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Matters relating to adaptation

Global goal on adaptation

**Targets outlined in paragraphs 9–10 of decision 2/CMA.5
and the Belém Adaptation Indicators**

Technical paper by the secretariat*

Summary

This technical paper, on the targets outlined in paragraphs 9–10 of decision [2/CMA.5](#) and the 59 Belém Adaptation Indicators adopted at the seventh session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement, reviews the extent to which existing reporting and planning instruments under the UNFCCC consider the targets and the Indicators; assesses the maturity of methodologies available for the Indicators and their alignment with country-reported information; maps existing synthesis report processes on adaptation information relevant to the global goal on adaptation; and analyses available guidelines, tools and methodologies for aggregation under the United Arab Emirates Framework for Global Climate Resilience. It also synthesizes the findings of the analyses and identifies synergies, gaps and potential ways to fill those gaps.

* The present paper is being issued without formal editing.



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Abbreviations and acronyms

AR6	Sixth Assessment Report of the Intergovernmental Panel on Climate Change
ASPIRE	Atlas of Social Protection: Indicators of Resilience and Equity (World Bank)
AQUASTAT	FAO's global information system on water resources and agricultural water management
BERI	Bioclimatic Ecosystem Resilience Index
BTR	biennial transparency report
CBD	Convention on Biological Diversity
CDOM	coloured dissolved organic matter
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CMIP	Coupled Model Intercomparison Project
COP	Conference of the Parties
CORDEX	Coordinated Regional Climate Downscaling Experiment
CREWS	Climate Risk and Early Warning Systems
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EO	Earth Observation
ET	evapotranspiration
ETF	enhanced transparency framework under the Paris Agreement
EU	European Union
EW4All	Early Warnings for All initiative
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO's Statistical Database
FIES	Food Insecurity Experience Scale
FISHSTAT	FAO Fisheries Statistics
GAR	Global Assessment Report (UNDRR)
GCF	Green Climate Fund
GDP	gross domestic product
GGA	global goal on adaptation
GLAAS	UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water
GST	global stocktake
HNAP	health national adaptation plan
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
JMP	Joint Monitoring Programme (WHO and UNICEF)
KMGBF	Kunming-Montreal Global Biodiversity Framework
LAI	Leaf Area Index
MEL	Monitoring, Evaluation and Learning
MHEWS	Multi-Hazard Early Warning Systems
MRV	Measurement, reporting and verification
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NDVI	Normalized Difference Vegetation Index
NPP	Net Primary Productivity

RCP	Representative Concentration Pathway
SCF	Standing Committee on Finance
SDG	Sustainable Development Goal
SEEA	System of Environmental-Economic Accounting
SIDS	Small Island Developing States
SOFI	State of Food Insecurity (FAO)
TRACC	Transversal Risk and Climate Change framework (France)
UIS	UNESCO Institute for Statistics
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNSD	United Nations Statistics Division
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WHO	World Health Organization
WIGOS	WMO Integrated Global Observing System
WMO	World Meteorological Organization
WRI	World Resources Institute
WUE	Water-Use Efficiency

I. Introduction

A. Mandate and background

1. CMA 7 requested the secretariat to prepare a technical paper on the targets outlined in paragraphs 9–10 of decision [2/CMA.5](#) and the Belém Adaptation Indicators,¹ which will (1) consider the use of the Indicators; (2) include a mapping of existing synthesis report processes on adaptation information relevant to the global goal on adaptation; (3) identify synergies as well as gaps and potential ways to fill those gaps; and (4) analyse guidelines, tools and methodologies for aggregating the Indicators under the United Arab Emirates Framework for Global Climate Resilience.²

2. Implementation of the Framework is at an early stage, with the Indicators adopted less than a year ago, having seen limited practical application to date. Information on progress towards adaptation action is currently obtained through a diverse set of national reporting, planning and monitoring processes, including adaptation communications, BTRs, NAPs and NDCs. Understanding the extent to which these processes provide information relevant to the targets and the Indicators under the Framework is therefore important for supporting their use and informing future assessments of collective progress towards the global goal on adaptation.

