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Identifying and Addressing Gaps in the UNFCCC Reporting Framework

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FOREWORD

This document was prepared by the OECD and IEA Secretariats in response to a request from the Climate Change Expert Group (CCXG) on the United Nations Framework Convention on Climate Change (UNFCCC). The Climate Change Expert Group oversees development of analytical papers for the purpose of providing useful and timely input to the climate change negotiations. These papers may also be useful to national policy-makers and other decision-makers. Authors work with the CCXG to develop these papers. However, the papers do not necessarily represent the views of the OECD or the IEA, nor are they intended to prejudge the views of countries participating in the CCXG. Rather, they are Secretariat information papers intended to inform Member countries, as well as the UNFCCC audience.

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ABSTRACT

Identifying and addressing gaps in the UNFCCC reporting framework

There are many reasons why the United Nations Framework Convention on Climate Change (UNFCCC) reporting framework requests information from countries. These include understanding and tracking progress with individual or collective commitments or pledges, providing confidence and enhancing accountability in quantified information measured and reported, and providing background information on the scope and ambition of national climate responses. This paper highlights the gaps, inconsistencies and uncertainties in the current reporting framework, which was developed for both long-standing obligations and mitigation pledges for the period to 2020. The paper also identifies possible improvements in the UNFCCC reporting framework in the context of the post-2020 transparency framework and nationally determined contributions (NDCs) for the post-2020 period.

JEL Classification: F39, H39, O20, Q54, Q56
Key words: climate change, transparency, reporting; emissions, adaptation, climate support

RÉSUMÉ

Recenser et combler les lacunes du cadre de notification d'informations de la CCNUCC

La Convention-cadre des Nations Unies sur les changements climatiques (CCNUCC), qui invite les pays à lui communiquer des informations, vise plusieurs objectifs : mieux cerner les progrès accomplis dans la mise en œuvre des engagements individuels ou collectifs et en assurer le suivi ; accroître la confiance dans les informations chiffrées communiquées par les pays et renforcer la transparence ; et fournir des renseignements sur le champ d'application et le niveau d'ambition des mesures climatiques nationales. Ce document met en évidence les lacunes, incohérences et incertitudes de l'actuel cadre de notification qui a été élaboré pour rendre compte à la fois des obligations de longue date des pays et de leurs engagements d'atténuation jusqu'en 2020. Il identifie aussi les améliorations qui pourraient être apportées au système de notification de la CCNUCC en ce qui concerne le cadre de transparence et les contributions déterminées au niveau national pour la période de l'après-2020.

Classification JEL : F39, H39, O20, Q54, Q56
Mots clés : changement climatique, transparence, notification d'informations ; émissions, adaptation, soutien à l'action climatique

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Executive summary

There are many reasons why the United Nations Framework Convention on Climate Change (UNFCCC) reporting framework requests information from countries. These reasons include understanding individual or collective commitments or pledges, tracking progress towards them, providing confidence in and enhancing accountability of quantified information measured and reported, and providing background information - including on the scope and ambition of national climate responses. Transparent and complete reporting, combined with subsequent third-party consideration, helps to increase trust and confidence in the information reported.

The transparency framework established under the UNFCCC includes aspects relating to measuring, reporting and review or "verification" (MRV) of countries' commitments and actions. The current reporting component of this UNFCCC framework lays out which countries are to report what information, in which format and with what frequency. This framework is delivering mixed results: according to UNFCCC reviews, information on greenhouse gas (GHG) emissions and trends is generally being reported in a transparent and complete manner by Annex I countries. The expert review teams also indicate that information on the provision of "means of implementation" (MOI), i.e. climate support via climate finance, technology or capacity building, by Annex II countries is usually "mostly transparent" and "mostly complete". Information provided by Non-Annex I (NAI) countries is often not timely (e.g. by the end of October 2015, only 16 NAI countries have submitted the biennial update report requested by the end of 2014). The completeness of information provided in NAI reports also varies widely by country. Lack of complete and/or timely information from a large number of countries prevents assessments of progress towards collective commitments or goals.

This paper first highlights the gaps, inconsistencies and uncertainties in the current UNFCCC reporting framework for commitments and pledges to 2020. The paper then identifies possible changes needed to the UNFCCC reporting framework in the post-2020 period, to ensure the provision of information adequate for the purposes of understanding and tracking progress towards both nationally determined contributions (NDCs) at the country-level, and collective climate-related efforts for mitigation, adaptation and climate support.

To date, transparency and completeness of reporting under the UNFCCC framework have been best where:

- guidelines are clear on what to measure and report
- methods are available for how to do this (e.g. for GHG inventories)
- there are explicit consequences for non-reporting as part of review processes (e.g. publicly-available recommendations for improvements, ineligibility to acquire units from the carbon market).

Where definitions and/or methods are not available under the UNFCCC, such as for measuring climate support (finance, capacity building and technology), it is more challenging to report information in a transparent and complete manner. Transparency and completeness have tended to improve where reporting has benefitted from regular feedback through review processes (e.g. review of inventories and National Communications from Annex I countries), and where there is a regular reporting system in place in the country (and underlying measurement or monitoring system). In general, reporting (particularly of emissions inventories) has been improving over time, as countries have gained experience and increased their reporting systems and capacities.

The current regime for MRV of countries' pre-2020 climate commitments or pledges does not make mandatory (and sometimes does not even request) reporting of all the information that is needed to understand these commitments or pledges, and to assess progress towards such goals. This is particularly true for reporting of climate finance mobilised by developed countries, understanding of mitigation targets for non-Annex I countries, as well as for collective mitigation goals. Enhancing

reporting requirements for the pre-2020 period could address some of these deficiencies. However, filling other gaps will require methodological improvements, improved data collection and increased domestic capacity for MRV.

The intended nationally determined contributions (INDCs) that countries are putting forward for the post-2020 period are sometimes of different scope and form to pre-2020 pledges or targets, for which the current MRV system was designed. For example, several proposed INDCs include an adaptation component, many INDCs are contingent on the level of support received, and some developing countries have put forward economy-wide mitigation contributions.

This means that changes to the UNFCCC reporting framework will be needed in order to be able to understand, and track progress to individual countries' post-2020 "commitments" or "contributions". In particular, assessing progress towards some of the individual intended nationally determined contributions put forward by countries to date will require information that has:

- not previously been routinely collected or estimated (e.g. national levels of support received);
- not previously been routinely reported internationally (e.g. GDP);
- not previously been routinely reported internationally by certain country groupings (e.g. emission projections); and
- not been reported with such frequency (e.g. annual trends in GHG emissions in developing countries, which would be needed to assess progress to any target related to peak emissions).

As well as individual contributions, several collective goals or efforts relative to mitigation, adaptation and support have also been proposed for the post-2020 period. Identifying progress towards such goals or efforts would require regular reporting by countries whose performance significantly contributes to meeting those efforts. For example, a commitment by "developed countries" to mobilise climate finance would logically lead to a commitment for all developed countries (rather than "Annex II" countries, as at present) to report on the climate finance they have mobilised. Similarly, identifying progress towards a commitment to long-term emission reductions would require information on current and projected emissions from all but the smallest emitters. However, solely changing the reporting guidelines for specific issues may have only a limited impact on the transparency, comparability, completeness and timeliness of information reported. This is because improvements may be needed in measuring specific information (e.g. climate support) in order to improve the reporting of such information. In addition, several countries will need to establish or strengthen their domestic monitoring, evaluation and reporting systems in order to improve reporting under the UNFCCC.

Thus, changes to the UNFCCC reporting framework will also be needed in order to be able to understand, and track progress to both individual contributions and collective goals or efforts agreed in the 2015 agreement. Areas where changes are needed are highlighted in Table 1. If information related to collective efforts are to be successfully tracked via the UNFCCC's reporting framework, this would entail a significant change in reporting requirements, e.g. by making it mandatory to report information not currently required or not currently required with such frequency, from selected developing countries. Alternatively, the international community could potentially rely on information not submitted by countries themselves (but e.g. international organisations, other non-party stakeholders such as local authorities and industry groups) to track progress. This would, however, be a significant change to the current reporting regime, as it would mean that some reporting obligations would rest with stakeholders who are not parties to the UNFCCC. It could thus increase the risk of inconsistencies in what information is provided and how, and thus lead to difficulties in making transparent assessments of progress.

Table 1. Do current reporting requirements, and how they are followed, allow for identifying progress towards NDCs and collective objectives?

Obligation	Country grouping		Comment: reporting requirements and practices
	Developed	Developing	
Mitigation – individual quantitative contributions			
Domestic GHG emissions (levels)	✓	(✓)	Reporting by developing countries on emissions of most, but not all gases, is required – but not annually, and reporting is often not timely.
Accounted GHG domestic emissions (to meet targets)	(✓)	(✓) / × / n/a	Quantitative information on use/transfer of units is not required for most countries. LULUCF reporting requirements vary by purpose (KP, inventory, REDD+ activities).
Deviation from Business-as-usual GHG emissions (BAU)	n/a*	×	Information on BAU is not required. This is needed for countries with a NDC expressed as deviation from BAU. More onerous reporting requirements likely for such objectives to ensure transparency (assumptions, methods).
Emissions intensity (per unit of GDP)	n/a*	×	Information on GDP is not required. This is needed for NDCs expressed as intensity objectives. Given frequent changes in estimates, regular reporting would be needed.
Quantitative non-GHG metrics[#]	n/a*	×	Information not required. Particularly important given the potential range of NDCs, including non-GHG objectives.
GHG Emissions projections	(✓)	×	Projections from developed countries could be further improved. Not required for developing countries, and challenging to produce. Important for all major emitters for any future collective assessment, and especially for countries with BAU targets.
Mitigation – collective GHG emissions			
Progress towards long-term goal	×		Without information on annual domestic GHG emissions and projections from all major emitters, it will not be possible to identify progress towards the long-term temperature goal.
Mitigation – individual country actions (e.g. policies and measures)			
Description of actions	(✓)	(✓)	Not fully transparent or complete for developed countries. Often out-of-date for developing countries. Current reporting obligations insufficient to identify progress, important for countries whose contributions comprise a set of mitigation actions.
Implementation of actions	✓	(✓)	Through biennial reports, progress with implementation better tracked. Timeliness of information currently lacking for several developing countries. Regular, biennial reporting should allow for tracking progress with implementation.
Effects of actions	(✓)	(✓) / ×	No consistent methodologies used by developed countries. Developing countries now requested to report this in BURs, though still not a clear request for their NCs. Particularly important for countries whose NDCs are a set of mitigation actions. Guidance and methods have been developed (outside the UNFCCC).
Mitigation – collective goals or efforts			
Overall aggregate effects of steps taken by Parties	×		May not be necessary, depending on decisions on global stocktake: a focus on overall emissions levels (rather than emissions reductions) could also allow for assessing progress towards long-term collective mitigation objectives.

