

Strengthening Climate Resilience through the Global Goal on Adaptation

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Firefighters of Sitlakhet: Members of a local women's collective in Uttarakhand, India, work with forest officials to tackle the state's growing forest fire threat.

Executive summary

Adaptation, an increasingly urgent response to climate change, has long faced both political and technical hurdles. Historically, competing with mitigation, it gained equal footing only with the adoption of the Paris Agreement (2015), which established the Global Goal on Adaptation (GGA) under Article 7.1. The GGA has the following three collective aims: to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to the impacts of climate change.

For several years, progress on operationalising GGA lagged due to political sensitivities and methodological complexity. A breakthrough came in 2021 with the launch of the Glasgow-Sharm el-Sheikh work programme, which laid the foundation for the UAE Framework for Global Climate Resilience adopted at COP28. Building on this, the UAE-Belém work programme was established to develop a set of indicators to measure progress towards the objectives of the GGA.

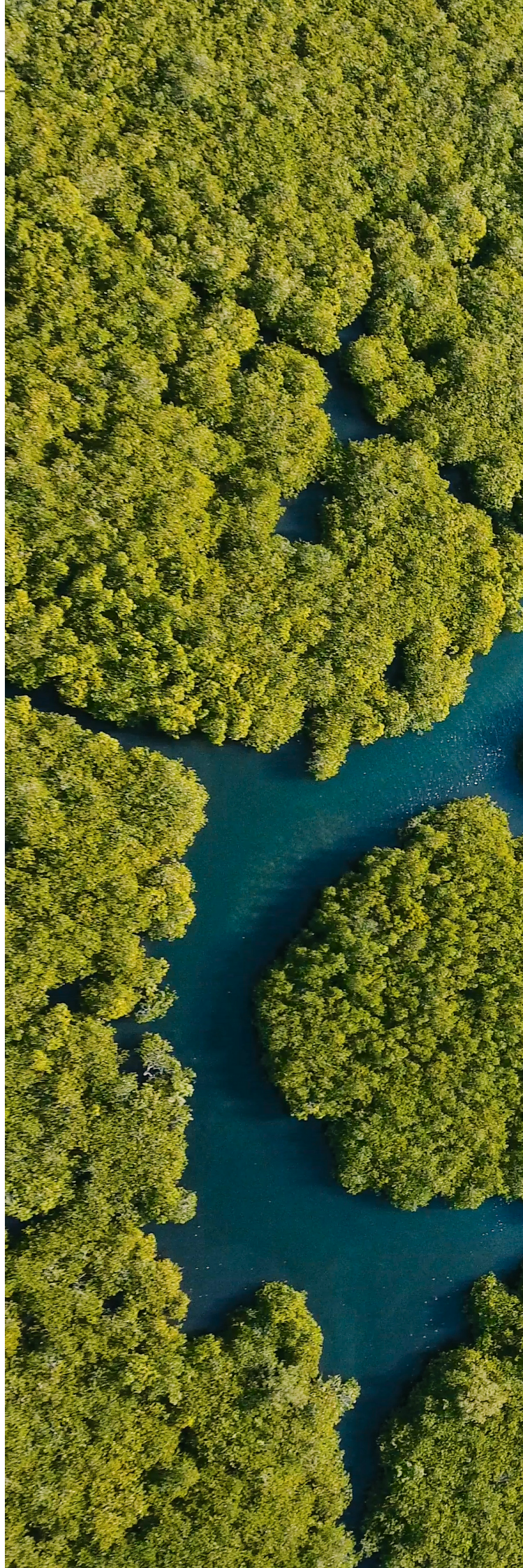
These indicators, which are expected to be adopted at COP30 in Belém, will, for the first time, allow countries to systematically assess and report adaptation progress, thereby linking global ambition to local implementation.

In this paper, we explore how the GGA can be translated into nationally relevant action, what its operationalisation may look like, what challenges may hinder its progress, and what solutions can improve the process. The constraints faced by developing countries, including **multiple competing priorities, fragmented project-based funding, overstretched administrations, and limited institutional continuity**, contribute to limited technical reporting capacities and data challenges, which risk slowing progress. Addressing these challenges requires both technical solutions and long-term programmatic support and political commitment.