B. Scope

3. This paper was prepared in response to the mandate referred to in paragraph 1 above. Chapter II below considers the targets under the United Arab Emirates Framework for Global Climate Resilience and their reflection in existing adaptation reporting and planning processes. Chapter III below analyses the use of the Belém Adaptation Indicators, while chapters IV–V below cover existing synthesis report processes on adaptation information relevant to the global goal on adaptation and approaches to aggregation, respectively. Finally, chapter VI below synthesizes the findings set out in this paper and identifies synergies, gaps and potential ways to fill them.

II. Targets under the United Arab Emirates Framework for Global Climate Resilience

4. CMA 5 adopted the United Arab Emirates Framework for Global Climate Resilience and decided that its purpose is to guide the achievement of the global goal on adaptation and the review of overall progress in achieving it.³ The Framework sets out seven thematic targets, covering water and sanitation (target 9(a)⁴), food, agriculture and nutrition (9(b)), health (9(c)), ecosystems and biodiversity (9(d)), infrastructure and human settlements (9(e)), poverty eradication and livelihoods (9(f)), and cultural heritage (9(g)), and four targets related to the dimensions of the iterative adaptation cycle: impact, vulnerability and risk assessment (10(a)), planning (10(b)), implementation (10(c)) and MEL (10(d)). CMA 5 affirmed that efforts in relation to the targets shall be made in a manner that is country-driven, voluntary and in accordance with national circumstances; take into account sustainable development and poverty eradication; and not constitute a basis for comparison between Parties.⁵

5. The targets provide a forward-looking framework, including milestones for 2027 and 2030 and beyond, for guiding enhanced adaptation action and support and informing assessments of collective progress towards the global goal on adaptation.

¹ Contained in the annex to decision [12/CMA.7](#).

² Decision [12/CMA.7](#), para. 16.

³ Decision [2/CMA.5](#), paras. 6–7.

⁴ In this paper, the targets are referred to by their corresponding paragraph number in decision [2/CMA.5](#).

⁵ Decision [2/CMA.5](#), para. 11.

6. Parties were invited to voluntarily include, in their adaptation communications, BTRs, NAPs, national communications and NDCs, quantitative and/or qualitative information related to the targets and to the cross-cutting considerations referred to in paragraphs 13–14 of decision [2/CMA.5](#)⁶ and to integrate the targets into their reporting and planning processes.⁷ Parties were encouraged to report on progress, good practices, experience and lessons learned in relation to implementing the Framework in their communication and reporting under decisions [9/CMA.1](#), [18/CMA.1](#) and [19/CMA.1](#).⁸ CMA 5 requested the secretariat to include information related to the thematic and dimensional targets in the synthesis report on the state of adaptation efforts, experience and priorities for each future global stocktake.⁹

7. This chapter examines how Parties are using the targets in their adaptation reporting and planning processes, including adaptation communications, BTRs, NAPs, NDCs and other national reports. The analysis draws on Parties' national reports, the 2025 NAP progress report,¹⁰ the 2025 NDC synthesis report¹¹ and the first BTR synthesis report.¹²

A. National adaptation plans

8. NAPs are one of the important channels via which the targets could be achieved.¹³ As at 31 August 2026, 91 Parties (79 developing and 12 developed) had submitted NAPs¹⁴ and according to the adaptation gap report, 172 of the 197 countries worldwide had at least one national adaptation planning instrument in place, indicating the near universality of planning instruments through which the targets can be operationalized.¹⁵

9. The 2025 NAP progress report maps priority sectors and actions identified in submitted NAPs against the seven thematic targets referred to in paragraph 4 above, and sets out experience in addressing the thematic target areas.¹⁶ Agriculture and food security were noted as the most commonly cited priority areas, followed by health, water and sanitation, ecosystems and biodiversity, and infrastructure and human settlements. Poverty eradication and livelihoods were often addressed in NAPs as cross-cutting objectives, while cultural heritage was the least visible area.

