 2010, 2014, 2016	1994, 2000–2012	None	2000, 2010, 2014	None	2014, 2016	2nd round in process
South Africa	2003, 2011, 2014, 2017	1990, 1994, 2000–2012	None	2003, 2011	None	2014, 2017	1st round completed
China	2004, 2012, 2017	1994, 2005, 2012	None	2004, 2012	None	2017	1st round completed

Note: <sup>a</sup> Inventory of developing Countries is submitted as part of NC/BUR.

<sup>b</sup> Due to the fact that some NCs were submitted in hard copy in early years, details, including submission times, can't be accessed through the internet.

Source: UNFCCC, National Reports (2018), <https://unfccc.int/process#:0c4d2d14-7742-48fd-982e-d52b41b85bb0:f666393f-34f5-45d6-a44e-8d03be236927>.

## 5. Operationalize CDDRRC under the Paris Agreement

The Paris Agreement clearly states in its Article 2.2 that it will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances. During the past two years, Parties have been constructively negotiating technical issues in the modalities, procedures and guidelines of a transparency framework. They've temporarily put aside different options on whether to develop two sets of guidelines as a continuation of the bifurcated system, or one set of guidelines applicable to all Parties, as a means of generating a streamlined negotiation text. However, how to reflect the CDDRRC principle is still the elephant in the room, and it's becoming more and more visible as the options develop. Parties have to find a middle ground to reflect this principle in a proper way.

Indeed, the transparency framework is embedded both in its common and differentiated natures from the tone set in the Paris Agreement. On the one hand, the enhanced transparency framework established by the Paris Agreement shows more commonality between developed and developing countries comparing with the current transparency framework under the UNFCCC. It requests each Party to provide information on their GHG inventory, progress of its NDC, impact from climate change and actions for adaptation, because all Parties are to undertake NDC, including mitigation and adaptation efforts, which might be different in appearances, but common in nature. It also requests developed country Parties to provide information on finance, technology transfer and capacity-building support they've given developing countries, and requests that developing country Parties provide information on both needed and received support. This is because, on the issue of providing support, only developed country Parties have the mandatory obligation, according to Article 9.1 of the Agreement. Heretofore, they have been obligated by the Agreement to provide such information. However, for Parties not obliged under Article 9.1, as developed country Parties that provide support on a voluntary basis, according to Article 9.2, they are nonetheless encouraged to provide relevant information. For the review or assessment, the Paris Agreement doesn't inherit the bifurcated terms from the Cancun system, but uses the term "technical expert review" to cover the first stage of both IAR and ICA. Meanwhile, the term "facilitative, multilateral consideration of progress" covers the second stage of both. Thus, the transparency framework under the Paris Agreement demonstrates more commonalities between developed and developing countries.

At the same time, the Paris Agreement acknowledges differentiation between developed and developing countries, especially by introducing provisions on flexibility for developing countries. Yet, whether the detailed modalities, procedures and guidelines shall be bifurcated or not, and how to operationalize such flexibility, is the core of the underlying negotiation. All Parties to the Agreement are to undertake NDC. There are nuanced provisions stated in Article 4.4 of the Agreement, that "(D)eveloped 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 toward economy-wide emission reduction or limitation targets in the light of different national circumstances." Providing support is a mandatory obligation for developed countries, and encouraged for all others. Moreover, it is widely understandable that developing countries in general do not have capacities to submit information and undergo review at the same frequency and level of detail as developed Parties.

How to reflect the CDDRRC principle in the design of the modalities, procedures and guidelines under the enhanced transparency framework, especially with regard to whether bifurcation is necessary to reflect differentiation between developed and developing Parties? The matter is still under debate and interpreted differently by Parties. In the negotiations, there are two extreme positions. One is the "everything should be common" position argued by the Umbrella Group, led by the United States. That means the whole transparency framework shall be common for all Parties, including common metrics, guidance, guidelines and procedures, with some exceptions such as thresholds for key category analysis, and uncertainty analysis in the inventory section. The other is the "differentiation should be reflected as bifurcation" position argued by the Like-Minded Developing Countries Group. That position holds that the bifurcated MRV system shall be inherited and improved by the Paris Agreement transparency framework. The middle ground, held by most other countries, believes that bifurcation is not necessary in the transparency framework, and the framework should be common for all Parties, but the specific provisions shall be differentiated by providing flexibility for those developing countries that need it in light of their capacities. This section aims to highlight several of the authors' key points by providing some insights to guide the negotiations.

*5.1 The evolving transparency framework will aim to be both common and enhanced in its provisions, while*

*differentiation is still needed in the near term*

The authors believe that the transparency framework should start from different starting points, and aim for a common ending. They point to three reasons: First is that developed and developing countries have common but bifurcated commitments on substance under the Convention. Thus the existing transparency system under the UNFCCC is bifurcated to reflect the bifurcation of commitments. Although the commitments on substance for developed and developing countries under the Paris Agreement are not as bifurcated as under the Convention, the differentiation will remain for a very long time. The second reason is that the starting point of developed and developing countries is different with regard to their institutional and technical capacities, and experience in performing international obligations. There are many objective constraints hindering developing countries from undertaking more frequent and ambitious international reporting and reviewing obligations. The third reason is that developing countries have many other competing priorities and very limited resources for improving their domestic transparency system. Therefore, they need time to improve over the next few decades.