Our analysis is anchored on the premise that the indicators are not an end in themselves. Rather, they must be used as a catalyst for greater, accelerated, and fairer adaptation action. The following are the four key messages of our analysis:

1. The **GGA provides a shared and comparable language for adaptation**, which will only be meaningful if it is embedded in national planning instruments while being flexible in terms of local contexts.
2. The **contextualisation of indicators must be inclusive and equitable**, reflecting diverse local realities, to ensure that no community is left behind.
3. **Regional cooperation is essential** to address shared vulnerabilities. Lessons from existing global frameworks, such as the UN Sustainable Development Goals (SDGs) and the Sendai Framework for Disaster Risk Reduction, show that collaboration increases capacity building and coherence.
4. **Clear mandates and adequate support** from national governments, non-Party stakeholders, and constituted bodies will be critical for coordination, monitoring, and reporting.

The operationalisation of the GGA represents a pivotal opportunity: to make adaptation measurable, comparable, and actionable at scale. Achieving this will require aligning global frameworks with national planning, mobilising sustained and reliable finance, and building institutional systems which ensure that adaptation efforts are both effective and enduring.



1. Introduction

Adaptation has long been acknowledged as a crucial long-term response to climate change, though it is only recently that the global attention and political momentum it has received have significantly increased (Wubet 2024). Within multilateral climate processes, adaptation has historically been overshadowed by mitigation for a multitude of reasons. Some challenges that adaptation has faced over the years pertain to its definition, its priority status relative to mitigation, and concerns about the broader implications of such prioritisation, particularly in areas such as finance and responsibility-sharing (Klein et al. 2017). With a growing body of adaptation research, the *Sixth Assessment Report* (AR6) of the Intergovernmental Panel on Climate Change (IPCC) has provided conceptual and technical clarity on adaptation and offers a more refined definition that highlights adaptation as a process and situates it explicitly within natural and human systems. The AR6 defines adaptation as follows: “in human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects” (IPCC 2023). This definition underscores the need to understand the outcomes and impacts of adaptation efforts and provides an essential foundation for continued scholarly and policy engagement on adaptation to advance dialogue and shape implementation.

On the political front, while remnants of these challenges persist in current debates in some evolved ways, there has been a marked shift in the positioning of adaptation in recent years, from being situated at the margins of climate policy discourse to taking centre stage. This shift is, in part, due to the increasing relevance of adaptation solutions in ensuring that vulnerable communities and ecosystems are better protected from rising temperatures and extreme weather events, which have increased multi-fold in the last two decades (WMO 2025).

COP30 marks the 10th anniversary of the Paris Agreement, which also marks ten years since the Global Goal on Adaptation (GGA) in Article 7 (A7), reflecting the shared commitment to enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to the impacts of climate change while setting out linkages between the GGA and mechanisms such as adaptation communications (AdComms), the Global Stocktake (GST), and national adaptation plans (NAPs) (UNFCCC 2015). All of these reinforce the need to understand the outcomes and impacts of adaptation efforts.

While the international climate community has been increasingly focused on the operationalisation of the GGA, overall progress has been slow. It was not until

2021, at COP26, that a significant milestone was reached with the establishment of the two-year-long Glasgow-Sharm el-Sheikh (GlaSS) work programme, which provided a platform for Party and non-Party stakeholders to engage in dialogue on how to advance and measure progress on the GGA (Beauchamp and Józefiak 2023). The GlaSS work programme culminated in the adoption of the UAE Framework for Global Climate Resilience (UAE FGCR) at COP28 in Dubai, which outlines 11 targets (7 thematic targets and 4 iterative targets) to be achieved by 2030 under the GGA (paragraphs 9–10, decision 2/CMA.5). The UAE-Belém work programme on indicators was also launched under the UAE FGCR to identify and develop indicators to assess progress towards the GGA objectives. The UAE-Belém work programme builds on the 11 targets related to the adaptation cycle, with a final set of indicators expected to be agreed upon at COP30 in Belém.