10. The dimensional targets referred to in paragraph 4 above are reflected in the architecture of the NAP process itself; as such, information generated from the NAP process can be readily organized and reported against the targets. Impact, vulnerability and risk assessments underpin the identification of adaptation priorities, corresponding to target 10(a); NAP formulation and updating processes align with target 10(b); and NAP implementation arrangements, financing strategies and adaptation projects are relevant to target 10(c). Though MEL systems (relevant to target 10(d)) are increasingly being incorporated into NAPs, fewer Parties measure adaptation outcomes compared to adaptation activities and outputs. As a whole, the NAP process generates information relevant to all four dimensional targets.

B. Adaptation communications

11. Article 7, paragraph 10, of the Paris Agreement stipulates that each Party should, as appropriate, submit and update periodically an adaptation communication, which may

⁶ Decision [2/CMA.5](#), para. 16.

⁷ Decision [12/CMA.7](#), para. 12.

⁸ Decision [2/CMA.5](#), para. 16.

⁹ Decision [2/CMA.5](#), para. 17.

¹⁰ [FCCC/SBI/2025/17](#).

¹¹ [FCCC/PA/CMA/2025/8](#).

¹² [FCCC/PA/CMA/2025/16](#).

¹³ As noted in decision [3/CMA.6](#), para. 16.

¹⁴ Available at <https://napcentral.org>.

¹⁵ See United Nations Environment Programme. 2025. *Adaptation Gap Report 2025: Running on Empty - The World is Gearing up for Climate Resilience — without the Money to get there*. United Nations Environment Programme. Available at <https://wedocs.unep.org/20.500.11822/48798>.

¹⁶ See document [FCCC/SBI/2025/17](#), chaps. IV.D and V.

include its priorities, implementation and support needs, plans and actions for adaptation, without creating any additional burden for developing country Parties. Adaptation communications may, as appropriate, be submitted as a component of, or in conjunction with, other communications or documents. While the targets under the United Arab Emirates Framework for Global Climate Resilience are not explicitly mentioned in the voluntary guidance on adaptation communications contained in decision [9/CMA.1](#), CMA 5 invited Parties to voluntarily include information thereon in their adaptation communications.¹⁷

12. As at 31 August 2026, 79 Parties had submitted an adaptation communication to the secretariat. Of the adaptation communications analysed, 51 per cent described how Parties' adaptation strategies are guided by the provisions of the United Arab Emirates Framework for Global Climate Resilience.¹⁸

C. Nationally determined contributions

13. Adaptation objectives have featured more heavily in the new round of NDCs: 47 (73 per cent) of the 64 new NDCs communicated between 1 January 2024 and 30 September 2025 contained an adaptation component¹⁹, featuring priority areas (e.g. food security and nutrition, water resources, health, terrestrial and ocean ecosystems, key economic sectors and infrastructure, disaster risk management, and urban and rural settlements) that align closely with the seven thematic targets.

14. In the NDCs mentioned above, 88 per cent of Parties indicated that NDC preparation was informed by the outcomes of the first global stocktake, while some Parties explicitly indicated how the adaptation targets, commitments and actions in their NDCs will contribute to achieving the global goal on adaptation, noting that voluntary use of the targets served as a framework for NDC formulation. As in the past, there was strong alignment between the new NDCs and NAPs, which reinforces coherence across adaptation planning and reporting processes.

D. Biennial transparency reports

15. The first BTR synthesis report, covering 101 first BTRs, provides an initial baseline for adaptation reporting under the ETF. Adaptation-related information accounts for just over 20 per cent of all information contained in BTRs, with most adaptation reporting focusing on climate hazards, risks and impacts, and adaptation priorities (corresponding predominantly to target 10(a)).