Adaptation – individual country responses			
Improved adaptation, resilience	×	×	Countries have not had internationally-agreed adaptation-related obligations to date. Current reporting guidelines not recent, and not set up to require the specific and detailed information needed to track progress with the diverse set of adaptation-related contributions proposed in INDCs.
Adaptation – collective responses			
n/a	n/a	n/a	No collective obligation relating to adaptation.
Climate finance – individual country responses			
Provisions/receipt of climate finance (CF)	(✓)	×	CF provision obligations are not at the level of individual countries. Reporting allows for assessment of whether public CF is being scaled up, but does not request a complete picture on climate finance mobilised. Developing country reporting requirements and practices regarding climate finance received is patchy.
CF needs	n/a	×	Reporting of climate finance needs is patchy, and is not done on consistent basis (total costs vs incremental costs).
Climate finance – collective commitment			
Mobilising USD 100bn/y by 2020	×	n/a	Reporting provisions do not cover all developed countries, or all sources of mobilised climate finance. Definitions vary between countries.
Technology support			
Technology provided/ received / needed	(✓)	×	No quantified country-specific (or collective) obligations, other than to report technology support provided or received/needed. Developing country reporting of technology support received is patchy. Some overlap with CF.
Capacity building (CB)			
CB provided (developed countries), or received/ needed (non-Annex I countries).	(✓)	(✓)	No quantified country-specific or collective obligations relating to capacity building. Some overlap with CF. Developing country reporting of CB needs is patchy.

* No developed country Party has expressed an emissions obligation of this type.

Several countries have included non-GHG metrics, e.g. forest cover/stock, % renewables in electricity generation, as part of their emissions pledges for 2020 or their post-2020 INDC.

Legend: ✓ - yes/sufficiently; (✓) – somewhat/could be improved; × - no/insufficient; n/a – not applicable

1. Introduction

There are many reasons why the United Nations Framework Convention on Climate Change (UNFCCC) reporting framework requests information from countries. These include understanding and tracking progress with individual or collective commitments or pledges, providing confidence in and enhancing accountability of quantified information measured and reported, and providing background information - including on the scope and ambition of national climate responses.

To date, the focus of transparency provisions in the UNFCCC has been on mitigation-related issues, i.e. domestic emissions of greenhouse gases (GHG), mitigation actions and unit transfers[1]. However, there are growing requirements relating to transparency of climate support (finance, technology transfer and capacity building) for mitigation and adaptation, with reporting (and review) provisions strengthened from 2010. Greater emphasis on information related to the provision of support, particularly finance, has also stemmed from the collective commitment of developed countries to mobilise USD 100 billion per year of climate finance by 2020. Reporting on adaptation-related issues has to date been less detailed and frequent than reporting on mitigation-related issues.

There is, of course, a relationship between the measurement or monitoring of information, and its reporting. Countries will be unable to report data or information they do not measure or monitor. However, introducing certain reporting requirements under the UNFCCC can be a means of encouraging countries to strengthen their domestic measuring, monitoring, reporting and/or evaluation capacities (e.g. on GHG emissions, or climate finance flows). Reporting provisions can also be a means of ensuring developing countries can access financial and technical support to improve domestic measurement capacities needed to fulfil the reporting requirements. International review or assessment of information reported can also help to improve reporting, e.g. by identifying specific areas where information could be more complete or transparent.

This paper focuses on the reporting component of the UNFCCC's framework for monitoring, reporting and verification (MRV) of information under the UNFCCC. This reporting framework has evolved since the Convention entered force in 1995. Reporting requirements have been regularly revised and were significantly expanded at COP 16 in 2010, with agreement that developed countries are to submit "biennial reports" (BR) and developing countries are to submit "biennial update reports" (BURs). The content of these biennial reports were agreed at COP 17 in 2011 (Table 2).

However, reporting under these and other agreed guidelines under the UNFCCC do not currently enable the international community to comprehensively assess progress towards pre-2020 commitments and pledges, particularly collective ones. Further changes in the UNFCCC reporting framework are likely to be needed for the post-2020 time period, in order to ensure that the reporting framework under the 2015 agreement will deliver the information needed to assess progress with both national contributions as well as any collective efforts.

Building on previous analysis, including for CCXG and OECD, this paper highlights the gaps, inconsistencies and uncertainties in the current reporting framework, which was developed for both long-standing obligations and mitigation pledges for the period to 2020. The paper also identifies possible improvements in the UNFCCC reporting framework in the context of the post-2020 transparency framework and nationally determined contributions (NDCs) for the post-2020 period.

Section 2 outlines the current coverage and purpose of different national reports under the UNFCCC. Section 3 highlights current reporting practices and gaps. Section 4 explores implications for the post-2020 transparency framework. Conclusions are highlighted in section 5.

[1] These could occur by using market mechanisms that allow for the international transfer of GHG reduction or avoidance units.

2. Current coverage and purpose of national reports under the UNFCCC

All Parties have reporting obligations under the UNFCCC. These initially focused on inventories of GHGs, as well as a broader set of information included in National Communications (NCs) (Table 2). In the following decade, Parties with obligations under the Kyoto Protocol were subject to a more robust reporting regime (particularly of quantitative information related to GHG emissions and unit transfer), and incentives relating to reporting used to encourage compliance.[2] Changes in the requirements related to the measuring, monitoring, reporting and review of information (often referred to as "measurement, reporting and verification" or MRV) began in 2010 at the 16th Conference of the Parties (COP 16), which introduced biennial reporting for all countries.

Current reporting requirements are differentiated between Annex I and non-Annex I countries. There are also further distinctions within these groupings[3]. This section outlines the different frequency and content of different national reports under the UNFCCC to date, and highlights the purposes met by the information currently reported.

2.1 Report scope and frequency

Reporting requirements under the UNFCCC are currently different for Annex I and non-Annex I Parties.[4] This differentiation is in terms of the frequency and content of the reports, as well as the "strength" of reporting request and level of flexibility in reports.[5] Table 2 highlights that the coverage of biennial (update) reports (B(U)Rs) is narrower than that of NCs, focusing information on emissions, mitigation actions and their effects, as well as on means of implementation (MOI). This reflects that, at the time of establishing the coverage of B(U)Rs, national commitments were focused on mitigation and support-related aspects.

[2] In particular, specific reports such as the most recent required GHG emissions inventory and supplementary information are required in order to be eligible to use market mechanisms.

[3] At COP17, biennial reporting guidelines were agreed for "developed" countries, and biennial update reporting guidelines were agreed for countries "not included in Annex I". Requirements for reporting of support are different for Annex II countries than for Annex I countries who are not in Annex II of the UNFCCC. Reporting requirements agreed at COP16 provides for greater flexibility in BUR reporting for LDCs and SIDS than for other non-Annex I countries.

[4] The scope of NCs are laid out in decision 4/CP.5 for Annex I Parties, decision 17/CP.8 for non-Annex I Parties, and in decision 2/CP.17 for BRs and BURs.

[5] In the UNFCCC framework, mandatory reporting is preceded by "shall", without a qualifier. Most reporting requirements for developing countries are couched in non-mandatory terms such as "shall, to the extent possible", "should", and "encouraged".

Table 2. Scope of selected national reports under the UNFCCC*

Topic	Annex I countries		Non-Annex I countries	
	NC	**BR**	**NC**	**BUR**
National circumstances	✓	×	✓	✓
Institutional arrangements	✓	✓	✓	✓
National GHG Inventory[6]	✓ (summary)	✓ (emissions and trends)	✓	✓
Mitigation actions and effects	✓	✓	(✓)	✓
Progress towards mitigation targets	(✓) (National mitigation targets should be described, impact of mitigation measures quantified)	✓ (explicit request for information on LULUCF sector, use of markets)	×	(✓) ("information on progress of mitigation actions")
Projections of GHG emissions	✓	✓	×	×
Adaptation and vulnerability	✓	×	✓	×
Means of implementation	✓ (Finance provided, technology transfer)	✓ (focusing on support provided)	✓ (constraints, gaps, needs)	✓ (constraints, gaps, needs)
Education, training and public awareness	✓	×	✓	×
Research and Systematic Observation	✓	×	✓	×
Domestic MRV	✓ (mitigation actions and effects)	✓	×	✓
Other information	×	×	×	✓ (not specified – countries free to report as they see fit)

* This table highlights the coverage of specific issues as mentioned in the guidelines for preparing National Communications and Biennial (Update) Reports. Issues vary in terms of the level of reporting obligation, whether mandatory ("shall" without a qualifier) or voluntary (e.g. "encouraged").

