



ASSESSMENT OF GGA OPTIONS IDENTIFIED IN THE UNFCCC COMPILATION AND SYNTHESIS DOCUMENT¹

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¹ "Compilation and synthesis of indicators, approaches, targets and metrics for reviewing overall progress in achieving the global goal on adaptation" (13 September 2022) available at: https://unfccc.int/sites/default/files/resource/ReportGGATP_final.pdf

Abstract

This expert policy analysis provides timely insights into the complex ongoing negotiations on operationalizing the Global Goal on Adaptation (GGA), with a view to elevating climate-vulnerable communities. It examines the comprehensive UNFCCC compilation & synthesis document, highlights crucial recommendations across pivotal measurement dimensions, and offers coherent guidance on pathways to consensus.

Several critical gaps warrant urgent attention including conceptual ambiguities, financing inadequacies, outcome measurement weaknesses, and fragmentation across related sustainability agreements. Specifically, there is incoherence on incorporating quantitative indicators versus qualitative approaches for adaptation progress assessment. Meanwhile finance needs are estimated at \$200-\$400 billion annually, but actual flows continue lagging behind rising demands. Demonstrating sustained risk and vulnerability reduction over time through systematic outcome-based indicators remains scarce. Lastly, visibility of potential synergies with the Sendai Framework and SDGs that are pivotal for holistic climate resilience stays limited due to siloed policy dialogues.

To address these complex challenges, a staged approach balancing pragmatism with ambition is advised. Initially adopting flexible, interim input and process metrics can kickstart tracking until more refined outcome monitoring capacities evolve in countries. Concurrently, commitments to enhance transparency in adaptation finance flows through voluntary yet standardized reporting can foster mutual accountability. Efforts to integrate forward-looking climate risk anticipation into development planning should accelerate to avoid short-term maladaptive decisions. Finally, expanding beyond narrow UNFCCC discussions into wider platforms addressing multidimensional global systemic risks via integrated nature-based solutions is urged.

The synthesis of intricate technical indicators, political metrics and overarching GGA considerations herein serves as initial scaffolding for constructing a tailored framework fulfilling the Paris Agreement's adaptation vision. Sustaining constructive dialogues grounded in justice, ethics and planetary boundaries can steer fractious negotiations from entrenched differences toward evidence-based cooperation benefitting those most exposed. Significant unfinished work remains, but balanced pragmatic action aligned with ambitious principles can advance climate equity.

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I. Introduction to the Compilation & Synthesis Document

IPAM members undertook a task group activity in advance of COP 28 to focus attention on both the Global Stocktake (GST) and the Global Goal on Adaptation (GGA). **Ultimately, the task group activity evolved into the preparation of four policy papers, including this report in which we assess the “compilation and synthesis” document produced by the UNFCCC Secretariat published on 13 September 2022.** We recognized that the compilation & synthesis document is particularly useful as it provides a basis to frame the issues relating to indicators and metrics.

The full title of this technical paper, **“Compilation and synthesis of indicators, approaches, targets and metrics for reviewing overall progress in achieving the global goal on adaptation,”** provides more specificity on the scope of the UNFCCC document. While carefully limited to indicators and metrics in the context of the GGA, this report includes a review of a wide range of initiatives, tools and approaches. We recognized that, as a wide-ranging mapping of the indicators and metrics landscape, the compilation & synthesis document serves as a valuable resource. **Taken together, however, we understood that this body of information could be overwhelming, especially if not presented clearly and carefully.**

In our assessment of the UNFCCC compilation & synthesis document here, we attempt to selectively identify those ideas and examples which, in our view, offer the most compelling path forward options for indicators and metrics as the process for establishing a framework for the GGA unfolds in the run-up to COP 28 and beyond. **Thus, we do not provide a comprehensive review of the full content of the compilation & synthesis document but instead, in Section III below, we offer commentaries on the seminal issues being discussed under the GGA and we explore which existing approaches and frameworks merit further attention.**

The task of assessing the compilation & synthesis document was not as simple as we originally conceived for at least two reasons. First, as noted above, a clear and careful presentation in the technical paper would be needed to facilitate such a review. Unfortunately, we found that the paper itself has an unwieldy structure and contains at least one formatting error. Second, the sheer number of options

catalogued in the technical paper is daunting for the most intrepid adaptation practitioner or policymaker. While the technical report does not suggest mixing or matching of options, nor does it engage in “apples to apples” comparisons, the long list of possibilities presents a great challenge for framing the GGA.

Before diving into specifics, it may be best to first explain the structure of the technical paper and identify the varied approaches contained therein. Section I is a brief introduction and Section III is a relatively short closing discussion. Therefore, the lengthy Section II contains the guts of the document, purporting to review the “landscape” of indicators, approaches, targets and metrics that “could be relevant for reviewing overall progress made in achieving the global goal on adaptation.” After teeing up a discussion of definitions and the relations between key terms in Part A of Section II, Part B discusses possible indicators across several categories.

1. Reports and studies providing insight on setting a global goal on adaptation, split into sections on climate change specific resources and on “other useful resources.”
2. Reports and studies providing insight into measurement of progress on the global goal on adaptation.
3. Examples from other sectors on forward looking approaches

The 16-page Part B catalogues over 20 approaches, generally summarizing each in a detailed paragraph-length format. Some of the entries are quite familiar to practitioners and policymakers, such as the Sendai Framework, the Burning Embers approach, the Adaptation Gap reports, and the Race to Resilience. Other options presented are less well-known, including, for example, the World Bank Rating System, the New Urban Agenda Monitoring Framework, and the Damage and loss assessment methodology of the Food and Agriculture Organization (FAO) of the United Nations. Section B is not an easy read but, once the basic structure is understood, it can become quite a useful resource. **For quick reference and comparisons, a helpful Annex to the technical paper lists all of the identified 23 options by focus, scale, aggregation, data source and time frame.**

In the Discussion section, the technical paper concludes by suggesting that this effort, mandated by SB 56, succeeded in building upon an earlier paper by “including more detailed analysis of indicator components,” with more emphasis

on time frames, target setting and forward-looking indicators. In para 65, the Discussion explicitly mentions the “burning embers approach,” suggesting that it “could provide a qualitative yet data-backed approach for estimating risk levels and the different levels of adaptation that countries face.”