Over the next five years, between 2025 and 2030, the Paris Agreement’s ‘ratchet mechanism’ – the cycle of increasing ambition and transparency – will enter a new phase. Parties are expected to submit their third round of nationally determined contributions (NDC 3.0), informed by the outcomes of the first GST in 2023, before the COP30 in 2025. The next round of Biennial Transparency Reports (BTRs) in this timeframe is due in 2026 and 2028, which will help track progress and provide the input data for the second GST (2027–2028), which, in turn, will guide the preparation of NDC 4.0 (in 2030). Hence, the ideal outcome of the GGA process is not just the measurement of progress on the adaptation objectives of A7, but also the creation of a unified international framework that 1) informs the GST to assess collective adaptation progress and future guidance, 2) enables Parties to align national adaptation priorities with global efforts by recognising the local and context-specific nature of adaptation interventions and the role of non-state actors therein, and 3) allows for voluntary reporting without creating additional reporting burdens for the Parties (paragraph 16, decision 2/CMA.5).

The expected adoption of the indicators will, therefore, help Parties connect their local and/or national adaptation actions to global climate resilience goals and transform the GGA from a broad vision into a measurable, trackable, and financeable framework. This will, in turn, pave the way for further discussions and debates on capacity building for implementation and reporting at different scales.

In this paper, we contribute to the discussion on bridging global goals and national adaptation efforts by specifically reflecting on the operationalisation of GGA indicators and the capacities that will be needed for

successful reporting to ensure a meaningful outcome¹. Next, we explore the key themes for capacity building in reporting, regional collaborations (in Section III), and the role of national statistical offices (NSOs) and custodian agencies (in Section IV). The paper concludes with a summary of the key takeaways.

2. Linking national and global scales

Adaptation is inherently transversal, spanning multiple policy arenas, scales, and sectors, which introduces complexities beyond technical considerations and risks perpetuating structural problems (Goodwin and Olazabal 2025). As adaptation practice(s) are still evolving and maturing, adaptation reporting remains equally fragmented.

The UAE-Belém work programme on indicators, therefore, provides a ‘shared language’ that cuts across varying scales and actors. This shared language will provide a pathway for Parties to streamline their current actions. For example, NAPs are designed to be iterative medium- to long-term planning instruments for integrating adaptation priorities in national development planning; they function as domestic policy roadmaps and as internationally recognised instruments that demonstrate the commitment of the Parties and guide resource allocation.

As of August 2025, 63 NAPs from developing countries have been submitted, with the majority coming from Africa, followed by Asia-Pacific and Latin America (NAP Global Network 2025). NAP Trends, an initiative of the NAP Global Network, shows that there are some observable characteristics. For example, all the submitted NAPs identify priority sectors, and the top three sectors are agriculture, crops, livestock, and/or food security (97 per cent), health (92 per cent), and water and/or sanitation (89 per cent). While each Party has discretion in the formulation of its NAPs, the emergence of common priority sectors and strategies underscores an overlap in global priorities and the importance of a shared language (Wilkinson et al. 2021; Tashi et al. 2025).

The 11 targets adopted at COP28 (paragraphs 9–10, decision 2/CMA.5) recognise this overlap and demarcate 7 priority thematic targets and 4 iterative dimensional targets, which reflect these priorities. For instance, the three aforementioned sectors are listed as GGA targets under targets 9b, 9c, and 9a, respectively. Additionally, 73 per cent of the submissions include a monitoring, evaluation, and learning (MEL) framework,

1. This paper also captures key insights from two collaborative events co-organised by the Council on Energy, Environment and Water and the Organisation for Economic Co-operation and Development (OECD) between June and September 2025. These insights are based on the experiences and recommendations of representatives from different regions and organisations.