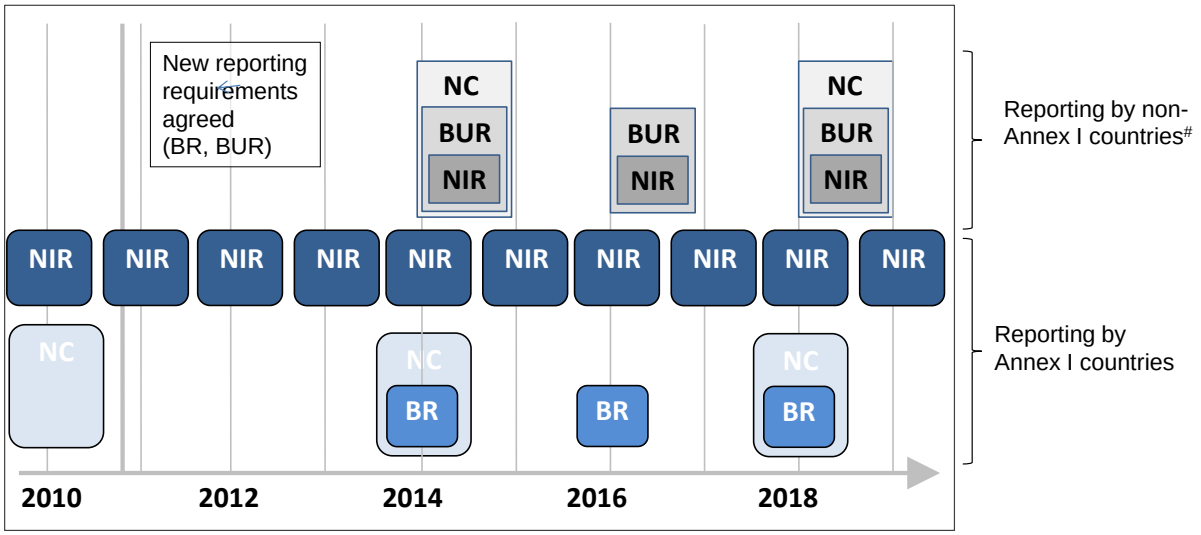
Legend: ✓ - yes/sufficiently; (✓) – somewhat/partially; × - no/insufficient; n/a – not applicable

Figure 1 highlights the current reporting requirements as agreed at COP 16 and for which further details were given at COP 17. Prior to the agreement at COP 16, Annex I countries were also required to submit annual National Inventory Reports (focusing on emissions of GHG, as well as outlining relevant methods and institutional frameworks). In addition, all countries are to periodically prepare National Communications, covering a broader set of topics, including mitigation and adaptation responses, as well as information on climate support.[7] This figure shows that reports are now requested from Annex I and non-Annex I countries on a biennial basis, and National Communications requested from non-Annex I countries every four years. The reporting requirements agreed at COP 17 provide for significant flexibility in terms of who is required to report: in particular, least-developed countries (LDCs) and small island developing states (SIDS) may submit biennial update reports "at their discretion" (UNFCCC, 2011).

[6] Annex I countries submit complete annual inventories along with accompanying National Inventory Reports, which detail the institutions and systems in place for preparing the national inventory.

[7] Annex I countries submitted their first five NCs on an approximately 4-yearly basis. Prior to COP16, where a four-year interval for submitting NCs was established for all Parties, there was no specified timeline for non-Annex I countries to submit their National Communications.

Figure 1. Reporting requirements under the UNFCCC



NC = National communication **BR/BUR** = Biennial (update) report **NIR** = National inventory report

* Figure adapted from Ellis *et al.* (2011).

LDCs and SIDS have further flexibility in reporting requirements. Prior to 2011, frequency of NAI NCs was not specified.

2.2 Purposes of reporting specific information

Countries have entered into obligations and commitments of various forms and varying legal natures in the context of the UNFCCC. These obligations can be individual or collective, and can focus on different aspects of climate responses (e.g. mitigation, adaptation, support). To date, reporting to the UNFCCC is done solely by individual parties.

In addition to commitments or pledges on specific climate issues, e.g. mitigation, all countries also have reporting obligations under the UNFCCC. The information in national reports submitted by countries to the UNFCCC can serve different purposes. The international purposes served by such information is highlighted in Table 3. The same information can also serve national purposes, such as improving understanding of emissions trends and drivers, highlighting successful policies or areas where improvements may be needed, and identifying potential priority areas for future mitigation and adaptation policies. Some reports, such as Annex I GHG inventories, are focused on issues directly related to countries' commitments and pledges. Some of the information requested is used to assess progress towards national mitigation commitments and pledges for the pre-2020 time period (e.g. reporting of GHG inventory and use of GHG units). Other reports, such as National Communications from both Annex I and non-Annex I countries, include a broader set of information – not all of which is directly related to commitments.

Table 3. International purpose fulfilled by collecting different types of information, and reports in which this information is requested

Information requested	Purpose fulfilled by information	Where is this information to be reported?	
		AI	**NAI**
Mitigation-related			
National GHG emission inventories	Identifying national emissions performance and trends Identifying collective emission trends	NIR, BR, NC	BUR, NC
National inventory arrangements[1]	Providing confidence in information reported	NIR	BUR
Accounting methods for land-use sector	Providing clarity on how land-use emissions are counted as part of national target, e.g. if only direct human induced activities are included, the scope of activities covered, and over what time periods.	BR, NC, NIR (for KP Parties)	
Use of units	Calculating accounted emissions performance and trends	BR, NIR and NC (KP Parties)	Not explicitly requested
Emissions intensity	Identifying performance compared to an emissions-intensity objective	Information on GDP not explicitly requested	
Quantitative non-GHG metrics[2]	Identifying potentially long-term and/ or sub-national progress, and the underlying drivers of low-emission development	Not explicitly requested;	Not explicitly requested
Description of target	Clarity and understanding	NC, BR	BUR
Mitigation actions undertaken	Identifying progress towards objective (if at level of specific action) Background information (for broader types of objective)	NC, BR	NC, BUR
Domestic MRV and institutions	Providing confidence in information reported	NC, BR	NC, BUR
Emission projections	Identifying future emissions pathway (e.g. with or without measures)	NC, BR (2020, 2030)	Not explicitly requested
Projection methods and assumptions	Clarity and understanding[3]	NC, BR	Not explicitly requested
Adaptation-related			
Development priorities, adaptation objectives	Background information	NC	NC
Vulnerability	Background information	NC	NC
Specific needs and concerns related to V&A	Background information	NC	NC, BUR (needs and gaps)
Institutional arrangements for V&A	Background information	NC	NC
Adaptation actions	Background information	NC	NC
Methodological approach	Background information	NC	NC
Means of implementation			
Provision of support (amount and instruments)	Identifying national performance and trends regarding public climate finance (compared to a collective target encompassing private climate finance)	NC (amount), BR	n/a
Support needs	Identifying needs (qualitative or quantitative) for climate finance, technology, capacity building	n/a	BUR, NC
Support received	Background information (pre-2020)[4]	n/a	Incomplete information requested in BUR, NC
Approach for tracking support	Providing confidence in information reported	BR	Not requested
Private financial flows leveraged by bilateral climate finance	Identifying national performance and trends regarding selected private climate finance leveraged (compared to a collective target encompassing more sources)	BR (some sources)	n/a
Private financial flows leveraged by multilateral climate finance	Would be needed to estimate progress towards collective commitment to mobilise climate finance	Not requested	n/a
Policies to scale up private finance leveraged, technology transfer	Providing confidence that climate finance will be scaled up, technology transfer will continue	BR	n/a

Information requested	Purpose fulfilled by information	Where is this information to be reported?	
		AI	NAI
Information on capacity building	Identifying what CB has been provided/is needed	BR	NC, BUR
General			
Self-assessment on compliance	Understanding domestic treatment of non-compliance.	Reporting encouraged in in BRs	Not requested
Self-assessment on equity, fairness	Justification of objectives proposed, actions taken	Not explicitly requested (to date)	

[1] Institutions, quality assurance and quality control procedures etc.

[2] Drivers are not explicitly requested, but could be reported e.g. in the National Circumstances chapter of a National Communication

[3] Projections are currently only required to be provided by countries with economy-wide absolute emissions targets. They therefore help provide greater understanding of the extent of a country's effort. For any future targets relating to deviation from BAU, projections would be needed in order to assess progress with such a target.

[4] If post-2020 contributions are contingent on support received, this information would be needed to assess progress towards contributions.

Thus, country reports to the UNFCCC fulfil a variety of purposes at the international (as well as national) level, including: demonstrating that countries are fulfilling their mitigation targets and pledges, reporting or other obligations under the Convention; that they are making progress towards, or have met, any obligations that they have entered into (e.g. Kyoto Protocol) or commitments and pledges they have undertaken (e.g. as part of Cancun Agreements); helping countries to learn from each other's experiences. Other information requested – such as information on a country's vulnerability or adaptation actions - does not relate directly to progress with current commitments. However, it can help third parties understand the background and context of a specific country or specific measures and their level of ambition, or provide confidence in information reported (e.g. domestic institutional arrangements, changes in assumptions for projections).

3. Current reporting practices and gaps

The UNFCCC reporting framework sets out what is to be reported, and how. There have been three main categories of information requests in the UNFCCC reporting framework to date: the mandatory "shall", the non-mandatory but recommended "should" (or "shall ... to the extent possible" or other qualifier), and the non-mandatory and optional "may" or "encouraged". This section highlights the current reporting practices for mitigation-related commitments and targets, adaptation actions and means of implementation. It also highlights the gaps in such reporting, both in terms of individual country commitments and pledges, as well as for collective reporting.

3.1 Emissions, mitigation and progress to mitigation targets

Currently, information on emissions, mitigation actions, and progress with fulfilling mitigation commitments and pledges, are reported in Inventories, National Communications, Biennial Reports, and Biennial Update Reports (Table 1). Reporting requirements for Annex I countries are mandatory, with some flexibility included where necessary (e.g. base year for some GHGs for certain countries). For non-Annex I countries, other than information on inventories, most information related to mitigation objectives and emissions is not mandatory (Tables 4 and 5). Emissions from Annex I Kyoto Protocol Parties are subject to specific accounting procedures, and associated reporting requirements, related to their emissions allowance. In addition to a GHG inventory, Kyoto Protocol Parties must maintain a national registry, which tracks units from Kyoto mechanisms and land-use, land-use change and forestry (LULUCF) activities that affect their emissions allowance. This "supplementary information" is reported within the GHG inventory for Annex I Kyoto Protocol Parties, and enables the tracking of progress with meeting Kyoto Protocol targets.

Table 4. Reporting requirements for inventories

	IS REPORTING MANDATORY?[8]		
	Annex I (NIR) [9]	**Non-Annex I (NC)**	**Non-Annex I (BUR)**
Total GHG emissions	Yes (summarised in NC and BR)	No (Total of all gases combined not included in summary tables)	No**
Coverage (Gases, sectors, etc.)	Yes (For CO_2, CH_4, N_2O, PFCs, HFCs, SF_6, NF_3) (includes LULUCF[10])	Yes (qualified) (CO_2, CH_4, N_2O) (*Shall, as appropriate and to the extent possible*)	Yes ** (CO_2, CH_4, N_2O)
Years covered	Yes (1990 to N-2[11])	Yes (1st NC: 1994 or 1990, 2nd NC: 2000, except LDCs) (time series not required)[12]	Yes (not older than previous four years, or more recent) (time series not required)
Metrics	Yes (GWPs for each sector and for a national total, from 4th IPCC Assessment Report)	No (*should* use IPCC GWPs if wish to report aggregate GHG emissions and removals, from 2nd IPCC Assessment Report)	No**
National inventory systems and arrangements	Yes (summary in BR)	No (*encouraged* to describe procedures and arrangements undertaken to collect and archive data)	No**
Methods	Yes (2006 IPCC Guidelines)	No (*should* use Revised 1996 IPCC GL)	No** (Updates *should* also use IPCC *Good Practice Guidance and Uncertainty Management*, and *Good Practice Guidance* for LULUCF)
Common format for data	Yes (Common Reporting Format tables)	No (*encouraged* to use tables in Annex 3A.2 and sectoral tables from 1996 IPCC guidelines)	No (*encouraged* to use tables presented in guidelines)

** Guidelines for BURs cross-reference guidelines for NCs.

[8] Mandatory refers to reporting provisions that use the language "shall", without a qualifier such as "to the extent possible".