Similarly, the Discussion identifies the “four tier approach” as worthy of further consideration, noting that “Further unpacking these four different tiers at the global, regional, national and local level could provide an opportunity to identify which indicators best work at which level, and how they could contribute collectively to progress on the GGA.”

In para 66, the Discussion turns to policy coherence observing that “there has been progress in setting goals and targets relating to other development and environmental challenges, all of which interact with climate change. For example, the SDGs set goals for development; the Sendai Framework sets goals for disaster risk reduction; and the CBD sets goals and targets for protecting the planet’s biodiversity.” The GGA may attempt to set similar goals and targets but also extend them to other sectors affected by climate change. “Importantly, the GGA can set a bold and ambitious vision that provides goal setting and direction for the global community in the overall progress in adapting to climate change.”

Finally, in para 69, the Discussion alludes to the ongoing Glasgow-Sharm el-Sheikh work programme and poses a set of open-ended questions for the participants in that process:

- What are the characteristics of a resilient and well-adapted country and global community;
- What will indicate that the GGA has been achieved;
- How can indicators, targets and metrics be identified to enable a self-assessment process that also takes account of differences in national circumstances;
- What would need to be believed regarding the future state of the world in order to achieve the GGA? What are the major assumptions about the future state of the world;
- How can adaptation ambition be increased, for example by using the four-tiered approach?

The GGA process will continue at COP 28. In our opinion, the GlaSS workshops were a “mixed bag.” Certainly, across the eight workshops an enormous wealth of information was presented. It is not so clear is whether the process itself was effective in bringing the necessary voices to the table or if decision making was facilitated in the workshop mode. With respect to our primary concern, metrics and indicators for adaptation, there was no binding final decision about their inclusion. For this reason alone, some pundits and adaptation professionals alike have wondered aloud whether the GGA process has actually advanced over the last year or whether has it taken a step forward with two steps back with a greater recognition of the remaining challenge.

II. November 2023 Annual Report

As we neared completion of our assessment of the compilation & synthesis document, the UNFCCC Secretariat released another report relevant to our task on 16 November 2023. **Styled as an “annual report” with the full title “Workshops under the Glasgow-Sharm el-Sheikh work programme on the global goal on adaptation,” this report provides an overview of the GlaSS process and an analysis of the outcomes of the workshops.** Eight workshops were convened under the GlaSS process in 2022 and 2023. CMA 4, i.e. COP 27, requested that the Secretariat produce a single annual report on the workshops no later than three weeks prior to CMA 5, i.e., prior to the beginning of COP 28.

Just as our assessment of the compilation & synthesis document is a reflection on the process, so too is the latest UNFCCC Secretariat report. In referencing Chapter III.B describing the substantive content suggested for the GGA framework, the new annual report explains that

[i]t reflects the key contours of the debate and the main options proposed for the content and its placement, where available. However, **the chapter does not systematically address the related issue of the structure of a possible draft CMA 5 decision on the outcome of the work programme, and is not intended to prejudge how the substantive content of the framework will be reflected by the CMA in the outcome of the work programme.**

The new annual report also references the compilation & synthesis document, identifying it as one of the the four main components which took place under the work programme, i.e.,

(d) The compilation and synthesis of indicators, approaches, targets and metrics that could be relevant for reviewing overall progress in achieving the GGA.

Therefore, our identification of the compilation & synthesis document as an important contribution worthy of assessment was validated by the UNFCCC Secretariat itself.

Of the eight workshops, two were of special relevance to adaptation metrics. The sixth workshop was on “mainstreaming adaptation, including target-setting,

methodologies and indicators,” while the seventh workshop covered “interfaces of the GGA process with other processes, in particular the GST, and considered matters related to the GGA framework, such as the development and use of targets, indicators and metrics.”

The scope of the new annual report is far more encompassing than our interest in metrics and indicators, but it does cover several themes relevant to metrics that emerged throughout the workshop process. **Among these themes, the annual report highlights: i) the importance of synergies across the GGA and GST; ii) reducing duplication in communication and reporting in NAPs and adaptation communications; and iii) a focus on monitoring, evaluation and learning (MEL) as part of the iterative adaptation policy cycle.**

In particular, it is apparent that GGA-related work will facilitate the review of progress under the GST, with existing reporting and communication arrangements being the basis for assessing progress towards the GGA under the GST, facilitated by the provisions of the GGA framework, in particular by possible common elements, targets and indicators, as well as the structure of the iterative adaptation policy cycle.

A more contentious headline theme that emerged during the workshops was the divergence of views on the matter of quantification. “Some participants suggested quantified overarching targets and developing indicators for measuring progress towards them; Others would prefer qualitative statements in order to reduce methodological complexity in the light of the challenges related to measuring progress towards overarching targets.”

While quantification remained controversial, there was some consensus on the proposed targets/priorities/messages to be included in the GGA. The new annual report suggests that these topics could be clustered into the following categories:

- (a) Enhancing adaptive capacity, strengthening resilience and reducing vulnerability;
- (b) Enhancing implementation of adaptation and ensuring adequate support for adaptation;
- (c) Protecting people, livelihoods and ecosystems;

- (d) Reducing climate impacts on and/or the exposure of the most vulnerable countries and/or people(s);
- (e) Access to climate services;
- (f) Enhancing well-being, in particular in relation to food, water, health, ecosystems and infrastructure (see chap. III.B.4 below);
- (g) The context of the long-term temperature goal of the Paris Agreement.

Note, however, that even within the acceptance of these topics, there were divergent views about the inclusion of specific thematic targets. This is critical for our purposes, because without an agreement on targets or metrics to be included in the GGA framework, the success of the entire GGA process is threatened.