III. The use of the Belém Adaptation Indicators

16. CMA 7 adopted the 59 Belém Adaptation Indicators to support the measurement and assessment of progress towards achieving the thematic and dimensional targets under the United Arab Emirates Framework for Global Climate Resilience.²⁰ The Indicators are intended to inform national approaches to tracking adaptation action and progress²¹ and will constitute a source of input, including through reporting by Parties, for the technical phase of the global stocktake by specifying a way to structure and inform the assessment of progress in adaptation.²²

17. This chapter assesses the current use of the Indicators on the basis of Parties' early experience in using and testing the Indicators, a review of the availability of methodologies and metadata for the Indicators and an analysis of alignment between the Indicators and

¹⁷ Decision [2/CMA.5](#), para. 16.

¹⁸ Secretariat analysis of the 79 adaptation communications submitted as at 31 August 2026.

¹⁹ [FCCC/PA/CMA/2025/8](#).

²⁰ Decision [12/CMA.7](#), para. 6. See also decisions [2/CMA.5](#), para. 39, and [3/CMA.6](#), para. 19.

²¹ Decision [12/CMA.7](#), para. 9.

²² Decision [3/CMA.6](#), para. 22.

existing country-reported indicators included in adaptation communications, BTRs, NAPs and NDCs.

18. The Indicators were developed through a multi-stage consolidation process. Close to 9,900 adaptation-related indicators were compiled under the United Arab Emirates–Belém work programme on indicators for measuring progress achieved towards the targets referred to in paragraphs 9–10 of decision [2/CMA.5](#), before being consolidated into 490 indicators and then further into a potential list of around 100, on the basis of which CMA 7 adopted the 59 Indicators. Several of the 59 Indicators are therefore similar in certain respects to indicators Parties already use.

Evidence base and current practice

1. Early experience of Parties in testing and using the Indicators

19. In April 2026, the secretariat invited Parties to share information on their experience with testing and using the Belém Adaptation Indicators, to inform the preparation of this technical paper. A total of 15 Parties and groups of Parties had responded as at 31 August 2026. This section draws on inputs received from several Parties and groups of Parties²³ in response to the invitation. Given that the Indicators were adopted only in November 2025, experience in testing and using them is at an early stage and focused primarily on reviewing the Indicators, mapping them against national indicators, assessing data availability, and undertaking preparatory testing rather than operational reporting to the UNFCCC. No Party reported full operational use of the Indicators. An overview of the responses received from Parties in relation to the aforementioned invitation is provided in annex I.

20. The Indicators were generally viewed as a useful framework for organizing adaptation information and assessing alignment between existing national monitoring systems and the thematic and dimensional targets. Several Parties reported that existing national indicators often align conceptually with the Belém Adaptation Indicators, although differences in definitions, methodologies, units of measurement and scope frequently result in only partial alignment. Several Parties therefore reported moving beyond mapping and gap analysis to selecting indicators that are nationally relevant and feasible to use, and then adapting them slightly, rather than using the full global formulations of the Indicators as is.

21. Several patterns can be observed. First, current use and testing are overwhelmingly at the national level, though Parties are beginning to explore their use at the subnational level, as part of, for example, designated lead agency reviews, standing interministerial coordination, ad hoc cross-government commissioning and stakeholder-based assessment. Second, Parties tend to use quantitative reporting where official statistics or administrative data exist, and qualitative reporting where the underlying issue is not currently being measured. Third, Parties are using a range of data sources for testing purposes, including official statistics, sectoral administrative and surveillance data, portfolio and project monitoring data, geospatial and Earth observation data, internationally estimated data, and data sets compiled by third parties.