[9] For Annex I countries, this column refers to the guidelines for annual inventory submissions (cross-referenced in the NC and BR reporting guidelines).

[10] Land-based approach

[11] Exceptions for Bulgaria, Croatia, Hungary, Poland, Romania and Slovenia

[12] Inventory does not need to provide information on annual GHG emissions over a number of years.

Table 5. Reporting requirements for mitigation objectives

	IS REPORTING MANDATORY?			
	Annex I (NC)	**Annex I (BR)**	**Non-Annex I (NC)**	**Non-Annex I (BUR)**
Mitigation objective[13]	Not explicitly (*shall* communicate on policies and measures, *should* include any national targets; *shall* communicate projections)	Yes (*shall* describe its quantified economy-wide emission reduction target, including conditions or assumptions)	No (*may* provide information on.[…] measures to mitigate climate change)	No (*should* provide information on actions to mitigate climate change)
Base year	No – not explicit	Yes	Not in guidelines	Not in guidelines
Time period covered	Not specified	Yes (projections for 2020 and 2030)	Not in guidelines	Not in guidelines
Coverage	Yes (gases and sectors affected by mitigation measures; also GWP when projecting impact of measures)	Yes (gases and sectors covered by mitigation target, GWP)	Not in guidelines	Yes (qualified) (gases and sectors) (*shall*, to the extent possible…for mitigation action reported in BUR)
Approach to LULUCF counting	No; indirectly for KP Parties[14]	Yes	Not in guidelines	Not in guidelines
International market mechanisms	Yes (for KP Parties)	Yes (use of units from market-based mechanisms)	Not in guidelines	Yes (qualified) (*shall*, to the extent possible…for mitigation action reported in BUR) (information to be provided not specified)
Projections	Yes (encompassing currently implemented and adopted policies and measures; *may* report other projections)	Yes*	Not in guidelines	Not in guidelines
Mitigation action and effects	Yes	Yes (Including domestic institutional arrangements for domestic monitoring, reporting and compliance)	Yes (qualified) (*shall*: general description of steps taken to implement convention) (*may*: measures to mitigate climate change)	Yes (qualified) (*shall*, to the extent possible communicate information on results, estimated outcomes, emissions reductions – for mitigation action reported in BUR)
Progress in meeting targets	Yes (through projections)	Yes (estimates of emission reduction and removals)	No (As for mitigation action and effects)	Yes (qualified)[15] (*Shall*, to the extent possible communicate information on progress with implementation - if mitigation action communicated)

* The BR guidelines reference the NC guidelines.

[13] Supplementary information required for Kyoto Protocol Parties, whose mitigation targets and specific provisions are already known.

[14] Kyoto Protocol Parties' approach to LULUCF accounting for the purposes of complying with their emissions targets are specified in their assigned amounts. This information is included in their National Inventory Reports, which are also referenced in National Communications.

[15] Information on progress with *implementation* is requested, not specifically on achievement of objectives set or on progress with meeting the objectives set by the country.

Reporting requirements do provide for a minimum level of information on mitigation measures countries undertake. Information on both actions and effects is not mandatory for non-Annex I national communications, nor in Biennial Update Reports (Table 5). This means that information reported on mitigation actions by non-Annex I countries is not necessarily sufficient to track progress towards any targets expressed in terms of mitigation actions or their effects. While not fully mandatory, there are categories of information requested in BURs that are not included in National Communications: should a country chose to report on its mitigation actions, information is requested (but not required) on the gases and sectors they cover, the use of market mechanisms and the effects of mitigation actions. This is perhaps because BUR guidelines were developed more recently, in response to several countries pledging nationally appropriate mitigation actions (listed in FCCC/SBI/2013/INF.12/Rev.3). A non-Annex I country with an economy-wide mitigation target, or a target set against a projected future emissions level (e.g. business-as-usual emissions trajectory), is not at present required to communicate information needed to understand such targets.

One of the key impacts of BURs would be to increase the frequency and completeness of inventories from developing countries over time. While many non-Annex I countries are not major emitters, developing GHG inventories is an essential step to undertake mitigation actions in the future, and generally to include climate considerations in sustainable development planning. For Annex I countries, the requirement for annual inventories steadily built-up the capacity needed to report these over time. The impact to date of BURs in building reporting capacity has been limited. Few non-Annex I countries managed to submit BURs in 2014, and where reporting guidelines leave much to countries' discretion, information is less complete and transparent. Countries that did submit BURs complied with the mandatory requirement to provide emissions information for recent data (not older than four years), allowing for more up-to-date information. However, understanding emission trends in non-Annex I countries is more difficult than for Annex I countries as there is no requirement for non-Annex I countries to produce a time series. This is unfortunate given the usefulness of understanding changes in emissions for the development of domestic climate policies. However, increased experience with preparing BURs over time should help improve countries' capacity to monitor, estimate and report GHG emissions.

Annex I reporting provisions are more tailored to economy-wide mitigation targets, requiring the development of projections, the use of certain standardised indicators (e.g. quantified changes in activity levels or removals), and requesting clarification on methods used for counting LULUCF emissions and removals, as well as for the use of market units. Agreement on accounting rules for LULUCF and market units would likely simplify reporting and enhance transparency. To 2020, there should be sufficient information regarding Annex I Parties' progress with mitigation targets, though reporting on both projections and progress with meeting targets tends to be less transparent and less complete than reporting on emissions (Figure 3). Countries are encouraged, but not required, to transparently provide the assumptions and methods used in their projections. There is thus less information on whether and how countries think they will meet their objectives.

3.2 Adaptation

To date, reporting requirements relating to adaptation have been much less detailed and stringent than those relating to mitigation. As outlined in Table 6, no adaptation-related reporting is mandatory in biennial (update) reports. Further, there are only relatively general adaptation-related reporting requirements in National Communications. This means that the current reporting requirements as they relate to adaptation are not sufficient to ensure that countries will provide a complete, consistent or transparent report of their adaptation-related activities. It also means that current reporting requirements are not sufficient to identify progress being made in this area.

This may partly be because monitoring and evaluating progress in adaptation is difficult, as doing so may require large volumes of data on diverse topics. Moreover, both adaptation actions and their effects are highly site-specific and there may be a long time-lag before an accurate assessment of effects can be made (see e.g. OECD, 2015a). OECD (2015a) highlights three main methodological challenges regarding monitoring and evaluating adaptation. These are: measuring the attribution of adaptation interventions (i.e. causality between the intervention and changes monitored); establishing baselines and setting targets (e.g. national targets to reduce vulnerability may be difficult to establish and quantify progress towards); the long-time horizons, both of adaptation actions and their impacts, which render it difficult to assess their effectiveness in the short term.

Table 6. Reporting guidelines relating to adaptation

	IS REPORTING MANDATORY?			
	Annex I (NC)[16]	Non-Annex I (NC)	BR and BUR	NAP#
National circumstances, objectives, dev't priorities	No	No *(encouraged to provide information … of vulnerable areas that are most critical)*	Not explicitly in guidelines	No (relevant info on national circumstances, development priorities)
Vulnerability	Yes *(shall include information on the expected impacts of climate change)*	No *(should provide info on vulnerability to adverse impacts of climate change)*	Not explicitly in guidelines	No (recommended to report results of new assessments and emerging science and reflect lessons learned from adaptation efforts)
Specific needs and concerns	No	No *(should report on measures taken to address needs and concerns)*	Not explicitly in guidelines	No, (suggested to include identification of capacity gaps)
Institutional arrangements (relevant to NAP process)	No	No (*may report on use of policy frameworks, plans and policies)*	Not explicitly in guidelines	No (suggested to include relevant info on institutional arrangements)
Adaptation actions	Yes *(shall include … an outline of the action…)*	Yes *(general descriptions of steps taken)*	Not explicitly in guidelines	No, but countries preparing NAPs are recommended to "monitor and review efforts undertaken"
Methodological approach	No	No (may use guidelines and appropriate methodologies for assessing and evaluating adaptation strategies)	Not explicitly in guidelines	No (a description of approaches, methods, and tools used)

The National Adaptation Plan (NAP) guidelines (developed for LDCs) encourage LDCs to provide this information e.g. via their national communications or direct submissions to COP (LEG 2012).

However, there has been a good uptake of certain adaptation-specific reports. For example, all LDCs have submitted National Adaptation Plans of Action (NAPAs), which are to "identify urgent and immediate needs through an action-oriented and country-driven process that culminates in prioritisation of actions on adaptation through select projects" (LEG, 2002). For example, the government of Benin indicated that of the five priorities identified by their NAPA, four had been funded by 2013, and funding for the fifth was planned, and thus that the NAPA reflected government priorities (SBI, 2013).

[16] Adaptation is not explicitly mentioned in BR or BUR guidelines.

3.3 Means of implementation

All countries are requested to report some information on MOI, i.e. climate finance, technology and capacity building in their biennial (update) reports, as well as in their National Communications (Table 2). However, it is only mandatory for Annex II countries to report on climate finance they have provided as well as technology support provided (Table 7). In other words, developed countries outside Annex II are not requested to report on support that they provide, even though the commitment entered into in Cancun relates to climate finance mobilisation from "developed countries". This means that the picture of climate support provided, mobilised and received as reported to the UNFCCC is incomplete. Developing countries are requested, but not required, to report information on finance, technology and capacity building needs.