Among the approaches considered, the following three options remain on the table:

(a) Themes should be reflected across the framework rather than as stand-alone elements, and that, as each country implements the framework at the national level, they can do so on the basis of the themes most relevant to them and report accordingly, thus ensuring that the themes addressed are consistent with national circumstances;

(b) Themes are better reflected as part of the overarching layer (see chap. III.B.2 above), given that overarching targets can integrate multiple themes within them;

(c) Thematic targets are already captured under other international regimes, although references to themes could help the framework to contribute to sustainable development by orienting the choice of national adaptation priorities.

Only then does the analysis here reach the level of metrics and indicators, which is our primary concern here. It is understood that “indicators could help in operationalizing the framework, defining what constitutes the GGA, enhancing coherence and direction (e.g., for prioritization of adaptation action), enhancing

action and support, establishing baselines, capturing synergies, attracting investment, supporting MEL, measuring progress, monitoring effectiveness, understanding the state of adaptation, providing input to the GST and sharing lessons learned.” **However, the positioning of metrics and indicators vis a vis themes remains unsettled:**

Workshop participants discussed indicators in the context of the different targets, namely overarching targets/priorities/messages/signals ..., specific targets around the iterative adaptation policy cycle ... thematic targets ...and targets related to means of implementation.

Some workshop participants suggested that overarching targets/priorities/messages should not have indicators, but that indicators should be developed only for dimension-related or thematic areas. Others, noting the challenges related to national reporting already faced by many Parties, expressed concern that developing new indicators will increase the reporting and make implementing the GGA framework more complex.

In terms of next steps and future work, it was suggested “to have a placeholder for indicators and/or to first agree on targets around the iterative adaptation policy cycle and then consider possible indicators.” To that end, participants proposed developing indicators through a new technical process that would be launched at CMA 5, i.e., at COP 28.

Several workshop participants called for further work on the GGA framework to be launched at CMA 5 with the general understanding that some follow-up work will still be required. Others, however, did not see the need for further work, arguing that the work programme must be completed as planned at CMA 5 and that the outcomes must include an implementable framework.

III. Commentaries by IPAM members

As we embark for COP 28, IPAM Members have offered their opinions and perspectives on certain key issues raised in the compilation document. **In this Section III below, we offer commentaries on the selected issues being discussed under the GGA and we explore which existing approaches and frameworks merit further attention.**

A. Forward-looking approaches

Question:

Are forward-looking indicators critical, since they allow flexibility in developing a shared vision of the future that can be adjusted when operating conditions change?

Response from Karl Schultz:

The compilation & synthesis paper rightly places a strong emphasis on considering and introducing options for integrating ‘forward looking indicators and metrics’ into the Global Goal on Adaptation. It discusses the particular challenges in long term goal setting and notes the “traditional view of goal setting” (para. 6) “partly ignores, however, the potential innovations and emerging opportunities” that make forward looking indicators and approaches crucial...in developing a shared vision of the future with flexible indicators that can be adjusted when the operating conditions change.’

The uncertain and dynamic nature of anticipated climate changes

The need and assessment of potential forward looking indicators is not only dependent on ‘innovations and emerging opportunities. Forward looking indicators must also take into account (not explicitly acknowledged by the paper) the uncertain and dynamic nature of anticipated climate changes, along with their (overall) considerably more severe physical, social, and economic impacts under all scenarios. Adaptations that may bring positive outcomes in the near term may be maladaptive over longer time frames.

The paper notes that a number of leading adaptation frameworks are not forward looking (i.e., The New Urban Agenda Monitoring Framework) but notes where pertinent, the ways different frameworks (i.e., The World Bank Group Resilience Rating System) could be adjusted to a more forward-looking approach through consideration of longer time frames for adaptation goals.

The paper further outlines examples of four different forward looking approaches that could serve to support evaluation of indicators for the GGA. These include:

- future-back thinking,
- four-tier approach to the global goal on adaptation,
- Mujib Climate Prosperity Plan: Decade 2030 under the Vulnerable Twenty Group of Ministers of Finance of the Climate Vulnerability Forum, and a
- catalogue of forward-looking indicators of the European Environment Agency.

The first two are general approaches that could be useful when considering the GGA, qualitative and quantitative goal and scenario setting and ‘thresholds of action and ambition’, respectively, the latter two are examples of national (Bangladesh) and regional approaches to identifying appropriate forward looking metrics, for Mujib the plan incorporates a future, long term ‘goal oriented’ that is forward-looking, the European Environment Agency is based on addressing policy questions to set forward-looking goals.

Each of these approaches is useful to consider. Clearly, there are other forward-looking approaches that should be considered. One in particular that may be relevant in defining goals, is ‘Futures Literacy’ (FL), that has been developed and promoted by UNESCO (<https://www.unesco.org/en/futures-literacy>). Futures literacy is a potential approach, that could be integrated into the GGA review and revisions. It is undertaken through structured learning-by-doing activities known as Futures Literacy Laboratories, to consider the origins of what they imagine to diversify their actions. FL is relevant because it claims to “allow people to better understand the role of the future in what they see and do”.

Applying outputs to proxy for forward-looking outcomes

Finally, as related to forward-looking metrics, the paper references the challenge of considering how inputs and outputs relate to outcomes. This is especially important when considering metrics and indicators regarding what the ‘goal’ is

and considering this over long future time frames. Anticipated outcomes may or may not end up relating to outputs that are undertaken in earlier periods of an adaptation. In other words, the inputs and outputs of adaptations may be measured in nearer terms, with the expectation that they will support the 'goals' (outcomes and impacts) in the longer term, and it may be important to consider these with appropriate anticipated outcome projections, but these face uncertainties. It may be that outputs need to serve as approximate proxies for longer term outcomes, that are worth undertaken to encourage a long term focus on outcomes, but may be incorrect and require adjustments as knowledge and predictive capacity increases. This applies to both inputs and outputs intended to reflect both vulnerability reduction and enhancing adaptive capacity.