2. Availability of methodologies for the Indicators

22. The maturity of methodologies available for the Belém Adaptation Indicators varies widely (see annex II, which also provides information on the availability of metadata). For 8 of the 59 Indicators, there is a global methodology available for measuring progress achieved towards the relevant targets (e.g. existing methodologies connected with the Sendai Framework Monitor or the ETF that could be used to measure the Indicator as worded); for 29 there is a partially available methodology;²⁴ while for 21 there is no global methodology

²³ African Group, Belize, Brazil, the European Union, Ghana, Guatemala, Japan, Lesotho, Malawi, Mauritius, Mexico, Norway, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and Zambia.

²⁴ Partially available methodology: a global methodology exists for part of the Indicator (typically a related SDG/Sendai Framework/KMGBF indicator), but a defined gap remains before the Indicator as worded can be fully reported.

but reporting can be done (supplemented by national data and nationally applicable criteria),²⁵ and for 1 there is no methodology available.

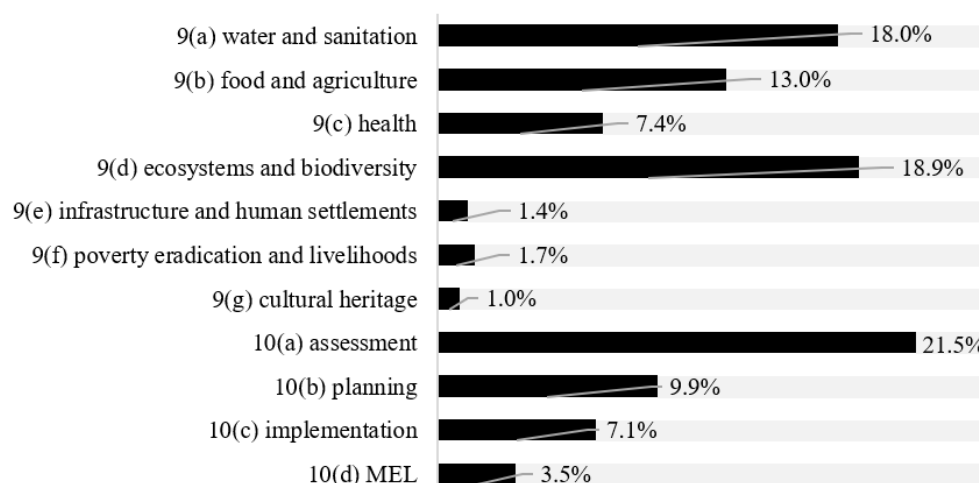
3. Alignment between existing country-reported indicators and the Belém Adaptation Indicators

23. The secretariat assessed the 2,325 country-reported indicators described in adaptation communications, BTRs, NAPs and NDCs submitted between November 2024 and January 2026²⁶ against the Belém Adaptation Indicators (see annex III for the detailed results of the analysis).

24. Of the 2,325 indicators reviewed, 1,025 (44 per cent) showed some degree of alignment with the Belém Adaptation Indicators, predominantly partial alignment (71 per cent) rather than exact correspondence. Figure 1 illustrates the distribution of those 1,025 indicators across the thematic and dimensional targets²⁷. Figure 2 shows the type of alignment between country-reported indicators and the Belém Adaptation Indicators (exact or near-exact, partial, or input) across the targets.

Figure 1

Distribution of country-reported indicators aligned with the Belém Adaptation Indicators across the thematic and dimensional targets



25. Figure 1 shows that country-reported indicators are aligned with the Belém Adaptation Indicators across targets to a limited extent, with alignment seen in particular for targets 10(a), 9(d) and 9(a), while reporting is comparatively limited for targets 9(g), 9(e), 9(f) and 10(d). This reflects both the relative maturity of methodologies in place and the number of Indicators available for each target (e.g. only two Indicators were adopted for target 9(e) whereas Parties report a much broader range of adaptation-related information relevant to 9(e)).

