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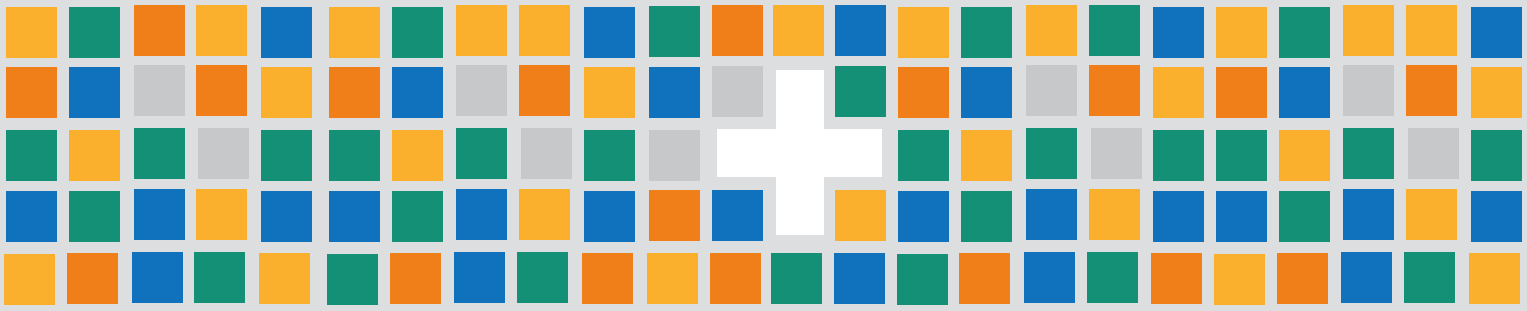
Understanding adaptation in the Global Stocktake

Lars Christiansen, Anne Olhoff and Thomas Dale



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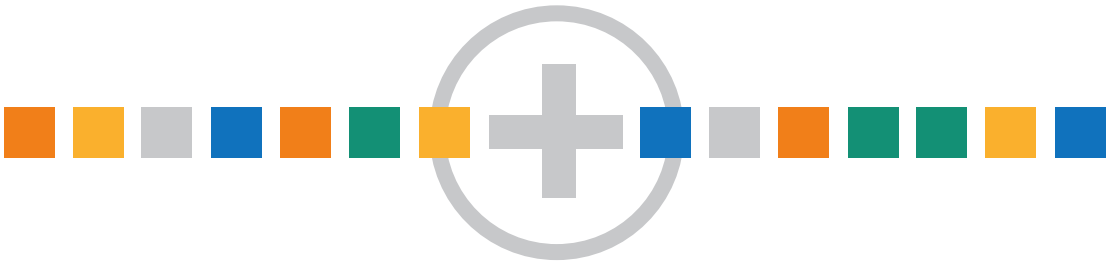

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iGST
Independent Global Stocktake

About the iGST initiative and this report series

The Independent Global Stocktake (iGST) is an umbrella data and advocacy initiative that brings together climate modelers, analysts, campaigners, and advocates to support the Paris Agreement. https://www.climateworks.org/independent-global-stocktake/

The Designing a Robust Stocktake Discussion Series envisions the contours of an ideal Global Stocktake and suggests ways in which the independent community can help to achieve that vision. These papers were produced by iGST partner organizations in consultation with the broader community, but the views expressed are the authors' own and don't necessarily reflect those of the iGST initiative or associated partner organizations.

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Disclaimer from the iGST on COVID-19

This paper was written September 2019 - February 2020, before COVID-19 had emerged as a pandemic. As of publication date (May 2020), COVID-19 has disrupted lives around the world, but its long-term impacts on the Global Stocktake and related processes remain unclear. We are cautiously hopeful that many aspects of the Global Stocktake will continue forward as planned, albeit against a backdrop of recovery and potentially heightened scepticism of global connectivity. Thus, while this paper does not account for COVID-19 related impacts, we believe that much of what was written here remains relevant.

Contents

+ Executive Summary

The Paris Agreement defined a global adaptation goal and established a Global Stocktake (GST) process to track collective progress towards this goal, including four functions for adaptation that the GST is expected to deliver. COP 24 in Katowice proceeded to lay out more detailed procedures for the GST process, including definition of the data sources that will inform the GST. While these modalities have clearly helped to frame the process, many critical methodological issues related to the measurement, aggregation and comparison of adaptation results remain unresolved.

This discussion paper reviews the key information sources listed for the GST for adaptation: 1. Formal submissions from UNFCCC parties: Adaptation Communications (ACs), Biennial Transparency Reports (BTRs), National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs), 2. IPCC reports, and 3. 'Other' information sources. It assesses what can be expected from these sources in terms of the nature of information they contain and the extent to which they will be able to meet the four adaptation-related functions of the GST.

In relation to formal country submissions to UNFCCC, the paper finds that while these will likely provide sufficient information for the GST functions related to 'recognition of national [adaptation] efforts', other functions related to 'enhancement of implementation', 'adequacy and effectiveness of adaptation and support', and 'review of progress on the global goal' are unlikely to be adequately informed, if sourcing is taken exclusively from national reports. Among other things, these deficiencies are a result of:

1. The lack of clear, specific and universally agreed definitions of key concepts such as the global goal on adaptation and the terms 'adequate' and 'effectiveness' referred to in the four adaptation-related functions of GST.

2. The large amount of unresolved methodological issues pertaining to the measurement and aggregation of adaptation results. In particular, there is currently no clear way for monitoring and evaluation systems at national levels to combine the potentially conflicting objectives of (1) providing meaningful operational data on how individual activities or programmes are achieving their specific goals (i.e. their intended results and impacts), while (2) at the same time providing data that can be aggregated across diverse local contexts and sectors.

3. The significant flexibility available to Parties in terms of what, how and if they report on adaptation to the UNFCCC. With high flexibility, it can be expected that actual reporting, including the information provided and the methodologies used, will be highly variable across countries

The paper further concludes that while information sources like the IPCC reports, the UNEP adaptation gap reports, the Sustainable Development Goals Report, and the Sendai Framework Progress Report all have potential to inform the GST, currently their combined ability to inform the GST functions inadequately covered by the formal country submissions to the UNFCCC is limited. The findings are summarized in table 2.