68 per cent include implementation strategies, and 63 per cent outline the costs of adaptation actions and the interventions required, which are all reflected in targets 10d, 10c, and 10b, respectively. Approximately 86 per cent of the submitted NAPs reference the UN's Sustainable Development Goals (SDGs) and 60 per cent reference the Sendai Framework for Disaster Risk Reduction – two key frameworks, among others - upon which the potential final list of GGA indicators is based (UNFCCC 2025).

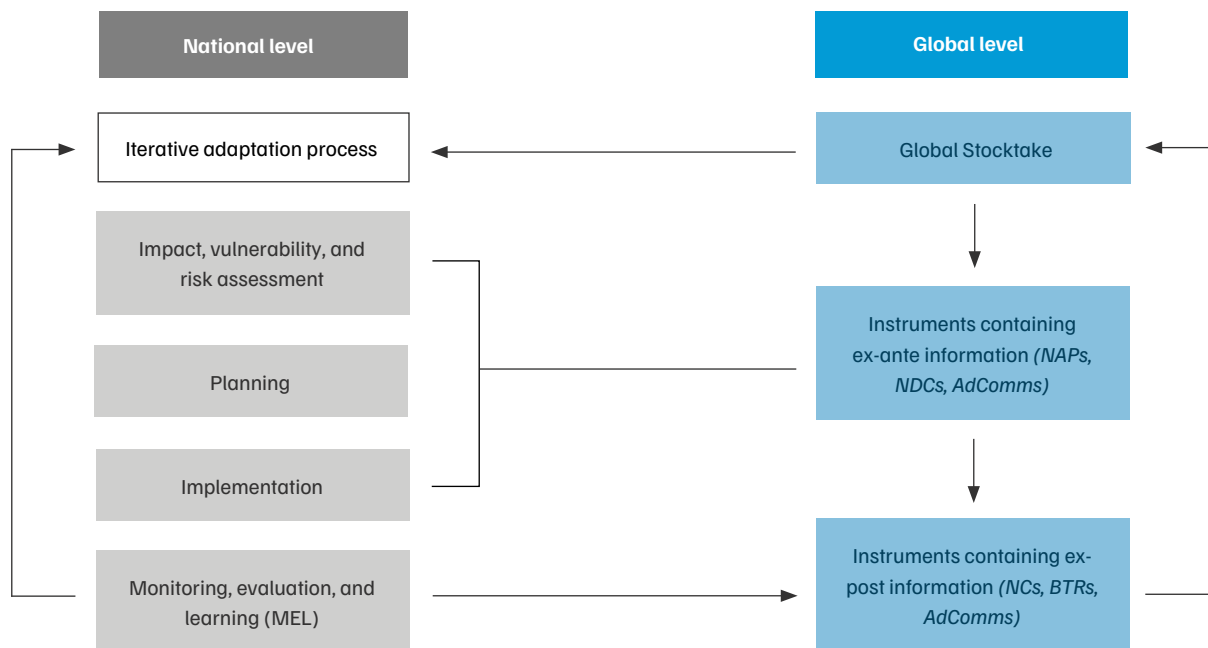
NAPs are, therefore, an increasingly important document for referencing GGA targets, outlining approaches for MEL, and aligning national planning and adaptation action priorities with global targets in the initial years of the GGA operationalisation (Wilkinson et al. 2021; Tashi et al. 2025). This is primarily to ensure the harmonisation of current efforts, as opposed to the introduction of new elements that may obstruct the expected progress on adaptation efforts. The approach of using a shared language is therefore useful in harmonising existing priorities and actions for global progress, particularly by bridging technical data and political processes, thereby enabling comparability across contexts.

However, NAPs are only one of the planning tools at the disposal of Parties. The implementation of such plans ultimately determines their relevance in mainstreaming

adaptation efforts, which rely on levers such as finance, technology, and capacity building. The progress on implementation under the UNFCCC is captured in other instruments, such as NDCs, AdComms, NCs, and BTRs, which allow for greater flexibility and autonomy in aligning indicator reporting (Wilkinson et al. 2021). For reporting, BTRs are particularly well-suited to support iterative learning – their biennial cycle aligns with the 2030 timeline of the GGA targets, enabling insights into Parties' reporting on the indicators. In addition, the mandated 2028 review of the modalities, procedures, and guidelines for the BTRs provides a timely opportunity to refine adaptation reporting in line with GGA targets and indicators.