Table 7. Reporting guidelines relating to climate support

Topics covered by guidelines	**IS REPORTING MANDATORY?**			
	Annex I BR	Annex I NC	Non-Annex I BUR	Non-Annex I NC
"New and additional" support	Yes (Annex II Parties)* *(Parties **shall** provide information… including information to show how this support is new and additional)*	Yes (Annex II Parties)* (*Parties **shall** indicate the level of support, and shall clarify how this is new and additional*)	n/a	No (***should** provide information on … support provided by themselves and GEF, Annex II Parties, bilateral, multilateral institutions*).
Quantifying support/ needs	Yes (Annex II Parties)* *(… **shall** provide information on support provided, committed or pledged … for non-Annex I countries)*	Yes (Annex II Parties)* – but only for public money *(… **shall** indicate what new and additional resources they have provided)*	No *(**should** provide updated information on constraints and gaps, and related … needs)*	No (***encouraged*** to provide, … a list of projects proposed for financing; ***may*** include information on adaptation measures)
Description of national approach for tracking	No (Annex II Parties)* *(**shall** provide a description of its national approach for tracking … if appropriate)*	No (Not explicitly mentioned)	No (Not explicitly mentioned)	No (Not explicitly mentioned)
How climate support is delivered/ received	Yes (Annex II Parties)* (***shall** also include information on indicators and some of the delivery mechanisms used and allocation channels tracked …source of funding, financial instrument*)	No (Not explicitly mentioned)	No (Not explicitly mentioned)	No (Not explicitly mentioned)
Methods and assumptions	Yes (Annex II Parties)* *(**shall** use any methods developed under the Convention … shall describe methodology … shall report in a rigorous and robust manner)*	No (Not explicitly mentioned)	n/a	No (Not explicitly mentioned)

Scaling-up of investments	No (Annex II Parties)* *(**should** report on policies and measures that promote the scaling up of private investment…)*	No (Not explicitly mentioned)	No (Not explicitly mentioned)	No (Not explicitly mentioned)
Tech. transfer	Yes (Annex II Parties)* (*Parties **shall** provide information on measures taken to promote, facilitate and finance the transfer of, access to and the deployment of climate-friendly technologies)*	Yes (Annex II Parties)* (*Parties **shall** [report] measures, distinguishing between those in public and private sector, steps taken by govt. to promote TT*)	No *(**should** provide information on technology needs, which must be nationally determined, and technology support received)*	No (***encouraged** to provide information on country-specific technology needs and assistance received*)
Financing of TT		Yes (Annex II Parties) *(Parties **shall** also report their activities for financing access by developing countries to … EST)*		
Capacity building needs	No (Annex II Parties)* *(**shall** provide information, to **the extent possible**, on … support that responds to the existing and emerging capacity-building needs*	Yes (***shall** report … steps taken … to support development and enhancement of endogenous capacities and technologies of developing countries*)	No *(**should** provide updated information on … capacity-building needs)*	No (***should** describe … capacity needs … **encouraged** to provide information on other capacity needs*)
Capacity building measures	Yes (common reporting format requests programme title and description)	No (Not explicitly mentioned)	No (Not explicitly mentioned)	No (Not explicitly mentioned)

* NB there are no reporting requirements for countries listed in Annex I but not in Annex II.

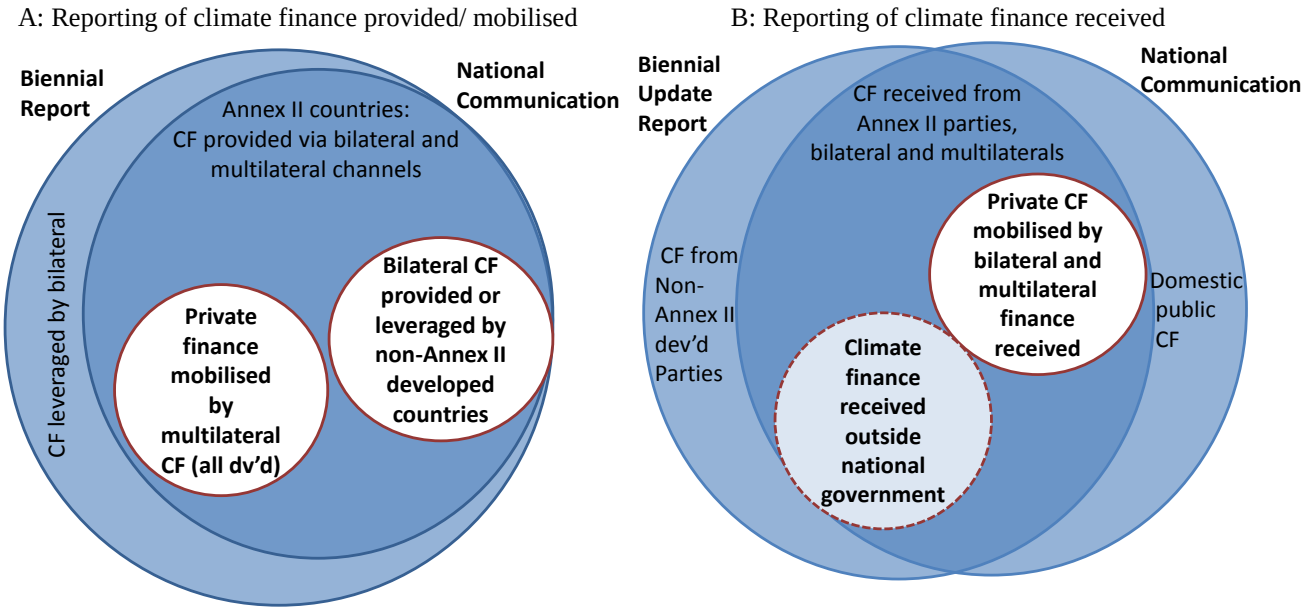
There are several inconsistencies within and between the different sets of guidelines regarding what to report in terms of MOI (illustrated for climate finance by the overlapping circles in Figure 2). For example, NAI NC guidelines recommend that NAI countries report on climate finance and technology "provided by themselves", as well as i.a. from Annex II Parties (but not other developed country Parties, see UNFCCC 2002). In contrast, reporting guidelines for BURs do not include reporting on domestic provision of climate finance. The scope of developed country BRs is to include private finance leveraged by bilateral finance, whereas this source is not mentioned in Annex I NC guidelines (UNFCCC, 2000).

Particularly in terms of climate finance, there are several gaps in the reporting under the UNFCCC, both for developed and developing countries (illustrated by the white "holes" in Figure 2 below). "Developed countries" are requested to report information on private finance leveraged by bilateral public finance. However, this information is not required, so is not routinely reported in countries' BRs. UNFCCC guidelines and the associated common tabular format do not even explicitly request reporting of private finance mobilised via multilateral climate finance. This has therefore also not been routinely reported in countries' biennial reports to date, although some countries have undertaken pilot studies on the amount of climate finance they have mobilised through both bilateral and multilateral channels e.g. Bolscher et al., 2014 for the Netherlands, with further studies underway by other countries.[17] There are inconsistencies in reporting guidelines for Annex I National Communications and Biennial Reports inasmuch as the National Communication guidelines do not request information on private finance leveraged by bilateral climate finance, whereas this information is to be included "to the extent possible" in countries' BRs (UNFCCC, 2011).

[17] See www.oecd.org/env/researchcollaborative/on-going-activities.htm for more details.

Moreover, non-Annex II developed countries (such as former "economies in transition" countries who are now EU members[18]) are not requested to report to the UNFCCC the bilateral climate finance provided or mobilised, even though some of these countries, such as Poland, provide such support and do actually report it to the UNFCCC (e.g. Poland's Sixth NC/First Biennial Report, GoP 2013) as well as elsewhere.[19] Some non-Annex I countries, such as the Republic of Korea, provide climate finance to developing countries, and also report this in their BUR (ROK, 2014) although this is not requested. A first estimate of climate finance mobilised by developed countries[20] in developing countries[21] has recently been published by the OECD, in collaboration with Climate Policy Initiative (OECD, 2015b). In addition to provisional estimates of climate finance based on Parties' expected reporting to the UNFCCC, producing this estimate involved significant data collection directly from bilateral and multilateral development finance institutions i.e. non-UNFCCC Party stakeholders.

Figure 2. Current gaps and inconsistencies in reporting guidelines relating to climate finance under the UNFCCC (not to scale)



There are also gaps in requests for information from developing countries regarding climate finance received. In particular, information on private finance mobilised by the public bilateral and multilateral climate finance received is not requested. It is also not clear, as highlighted in the small dotted circle in Figure 2B above, if the request for developing country "Parties" to report climate finance received in their BURs and NCs will lead to information on climate finance provided and/or mobilised by non-party stakeholders (e.g. sub-national governments, non-governmental organisations). Information on receipt of climate finance by non-party stakeholders has been included in some biennial update reports (e.g. Tunisia's; RT, 2014).

[18] Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia

[19] The EU Mechanism for Monitoring and Reporting (EC, 2013) establishes an annual monitoring framework for member countries, including for provision of climate support. The MMR refers to "Member States" reporting, without distinguishing between those who are Annex II countries and those who are not.

[20] Defined as 24 UNFCCC Annex II parties together with four OECD DAC members that voluntarily asked to be part of this exercise - the Czech Republic, Poland, the Slovak Republic and Slovenia.