The "vulnerability reduction credit" as a forward-looking indicator

One example of how anticipated outcomes of adaptation activities can flexibly serve to be estimated through monitored outputs, is the Higher Ground Foundation's forward-looking indicator called the climate 'vulnerability reduction credit' (VRC™) (<https://www.thehighergroundfoundation.org/concept>). A VRC™ is the monetized cost of the estimated impact of climate change, adjusted for the income level of the community, that will be avoided as a result of the project. As such, it is an economic indicator that may include non-market value from contingent valuation approaches. It is an estimate of future vulnerability reduction based on analysis of future climate impacts and how adaptation is expected to reduce these impacts, and is based on 10-year future periods. Activities that reflect the continued adaptation (outputs) are monitored and VRCs are calculated based on these ex-post monitoring. The baseline projected impacts and the reduced impacts of adaptation are thus re-assessed based on improved understanding of future climate impacts and potential for adaptation to reduce these impacts, to periodically improve the linkage between monitored outputs and expected outcomes. While VRCs are project-based, this general approach may be applied at a global scale for the GGA.

B. Finance

Question: Does it appear that adaptation investments, which are difficult to measure, are not keeping up with estimated adaptation needs and, as a result, the adaptation gap is increasing?

Response from Imane Saidi and Iskander Erzini Venoit:

Overcoming challenges in adaptation finance to enable wider progress on measuring and achieving the Global Goal on Adaptation

At COP27/CMA4 in Sharm el-Sheikh in 2022, it was agreed that the Global Goal on Adaptation (GGA), first agreed in 2015 under the Paris Agreement, would be operationalized via a framework which could take into consideration all dimensions of the adaptation cycle, from assessment through to planning, implementation, and monitoring, evaluation and learning, with finance support explicitly recognized as a cross-cutting consideration for each.

Of course, finance is central to adaptation goals, as maintained in the summary report of the 2023 Global Stocktake under the Paris Agreement, in section C on "adaptation, including loss and damage". It highlights certain clear gaps in the planning and implementation of adaptation, and identifies the availability of and access to means of implementation (MOI) and support as major challenges. Nevertheless, the report lacks coverage of adaptation finance needs, gaps, and progress made in the backward-looking narrative.

The prime significance of finance to adaptation is further stressed and explored by the 2023 UNEP Adaptation Gap Report, itself pointedly titled "Underfinanced. Underprepared. Inadequate investment and planning on climate adaptation leaves world exposed". UNEP finds that over 85 % of countries have at least one national adaptation planning instrument in place, but funding to turn planning into action is lacking. Developing countries are estimated to need an annual sum of between \$215 billion and \$387 billion, while the financing gap is between \$194 billion and \$366 billion per year. The report holds "that the global goal on adaptation and the global stocktake serve as frameworks to accelerate action and support (especially for developing countries)".

The mandate from Sharm el-Sheikh was to develop a framework for the GGA, which will “guide the achievement of the global goal on adaptation and the review of overall progress in achieving it” and “enhance adaptation action and support”. Of course, enhancing support for adaptation does mean, inter alia, increasing adaptation finance.

However, discussions as part of the Glasgow-Sharm el Sheikh (“GlaSS”) work programme on the Global Goal on Adaptation have shown notable divisions between developed and developing countries on whether the GGA framework should include targets for finance. To quote the official Summary of the most recent GlaSS workshop, some participants “suggested specific targets in relation to means of implementation, including in the form of outcome-based overarching targets (such as USD 400 billion grant-based finance for adaptation per year by 2030)”, while “some other participants however highlighted that although they take note of MoI as an important issue, they do not see targets relating to means of implementation as being part of the GGA framework, and that it should be reflected in other ways”.

Essentially, many developing countries have been advocating for an adaptation finance target as part of the GGA, but this has been opposed by some developed countries who call for such discussions to happen in other processes. In plainer terms, according to recent news coverage, one developed country negotiator said they “cannot live” with “the GGA framework as the space to talk about a new climate finance target for adaptation... Adaptation finance will be addressed somewhere else and will enable the framework to be effective.” This is a reference to the separate work programme on the New Collective Quantified Goal (NCQG), initiated at COP26, to agree the successor finance goal replacing the \$100 billion per year.

Nevertheless, the relationship between the two parallel negotiations and decision-making processes, on the one hand on the GGA and on the other hand the NCQG, remains unclear and yet to be clarified. The NCQG work programme, which includes a Technical Expert Dialogue process, is set to conclude at COP29, and is not in a position to offer any conclusions regarding quantitative targets for adaptation finance for COP28. An adaptation finance subgoal for the NCQG may be agreed by COP29, but there is no guarantee of this so far from developed countries.

Despite such political ambiguities, a few technical observations may be drawn on targets and indicators for bettering assessing and achieving increases in adaptation finance — in the context of an overall need to improve transparency around adaptation finance, especially in the Biennial Transparency Reports (BTR) of the Enhanced Transparency Framework (ETF):

1. Improving transparency of adaptation finance, notably in terms of metrics and indicators for additionality and concessionality, with contributors enhancing their reporting under standardized formats.

- a. Tracking the additionality of adaptation finance is inherently challenging, given there is no single metric for measuring additionality. Several indicators, however, may be used, to provide the necessary benchmarks from which current financial flows may be assessed as being additional or non-additional to. Two different approaches used by practitioners include: (i) firstly, calculating climate finance that is additional to total Official Development Assistance (ODA) levels in 2009, when the \$100 billion per annum commitment was first agreed; and (ii) secondly, calculating climate finance that is additional to the total Official Development Assistance (ODA) targeted agreed in 1972, i.e. based on the 0.7% of countries' Gross National Income.
- b. Tracking the concessionality of adaptation finance is crucial, and it is possible to do so by using metrics of grant equivalence and of proportions of a grant-equivalent sum delivered in the form of grants. However, current transparency requirements for climate finance contributors, under the common tabular formats, do not even make grant-equivalent reporting something mandatory — it remains optional, and would be a clear area requiring improvement, especially for those areas of adaptation requiring grant finance.

2. Improving transparency of adaptation finance recipient needs via enhanced needs assessment, notably with specificity on concessionality and instrument types.