Based on the gaps identified in the expected nature and function of the information sources available for the GST, the paper identifies three major areas where the iGST can add value to adaptation under the GST:

1. **The iGST could help build common understanding and consensus on key aspects of adaptation in the GST**. Core outstanding questions that could be discussed under the iGST include "what does an adequate adaptation response imply and how can it be defined?", "how can we assess whether we are making progress on enhancing adaptive capacity, reducing vulnerability, and enhancing resilience", "how do we define and measure adaptation effectiveness?", and "what can meaningfully be assessed at the global level?". To this end, the iGST could convene thematic discussion meetings with a broad base of stakeholders, including national and sub-national decision makers, academia, NGOs and practitioners, and produce summaries of these discussions to inform UNFCCC processes.
2. **The iGST could support initiatives that fill existing research and methodology gaps**. The iGST could support, for example, the development, testing and subsequent discussion of a global framework and set of indicators assessing progress towards the global goal on adaptation, via a structured collaboration between a range of expert institutions. Both bottom-up approaches that build upon aggregation of national level information and top-down approaches that assess adaptation progress directly at the global level (e.g. through the development of new indicators and using new technologies) could be explored. The iGST could also solicit or support research that can inform and underpin global and cross-sectoral adaptation assessments
3. **The iGST could provide examples of how a global stocktake can be conducted and inform future country submissions and global stocktakes**. The iGST could support the further design and detailing of country submissions and GSTs by supporting countries in improving the quality and comparability of submissions by providing examples of definitions, methods, and data that could be used in country reporting on adaptation. It could also support the UNFCCC bodies by providing examples of how global level assessments can be conducted under the GST and providing science-based approaches for key adaptation questions and concepts.

1. Adaptation in the Global Stocktake

The Paris Agreement, for the first time, defined a global goal on adaptation of '*enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal*'.[1] The agreement further establishes that progress towards the global goal on adaptation will be assessed in a Global Stocktake (GST), which will be conducted in 2023 and every 5 years thereafter. The GST specifies four main adaptation functions:

(a) Recognize adaptation efforts of developing country Parties

(b) Enhance the implementation of adaptation action taking into account the adaptation communication

(c) Review the adequacy and effectiveness of adaptation, and the support provided for adaptation

(d) Review the overall progress made in achieving the global goal on adaptation.

The modalities of the GST, sometimes referred to as the "Paris Rulebook" or "Katowice Climate Package", were adopted at the 24th Conference of Parties (COP 24) in Katowice, Poland in 2018.[2] While this has laid the foundation for the first GST in 2023, the provisions are not very detailed and allow for ample flexibility from Parties, the Chairs of the Subsidiary Bodies and Facilitators, as well as the UNFCCC Secretariat.[3, 4]

As a compounding factor, there is currently no common understanding or guidance on how to define and assess adaptive capacity, resilience, and vulnerability under the global goal on adaptation, nor on how to define and assess adequacy and effectiveness under the four adaptation functions of the GST. As such, there is a clear need and scope for independent input to complement and inform the GST.

This discussion paper is designed to inform the independent Global Stocktake (iGST), a data and advocacy initiative that brings together climate researchers, modellers, and advocates to support the Paris Agreement by providing analysis and research to support the accuracy, transparency, and accountability of the GST.

The objective of the paper is to outline how adaptation is likely to be considered in the official GST and to identify areas in which independent initiatives such as the iGST could add value. Section 2 provides an overview the adaptation-specific guidance provided in the Katowice package and examines the formal UNFCCC country submissions that will feed into the official GST. Section 3 explores the nature and scope of information that can be expected from the main sources of information defined for the GST as well as the extent to which these are likely to be able to meet the four functions of the GST for adaptation. Finally, section 4 highlights

[1] UNFCCC (2015) "Decision 1/CP.21, Adoption of the Paris Agreement", article 7. Link

[2] UNFCCC (2018) "Decision 19/CMA1, Matters relating to Article 14 of the Paris Agreement and paragraphs 99–101 of decision 1/CP.21". Link

[3] Obergassel, W., Hermwille, L., Siemons, A. & Förster, H. (2019) "Success Factors for the Global Stocktake under the Paris Agreement." Wuppertal Institute for Climate, Environment, Energy. Link

[4] Watson, C, Roberts, L. (2019) "Understanding finance in the Global Stocktake." Overseas Development Institute. Part of the iGST Designing a Robust Stocktake Discussion Series. Link

three areas in which independent initiatives, such as the iGST, can complement and potentially inform the official GST.

'Loss and damage', defined by the UNFCCC as 'the actual and/or potential manifestation of impacts associated with climate change in developing countries that negatively affect human and natural systems' is often considered as a sub-component of adaptation. However, the Paris Agreement distinguished it as a separate pillar, separate from mitigation and adaptation. As such, issues related to the Global Stocktake for loss and damage will not be discussed in this paper, though it is clear that there are many potential overlaps and synergies[5].

[5] It should also be noted that the specific definition of loss and damage and how it relates to climate impacts broadly speaking (and thus to adaptation) remains an open discussion both academically and in the UNFCCC.

+ 2. Exploring the current guidance and official sources of adaptation information for the GST

2.1. Three categories of information sources will inform the GST

The modalities of the GST were adopted at COP 24 in Katowice, Poland in 2018.[6] Three paragraphs are of particular interest for the GST for adaptation. Paragraph 23(b) requests the preparation, by the UNFCCC secretariat, of a 'synthesis report on the state of adaptation efforts, experience and priorities' (from here on referred to as the 'synthesis report on adaptation').[7] This report will inform the GST at the collective level and will build on information included in national submissions (paragraph 36(c)). Furthermore, paragraph 37 of the same decision specifies a broader list of information sources that will inform the GST.[8] These information sources can be grouped into three basic categories:

- **The synthesis report on adaptation from UNFCCC, based on formal submissions by parties.** This report will likely be the primary instrument for informing the GST for adaptation at the collective level and will serve an important function in the technical assessment meetings and consultations to be held with Parties as part of the GST. The report will build primarily on formal submissions by UNFCCC parties (Decision 19/CMA1, paragraph 36(c)), notably Adaptation Communications (ACs), which are to be submitted as a component of or in conjunction with other communications or documents, including a national adaptation plan (NAP), a nationally determined contribution (NDC) and/or a national communication. Biennial transparency reports (BTRs) for adaptation are other examples of national submissions that could inform the synthesis report. Similarly, while not explicitly stated in paragraph 36(c) it is not precluded that that the synthesis report on adaptation could consider other sources listed in paragraph 37.
- **The latest IPCC reports**. The decision highlights that information from the most recent IPCC reports will feed into the GST. These include the Sixth Assessment Report by