[21] Includes any country that is a UNFCCC Non-Annex I Party and/or an OECD DAC ODA eligible recipient

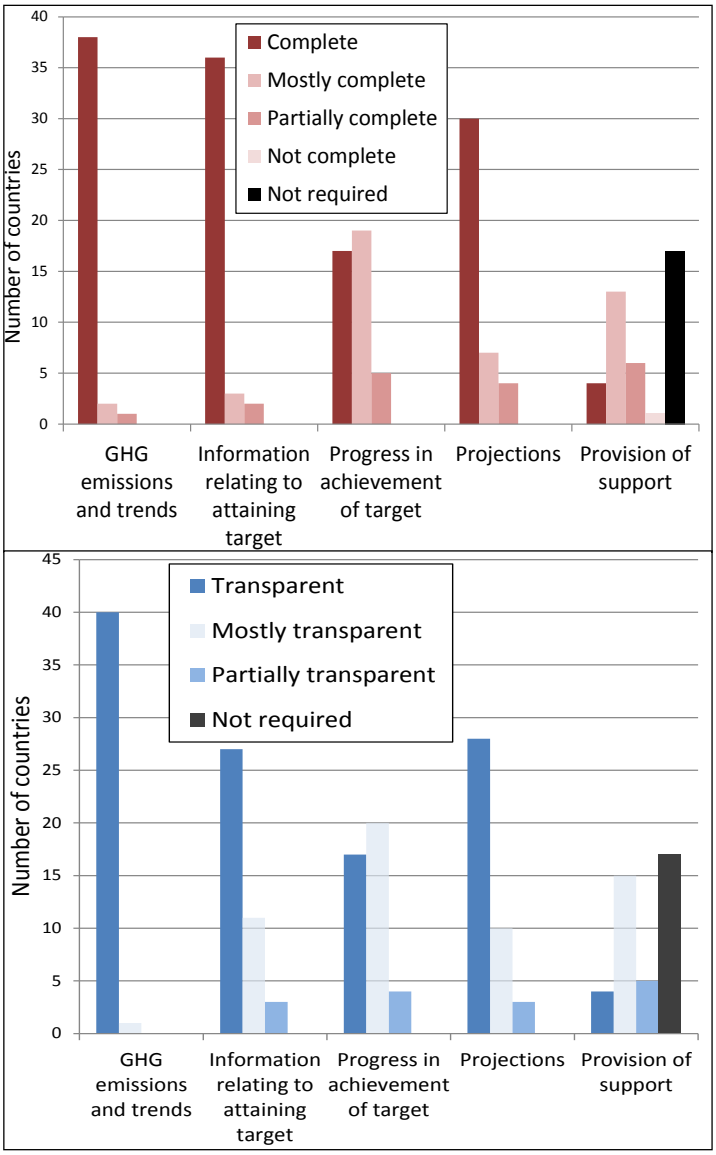
Reporting to the UNFCCC both on climate finance mobilised and climate finance received is therefore neither complete nor consistent. As a result, climate finance reporting under the UNFCCC does not allow for a comprehensive assessment of progress towards the quantified collective commitment that developed countries formalised at COP16, to mobilise USD 100bn/y by 2020 from various sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation.

Climate finance information in countries' national reports to the UNFCCC (BR, BURs and NCs) is also of limited transparency, because it is not always clear how reporting countries define climate finance. It is also difficult to reconcile reports of climate finance provided by developed countries with reporting by developing countries of climate finance received. This can relate to the fact that there can be a time-lag between financial commitments, disbursements and receipt, because different time periods are reported, or due to the existence of financial intermediaries. For example, the South African BUR aggregates climate finance received over the 2000-2010 time period (DEA, 2014) whereas developed country BRs are requested to report climate finance for a biennial period (e.g. 2011-12).

3.4 Summary of current gaps

The extent to which different country reports meet the international objectives set for these reports vary. The objective of biennial reports from developed countries is to "ensure the provision of consistent, transparent, comparable, accurate and complete" information from developed countries (UNFCCC, 2011). For developing countries, the objective of the guidelines for biennial update reports is "to encourage the presentation of information in a consistent, transparent, complete, accurate, and timely" manner (UNFCCC, 2011). For example, in terms of the transparency of developed countries' biennial reports, UNFCCC-led reviews of the 41 BRs submitted to date indicate that reporting of GHG emissions and trends is transparent for emissions and trends for almost all countries (40 out of 41 BRs reviewed) (UNFCCC, 2014 and 2015, summarised in Figure 3). However, the expert review team indicated that only 17 BRs provided transparent information on the assumptions, conditions and methods related to the attainment of their emissions target, and only four BRs (of the 23 countries requested to do so and the EU) provided transparent information on the provision of support – although several more provided information that was "mostly complete" or "mostly transparent".

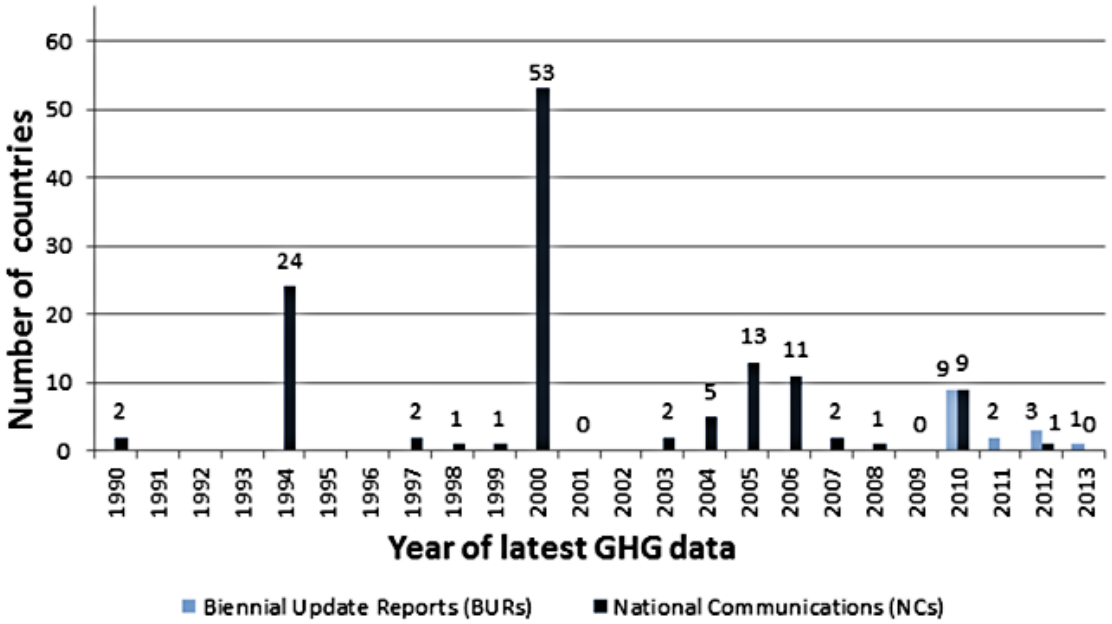
Figure 3. Review of the completeness and transparency of developed country biennial reports



Source: UNFCCC reviews of biennial reports – available for all Annex I countries except Belarus and Turkey. NB "mostly" and "partially" complete/transparent are notations used by the UNFCCC but not defined.

The internationally-set objectives for biennial update reports are also not being met. For example, these reports are meant to lead to timely information. Countries' initial BURs were meant to be submitted by the end of 2014 for all developing countries except LDCs and SIDS (meaning a total of 71 countries). However, only 16 BURs had been submitted by 31 October 2015, although approximately another 50 are under preparation. This means that officially-submitted information e.g. on emissions data for non-Annex I countries is often very far from being timely: Figure 3 illustrates that only 25 NAI countries have submitted GHG inventory data for 2010 or subsequently (from BURs or NCs), rather than the (at least) 71 countries that would have been expected to do so according to the current reporting guidelines.

Figure 4. Latest year of GHG inventory data submitted by non-Annex I countries (via NCs or BURs)



Without the provision of information in a timely manner, it is difficult to estimate progress towards collective emission trends or mitigation objectives. While the availability of finance to produce reports can be a barrier in some cases, not all these 71 non-LDCs/SIDS non-Annex I countries (e.g. Algeria, Bolivia) who were to have submitted a BUR by end 2014 have requested GEF-related funding for one. Moreover, some countries for which GEF funding for BURs has been approved expect a significant delay in developing such a document. For example, the Chinese BUR is expected end 2016 (a 19 month time lag from approval of funding) and Saudi Arabia expect to produce their BUR at the end of 2017 (more than three years after the initial disbursements of funds for developing the BUR) (SBI, 2015a). Consultations undertaken under the SBI (2015b) indicated that insufficient data availability as well as lack of co-ordination by ministries is a key barrier to meeting reporting requirements.

Similarly, information submitted in BURs is not always complete. This is partly because reporting guidelines do not make mandatory ("shall") reporting of much of the information requested. It may also be due to the time and/or resources needed to collect such information. For example, BUR reporting on support needed varies widely, with e.g. the Azerbaijani BUR (GoA, 2014) highlighting incremental costs for selected energy-sector projects, the Tunisian BUR (RT, 2014) highlighting total energy sector investment needs, and the BUR from Bosnia and Herzegovina (MSP,. 2014) providing qualitative estimates of support needs.

4. Implications for post-2020 transparency framework

Most Parties have put forward their "contributions" for the post-2020 period. These can have a different form and coverage from any previous pledges or commitments. In addition, Parties have also agreed to a number of collective commitments or goals for 2020, and collective commitments or goals may also be agreed for the post-2020 period. As the types and coverage of targets under the UNFCCC change, the reporting framework may also need to evolve.

The Intended Nationally Determined Contributions (INDCs) that have been put forward for the post-2020 period vary considerably in scope and nature. For example, several INDCs include an adaptation component, whereas adaptation was not part of countries' pre-2020 pledges. In addition, the form of some countries' post-2020 mitigation contributions differs from their pre-2020 mitigation commitments or pledges. For example, the Cancun pledges made by Morocco and Ethiopia focused

on specific projects and actions in the energy, waste and forestry sectors (FDRE, 2010; GoM, 2010). The INDCs of both these countries are much broader in scope, with e.g. Ethiopia's indicating total emissions, deviation of emissions from BAU and an adaptation component (FDRE, 2015). Singapore's pre-2020 pledge focused on a deviation from BAU emissions whereas its INDC focuses on emissions intensity and on peaking GHG emissions by a specific date (NEA, 2014; GoS, 2015).

If the scope, coverage and form of pre- and post-2020 targets differs, so does the information needed to assess progress towards pre- and post-2020 targets. The change of scope, coverage and form for developing countries' post-2020 contributions is more diverse, and has seen larger changes, than the scope, form and coverage of post-2020 contributions for Annex I countries. This means that assessing progress towards some of the INDCs put forward by developing countries will require information that has not previously been routinely collected (e.g. support received), that has not previously been routinely reported (e.g. GDP – needed to calculate emissions intensity), that has not previously been routinely reported by particular country groupings (e.g. emission projections – needed to assess progress with contributions expressed as a deviation from BAU emissions), or that has not been reported with such frequency (e.g. GHG emission levels in developing countries). In contrast, as the scope and form of Annex I country mitigation pledges remains a country-wide emissions target, few changes are needed to the reporting requirements regarding Annex I mitigation.

One key purpose of reporting in the post-2020 framework will be to track progress towards achievement of NDCs. Table 8 indicates the subset of information that would be needed for this specific purpose, based on the current form and scope of INDCs.