Embedding GGA targets and indicators in national systems will help channel information more effectively from the national to the global level, thereby strengthening the assessments of adaptation action and support through the GST (Figure 1). This would involve 1) linking GGA targets with national adaptation planning, as relevant to national circumstances; 2) integrating, where relevant, GGA indicators in national MEL systems in collaboration with national and local stakeholders; and 3) periodic reporting on GGA indicators through UNFCCC instruments (Lamhauge and Duluk 2025).

Figure 1. The national iterative adaptation process and UNFCCC reporting instruments



Source: Lamhauge and Duluk (2025)

As different countries experience climate change effects differently and are vulnerable to such effects in different ways, flexibility in the contextualisation of indicators and their reporting is crucial to encourage solutions that reflect local realities and the particular needs of vulnerable people (Tashi et al. 2025). Developing countries, in particular, face multiple competing priorities, often resulting in overstretched administrations. Additionally, fragmented project-based funding and the absence of long-term programmatic support are persistent challenges in ensuring adequate coherence, coordination, and institutional continuity among adaptation actions and capacities built, including for planning and reporting.

A key consideration in the GGA reporting process will be whether national data is adequately representative of global progress. The list of GGA indicators stands

to be negotiated before being adopted; however, approximately 80 per cent of the indicators on the latest proposed list builds on existing international frameworks, need to be refined in terms of their adaptation relevance, while the remaining are either newly proposed indicators or have limited reporting coverage (UNFCCC 2025).

While GGA indicators are not intended to replace national indicators, they can encourage vertical and horizontal alignment and offer a structured approach for tracking progress. In all cases, operationalising the GGA indicators will necessitate capacity building for data systems and reporting, particularly in developing countries.

Harmonised frameworks work best when combined with adaptable methods that empower locally driven, context-specific climate action.

3. Role of regional collaboration in capacity building

Greater regional collaboration is a key enabler to help address some of the aforementioned challenges, particularly for Parties with shared or similar structural constraints, geographical characteristics, transboundary linkages, climatic zones, vulnerabilities, and potentially

matched capacities in some cases. By pooling resources, fostering knowledge exchange, and promoting greater consistency across countries, regional collaboration can reduce duplication, enhance efficiency, and increase collective capacity.



Experts present an interim update on their work on refining the list of indicators under the UAE-Belém work programme during SB62 in Bonn, Germany.

As the proposed indicators have been adapted from existing frameworks, the lessons learned are also arguably transferable. The SDG framework offers a useful precedent in this regard. SDGs reporting uses an iterative approach that allows for continuous improvement, resulting in 70 per cent of the indicators being operational and 68 per cent of the indicators having good data coverage, as of 2024 (Lamhaug and Duluk 2025). The SDG framework also demonstrates how regional cooperation has been leveraged across diverse contexts, from North–South initiatives (Alam 2022) and polar regions (Shijin et al. 2023), to Asia (Bhutia 2021; Chaturvedi 2021; Kumar and George

2021), the Gulf Cooperation Council region (Al-Saidi 2021), and Africa (Valensisi and Karingi 2018), as well as across multiple sectors (Amaya and Lombaerde 2021; Monyei et al. 2022; Pandey and Asif 2022). Comparable lessons can inform the GGA process, given that its proposed indicators are adapted from existing frameworks and transferable across contexts.

The IPCC AR6 also recognises regional governance as a critical layer for adaptation, particularly in the context of shared, transboundary risks. This is well illustrated by the following context-specific cases.

Small island developing states (SIDS)

- **Challenges:** SIDS face shared existential challenges related to rising sea levels, storm surges, and water scarcity. They also face challenges in accessing funding for short-term projects with a high turnover rate for technical assistance–based human capacity.
- **Opportunities:** Regional cooperation is essential for shared resource mobilisation and institutionalised capacity building to ensure continuity (Wilkinson et al. 2021).