[6] UNFCCC (2018) "Decision 19/CMA1, Matters relating to Article 14 of the Paris Agreement and paragraphs 99–101 of decision 1/CP.21". Link

[7] Decision 19/CMA 1 para 36(c) defines the sources of input that will inform the GST at the collective level (i.e. the synthesis report referred to in para 23(b)): ' (c) The state of adaptation efforts, support, experience, and priorities, including the information referred to in Article 7, paragraphs 2, 10, 11, and 14, of the Paris Agreement, and the reports referred to in Article 13, paragraph 8, of the Paris Agreement'

[8] Decision 19/CMA1, para 37: 'Decides that the sources of input for the global stocktake include:
(a) Reports and communications from Parties, in particular those submitted under the Paris Agreement and the Convention;
(b) The latest reports of the Intergovernmental Panel on Climate Change, pursuant to decision 1/CP.21, paragraph 99;
(c) Reports of the subsidiary bodies, pursuant to decision 1/CP.21, paragraph 99;
(d) Reports from relevant constituted bodies and forums and other institutional arrangements under or serving the Paris Agreement and/or the Convention;
(e) The synthesis reports by the secretariat referred to in paragraph 23 above;
(f) Relevant reports from United Nations agencies and other international organizations, which should be supportive of the UNFCCC process;
(g) Voluntary submissions from Parties, including on inputs to inform equity considerations under the global stocktake;
(h) Relevant reports from regional groups and institutions;
(i) Submissions from non-Party stakeholders and UNFCCC observer organizations;'

Working Group II of the IPCC, scheduled for publication in the fall of 2021, as well as the special reports published under the sixth assessment cycle of the IPCC. The IPCC reports are uniquely placed at the juncture between policy and science, with a formal mandate from UNFCCC to provide independent scientific assessments. IPCC reports are in principle well aligned with the global outlook of the GST given their overarching global, regional, and sectoral level focus.

- **Other reports and information**. A number of other sources of input to the GST are listed under paragraph 37. This includes reports from subsidiary bodies,[9] reports from other formal bodies under the convention,[10] relevant reports from UN agencies and other international organizations,[11] submissions from non-party stakeholders, UNFCCC observer organizations and regional institutions,[12] and voluntary submissions from Parties or regional negotiation groups. In this way, no information that could be relevant for the GST is precluded. At the same time, it is difficult to imagine that it is manageable for the GST process to consider all potentially relevant sources of input.

2.2. Overview of UNFCCC adaptation submissions from parties and associated guidance in the Katowice package

As described above, the synthesis report on adaptation is likely to be the main document underpinning the GST at the collective level and is expected to build primarily on instruments for national communication and reporting on adaptation established under the UNFCCC. Over the years, the UNFCCC has created a wide range of such instruments.[13] The result, at least for adaptation, is a rather large number of seemingly closely related and at times overlapping instruments, characterized by a considerable degree of flexibility on what information countries may include. This reflects that: (a) instruments have developed over time to fulfil multiple functions and mandates; (b) there has been a desire from countries to avoid a prescribed, rigid structure for communicating and reporting adaptation under the UNFCCC; and (c) agreement that reporting should avoid placing an undue burden on developing countries.

In general, the instruments can be categorized as either 'communication and planning instruments' providing forward-looking (ex-ante) information on what a country intends to do

[9] There are two permanent subsidiary bodies supporting the UNFCCC: the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA). Each of these will regularly release reports on its ongoing work. In other words these documents can be considered 'internal' UNFCCC documents - reflecting, in a different way, views and experiences of UNFCCC parties.

[10] E.g., the Least Developed Countries Expert Group (LEG), the Adaptation Committee, the Technology Executive Committee etc.

[11] Of particular relevance here would be the annual 'Sustainable Development Goals Report' building on the global indicator framework for SDGs and the biannual Sendai Framework Progress Report, building on indicators for the seven global Sendai targets for disaster risk reduction, which already track, at a global level, a large number of adaptation related progress. Other sources could include e.g. reports of the Global Commission on Adaptation, Global Centre on Adaptation, UNEPs Adaptation Gap Reports or any other reports assessing status and progress of adaptation at a global, regional or national level.

[12] Pretty much anything could be included under this level - examples could include reports or other forms of experience sharing from NGO's working with adaptation in the field or at an international policy level.

[13] This includes both instruments with and without specific provisions for the inclusion of adaptation information. There have been numerous cases of instruments without specific adaptation provisions, i.e. instruments that were not necessarily designed to contain adaptation-related information per say, being submitted by countries with adaptation information contained “voluntarily” within, as is the case e.g. for several Long Term Low GHG Emission Development Strategies as mentioned in table 1.

at the national level to address adaptation needs, or as 'reporting instruments' that provide backward-looking information (ex-post) on what a country has done in terms of adaptation.[14] The primary purpose of NDCs, NAPs and to some extent the ACs is to report on intended actions by a country, thereby serving as forward-looking documents, whereas the National Communications (NCs) and Biennial Transparency Reports (BTRs) primarily focus on reviewing what has been done and achieved, providing more backward-looking information.

Table 1 provides an overview of the main reporting and communication instruments currently active.

Table 1. Instruments under the convention and under the Paris Arrangement with relevance to communicating and reporting adaptation. Information primarily sourced from Adaptation Committee (2019),[15] with supplementary sources listed separately.