- a. The current state of adaptation finance needs reporting, as captured in the UNFCCC SCF's Needs Determination Report, remains rudimentary and requires improvement. One of the recurring issues is how different finance needs are simply summed together despite being fundamentally not alike, e.g. grant needs summed together with debt financing needs measured in nominal terms. Requiring more detail on concessionality and distinguishing instrument types would be a good improvement, generally, for needs reporting; and reporting in grant-equivalent terms would be one particularly key improvement. Of course, enhancing reporting burdens for developing countries should not be prescribed lightly, and it is therefore highly advisable to enhance financial support for technical assistance in this respect, to alleviate the reporting burden.

Lastly, a political observation — that if, during the discussions around targets and indicators for the GGA, the debate on adaptation finance targets does take up considerable time and space, to the detriment of other topics, this is simply a reflection of broader political realities regarding promises unfulfilled and metrics unspecified. It is not to say that adaptation finance metrics, targets and indicators should not be an area of focus, but rather, the opposite. It is to conclude that, if the developed countries had fulfilled their \$100 billion per annum pledge and shown more commitment to their pledge to double adaptation finance, today's political emphasis on finance targets would likely not be so strong. It is, moreover, to conclude, somewhat soberingly, that if the above technical lessons are not learned with respect to the design of new finance targets, the ongoing focus on finance will remain politically challenging.

Evidently, it will be crucial to reconcile discussions on adaptation finance subgoals as part of the New Collective Quantified Goal with those on any finance targets under the GGA framework, improving coherence across UNFCCC processes. In one context or another, clear, time-bound targets for additional and grant-equivalent adaptation finance provision will, of course, be ultimately required.

C. Linkages, Methods & Approaches

Question: Is the Global Goal for Adaptation (GGA) intertwined with multiple other international initiatives where similar objectives have been set to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change? How fundamental is coherence of the GGA with these initiatives with respect to metrics, goals, and reporting mechanisms?

Response from Ousmane Seidou:

Linkages

The Global Goal for Adaptation (GGA), outlined in Article 7 of the Paris Agreement, states that the global community aims to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change. As discussed in the paper, the GGA is intertwined with multiple other international initiatives where similar objectives have been set, and coherence in metrics, goals, and reporting mechanisms with these initiatives is fundamental. Examples of international initiatives with metrics and targets relevant to the GGA include the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), the Sustainable Development Goals (SDG), and the Sendai Framework for Disaster Risk Reduction among others. These international initiatives already have reporting mechanisms, metrics, indicators and goals that may be leveraged to monitor progress toward the CGA, along with goals and metrics specifically developed for the GGA. However, the goals for the metrics 'borrowed' from other initiatives will have to be reviewed to ensure coherence among goals and policy coherence between initiatives.

Methods & Approaches

The specifics of how adaptation efforts aiming to achieve the GGA will be financed, implemented, and reported are left to be developed over time. Of particular importance for the assessment of the progress towards the GGA are a) the adoption of a unified definition of 'adaptation' and 'adaptation policy' across disciplines and organisations; b) the identification of relevant metrics and indicators that can be monitored in a practical manner; and finally, c) the definition of a target value for each metric and indicator.

c.1. the definition of adaptation and adaptation policy

Despite the need to track adaptation, there remains no agreed definition for ‘adaptation’ There are at least two ways of defining adaptations, that can lead to alternative action orientations of what adaptation should look like²: Should adaptation only encompass the measures that are targeting additional effects caused by the anthropogenic perturbation of the normal variability of the climate (UNFCCC), or aim to reduce harm provoked by “actual or expected climatic stimuli or their effects” (IPCC)³? There is also a debate about what ‘adaptation policy’ means – does it have to be a planned policy decision versus a spontaneous change resulting from environmental and market pressure? The ambiguity on these key concepts makes it difficult to decline what effective adaptation looks like, how it can be measured and enabled⁴

c.2. identification of relevant adaptation metrics and indicators

Adaptation metrics and indicators aim to define the effectiveness and adequacy of adaptation. They are much more difficult to set than mitigation metrics because of the different interpretation of the term adaptation. Adaptation metrics and indicators should cover both the outcomes of adaptation policies (i.e., what has been achieved or is expected to be achieved in the long term in terms of progress towards the GGA) and the means/resources/levels of efforts deployed to achieve adaptations. As discussed in the previous section, indicators, and metrics could be borrowed from ‘line-minded’ international initiatives whenever possible to ensure coherence. A balance needs to be made between a distinct, generalizable set of metrics that can measure the global context, and metrics that are more context-specific that better capture national realities. More importantly, the choice of the metrics should not exclude underdeveloped countries who may not have enough data and resources to calculate and report these metrics. It is also important that the selected indicators be Forward-Looking, as discussed in the next section.

² Dupuis, J., & Biesbroek, R. (2013). Comparing apples and oranges: The dependent variable problem in comparing and evaluating climate change adaptation policies. *Global Environmental Change*, 23(6), 1476–1487. <https://doi.org/10.1016/j.gloenvcha.2013.07.022>

³ J.J. McCarthy, O.F. Canziani, N.A. Leary, D.J. Dokken, K.S. White (Eds.), *Climate Change 2001: Impacts, Adaptation, and Vulnerability*, Cambridge University Press (2001)

⁴ Singh, C., Iyer, S., New, M. G., Few, R., Kuchimanchi, B., Segnon, A. C., & Morchain, D. (2022). Interrogating ‘effectiveness’ in climate change adaptation: 11 guiding principles for adaptation research and practice. *Climate and Development*, 14(7), 650–664. <https://doi.org/10.1080/17565529.2021.1964937>

c.3. definition of metrics/indicators target values.

Once the indicators are selected, target values must be defined at all scales (global, national and local). These goals can be defined using modeling when possible (e.g., analysis from contribution of Working Group II to the Sixth Assessment of the IPCC) or in a more subjective (but participatory and community-centric way) through scenario and visioning. Given the uncertainty in both the evolution of the climate system and our limited understanding of the links between climate dynamics, vulnerability and resilience, the goals should be flexible and be revised regularly in light of new evidence. Of particular importance is the feasibility of these goals at the local level where resources may be lacking or where the set goal may conflict with short-term gains. The lack of resources will be the number one issue in underdeveloped countries, while clashes with economic growth and/or employment is likely to be a problem everywhere.