Hindu Kush Himalaya (HKH)

- **Challenges:** The countries in the HKH region face rapid glacier melt, erratic weather, and fragile mountain livelihoods (Tashi et al. 2025). While each country has developed tailored adaptation strategies, the absence of standardised monitoring frameworks hinders comparability and coordination (ICIMOD 2023; Mishra et al. 2019).
- **Opportunities:** Greater regional collaboration—on data collection, technical capacity, and community engagement — could help overcome gaps. Regional initiatives also facilitate cross-border monitoring and vulnerability assessments, particularly during floods and landslides that affect multiple countries.



Such cooperation allows for the use of shared methodologies, the exchange of best practices, and capacity development. Regional institutions, such as multilateral development banks (MDBs), intergovernmental organisations (IGOs), UNFCCC Regional Collaboration Centres (RCCs), civil society organisations (CSOs), and other non-state actors also play an important role in aggregating data and advancing the idea of a ‘regional goal on adaptation,’ ensuring that progress is contextualised to lived realities. MDBs are well-positioned to support regional efforts to mobilise finance to address shared vulnerabilities, such as those faced by mountainous or coastal communities. RCCs, IGOs, and CSOs are also crucial in leading research

efforts, developing thematic expertise, disseminating knowledge, supporting multi-governance coordination, and addressing any existing gaps. These actors are also critical in ensuring that the actions of non-Party stakeholders/non-state actors are complementary and feed into Party actions and reporting. While each actor (Party or non-Party) has a specific role to play in the process, such platforms require stronger institutional support as well as predictable and reliable financing to realise their full potential. Improving data collection, technical capacity, and coordination, while engaging communities, is essential for developing sustainable, effective adaptation strategies (Tashi et al. 2025).

4. The role of NSOs

One challenge that is faced globally at different adaptation governance levels is the lack of legal and institutional mandates, resulting in fragmented coordination. The lack of comprehensive, localised data collection systems and the absence of baseline data in some cases have also hampered the ability to track adaptation progress (Malik and Ford 2025; Tashi et al. 2025).

Reporting effectively at the national and global levels requires effective coordination, and NSOs are potential leaders for national coordination. To ensure that the GGA does not fall victim to the challenges mentioned above, NSOs need clear legal and institutional mandates, adequate resources, and continuous training to coordinate adaptation data systems effectively. For

effective coordination, they would ideally also need to coordinate with national focal points, liaise with relevant ministries, and have exposure to UNFCCC processes to better understand its mandates.

To achieve coordination, NSO staff require specialised and institutional training and line departments require statistical training to strengthen their ability to support NSOs. Knowledge-sharing mechanisms and capacity-building initiatives for line department officials who report sectorally are also essential. At the global level, custodian agencies and technical organisations must provide guidelines, support capacity building, and foster peer exchanges to enable NSOs and nationally notified statistical organisations to fulfil this role effectively.



Image: iStock

Urban skylines and critical infrastructure will need to be engineered to be resilient and withstand intensifying heat and climate extremes in a warming world.

5. Key takeaways

With the expected agreement on and adoption of the GGA at COP30, its operationalisation will require focused efforts on capacity building, strengthening MEL frameworks, and clarifying how the GGA indicators can be aligned with national and international reporting processes. Advancing the GGA is crucial for strengthening accountability, improving the effectiveness of climate finance, and unifying adaptation efforts (Wilkinson et al. 2021).

The interconnected nature of climate adaptation efforts and sustainable development objectives underscores the importance of integrating adaptation measures with broader development agendas to achieve holistic outcomes. Therefore, operationalising the GGA indicator set will require tackling several challenges, including but not limited to:

- Ensuring coordination among governmental departments and agencies and building institutional capacity for accessible, disaggregated, and reliable data collection (e.g., through remote sensing)
- Linking the various planning and reporting instruments of the UNFCCC and addressing the cumulative reporting burden across multiple frameworks
- Translating both quantitative and qualitative adaptation actions into formats that can be used for national planning and global reporting, and securing long-term, programmatic funding that enables continuity of work

Given the Party-driven and voluntary nature of the GGA, the success of the process of developing a standardised global progress assessment will be underpinned by the ambition and feasibility of the indicators. The operationalisation of the expected set of indicators and solutions to the anticipated challenges can be improved through the following key measures.