The negotiation for transparency modalities, procedures and guidelines should strike a proper balance between aiming for an enhanced transparent framework as an ultimate goal and adopting a feasible approach in the meantime, enabled by current different national circumstances. On one hand, the evolving international climate transparency framework means that the provisions for both developed and developing countries will be enhanced. The reporting and review provisions that developing countries are subject to will see enhancement over time, and maybe eventually the same with those for developed countries. On the other hand, the approaches to this ultimate design for developed and developing countries will vary since they differ in starting point, in their national systems, and in challenges. Thus they can only reach the destination at different paces, in an appropriate way. Therefore, differentiation is still needed in the international transparency framework in the near term. And the negotiators need to bear in mind that the “enhanced transparency framework” established by the Paris Agreement is not “once-built, last forever,” but will continue to evolve.

*5.2 Flexibility provisions will be built-into the transparency framework and will be applied in a way that is nationally determined by developing countries*

As discussed above, lack of national capacity is the fundamental limitation for developing countries to enhance transparency, and the Paris Agreement has already acknowledged that by calling for support to be “provided for the building of transparency-related capacity of developing country Parties on a continuous basis.” For different developing countries, this capacity-constraint is revealed in different areas, e.g., human resources, financial resources, technical capacities, institutional arrangement, and legal basis. This is because they are at different development stages with different legal-administrative arrangements. Therefore, similar to the NDCs under the Paris Agreement, a nationally determined flexibility is the most feasible way to operationalize Article 13.

Flexibility should not be an excuse for failure to improve, but providing a self-prioritized enabling environment for developing countries to improve. As all countries have a shared vision to improve the perceived quality of information and to build mutual trust, the ways of flexibility should be provided along with the no-backsliding principle. This set of provisions should on the one hand provide a series of minimum requirements that could be implemented by those developing countries with the least capacities under different legal-administrative arrangements, and on the other hand provide a series of higher-level requirements regarding frequency of reporting and review, level of reporting detail, methodologies used for reporting, modalities of review, etc., that could be voluntarily implemented by those developing countries with stronger capacities. The developing countries could then determine nationally how they wish to implement transparency provisions between the minimum and higher-levels provisions, with description on their current choices and their views on future improvement. Meanwhile, the developing countries, with continuous capacity-building support, are expected to improve their implementation of ever-greater transparency and more enhanced provisions, with no backsliding, although it is also understandable that some developing countries with the least capacities may never reach the highest-level provisions.

There have been many arguments over how to limit the flexibility in order to improve comparability, including fixing an end point for applying flexibility provisions, setting criteria for the eligibility of application, or self-justification of the flexibility applied. However, each approach faces tremendous obstacles during negotiations. There cannot be truly objective criteria agreed to by all Parties. To gradually reduce the flexibility applied by developing countries, these countries need both capacity building support from external world, and domestic transparency system improvement back home. The latter always heavily depend on the national policy and

decision-making structure. It is a combination of strengthened political will, increased institutional and technical capacity, and more experience participating in the international transparency regime.

### *5.3 Respective capabilities of developing countries need to be strengthened by both domestic and international efforts*

Bridging the gap in institutional capacity, as mentioned above, largely depends on domestic efforts taken by the developing countries themselves. The core is to accommodate the needs of the domestic transparency system design and improvements with domestic interests, hence to develop domestic laws or legislation to fulfill the requirements of international law. A clear mandate from the national legislature or the executive is the key to an effective transparency system, which includes clarity of roles and a strong coordination mechanism. In Philippine's case, the executive order 174 passed at the end of 2014 contributed to the emergence of the GHG inventory management and reporting system, proposing clear requirements on data collection, archiving, and reporting for GHG inventory compilation, as well as clarifying the roles of different agencies (Philippines, 2014).

In addition, since developing countries have many parallel interests besides GHG emission control, it would be easier to utilize the existing institutions, funding and experts if the transparency system were mainstreamed into the existing statistical system, instead of a system operating solely for international requirements. For domestic interests, it would be able to gain much more support. One good practice from China is to incorporate climate change indicators into the current statistical system so that the information could be collected by utilizing existing statistic channels. The assessment of provincial performances on climate change also employs information on energy saving and efficiency improvement (NDRC, 2014). By incorporating climate change actions into local programs on energy efficiency improvement and environmental protection, many existing resources, such as databases and experts, could be utilized to avoid redundant efforts.