Instrument	Brief description of relevance to communicating or reporting adaptation
Instruments established under the Paris Agreement	
Adaptation Communications (ACs)	The adaptation communication is established by article 7 of the Paris Agreement and is an instrument designed exclusively for communicating information related to a country's national adaptation process (that is, it has no provisions for containing information relating to mitigation and support). Unlike other instruments, the adaptation communication must be submitted periodically "as a component of or in conjunction with" other UNFCCC instruments such as national adaptation plans, national communications, and NDCs. In practice, this means that the adaptation communication must be submitted at regular intervals, and submitted as part of one of the aforementioned instruments, or be published as a standalone document but simultaneously with another of the aforementioned UNFCCC instruments. The adaptation communication is defined by the guidance provided in decision 9/CMA.1. However, the guidance provided here refrain from providing conclusive direction regarding how the adaptation communication should be applied by countries[16]. Additionally, decision 9/CMA.1 states that countries "may, when submitting an adaptation communication, tailor the information provided, taking into account the specific communications or documents used", which suggests that the adaptation communication's function, and by association the specific content it is intended to contain, is designed to be flexible and country-driven. It also suggests that countries should align their adaptation communications with an instrument that possesses a similar function to that which they wish to use the adaptation communication for. Decision 9/CMA.1 does, however, provide the adaptation communication with four objectives: (a) Increase the visibility and profile of adaptation and its balance with mitigation; (b) Strengthen adaptation action and support for developing countries; (c) Provide input to the global stocktake; and

[14] It should be noted that, in practice, instruments are rarely outright communications-oriented or reporting-orientated. Most, if not all, instruments under the UNFCCC related to adaptation have some provisions for supplying both forms of information, even if this information is not crucial to the instruments core purpose.

[15] Adaptation Committee, 2019 "Mapping of relevant existing guidance to inform the preparation of draft supplementary guidance for voluntary use by Parties in communicating adaptation information in accordance with the elements of an adaptation communication (AC16)". Link

[16] The elements of the adaptation communication do not possess a level of detail where it is possible to attribute the adaptation communication with an obvious focus (this is unlike the elements provided for the BTR's adaptation section, in which the increased level of detail surrounding monitoring and evaluation clearly earmarks it as a reporting-orientated instrument). In lieu with the relatively low-level of bindingness attributed to the different elements, this provides submitting countries with significant scope to determine how they wish to utilize their adaptation communication.

	(d) Enhance learning and understanding of adaptation needs and actions. The manner through which the adaptation communication achieves these objectives however, will vary depending on how it is utilized by the submitting country.
Biennial Transparency Reports (BTRs)	The main reporting instrument under the Enhanced Transparency Framework, the BTR is an instrument for reporting on mitigation and adaptation activities, and financial, technical, and capacity-building support provided and received. The document has more explicit provisions for reporting adaptation than what has been provided on ACs, including instructions on including information regarding M&E. Unlike NCs, BTRs are equally applicable to all countries, albeit with an in-built flexibility principle that is based on a country's capacities. The BTR is first scheduled for submission in 2024 where it will supersede the Biennial Reports and Biennial Update Reports, following which it is required to be updated every two years.
Nationally Determined Contributions (NDCs)	NDCs are a communications instrument primarily designed to communicate national pledges to mitigate climate change. However, as part of the Lima Call for Climate Action countries were provided with the opportunity to communicate their undertakings in adaptation planning in an adaptation component. Thus far, there is no guidance with regards to what and how information should be included as part of this adaptation component. As at October 2017, 137 out of 165 NDCs, mostly from developing countries, contained an adaptation component, with content generally including: key climate impacts and vulnerabilities, information regarding plans and implementation, and need for the support to achieve the adaptation aims articulated in their NDC.[17]
Instruments established under the convention that continue to be active	
National Adaptation Plans (NAPs)	NAPs are strategic planning instruments aimed at enabling LDCs and other developing countries to formulate and implement plans in the face of their medium- to long-term adaptation needs. Established by the Cancun Adaptation Framework, the NAP process is intended to facilitate and improve adaptation planning at the national-level in a considered manner. It includes processes such as: mainstreaming adaptation into national planning, enhancing capacity for implementation and planning, and improving coordination between actors. In line with the agreement that planning for adaptation at the national-level should be a continuous, progressive and iterative process, made at COP 17, the NAP process is intended to be an ongoing exercise that is evaluated regularly and updated accordingly.[18,19]
National Adaptation Programmes of Action (NAPAs)	The de facto predecessor to NAPs, NAPAs are planning instruments aimed at enabling LDCs to formulate and implement plans in the face of urgent and immediate adaptation needs. Established at COP 7 in 2001, NAPAs were a one-time action utilized as a means of articulating immediate adaptation needs and accessing the necessary support required to meet these needs. Since the Cancun Adaptation Framework, the attention of countries has increasingly shifted away from utilizing NAPAs to focusing on the longer-term process facilitated by the NAPs.[20]
National Communications (NCs)	National communications are national reporting instruments aimed at enhancing transparency, consistency and comparability of information, enable review and assessment of implementation, and monitor progress towards UNFCCC goals. Their primary focus is facilitating the submission of national inventory of anthropogenic emissions by sources and removals by sinks, which is an obligation under the UNFCCC. Since the instrument was established in 1994, however, the scope and needs fulfilled by national communications has grown reflecting the increasing needs and complexities being addressed in the COP negotiations. National communications possess two sets of parallel guidance

[17] Taibi and Konrad, 2018 " Pocket Guide to NDCs under the UNFCCC". Link

[18] LEG, 2012 "National Adaptation Plans - Technical guidelines for the national adaptation plan process". Link

[19] Kissinger and Nyamgel, 2014 "NAPAs and NAPs in Least Developed Countries". Link

[20] LEG, 2012 "National Adaptation Plans - Technical guidelines for the national adaptation plan process". Link

	provided by decisions 4/CP.5 and 17/CP.8, both of which have explicit provisions across reporting mitigation, adaptation and support. The applicability of these decisions to a country is dependent on the country's classification as annex I or non-annex I respectively. It should be noted however, that guidance provided by 4/CP.5 (applicable to annex I countries) will soon be superseded by revised guidance following COP25[21]. Following the BTR's introduction in 2024, national communications and BTRs will have highly similar functions, both in terms of their respective mandate (i.e. to facilitate reporting), as well as the information they are intended to contain (both relating to adaptation, but also more generally). According to paragraph 43 of decision 1/CP.24, the submission of both instruments shall remain mandatory post-2024 (although the inclusion information related to adaptation in both these instruments will continue to be voluntary). In the same paragraph however, it states that countries may submit the two instruments as a combined report when their respective timetables overlap (something that, for annex I countries, would occur once every four years). In any combined report however, countries should defer to the guidance for the BTR for areas where there is competing provisions.

Source: Dale & Christiansen[22]

A short overview of some of the main national communication and reporting instruments is provided below.