D. Scenarios and Visioning

Question: Are scenario and visioning exercises useful in posing “end destination” questions about what a well-adapted community or sector looks like? Can these approaches develop benchmarks and indicators for future adaptation that measure progress towards the destination?

Response from Samraj Sahay:

Adaptation is essentially a participatory, dynamic, and ongoing process. It is majorly a bottom-up approach in which the contribution of each stakeholder is equally important. Hence, conducting scenario and visioning exercises offers one of the best possible ways out in finding solutions to issues such as ‘end destination’ and indicators to measure the progress towards the destination. The whole exercise is mainly based on stakeholders’ views and perception which enables us to visualize the future risks and adaptation needs from diverse perspectives and accordingly decide on the indicators to measure progress. Unlike the scenarios development using quantitative modelling and simulation (top-down approach) which more often either ignores or fail to capture the real-world situation as it is extremely difficult to predict future socio-economic changes (for e.g the shared socio-economic pathways (SSPs) do provides indication of future adaptation at the global level, but exhibits inability in accommodating shocks such as COVID-19 pandemic or impacts of on-going war). Given this, the scenario and visioning exercise do provide an inclusive and just way of understanding the

future adaptation from the stakeholder perspective (a bottom-up approach). The exercise enables a pragmatic rather than an idealistic selection of indicators and visualization of destination along with reduced level of uncertainty as observed in quantitative modelling approaches; one of the key requirements for decision making.

But this has its own limitations as well. The method is solely dependent on the perception of the participants; hence the visioning process and the associated indicators are highly vulnerable to the perception biases. The perception about visualizing the risks and future adaptation for an individual participant is often guided by the level of awareness, cognitive ability, and impact of recent extreme events. The resulting variations in the visualizing the 'end destination' and pathways to achieve makes it difficult to select the appropriate indicators. The solution to the problem of having a common indicator and developing benchmark would persist due to the different set of indicators that emerges from the exercise.

In my view, while the method does increase adaptation literacy and awareness which to a certain extent helps the stakeholders imagine and visualize future adaptation in a better way, it does not ensure the best approach for developing indicators. The approach, however, is a cornerstone that cannot be ignored and is must to ensure the inclusiveness of the adaptation planning. This appears to be far more realistic and achievable when weighed against quantitative modelling approaches. In my opinion, the only way to overcome the drawbacks is to design the exercise in a way that the biases are minimized. Maybe clues from the previous perception-based studies in overcoming the biases would be helpful. The problem of common indicators could be solved by conducting more and more such studies and then combining the results might help greater clarity in visualizing future and selecting indicators from the stakeholder perspective; a bottom-up approach for finding solution to the issue of 'end destination' and the developing benchmark and indicators to measure progress towards destination.

E. Policy Coherence

Question: Should the GGA framework consider existing practices of goal setting under the SDGs and the Sendai Framework? Should this effort to move towards policy coherence also apply to indicators being used by countries in reporting schemes such as Adaptation Communication?

Responses from Ahmed Rachid El-Khattabi and Patricia Mwangi:

Ahmed Rachid El-Khattabi

The GGA revolves around three main objectives: (1) enhancing adaptive capacity, (2) strengthening resilience, and (3) reducing vulnerability to climate change. Keeping these objectives in mind, I would argue the document could benefit from more indicators around water. Water management is central to sustainability, resilience, and vulnerability to climate change and is fundamental for food security, energy security, and political security.

The majority of the indicators on water mentioned in the document are related to disasters (droughts/water stress or flooding). The only mention of water in a different context is in the discussion of the indicators presented by the UNEP report: water stress & water productivity. Though these indicators are a good start, these only scratch the surface in terms of ensuring the objectives laid out by the GGA. For instance, I would argue that we need indicators that capture the adoption of technologies like water reuse. Though one could argue that recycling water would improve the indicator values of both water stress (and perhaps the indicator for water productivity), the amount of reused water is a tangible outcome that can promote all three objectives of the GGA.

Furthermore, there is no mention of water quality. Not having indicators related to water quality can lead to gaps in policies that can undermine GGA objectives. For example, the operating assumption is that water resources in storage are viable during extreme droughts. In actuality, the water being stored in dams and reservoirs may be dangerously compromised by eutrophication. Eutrophication is also problematic for desalination, an approach that many coastal countries (e.g., Morocco, Spain, UAE, Saudi, Egypt, etc...) are heavily investing in. The intersection between water quality and quantity highlights the need for policy coherence.

Patricia Mwangi

Policies that are critical to IPCC need to be well identified and discussed within the policy section. The policies need to be aggregated and the most critical and foundational discussed for better understanding on their role towards GGA and how they work together towards a certain goal and how they feed into each other. An analysis on whether they are relevant to the discussion is important as new policies are formulated whenever global meetings are held.

The last table in the annex of the compilation & synthesis report (pp. 19-23) gives a summary of indicators, metrics and targets that could be relevant for reviewing overall progress made in achieving the global goal on adaptation. The critical policies can then be elaborated on and how they interrelate can be brought out in the document but this table is critical. However how they all fit into GGA with each mentioned in different parts of the current document is what can be consolidated in one section.

The report, at p. 8, refers to various policies and frameworks as other resources, but where they fit into achieving certain goals gets lost in the document. It would be important to identify other policies that deal with adaptation that have not been mentioned in the document.

J. New Urban Agenda

Question: The Guidelines for Reporting on the Implementation of the New Urban Agenda includes a tracking tool to monitor the progress in implementing the NUA. Can the specified 77 indicators for sustainable urban development -- some of which are closely aligned with, or the same as, the targets of the SDGs – also inform the metrics under the GGA?