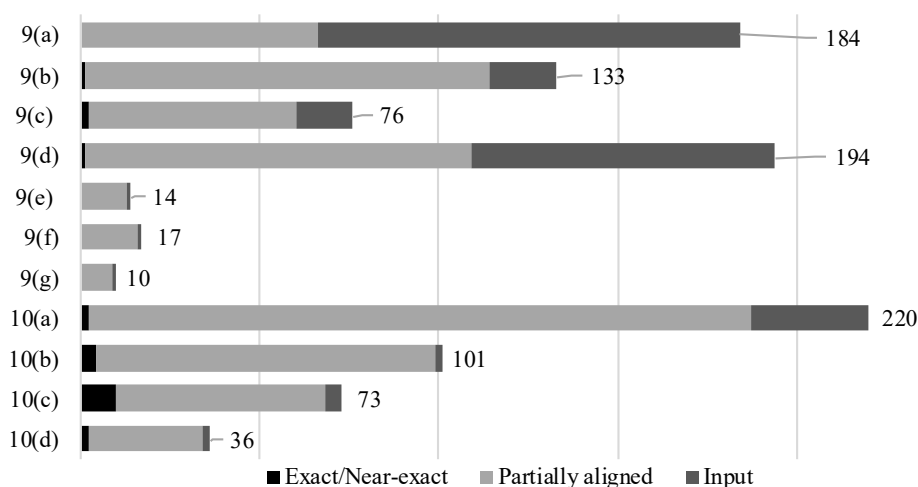
²⁵ No global methodology available, but national reporting possible: no globally agreed methodology exists for the indicator as worded, but countries could report using existing national data and nationally defined criteria.

²⁶ This period was selected to allow Parties sufficient time to incorporate the targets under the UAE Framework for Global Climate Resilience, adopted in December 2023, into their reporting processes and submissions. November 2024 was therefore used as the starting point, while January 2026 was used as the cut-off date to allow time for the analysis of submissions for preparation of this paper. The selected period also captures the first major reporting cycle under the Enhanced Transparency Framework, during which most first Biennial Transparency Reports were submitted.

²⁷ Some country-reported indicators are aligned with Indicators under more than one target; totals therefore exceed 1,025 and percentages exceed 100.

Figure 2

Distribution of country-reported indicators by type of alignment with the Belém Adaptation Indicators across the targets



26. The predominance of country-reported indicators aligned partially with the Indicators may partly reflect the recent adoption of the Belém Adaptation Indicators, as most of the reporting instruments analysed were prepared before their adoption. In many cases, Parties are already reporting on the measure required by the Indicator in question, but not the information on adaptation-specific progress and outcomes (which can only be reported on once adaptation action has been implemented and its results assessed) that is also called for under the Indicators, which add this adaptation overlay. This pattern is consistent with the broader scope of national indicator systems currently in use, which tend to be input-, process- and output-oriented rather than outcome-oriented. This current lack of focus on outcomes could be because adaptation actions have not yet had time to produce measurable results, the result of methodological challenges in measuring those results²⁸ or caused by persistent gaps in implementing adaptation action,²⁹ resulting in few adaptation actions being implemented at a scale at which outcomes and impacts would be observable.

27. Figure 2 also shows that many country-reported indicators are classified as providing inputs to the Belém Adaptation Indicators rather than being partially or exactly aligned therewith. This is because several of the Indicators are based on composite indices requiring specialized calculation, such as the Bioclimatic Ecosystem Resilience Index under target 9(d) and the water–stress ratio Indicator 9a(a).³⁰ Parties frequently report the data layers used to construct these indices rather than providing the calculated index value itself. As a result, their reporting aligns with the required inputs underlying the Indicator in question. Similarly, for Indicators expressed as proportions or ratios, Parties often report the numerator, such as the number of housing units upgraded or heritage sites restored, without the corresponding denominator against which a proportion or ratio could be calculated.

28. Exact or near-exact alignment of country-reported indicators with the Belém Adaptation Indicators was most commonly observed where the country-reported indicator was based on an internationally recognized methodology already in use in national reporting systems.