Adaptation Communications (ACs) and Biennial Transparency Reports (BTRs)

ACs and BTRs are both newly created instruments under the Paris Agreement with specific guidelines on information that may be included for adaptation on a voluntary basis.[23] As mentioned above, the BTR can be considered having a primarily backward-looking focus, while the AC can be said to have a forward-looking focus. In practice, however, the information they will contain will likely overlap, as the guidance for the ACs and BTRs is very similar.[24,25] The main difference is that currently the guidance for ACs is provided at the headline-level only, while the guidance for the BTR more elaborate.[26] The Adaptation Committee is working on supplementary guidance for the ACs to be published by 2022.

For both ACs and BTRs, the general structure and type of information to be reported includes the following (authors' paraphrasing and interpretation):

[21] At the time of writing, the advanced unedited guidance is publically available and can be accessed: https://unfccc.int/resource/cop25/cop25_auv_4_NCGuidleines.pdf

[22] Dale, T. & Christiansen, L. (*forthcoming*) 'Interpretation paper: Biennial Transparency Report, adaptation section' (working title). UNEP DTU Partnership paper prepared under the Initiative for Climate Action Transparency (ICAT).

[23] The ACs *shall* be submitted - i.e. legally obliged to, however exact content and timing is flexible/voluntary. BTRs *should* contain adaptation information (i.e. in UNFCCC lingo it is 'highly encouraged', but not legally obliged).

[24] UNFCCC (2018) "Decision 9/CMA1, Further guidance in relation to the adaptation communication, including, inter alia, as a component of nationally determined contributions, referred to in Article 7, paragraphs 10 and 11, of the Paris Agreement". Link

[25] UNFCCC (2018) "Decision 18/CMA1, Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement". Link

[26] Small nuances are different though, e.g. the BTR makes a reference to a section on loss and damage (while the AC makes no reference to this issue), and the AC highlights 'implementation and support needs of, and provision of support to, developing country parties' as a separate point, while such information is only vaguely and indirectly referred to in the BTR.

- National circumstances, institutional arrangements, and legal frameworks which are the starting point for adaptation in the country
- A summary of climate change impacts (current and future) in the country
- A summary of the highest and most urgent climate impacts to be addressed by adaptation in the country, and the barriers that are preventing them from being implemented today
- A description of the adaptation plans, goals, policies that the country have adopted (or are planning to adopt) to address those barriers
- A description of the adaptation actions and activities that have been planned and implemented based on those plans, goals, and policies
- A description of the specific results and impacts achieved through those adaptation actions and activities
- Lessons learned and 'other' information

At the time of writing, Parties have submitted no formal ACs. However, Parties could choose to label adaptation information contained in NDCs, NCs, and NAPs submitted after the adoption of the Paris Agreement as ACs.[27] The timeline for submission of ACs is flexible as long as they are submitted in time to feed into the global stocktake. In a similar vein, no BTRs have been submitted yet. The deadline for their submission is by the end of 2024 at the latest, which is too late to inform the technical part of the GST.

National Adaptation Plans (NAPs)

Beyond its main function in national adaptation planning, a particular point of the NAP in the context of the UNFCCC is to communicate the identified needs, strategies, and actions to a global audience - especially to potential donors. The Least Developed Countries Expert Group (LEG) have developed guidelines for NAP preparation, and financial support for the preparation process is mandated through the Green Climate Fund (GCF) and the Least Developed Countries Fund (LDCF). As at February 2020, 18 NAPs have been submitted[28] and over 80 additional countries have initiated the process.[29] Presumably, many of these NAPs will be available before the GST.

The LEG guidance and the NAPs submitted so far indicate a primary focus on process description, while the description of national adaptation priorities and proposed implementation strategies remains at a higher, more general level. Final NAPs typically include some or all of the following elements:

- A national vulnerability assessment identifying broad impacts of climate change in different sectors and potential adaptation options

[27] A cursory review of the latest country submissions of these three instruments did not result in any submissions specifically labelled 'Adaptation Communication'.
[28] See the NAP Central website of the UNFCCC. Link
[29] NAP expo, 2019. Link

- Review and appraisal of broad adaptation options/strategies and some kind of prioritization of these options/ strategies
- Synthesis of the above into a suite of higher-level national strategic priorities for adaptation
- Stakeholder mapping
- A M&E system for how the NAP process and its implementation will be monitored, including plans for regular updating of the NAP itself

The NAP process and its underlying analyses is supported through dedicated and substantial technical and financial international support. It seems likely that much of the basic information to be included in other adaptation instruments like the AC and BTR (for example, vulnerability analysis, and identification of national adaptation options and priorities) could be provided through the NAP process.

Nationally Determined Contributions (NDCs)

The preparation and submission of gradually more ambitious NDCs are at the centre of the Paris Agreement. NDCs will be prepared every 5 years, starting with the first NDC to be submitted before 2020.[30] There are no specific guidelines for adaptation content of NDCs and it is not mandatory to include it. Yet, at least 137 Parties have so far included adaptation information in their NDCs.[31]

Despite the lack of clear guidance regarding content and structure, most adaptation components of submitted NDCs comprise the following information:[32]

- National circumstances (geography, political context, economic context);
- Description of one or more long-term goals and/or a vision for national adaptation and development;
- Impact and vulnerability assessments (analysis based on downscaled climate scenarios and associated national impacts on key vulnerable development sectors and regions);
- Legal and regulatory frameworks, strategies, programmes, and plans that provide the basis for, or have informed, adaptation actions (for example, declaration of intent to develop a NAP);
- Adaptation measures and actions planned or under implementation (typically described at higher planning level, that is, with limited detail on the exact activities to be implemented. In some cases, aggregate quantitative targets and goals are provided);
- Costs, losses and/or damage due to climate impacts (including cost analysis of, for example, past and projected hydro-meteorological extreme events);

[30] According to the NDC registry at UNFCCC, as of October 2019, 184 countries have submitted their first NDC.
[31] UNFCCC, 2016 " Aggregate effect of the intended nationally determined contributions: an update". Link
[32] UNFCCC, 2016 " Aggregate effect of the intended nationally determined contributions: an update". Link

- Means of implementation (including general observations on the type of instruments that will be needed, for example in terms of capacity building, technology, and finance, as well as estimation of financial support needs);
- Monitoring and evaluation of adaptation (description of plans to, or progress of, establishment of national M&E systems for adaptation, including any quantitative or qualitative indicators established);
- Synergies between mitigation and adaptation (highlighting the potential for activities with synergy between adaptation and mitigation).