Table 8. What information is needed to assess progress with (I)NDCs

Information requested	Needed to assess progress to (I)NDC?
GHG emission levels and mitigation efforts	
National GHG emissions inventory	(✓) (if absolute target or intensity target) × (for other types, though provides a basis for assessing other types of targets, and potentially needed for collective assessment of progress)
National inventory systems and arrangements	× (but needed to increase trust in information reported)
Accounting methods for land-use sector	(✓) (if target includes land-use sector and is not accounted for as per inventory)
Use of units	(✓) (if greenhouse gas target)
Emissions intensity	✓ (if emissions intensity objective)
Quantitative non-GHG metrics[#]	(✓) (if NDC includes such objectives)
Description of target	✓
Mitigation actions undertaken and their impact	(✓) (if NDC focuses on specific actions)
Emission projections	(✓) (if objective as deviation from BAU) × (for other types; but potentially needed for collective assessment of progress)
Projection methods and assumptions	(✓) (if objective as deviation from BAU) × (for other types; but potentially needed for collective assessment of progress)
Means of implementation	
Provision of support (amount and instruments)	× (quantified provision of public climate finance support not included in INDCs to date) (✓) (for INDCs conditional on support)
Approach for tracking support	× (but needed to increase trust in information reported)
Mobilised private finance	× (but could be needed if there is a collective goal for mobilised climate finance)
Policies to scale up private finance leveraged, technology transfer	×
Information on capacity building	(✓) (if INDC includes capacity building needs)
Adaptation	
Vulnerability or resilience	(✓) (if INDC includes objective of reducing vulnerability/increasing resilience in specific areas)
Specific needs and concerns	(✓)(if INDC includes objective of reducing vulnerability in specific areas)
Institutional arrangements	(✓) (if INDC includes institutional-related aspects)
Adaptation actions	(✓) (if INDC includes specific adaptation actions)
Other information	(✓) (if INDC includes other metrics)
Other	
Self-assessment on compliance, equity, fairness	× (Not needed to assess NDC itself, but would be useful in identifying if/how NDC could be enhanced)
Domestic MRV and institutions	× (Not needed, but helps build trust)

Legend: ✓ - yes ; (✓) – yes, for certain NDC types; × - no.

4.1 Emissions and mitigation contributions

Much of the information that is likely to be needed to assess progress with mitigation NDCs is already requested of Annex I countries.[22] This includes reporting on GHG emissions and removals by a wide range of gases and sectors, use of internationally-transferred units, land-use accounting, timeframes and base year, and the expected range of future emissions (the estimated outcome of fully implementing the NDC) (Briner and Prag, 2013). There are areas where transparency in reporting could be improved for developed countries. This includes better information on the assumptions associated with emissions projections, more complete and consistent reporting on the use of units from various market mechanisms, as well as how land-use and forestry emissions are accounted for within the NDC. Because developed countries are likely to continue with mitigation contributions that take the form of quantified economy-wide reduction objectives, new types of information are not likely to be needed to assess their mitigation contributions.

Developing countries have put forward a variety of mitigation NDCs. The specific categories of information needed will therefore vary by country, but at a minimum information would be needed to fully understand a given NDC, and whether and how it is being fulfilled. For example, GDP projections are important to understand mitigation NDCs expressed as an emissions intensity objective, yet this information is currently not required. Countries with mitigation NDCs that represent reductions against projected emissions levels will also need to provide both projections and sufficient detail regarding the assumptions and methods used: this is also not required at present for developing countries. For NDCs focusing on mitigation actions, transparency is ensured if the action being taken can be fully understood, and, potentially, its impacts quantified.

Some categories of information may not be directly relevant for assessing progress with a NDC, but can be important for improving understanding, and enhancing trust and credibility in a country's willingness and ability to fully implement its NDC. This can include information on the status of domestic processes needed to implement the NDC, or an explanation of why a given NDC is considered ambitious. Countries that condition the achievement of part or all of their NDC on the provision of financial support may also need to provide more information to explain how this will be assessed.

Robust information on emissions is needed to understand and assess any mitigation objectives based on GHG emissions, including emissions intensity targets or deviations from projected business-as-usual emissions. Having complete, annual inventories, especially for large emitters, will be important for conducting a global assessment of progress with collective, long-term climate objectives; a notion proposed within the draft agreement text. However, this would be a step change from the current regime, which differentiates reporting requirements based on country grouping within the UNFCCC (rather than on emission levels).

Regarding emissions accounting, some convergence on accounting rules may be needed, or increased transparency of reporting on accounting approaches and methods used. First, not all countries currently use the same inventory guidelines: while all Annex I countries use the 2006 IPCC Guidelines, many non-Annex I countries use the Revised 1996 IPCC Guidelines. Second, in accounting for the use of transferable emissions units (e.g. using market mechanisms) and emissions in the LULUCF sector, clarity on the approach used is essential. This is important for both environmental integrity and understanding a) what a country's mitigation objective actually comprises, and b) whether they are meeting it (Hood, Briner and Rocha, 2014). While there can be flexibility in LULUCF accounting depending on national circumstances, common accounting rules for LULUCF and the use of transferred units provide greater certainty regarding progress with NDCs (as its quantification is clearer), and regarding environmental integrity. In the absence of common accounting rules, certain basic principles may be needed, and specific provisions developed in certain

[22] Contained within reporting guidelines for Annex I Parties.

areas (see Briner and Konrad, 2014). Similarly for the use of transferable emissions units; a common framework is likely needed to ensure environmental integrity, such as to avoid double counting (Prag, Hood and Barata, 2013).

Weaknesses in the current reporting system become more noticeable in the event of an aggregate review process to assess the likelihood of meeting collective climate efforts. Doing so would require more complete and sound projections and, implicitly, improved methods of understanding the impact of mitigation measures on emissions. This requirement would apply to all large emitters, whether they are classified as developed or developing. Countries whose emissions are expected to grow significantly would also need to develop the ability to make projections over time, to allow for a better understanding of possible future global emissions trajectories.

4.2 Adaptation

Some INDCs include an adaptation component, while other countries have submitted an adaptation "undertaking". This is a significant change from pre-2020 commitments or pledges, which focused on mitigation.

However, identifying ways of measuring and reporting progress in adaptation is not straightforward (as outlined in section 3.3), either for specific actions, individual countries or across countries. This means that in order to assess progress towards the different types of adaptation contributions that have already been proposed, country-specific reporting on adaptation in the post-2020 period could need to be extremely detailed in order to take into account the variety of adaptation contributions. However, guidance on reporting could remain generic, e.g. requesting or requiring an update on implementation of the adaptation component of the NDC. Developing generic guidance would mean that reporting is unlikely to be consistent across countries (which is already implied by the differences in content for the adaptation component of INDCs). However, it would have the advantage of avoiding needing to agree on reporting details, which would be time-intensive and would not necessarily provide guidance for any subsequent type of adaptation contribution.

For example, integrating adaptation concerns into wider national or sectoral activities is part of the INDCs of Ethiopia, Gabon and Mexico (FDRE, 2015; Republic of Gabon, 2015; GoM, 2015). A relatively simple means of identifying if these actions have been undertaken would be to identify if adaptation is mentioned in relevant national or sectoral plans. However, MRV of such input-related indicators would not identify whether the outcome of such actions has been successful. Further, adaptation components of INDCs can also include some highly-specific actions, which would require similarly-specific MRV provisions. For example, Mexico's INDC includes an indication that it will "guarantee the security of dams and strategic hydraulic infrastructure".

4.3 Means of implementation

MOI are explicitly mentioned in several countries' INDCs in terms of support needed to implement climate responses. Several possible types of collective efforts for support provision and/or mobilisation are also included in the current negotiation text (UNFCCC, 2015b). These two different types of goal for MOI means that both countries involved in collective efforts for providing or mobilising support, and those aiming to receive a specific level of climate support, will need to report on MOI – and potentially also the impact that this has had on the country's climate response. This would be a significant change from the current reporting regime, where no reporting of MOI received is mandatory, and reporting of climate support provided or mobilised is not mandatory for Annex I countries outside the Annex II group.

There are several challenges relating to MRV of MOI, as have been detailed elsewhere (e.g. Clapp et al., 2012; ODI et al., 2014; Jachnik et al., 2015). For example, collecting and collating estimates of MOI received can in itself be a resource-intensive process, as MOI can be qualitative (e.g. a strengthened data-collection system) or quantitative, can flow through a multitude of channels

(public/private, bilateral/multilateral) and flow to a wide variety of actors (i.e. not necessarily via central government). Estimating the impacts and effectiveness of such MOI is also not straightforward, particularly for adaptation-related actions (e.g. OECD, 2015b; Ellis et al., 2013).

Moreover, there are significant data gaps (particularly relating to the aspect of private climate finance mobilised), there are not yet definitions of what constitutes climate finance, nor are there agreed methods for how to estimate mobilised private climate finance. Ambiguity in parts of the existing reporting guidelines for developed countries regarding climate finance provided and mobilised means that countries use a range of approaches to estimate a specific item, e.g. multilateral flows (see for instance OECD, 2015b). This complicates assessment of progress towards targets relating to MOI.

This means that solely changing the reporting guidelines for means of implementation is likely to have only a limited impact on the transparency, comparability, completeness and timeliness of information reported on climate support. This is because further work is needed to fill gaps in data collection, both at a national and organisational level (e.g. information from multilateral development banks on the climate finance they mobilise), as well as on estimation methods.

5. Conclusions

There are many reasons why the UNFCCC framework requests information to be reported by countries. One is accountability: tracking progress towards any mandatory obligations (particularly Annex I and Annex II countries), as well as voluntary pledges. Another reason is to increase understanding of climate policy and practice, as well as national circumstances and needs, and to highlight successful approaches to mitigation and adaptation. A third is to improve confidence regarding actions undertaken by countries. In practice, reporting has also served to build capacity within countries to estimate and monitor GHG data, identify and prioritise specific climate responses, as well as to develop and evaluate climate policy more broadly.

The 2015 agreement offers an opportunity for the international community to identify and prioritise what particular information will be important to track in the post-2020 climate regime. Identifying why particular information is important for the international community will help decisions on prioritising what information is needed.

Experience with current MRV regime

The MRV regime has been gradually evolving since the 1990s. The current MRV regime requests lots of information on different topics, and is differentiated by country grouping (i.e. different requirements for Annex I countries, Annex II countries, non-Annex I countries, and sometimes within non-Annex I countries). Some of the information countries are requested to report is directly related to commitments or obligations of countries. However, much is not. Country obligations and commitments have also been changing in scope and content since the 1990s.