- 1. Embedding the GGA indicators in national adaptation planning instruments, including NAPs:** Domestic adaptation planning efforts can take on various forms, and the adoption of GGA indicators in national-level policies, frameworks, and instruments will be crucial. As the backbone of adaptation planning, monitoring, and reporting, NAPs provide a coherent structure for aligning national systems with GGA indicators, along with the

intent to adapt. As a long-standing mechanism, they benefit from established guidelines and knowledge-sharing capacities that can be leveraged to support the integration of GGA indicators within broader domestic policy frameworks and move beyond fragmented, project-based systems. NAPs can also be used as an instrument to streamline reporting across different obligations and requirements, thereby reducing duplication and enabling harmonisation, particularly in developing countries.

- 2. Ensuring alignment with existing mechanisms:** While the intent to adapt is made explicit through NAPs and other national planning instruments, reporting on progress in the UNFCCC process is in the form of AdComms, BTRs, and NCs. In addition to embedding indicators in planning instruments, it is necessary to embed them in reporting instruments to avoid additional reporting burdens. Learnings should flow between the national and sub-national levels, as well as across global frameworks, to increase coherence and efficiency. Anchoring the indicators in this manner will help build on existing best practices globally and domestically, while ensuring that national circumstances and qualitative contextualisation are captured in global assessments.
- 3. Need for contextualisation of indicators:** Indicators must be regionally inclusive, culturally sensitive, and tailored to national contexts through disaggregation and customisation. Adaptation actions should uphold the principles of equity, justice, and inclusivity, recognising the agency of the most affected communities. Global assessments must reflect the integrated perspectives of women, youth, Indigenous peoples, tribal groups, and local communities to ensure that no one is left behind.
- 4. Benefits of greater regional cooperation:** In addition to individual Party efforts, regional organisations and platforms, including MDBs, RCCs, and IGOs, can facilitate peer learning, data aggregation, and the sharing of methodologies. They can help address gaps, particularly in contexts that face unique challenges, such as vulnerabilities in mountainous areas or a lack of water security in coastal areas. Investing in enhanced regional collaboration can help build capacity at scale, enable technology transfer, and support the use of emerging tools, such as AI and remote sensing, for risk monitoring and adaptation planning. Crucially, financing must shift from short-term, project-based funding to long-term, programmatic support for data systems, MEL staff, and institutional training.

- 5. Relevance of NSOs, custodian agencies, and clear mandates:** NSOs play a key role in generating national data that underpins domestic adaptation reporting and informs custodian agencies under the UNFCCC. Clear mandates and adequate support from national governments, non-Party stakeholders, and constituted bodies will be essential to strengthen their role in adaptation monitoring and reporting.

Ultimately, the GGA indicators are one component of the Paris Agreement's architecture and must be embedded within existing UNFCCC reporting systems and institutional mandates. The adoption of the GGA indicators will likely be followed by a transition operationalisation phase during which Parties, individually and collectively, will explore how the

indicators align with national priorities and established UNFCCC reporting processes (OECD 2025). Regional collaboration in this operationalisation will play a key role in easing burdens and building capacity. Ideally, this should include coordinating adaptation actions at all governance levels and among all stakeholders to co-produce multisectoral solutions. Developed countries are expected to lead with full transparency and increased financial commitments, while developing countries are expected to enhance their reporting systems and ambition. This cycle will reinforce the Paris Agreement's five-year report-review-enhance 'ratchet mechanism', leading to progressively stronger global climate action. We must remind ourselves that the indicators are not an end in themselves, but a vehicle for greater ambition and implementation of adaptation actions.

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