+ 3. What the official adaptation information sources can contribute to the GST

3.1. Assessing data sources for the Global Stocktake, what can they tell us?

This section reviews the nature of information that can be expected from the main sources of inputs to the GST, and the extent to which these are likely to sufficiently meet the four functions of the GST for adaptation.

The following sub-sections give a short description of the main findings for each of the three basic categories of information sources listed in section 2.1. These are summarized in table 2.

The analysis of the main UNFCCC instruments for communication and reporting is primarily based on literature reviews, as well as a cursory review of selected country submissions. The intention of this analysis is to get a general overview of data gaps at the global level, as such data gaps may vary significantly from country to country and between groups of countries.

3.2. Country submissions under the UNFCCC

Adaptation Communications (ACs) and Biennial Transparency Reports (BTRs)

As no ACs and BTRs are submitted yet, the actual type and quality of information remains to be seen. Based on the current guidance, one of the expected key functions of the ACs and BTRs is to provide countries with an opportunity to get their adaptation efforts recognized in the political process. Although the term 'recognition' referred to in GST Function A (see table 2) does not have a clear technical definition, it would seem that the ACs and BTRs would cover this function to a high degree. In principle, the lessons learned sections of those documents also have the potential to feed into GST Function B. For example, these sections could provide experience from both national and field levels on the type of adaptation actions that have proven effective in different sectors and environmental and socioeconomic contexts and show replication potential. The documents may provide examples and lessons on general methodological approaches and tools that work in the planning and execution of adaptation, for example, related to vulnerability analysis, stakeholder engagement, and capacity building. However, this depends on the extent to which the sections are sufficiently detailed and the extent to which the information presented is coherent and comparable across country submissions. In regards to GST Functions C and D, there seems to be an ambition of reporting aggregated (quantitative) data on results and impacts of adaptation activities and processes at the national level, especially for the BTR. Similarly, reporting on effectiveness is highlighted in the BTR guidance. Overall, the ACs and BTRs thus show potential to become a key data source for GST Functions C and D. Realizing this potential likely depends on the extent to which the UNFCCC process succeeds in establishing clearer methodologies and a certain degree of consistency and coherence in reporting formats that will allow comparing and potentially aggregating from national to collective level.

Table 2. Overview and characteristics of the type of input to the GST that can be expected from various sources.

SDG/Sendai indicators are included as the most promising elements in the 'other reports and information' category.

	ACs	BTRs	NAPs	NDCs	IPCC WGII AR	SDG / Sendai indicators
Mandatory adaptation information?	'Shall' be submitted (but content and timing flexible)	'Should' be submitted, but not mandatory	Voluntary	'Invites' (Lima call for action) - but no guidelines	N/A	Yes - several adaptation relevant indicators are mandatory
Timing	'in time for global stocktake'	Before 2025	Voluntary, but many expected before GST	2020 and every 5 years after	Every 6-8 years (next expected 2022)[33]	Annually (SDG)/ biannually (Sendai)
GST Function A (Recognition of adaptation efforts)	Yes (fully)	Yes (fully)	No	No	No	No
GST Function B (Enhance implementation of adaptation)	Some (lessons learned)	Some (lessons learned)	Likely limited. Forward looking information only.	Limited. Repository of information until ACs/BTRs are submitted	Limited, but some analysis at global/general level	No
GST Function C (Adequacy of adaptation and support)	Potential, but no guidance provided	Potential - but no guidance provided	Likely limited. Forward looking information only	Limited.	Not currently	Data on total funding mobilized vs. 100 billion, no data on adequacy
GST Function C (**Effectiveness** of adaptation and support)	Potential, but no guidance provided	Yes, but no specific definition or methodology provided	Likely limited. Forward looking information only	Limited.	Limited, but some analysis of general effectiveness of adaptation options	No
GST Function D (Review progress on global adaptation goal)	Potential, but no guidance/ methodology	Ambition, but no clear guidance/ methodology	No	Limited. Repository of information until ACs/BTRs are submitted	Clear potential, but currently not done. Requires literature sources.	Yes, measures progress on a number of aggregated global indicators
Guidance on methodological issues (metrics, clear definition of concepts, common framework)	No	No	No	No	Currently limited, but clear potential.	No

[33] At its 46th session in 2017, the IPCC established a Task Group to look at the potential alignment of the IPCC cycles and the global stocktake. This work has not yet been concluded.

National Adaptation Plans (NAPs)

Having a sound and comprehensive national adaptation planning process is a clear prerequisite for implementing effective adaptation actions. As such, the NAP will provide the foundation for all four functions of the GST, and for GST Functions B and C in particular. As they primarily have a forward-looking perspective, they will not provide information on what has actually been achieved in each country.[34] Their direct value as an input to a backward-looking GST may therefore be more limited.

Nationally Determined Contributions (NDCs)

The intended nationally determined contributions (iNDCs) prepared in the lead-up to the Paris Agreement and the current NDCs contain much of the same information that is expected to be included in the ACs, BTRs and NAPs. The existing NDCs were prepared without formal guidance on adaptation and as a reflection the content, structure and methodologies used in the adaptation components is not consistent, comparable and aggregable across countries.[35] NDCs contain primarily forward-looking, rather than backward-looking information, making it less useful for the purposes of stocktaking within the GST. With the UNFCCC's explicitly stated intention to avoid the duplication of information submitted and to allow integration of adaptation information across reporting instruments, adaptation communications may be submitted as a component of the NDCs going forward. It will be interesting to see if countries that submit new or updated NDCs during 2020 will include adaptation components and frame these as adaptation communications.

Other country reports and submissions

In addition to the reports and communications included above, several other UNFCCC country reports and submissions contain adaptation information of potential interest to the GST.

In particular, the National Communications (NCs) would seem to be a potentially useful repository of (primarily backward-looking) adaptation information. Unlike the NDCs, NCs possess guidance for the inclusion of information relating to adaptation.[36] Like the NDCs, the components included in the NCs overlap considerably with the information expected to be included in the ACs and BTRs. Overlaps include information about national circumstances, expected impacts of climate change, vulnerability assessments, and adaptation measures planned and implemented.[37, 38, 39] As all countries have submitted NCs, for now they remain a major repository of formal adaptation information under the UNFCCC. Going forward, it seems

[34] I.e. the assessment of the number of countries that have initiated/completed the NAP process will by itself be an important variable that should be considered in the GST.