Response from Laura Helmke Long:

Due to the increased role that urban areas play in terms of sustainable development and climate change, as seen in the adoption of the UN's New Urban Agenda (NUA) in 2016, having specific measures related to climate adaptation in urban environments is critical. The NUA Monitoring Framework's 77 indicators, developed to support the NUA, are well aligned with the SDG goals, with 40 percent of those in the NUA Monitoring Framework corresponding to indicators gathered for SDG reporting. Also, there is overlap between some of the NUA indicators and the City Prosperity Index for needs that do not align with SDG measures. In this way, utilizing the NUA indicators is less burdensome to government authorities in terms of data gathering responsibilities.

The NUA Framework is useful for tracking progress of underlying factors that relate to the resilience of urban areas, which they refer to as "Transformative Commitments" and measures that help track implementation efforts, which they refer to as "Effective Implementation." Three different categories of indicators support efforts to evaluate Transformative Commitments and three categories pertain to Effective Implementation. Metadata sheets on the required information for each indicator have been developed helping make these measures easy for governments and sub-national governments to gather and report.

While the facets of urban life assessed by the NUA Monitoring Framework certainly play a role in how an urban area is able to adapt or be resilient to harms posed by climate change, these measures were not developed specific to climate change concerns. In addition, they are not forward-looking, but rather are a snapshot of current conditions, and were not developed to capture ways that cities can measure their climate adaptation efforts. Despite not being specific to climate change or climate adaptation, the NUA Monitoring Framework does help assess many facets of the underlying adaptive capacities of urban communities.

The tool could be expanded upon or tailored to address specific concerns related to climate adaptation. The Framework will need to be analyzed to see how current indicators/measures can be reframed in light of climate adaptation, and any gaps related to assessing adaptation needs will need to have new measures proposed.

Overall, having measurement tools available to assess the particular adaptation needs and progress of urban environments in the face of climate change is critical and necessary. The NUA Monitoring Framework could be amended and reframed to better measure climate adaptation considerations. The tool's inclusion of overlapping measures with already gathered data in the SDG and City Prosperity Index and the guidance provided on how to collect data for all measures, support the argument that this tool could be the basis for assessing urban measures of climate adaptation. If the NUA Monitoring Framework is not employed or built upon in the set of indicators that will be used for climate adaptation, some other means of measuring urban conditions should be included.

K. Visualizing the Structure

Question: Can the IPCC “Burning Embers” approach effectively serve the GGA by projecting into the future in a changing climate and demonstrating the feasibility of adaptations in the temperature context?

Response from Samraj Sahay:

Graphical representations have been a key tool used for communicating complex scientific findings in an easy to understand and readily comprehensible form. In this effort, the “burning embers” diagram has been, by far, the most effective. This is being used by IPCC since the third assessment report with the most extensive and effective use observed in the latest AR6 WGII report. The success of the diagram is mainly due to its ability to provide loads of information in terms of different dimensions in a single diagram and the flexibility to use it for depicting a wide range of spatio-temporal aspects. The diagram has been used in the report to present information on level of risk, benefits of adaptation (risk under different adaptation scenarios narratives - proactive, incomplete, and limited adaptation), and level of agreement across experts categorized as high, medium, or low for different projected temperature and for different sectors in a single diagram. The diagrams have been developed based on a rigorous and a robust methodological protocol. Perhaps, there cannot be a better way to summarize the future risk scenarios. The ‘ember diagram’ for risk and its component serves as an indicator for level of adaptation. The information conveyed by the diagram is adequate and useful for informed decisions by the policy makers, practitioners, and other stakeholders.

The diagram presents a perfect mix of data-driven quantitative findings and subjective analysis. It is commendable that the color gradient in each bar presents a continuum with no sharp boundaries backed by a discrete number as we move up the temperature limits. The color transition is backed by a range, yet the diagram effectively conveys the message to the wider concerned community. In my view, the subjectivity associated with different adaptation scenarios narratives - proactive, incomplete, and limited adaptation, is a matter of some concern. These narratives are based on the shared socio-economic pathways (SSPs) and represent transition from SSP1 (proactive) to SSP3 (limited) which is based mainly on expert views with very limited backing from projections especially at higher warming levels.

Use of scenario narratives indicates lack of adequate metrics that could have been used for determining the transition in level of adaptation. This serves as a limitation in the use of 'burning embers' in identifying metrics or setting benchmarks for future adaptation. In my opinion 'burning embers' do provide indication on the benefits of adaptation, in addition it should be used as a guiding tool for development of appropriate metrics and benchmarks for future adaptation along with more projections at higher degrees of warming.

L. Themes, Principles & Components

Question: The first workshop under the Glasgow–Sharm el-Sheik work programme was held on 8–9 June 2022. The discussion on the conceptualization of the GGA included the themes of principles, components, characteristics, scales and thresholds, linkages, and methods and approaches. What key principles and components emerged from the workshop discussions?

Response from Hamidou Diawara:

Principles

The principles should encourage and guide parties to reduce greenhouse gas emissions, cooperate on research and technology, and protect places absorbing greenhouse gases (forests, oceans, lakes, etc.).

It is the responsibility of the Parties to preserve the climate system for the benefit of present and future generations, on the basis of equity and in accordance with their common but differentiated responsibilities and their respective capacities. It is therefore up to developed country Parties to be at the forefront of the fight against climate change and its harmful effects.

Full account should be taken of the specific needs and special circumstances of developing country Parties, including those particularly vulnerable to the adverse effects of climate change, as well as of Parties, including developing country Parties, to whom the Convention would impose a disproportionate or abnormal load.

Components

The target components of the global climate system in the context of this study are:

- the atmosphere;
- continental surfaces;
- the hydrosphere (oceans, lakes, rivers, groundwater, etc.);
- the cryosphere (land or sea ice, snow cover);
- the biosphere (all living organisms in the air, on land and in the oceans).

M. Advancing the GGA discourse

Question: Can collective action steer metrics and policy coherence towards more ethical and resilient futures?