The MRV regime was significantly expanded in 2010, with the agreement that countries are to submit reports on a biennial basis. The aim of developed countries' "biennial reports" (BRs) as well as developing countries' "biennial update reports" (BURs) was agreed in 2011: these are all meant to provide information that is consistent, complete, transparent and accurate. In addition BRs are to be comparable, and BURs timely.

However, current practice does not meet all these aims. Regarding reports by developed countries, information – particularly as it relates to climate support – is not always entirely comparable or transparent. Information on climate finance is also not complete, partly because (for developed countries) reporting requirements do not request information on all climate finance sources, and partly because there are currently several definitional, methodological and data challenges associated with estimating climate finance. In addition, there is limited information requested on support received.

Further, information provision from non-Annex I countries has not been timely: by the end of October 2015, only 16 non-Annex I countries had submitted BURs (the deadline was end 2014), and for more than 80 non-Annex I countries, the most recent reported year of GHG emissions data is for 2000 or earlier.

There are some inconsistencies between current reporting guidelines for National Communications (NCs) and Biennial Update Reports. For example, NCs from non-Annex I Parties are to include information on domestic public climate finance, whereas this is not requested in BURs. In contrast, reporting receipts of climate finance in BURs is to include climate finance received from developed country Parties not in Annex II, whereas this source is not mentioned for non-Annex I NCs. Revising reporting guidelines for B(U)Rs and NCs to ensure that there are no inconsistencies and gaps could help to improve the accuracy and completeness of information reported under the UNFCCC.

There have been three main categories of information requests under the UNFCCC reporting framework to date: the mandatory "shall", the non-mandatory but recommended "should" (or "shall ... to the extent possible" or other qualifier), and the non-mandatory and optional "may" or "encouraged". For items which "shall" be reported, there are three categories of outcomes for insufficient reporting: explicit consequences, publicly highlighting areas for improvement, and no outcomes. Combined, this leads to five main categories for reporting requirements, below:

- "shall", with explicit consequences if reporting is insufficient. For example, COP 7 decisions included that Kyoto Protocol Parties were only eligible to acquire units from Joint Implementation and Clean Development Mechanism projects if they had a national inventory system and national registry in place and had submitted the latest national inventory. In addition, inadequate reporting could lead to adjustments being made to the GHG inventories of Kyoto Protocol Parties.
- "shall", with reporting subject to technical review and recommendations for improving reporting in future. This applies e.g. to Annex I Parties' BRs, which are subject to a technical review as well as to a multilateral assessment of progress towards mitigation targets.
- "shall", with no explicit outcomes for insufficient reporting, such as non-Annex I submission of BURs, or for not following the reporting guidelines where these are imprecise and not actionable, e.g. Annex I reporting on adaptation actions. For this category of reporting requirement, technical review processes nevertheless allow the technical review team to identify areas for improvement, and where there may be capacity building needs.
- "should", with no consequences for non-reporting, which applies to all Parties (though for Annex I countries could still lead to recommendation to enhance transparency and clarity of reporting as part of expert reviews).
- "may" or "encouraged", with no consequences for non-reporting, which applies to selected information requests, particularly to those from non-Annex I countries.

To date, transparency and completeness of reporting under the UNFCCC framework have been best where guidelines are clear on what to measure and report and where methods are available for how to do this (e.g. for GHG inventories), as well as explicit consequences for non-reporting as part of review processes (e.g. publicly-available recommendations for improvements, ineligibility to acquire units from the carbon market). Where definitions and/or methods are not widely available, such as for measuring climate support, it is more challenging to report information in a transparent and complete manner.

In general, reporting has been improving over time, as countries have gained experience and increased their reporting systems and capacities. Thus, the UNFCCC reviews of Annex I country biennial reports have indicated that for all Annex II countries and for almost all other Annex I countries,

reporting of GHG emissions and trends – in place since the 1990s – is now both complete and transparent. In contrast, the same BR reviews indicated that no Annex II country's reporting of climate support – where there are still several definitional and methodological uncertainties – was both transparent and complete.

Further, countries are also more likely to both develop domestic systems and engage in international reporting when it is also in their domestic interest to do so. For example, the focus of climate responses in many developing countries is on adaptation. Thus, there was a good response by LDCs to developing National Adaptation Plans of Action, which identified priority areas for adaptation funding. In contrast, while BURs offer the opportunity for countries to identify both mitigation and adaptation funding needs, the focus is on mitigation actions and trends. This may explain why there has been only limited reporting via BURs to date: 16 in total (of which one from a SIDS, Singapore), compared to the 71 that would have been expected if all non-Annex I countries who are not LDCs or SIDS were to have reported by the deadline of end 2014.

The current MRV regime does not require (or even request) reporting of all the information that is needed to assess progress towards commitments and pledges to 2020. Enhancing reporting requirements for the pre-2020 period could address some of these gaps, although improvements in measuring specific information, e.g. via improved methodologies and data collection, are also likely to be needed. For example, in terms of individual country pledges, reporting requirements for developing countries do not request clarity on what "business-as-usual" means for an emissions reduction pledge that deviates from BAU. The current MRV system also does not perform well when assessing performance towards collective targets. This can be either because methods and guidelines for MRV have not been developed, are unclear or incomplete, or are not mandatory for a proportion of some of the countries from whom information is needed. For example, reporting guidelines for AI countries only cover a portion of what "mobilised" climate finance could comprise.

In practice, it takes time to gain experience with a reporting system, time to agree and decide how it should be changed, and further time to allow countries to adjust to changes. Concerted reflection is therefore needed on how the current MRV regime may need to evolve, both in the shorter and longer term.

Implications for reporting in a post-2020 transparency regime

As the types and coverage of country contributions to a global climate response change, the information requirements to track progress towards individual and collective commitments for the post-2020 regime will also change. First, the scope of some INDCs submitted is broader (including adaptation) than previous commitments or pledges pre-2020. Second, some countries have changed the nature of their pre- and post-2020 targets, toward economy-wide or peaking emissions objectives for mitigation (e.g. Ethiopia, Singapore). Third, countries have suggested that a collective assessment of progress with meeting global climate efforts take place periodically. Finally, there could potentially be non-mitigation collective climate efforts in the 2015 agreement.

The change of scope, coverage and form for developing countries' post-2020 contributions is more diverse, and has seen larger changes, than the scope, form and coverage of post-2020 contributions for Annex I countries. This means that assessing progress towards some of the INDCs put forward by developing countries to date will require information that has:

- not previously been routinely collected or estimated (e.g. national levels of support received);
- not previously been routinely reported internationally (e.g. GDP, assumptions for projections);
- not previously been routinely reported internationally by certain country groupings (e.g. emission projections); and

- not been reported as consistently or frequently (e.g. annual trends in GHG emissions in developing countries, which would be needed to assess progress to any target related to peak emissions).

At the individual country level, the MRV regime would at a minimum need to ensure that countries report information directly related to their contributions. While contributions may become more similar over time (e.g. in terms of form and coverage), for the foreseeable future the type and scope of individual NDCs is likely to vary. This implies that what is needed to assess progress with a national contribution will also vary, and that the MRV regime would need to request different information from countries, depending on what is included in their NDC. As in current INDCs, the form and content of mitigation contributions differ, some include adaptation, and some are conditioned on the receipt of financial and other support.

In addition, assessing progress towards collective objectives will require regular reporting by countries whose performance significantly contributes to meeting those goals. For example, GHG inventories and projections would be needed from all but the smallest emitters to assess global emission trends. This would either entail a significant change in reporting requirements (e.g. by making it mandatory to report certain information from selected developing countries), or would need to rely on information not submitted by countries themselves (but by non-party stakeholders such as international organisations). Either change would represent a significant change to the current reporting framework. Similarly, if a collective commitment has been agreed, then all countries contributing to that commitment would need to report on it. For example, a commitment from "developed countries" to mobilise climate finance would logically lead to a commitment for the same set of countries (rather than "Annex II" countries) to report on the climate finance they have mobilised.

In some cases, the information needed to assess progress with an individual country's NDC (e.g. non-GHG mitigation objective, specific adaptation actions) may not be the same as information needed to allow for an aggregated assessment of collective progress (e.g. emissions and projections). Thus, if reporting is going to be consistent and complete across countries, then all countries would need to report on a core set of issues, including absolute emission levels, even if their NDC is expressed in different terms. Common methodologies may also help improve the consistency of information reported, which is important when tracking progress towards collective goals. As at present, reporting of similar data by different countries could be done with varying frequencies and/or using different approaches. However, reporting on issues relevant to collective goals and/or for information-sharing purposes, as well as reporting information solely related to an NDC, will increase the resources required for reporting.

In light of the 2015 climate agreement and countries' proposed climate contributions, some changes in reporting requirements may be needed, to better understand issues surrounding the implementation and ambition of NDCs, and other information useful for building trust and knowledge. Such changes may also mean that modifications are needed in the provisions and guidelines established for current review and assessment processes. However, as there has been limited experience to date with these, the 2015 agreement could potentially include a provision for such a change, and agree on its details subsequently.

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Glossary

ADP	Ad hoc Working Group on the Durban Platform for Enhanced Action
AI	Developed countries listed in Annex I of the UNFUNFCCC
BAU	Business as Usual
BR	Biennial Report
BUR	Biennial Update Report
CB	Capacity Building
CCXG	Climate Change Expert Group
CDM	Clean Development Mechanism
CF	Climate Finance
COP	Conference of the Parties to the UNFCCC
EC	European Commission
GCF	Green Climate Fund
GDP	Gross Domestic Product
GHG	Greenhouse Gas
JI	Joint Implementation
IAR	International Assessment and Review
ICA	International Consultation and Analysis
IEA	International Energy Agency
INDC	Intended Nationally-determined Contributions
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LDC	Least Developed Country
LEG	Least Developed Countries Expert Group
MDB	Multilateral Development Bank
MOI	Means of Implementation
MRV	Measurable, Reportable and Verifiable
NAI	Developing countries that are not listed in Annex I of the UNFCCC
NAPA	National Adaptation Programme of Action
NAP	National Adaptation Plan
NC	National Communications
NDC	Nationally Determined Contribution
NIR	National Inventory Report
ODA	Overseas Development Assistance
OECD	Organisation for Economic Co-operation and Development
OECD DAC	OECD Development Assistance Committee
SIDS	Small Island Development States
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollars

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