While institutional capacity will mainly be addressed domestically, international support to developing countries is necessary to build their technical capacity. It can be seen from the BURs submitted by the developing countries that many capacity-building needs remain to be met in order to close the reporting capacity gaps in aspects such as modeling and methodologies for both mitigation and adaptation actions, and workshops for hands-on experience to build database platforms. Most of these capacity-building needs can only be addressed through support from developed countries, through either bilateral or multilateral channels.

It is also of critical importance for the international community to enhance the information and knowledge sharing on best practices for climate transparency in order to raise the awareness of developing countries. The current experience sharing process provides some opportunity for countries to learn from each other, but it is insufficient for a full understanding of the domestic progress and detailed exchange for policy learning, due to the inclusive process and limited time and space (Deprez et al., 2015). Therefore, the provisions should encourage more exchange between developed and developing nations, within and beyond the negotiation process.

## **6. Conclusions**

“Common but differentiated responsibilities and respective capabilities” is the most significant guiding principle in the international climate change regime, created by the UNFCCC, and reflected in the transparency framework evolution under the Convention, during the past several years. The reporting and review requirements for developed and developing countries are common but were bifurcated to reflect the CBDRRC principle in an explicit way before 2010. Since then, the developed and developing countries have become more symmetrical, gradually showing a tendency for convergence along with enhancement. Generally speaking, developed countries are requested to submit information more frequently, and to provide more details than developing countries. The specific procedural rules on reporting content and the review process differ between developed and developing countries. This is in line with the differentiated nature of their commitments on substance under the Convention, as well as lower capacities of developing countries.

The differences in implementation of transparency provisions between developed and developing countries, and sometimes within the developing countries themselves, reflect especially the different national capacities. The capabilities of developing countries could be strengthened in three specific aspects—institutional, technical, and experience—in order to participate in the international transparency regime. Developing countries are generally constrained by lack of legislative support and insufficient human and financial resources, resulting in poor inter-ministerial coordination, a difficult data collection process and unstable manpower. These constraints result in less

frequent submission and relatively lower quality of reports by developing countries than developed countries during the last 20 years.

The transparency framework could be a model to operationalize the CDDRRC principle in the Paris Agreement. The Paris Agreement inherited the principle of CDDRRC from the Convention, and at the same time added a fresh interpretation of “in the light of different national circumstances,” to highlight more national capacities on responsibilities for emissions. On the one hand, commitments on substance under the Paris Agreement show more commonalities between developed and developing countries and thus the corresponding transparency framework shows more commonalities when compared with the existing transparency framework under the UNFCCC. On the other hand, the Paris Agreement acknowledges differentiation between developed and developing countries, especially by introducing provisions on flexibility for developing countries. The negotiation for transparency modalities, procedures and guidelines should strike a proper balance between building an enhanced transparent framework as an ultimate goal, and adopting a feasible approach enabled by current different national circumstances. The evolving transparency framework will aim at being common and enhanced in provisions in the long term, while differentiation is still needed in the near term, is reflected by flexibility provisions that will be built-into the transparency framework and applied in a way that is nationally determined by developing countries.

The core of the transparency framework is to encourage implementation and improvement, especially in developing countries, and to discourage inaction due to lack of political will. As the principle of *pacta sunt servanda*, developing countries should make their best effort domestically to implement transparency provisions under the Convention and the Paris Agreement. Constraints caused by lower capacities are recognized, and taken into consideration in the negotiation process. Therefore, differentiation from developed countries is embedded into the articles, flexibility provisions are designed, and capacity-building is and will be continuously provided. Less rigorous implementation of transparency provisions due to lack of capacity is understandable, and will be improved overtime with international support, while those due to lack of political will should not be encouraged. It should be noted that the domestic transparency system needs to be enhanced not only for fulfillment of international treaty obligations, but also in order to better inform the domestic decision-makers at the various levels. Since many domestic actions occur at sub-national levels, a comprehensive and coordinated domestic transparency system across multiple levels of MRV practice is important for taking advantage of existing resources and driving investment from the private sector.

The facilitative manner is crucial when designing the international climate transparency framework and even the compliance provisions. It is well recognized that enhancing climate transparency is a learning-by-doing practice (Huang, 2016). Therefore, to encourage developing countries to take positive actions will on one hand enhance their capacity, especially by helping them identify their defects and then propose demands, while on the other hand helping developing countries build confidence. This also echoes the previous suggestion that although the ultimate design may be equally stringent for all Parties, the provisions applied to developing countries to implement Paris Agreement at current stage must be gentle and feasible. Too much stringency and ambition can only scare developing countries and stop them from implementation.

In the new era of bottom-up and self-motivated international climate regime as set by the Paris Agreement, it is extremely important to establish an effective and robust international transparency framework guided by the CDDRRC principle to enhance mutual trust. By showing a large number of countries are taking serious actions on climate change, the confidence could be built for collective actions in this connection. It is also a valuable process for countries to exchange information and learn from each other. By showing what works and what does not, it would be possible to gradually generate and replicate collective knowledge and experiences of the international community and to provide a platform for countries to identify potential inter-governmental collaboration opportunities.

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