Response from Riad Balaghi:

As climate impacts intensify, the need for urgent yet ethical, evidence-based adaptation action is unquestionable. However, determining systematic progress requires consolidating measurement approaches for climate resilience. This analysis synthesizes some emerging options and open questions to take the GGA goal-setting discourse forward:

- Interim metrics balancing comprehensiveness with pragmatism on data readiness need resolution. Can interim input and process measures pragmatically kickstart tracking while more complex outcome monitoring capacities evolve?
- Finance metric transparency and target setting remain politically contested. What mutually agreeable commitments can enhance reporting standards and accountability?
- Scenarios envisioning desirable adaptation futures require systematic methods. Could structure participatory visioning fill this gap better than model-based projections alone?
- Links with established conventions like Sendai and SDGs necessitate exploration for maximizing co-benefits. Would joint platform convenings between agreements foster synergies better?

While several questions persist, collective action prioritizing social justice, systems thinking, and environmental integrity can steer these metrics and policy coherence dialogues towards more ethical, resilient futures.

IV. Conclusion

Riad Balaghi

This assessment of the UNFCCC's compilation & synthesis document on indicators, approaches, targets, and metrics relevant for reviewing progress towards the Global Goal on Adaptation (GGA) highlights several salient takeaways:

- There is no shortage of existing resources that could inform operationalizing the GGA, from climate-specific data to measures used in adjacent frameworks like the SDGs and Sendai. However, coherence is lacking, and linkages need to be more systematically established.
- A multiplicity of quantitative indicators and qualitative approaches have been proposed, but consolidation is required to enable standardized progress measurement. There are inherent trade-offs between comprehensiveness and feasibility that need reconciliation.
- Forward-looking elements envisioning desired adaptation end-states have featured prominently in GGA deliberations but remain underdeveloped. Participatory scenario building and visioning could complement model-based projections on ambitious yet realistic pathways.
- Finance metrics and targets are subject to intense political debate impeding consensus building on the GGA framework components. Transparency enhancements around reporting standards could build mutual trust and accountability.
- Policy coherence across multilateral platforms addressing shared priorities like resilience and vulnerability reduction deserves greater emphasis. Fostering synergies and collaborations could accelerate adaptation progress.

In charting the course ahead, the GGA discourse would benefit from consolidating measurement approaches balanced with inclusivity imperatives, reconciling developed and developing country needs, envisioning adaptive futures, strengthening links with parallel sustainable development agreements, and embracing participatory processes engaging those most at risk.

While several unresolved issues persist, the elements synthesized in this analysis could provide initial building blocks for crafting a flexible and robust GGA

framework tailored to diverse country circumstances and capabilities while also fulfilling the Paris Agreement's overarching adaptation vision.

Key takeaways and recommendations

As the discourse on operationalizing the GGA advances, several priority areas for reconciliation and consolidation emerge across the intricate landscape of proposed approaches synthesized in this analysis, including:

- **Interim measurement approaches:** Adopt a tiered approach with flexible interim input and process metrics as initial indicators balanced against long-term outcomes. This balances comprehensiveness with pragmatism while outcome monitoring systems are strengthened.
- **Adaptation finance commitments:** Make concrete commitments on enhancing transparency in climate finance reporting, including standards around grant-equivalency, concessionality and incremental costs. This could build trust and accountability between contributor and recipient countries.
- **Participatory scenario building:** Launch a structured, equitable participatory process engaging vulnerable communities to envision desirable locally resonant adaptation outcomes, which can inform global goal setting. This would complement model-based projections with “view from the ground”.
- **Synergies with development frameworks:** Convene a high-level summit jointly across UNFCCC, CBD, Sendai Framework and SDG processes to actively explore symbiotic approaches leveraging shared resilience, vulnerability, and sustainability goals. This could break down siloes and fragmentation across loosely aligned multilateral platforms.
- **Monitoring & Evaluation systems:** Provide financial and technical support to developing countries to implement robust climate risk monitoring capacities needed for outcome-based progress measurement tailored to differential capabilities across regions. This could close gaps and inequities in assessing outcomes.

Key issues and options for resolution

While the landscape analysis of potential indicators, metrics and overarching considerations holds promise, achieving consensus requires reconciling tensions between several salient options and resolving open questions that remain unsettled across pivotal dimensions. Sharpening focus on these priority facets and

delineating strategic alternatives can provide constructive constraints, orienting subsequent negotiations and technical analysis. As international climate negotiations strive to operationalize the Global Goal on Adaptation, reconciling tensions across four pivotal dimensions has emerged as an urgent priority to enable consensus building:

Measurement approaches:

- Option 1: Adopt quantitative indicators across all GGA dimensions.
- Option 2: Use qualitative statements for hard-to-measure dimensions.
- Open Question: What mix of quantitative indicators and qualitative descriptions provides optimal balance between rigor and inclusiveness?

Adaptation finance commitments:

- Option 1: Set explicit volumetric targets for adaptation finance flows.
- Option 2: Rely on separate finance goal process for quantified commitments.
- Open Question: Can common ground be reached within GGA framework itself on enhanced accountability mechanisms?

Envisioning frames:

- Option 1: Model-based projections of adaptation pathways and end-states.
- Option 2: Participatory visioning processes with communities to set goals.
- Open Question: How to effectively integrate top-down modelling with bottom-up aspirations?

Policy coherence:

- Option 1: Linkage chapters/working groups between agreements (UNFCCC, CBD, Sendai).
- Option 2: High-ambition coalition of champions pushing synergies.
- Open Question: What governance innovations best foster issue-based coalitions across sectoral siloes?

By delineating the strategic alternatives under consideration and calling out the key trade-offs requiring creative bridges, focus can narrow to the principal disputes animating differences. Technical analysis and political compromises can then concentrate on constructing methodological convergence across these four critical domains. While broader disagreements complicate straightforward

resolution, these four priority facets represent indispensable building blocks underpinning a systematic global adaptation framework.

Setting the stage with clarity on options proposed and dilemmas needing answers allows stripping away ancillary differences to uncover core common ground. The pathways summarized above offer initial problem-structuring scaffolding as the discourse advances.

V. Acknowledgements:

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