[35] While this is also, to some extent, a limitation for the other UNFCCC instruments discussed here, it is particularly pronounced for NDCs, which, unlike ACs, BTRs, NAPs, and NCs, do not have any formal guidance or direction from UNFCCC regarding adaptation.

[36] Guidelines for Annex I countries were agreed at COP 5 (FCCC/CP/1999/7, section II) Link. Guidelines for non Annex I countries were agreed COP 8 (Decision 17/CP.8) Link.

[37] Adaptation Committee, 2019

[38] UNFCCC, 1999 "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications. UNFCCC Guidelines on Reporting and Review". Link

[39] UNFCCC, 2003 " Decision 17/CP.8 Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention". Link

likely that the BTRs will become the primary instrument for backward looking information, essentially replacing the role of the NC as the reporting instrument for adaptation.

Other instruments such as National Adaptation Programmes of Action (NAPAs), may also contain some relevant background information on national level impacts of climate change, as well as some quantification of cost of different adaptation options. However, to a large extent the information contained in these documents is dated and is likely to become obsolete with the preparation of NAPs in most countries. [40]

General observations on the challenges in relation to country submissions and the GST

Beyond the hodgepodge of reporting and communication instruments for adaptation under the UNFCCC, at least three other factors makes basing the GST primarily on data from country submissions and reports challenging.

First, key terms in the GST remain undefined, including 'adequacy' and 'effectiveness,' referred to in GST Function C. The adequacy of specific adaptation activities, or sets of activities, depends on a range of factors, including: the climate change scenario considered (for example, a 1.5^{0}C versus a 3 to 4^{0}C future), the overlying context within which the activity is being implemented, and the degree to which you are willing to accept residual impacts.

There are many unresolved methodological issues when it comes to measuring and aggregating adaptation results and impacts. This applies not only to measures of progress at the collective level (the objective of the GST), but also to aggregate results at national or sectoral levels (expected from national submissions). There is also a lack of consensus on the metric(s) to use. Some have suggested universal adaptation metrics, while others posit that meaningful metrics for adaptation impacts need to be context specific.[41, 42] In the context of the GST and UNFCCC reporting, M&E systems at national levels will need to deliver on the potentially conflicting objectives of (1) providing meaningful operational data on how individual activities or programmes are achieving their specific goals, while (2) at the same time providing data that can be aggregated across diverse local contexts and sectors.[43] Without a clear consensus on how to approach such issues, country reporting is destined to become either: a collection of locally-tailored information that is difficult to aggregate upwards to provide a succinct national picture; or information that has been aggregated to the national level, but using a country-specific approach, with the lack of consistency in approaches between countries rendering the reported results extremely difficult to compare across countries and/or aggregate further.

Second, the inherent flexibility in guidelines and reporting requirements mentioned throughout this discussion paper exacerbates the challenge of comparing or aggregating country reporting to assess collective status and progress described above.

Finally, there are currently no plans to conduct a technical expert review of adaptation communication and reporting as part of the GST. This is sensible in light of the flexible guidance and reporting formats and requirements for adaptation. However, it implies that any

[40] The majority of NAPAs were released in the period 2006-2009 and have not been updated since.

[41] Christiansen, Martinez and Naswa, 2018. Link

[42] Leiter, T., Olhoff, A., Al Azar, R., Barmby, V., Bours, D., Clement, V.W.C., Dale, T.W., Davies, C., and Jacobs, H. 2019. "Adaptation metrics: current landscape and evolving practices". Rotterdam and Washington, DC. Available online at www.gca.org

[43] UNEP, 2017 "The Adaptation Gap Report 2017". Link

potential biases in country reporting may go unnoticed and plausibly limits the scope of the assessment of collective progress on adaptation.[44]

3.3. IPCC reports

A key purpose of the IPCC is to inform UNFCCC discussions. As scientific assessment processes go, nothing tops the IPCC reports in terms of comprehensiveness, peer review rigour, and political scrutiny. The reports are key reference points, presenting up-to-date scientific consensus, including on current climate impacts and future impact scenarios. In terms of the GST for adaptation, their potential role is less clear. IPCC reports do not contain detailed reviews of adaptation actions or climate impacts in individual countries, and this information is likely better provided through national sources. It is therefore unlikely that the IPCC reports would add much perspective to GST Function A concerning the mapping of current adaptation efforts of countries. The IPCC reports could provide relevant context and qualitative analysis supporting GST Function B regarding the enhancement of the implementation future adaptation action. For GST Function C, the Working Group II Fifth Assessment Report does not specifically review the adequacy and effectiveness of either adaptation actions implemented or the support provided. To a limited degree though, the report does assess the general potential for effectiveness of different adaptation options. Finally, in relation to GST Function D, the IPCC reports have so far not assessed collective progress on the global goal on adaptation of enhancing adaptive capacity, strengthening resilience, and reducing vulnerability. The IPCC reports have the clearest potential to provide independent input to the GST that can help overcome the current data gaps for GST Functions B, C, and D presented in table 2. However, as the reports are assessment reports the prospects for this depends on the availability of published literature in these topic areas. Furthermore, the structure of future reports may also need to be reconsidered if they are to become better aligned with informing future GSTs.

3.4 Other reports and information

The 'other' category covers a potentially indefinite pool of information from a large number of sources. Each of these sources has its own objectives and methodologies, and they are generally not intended to feed into the GST. As such, using independent information will require comprehensive scrutiny of each source in terms of coverage and purposes of their content, quality, and objectivity of data for use in the GST. To the extent that sources are not global and cross-sectoral in coverage, consideration will have to be given to if and how data can be compared to or aggregated with data from other regions or sectors. To keep the GST process manageable, the volume of other reports considered as part of the GST is likely to be limited. Among these, three potential information sources include:

- The Sustainable Development Goals Report. A report and process which takes stock of global progress on the 17 Sustainable Development Goals (SDGs), based on large number of indicators (currently 232) and a comprehensive global data set collected at national level to support these indicators. As the SDG indicators are already designed for the aggregate global level, data from these indicators could, in theory, feed into GST Function D.[45]

[44] Christiansen, Martinez and Naswa, 2018. Link

[45] However, if so, it would need to be further explored and verified:

- The Sendai Framework Progress Report. Focused on disaster risk reduction, the Sendai Framework tracks 38 indicators on global progress based on nationally reported data. As is the case for the SDG report, these indicators could in theory feed into the GST.[46]

- Adaptation Gap Reports. Since 2014, UN Environment has produced science-based assessments of the 'adaptation gap', characterized as the difference between implemented adaptation and a societally set goal. As such, its objectives are closely aligned with those of the GST and the reports are thus a clear source of potentially relevant information for the GST. This is further strengthened by a recent decision by the Adaptation Gap Report Steering Committee to focus future reports more on progress tracking and specifically target the provision of information relevant for the GST process.

(a) To what degree the total suite of SDGs indicators cover all relevant aspects vulnerability, resilience, and adaptive capacity at a global level and across sectors. This would help identify areas where supplementary indicators would need to be defined.

(b) To what degree the data collected and indicators can be used directly as indicators for adaptation or if supplementary information will need to be collected. E.g. the indicator 'Proportion of agricultural area under productive and sustainable agriculture', does not explicitly mention climate impacts, and although such should be considered an essential parameter in 'sustainable agriculture' it needs to be determined to what extent and through what methodology/climate scenario the climate resilience of agricultural practices are assessed. Such an analysis could help to 'adapt' the indicators to be more targeted to the needs of the GST.

[46] Importantly, though, Sendai (and its associated indicators) does not separate between man-made (including climate change) and 'natural' disasters. In other words the Sendai indicators will only indirectly and partly measure impacts of adaptation to climate change efforts areas related to DRR (as it would also include many other types of non CC related disasters, e.g. earth quakes/tsunamis etc.).

+ 4. How the iGST can add value to the adaptation aspects of the GST

4.1. The iGST could help build common understanding and consensus on key aspects of adaptation in the GST

The iGST can use its independence to work with a range of state and non-state actors, including academia, to improve understanding and facilitate convergence toward common understanding of core adaptation issues. As highlighted in this discussion paper, such questions include "what does an adequate adaptation response imply and how can it be defined?", "how can we assess whether we are making progress on enhancing adaptive capacity, reducing vulnerability, and enhancing resilience", "how do we define and measure adaptation effectiveness?", and "what can meaningfully be assessed at the global level?".

To this end, the iGST could convene thematic discussion meetings with a broad base of stakeholders, including national and sub-national decision makers, academia, NGOs and practitioners, and produce summaries of these discussions to inform UNFCCC processes.

4.2. The iGST could support initiatives that fill existing research and methodology gaps

The lack of common understanding of the key adaptation questions outlined above is mirrored in the lack of methodologies and global frameworks to assess adaptation progress, adequacy, and effectiveness. National and global level assessments require frameworks and metrics that are applicable across sectors (or issues), across scales, and over time. The 2017 edition of the UNEP Adaptation Gap Report provided an assessment of 216 existing adaptation frameworks and tools.[47] The report found that most available frameworks adopt approaches tailored to their unique context and are designed explicitly and exclusively for monitoring and evaluation at the community, project, programme, or sector level, rather than at the national or global level. Similarly, existing national-level adaptation monitoring and evaluation systems are based on national contexts and indicators and are not designed with global synthesis in mind.

There are also important research gaps on appropriate methodologies to assess, for example:

- What an adequate adaptation response would be under different temperature scenarios, considering climate risk and residual damages
- How to track progress towards the global goal on adaptation
- How adaptation gaps can be assessed, that is, assessing the extent to which adaptation plans, policies and (financial and technical) support provided are 'adequate' and 'effective' to respond to needs.[48]

The current lack of agreed global frameworks, methodologies, and metrics to assess adaptation progress, adequacy, and effectiveness presents an opportunity for iGST to:

- Support the development of a global framework and set of indicators assessing progress towards the global goal on adaptation. This could be organised as a structured collaboration between a range of expert institutions. Both bottom-up

[47] UNEP, 2017 "The Adaptation Gap Report 2017". Link

[48] Höhne, N., L. Jeffery, A. Nilsson, H. Fekete (2019) "Guiding questions for the Global Stocktake under the Paris Agreement." NewClimate Institute. Link

approaches that build upon aggregation of national level information and top-down approaches that assess adaptation progress directly at the global level (for example, through the development of new indicators and using new technologies) could be explored.[49] A bottom-up framework would need to consider criteria of aggregation, transparency, coherence, sensitivity to specific contexts, and feasibility, and would ideally be longitudinal.[50]

- Support the testing of these frameworks and sets of indicators for assessing progress globally.
- Conduct consultations with a broad base of stakeholders during and following the development and testing of the frameworks to consolidate these and ensure their relevance and acceptability.

To date, the adaptation literature has, to a large extent, focused on examining specific individual cases, as opposed to comparing experiences across countries, sectors and themes. It has mostly focused on impacts, vulnerability, and adaptation planning, as opposed to implementation and evaluation of actual adaptation actions. Consequently, our understanding of the global state of adaptation, adaptation progress, and factors explaining differences in progress across programmes, sectors, regions, and countries is incomplete and fragmented.[51] The iGST could help address this situation by soliciting or supporting research that can inform and underpin global and cross-sectoral adaptation assessments. This could include expanding the literature on global aspects of adaptation and of implementation and effectiveness of adaptation. Such research could feed into the IPCC reports and help ensure their ability to support the fulfilment of the four adaptation functions specified for the GST.

4.3. The iGST could provide examples of how a global stocktake can be conducted and inform future country submissions and global stocktakes

An important function of the cycle of global stocktakes and country submissions is that each cycle will inform subsequent cycles. Based on the potential areas of contribution of the iGST outlined in the previous sections, the iGST could support the further design and detailing of country submissions and GSTs by:

- Supporting countries in improving the quality and comparability of submissions by providing examples of definitions, methods, and data that could be used in the country reporting on adaptation.
- Supporting the UNFCCC bodies by providing examples of how global level assessments can be conducted under the GST and providing science-based approaches for key adaptation questions and concepts.

[49] Magnan and Chalastani, 2019 "Towards a Global Adaptation Progress Tracker: first thoughts". Link

[50] UNEP, 2017 "The Adaptation Gap Report 2017". Link

[51] Anne Olhoff, Elina Väänänen, and Barney Dickson, 2018 "Tracking Adaptation Progress at the Global Level: Key Issues and Priorities". Chapter 4 in 'Resilience - The Science of Adaptation to Climate Change'. Link