²⁸ See Adaptation Committee. 2023. Monitoring and evaluation of adaptation at the national and subnational levels: Technical paper by the Adaptation Committee. Bonn: UNFCCC. Available at <https://unfccc.int/node/632792>.

²⁹ See decision [1/CMA.5](#), paras. 15(c) and 48.

³⁰ In this paper, Indicators are referenced using a combined numbering system in which the target number is taken from decision [2/CMA.5](#) and the Indicator number in parentheses from the annex to decision [12/CMA.7](#). Thus, 9a(a) refers to the Indicator “Level of water stress, including as an outcome of adaptation actions where applicable, accounting for relevant climate hazard intensity and/or frequency” (Indicator 3(a)) associated with the target in paragraph 9(a) of decision [2/CMA.5](#).

29. In addition, information relevant to some of the Belém Adaptation Indicators is effectively not currently being reported, with no or almost no corresponding country-reported content available for Indicators 9a(i), 9c(d), 10b(c), 10c(e) and 10d(d)). In some of those cases, this was the result of the absence of an established methodology.

30. There is a consistent gap between the country-reported indicators addressing the existence or output of a system (e.g. early warning systems, climate information services and MEL systems) and those addressing whether the information is used, integrated into planning processes or acted upon (Indicators 10a(g) and, 10d(d)). Parties are reporting extensively on the production of climate and adaptation-relevant information but comparatively rarely on its application to decision-making.

4. Synthesis of findings on the Belém Adaptation Indicators

31. Table 1 provides a synthesis of the main findings, by target, of Parties' experience in testing and using the Belém Adaptation Indicators, the assessment of the maturity of methodologies for measuring progress towards achieving the relevant targets under the Indicators and the analysis of their alignment with country-reported indicators, further details of which are presented in annexes I–III.

Table 1

Summary of findings on the Belém Adaptation Indicators: methodological maturity, alignment with country-reported indicators and Parties' experience in testing and using the Indicators, by target

<i>Target</i>	<i>Methodological maturity^a</i>	<i>Alignment with country-reported indicators^b</i>	<i>Main findings</i>
9(a) water and sanitation	Relatively high. Several Indicators draw on established SDG methodologies, although methodological gaps remain for adaptation outcome qualifiers, climate-resilience components and aggregation of multiple indicator elements	Moderate to high, primarily partial alignment or through support from inputs	Existing reporting systems already generate substantial information relevant to the Indicators, particularly through SDG-based monitoring. However, adaptation outcome qualifiers, climate-resilience dimensions and composite Indicator formulations are generally not yet captured directly
9(b) food, agriculture and nutrition	Moderate. Several Indicators draw on established SDG and FAO methodologies, but important methodological gaps remain for adaptation-specific practices, institutional frameworks, adaptation outcomes and qualitative concepts such as “extent” and “level”	High, predominantly partial alignment	Agricultural reporting systems already capture many of the underlying concepts and data elements reflected in the Indicators, suggesting strong potential for future operationalization of the Indicators once remaining methodological gaps are addressed
9(c) health	Moderate. Established methodologies exist for several health-related measures, including mortality and morbidity, but significant gaps exist in terms of methodologies for reporting on adaptation outcomes, service continuity, mental health support access and estimating counterfactual conditions	Moderate to high, largely partial alignment	Existing health surveillance and reporting systems provide substantial information relevant to the Indicators, but country-reported information rarely matched that required under the Indicators exactly
9(d) ecosystems and biodiversity	Moderate. Several Indicators benefit from established methodologies and indices,	High, predominantly support from inputs	Parties often report the data used to calculate indicators such as the Red List Index or

<i>Target</i>	<i>Methodological maturity^a</i>	<i>Alignment with country-reported indicators^b</i>	<i>Main findings</i>
	including composite indices such as the IUCN Red List of Ecosystems, the Bioclimatic Ecosystem Resilience Index and the Red List Index, though there are component or aggregation gaps	rather than partial or exact alignment	the Bioclimatic Ecosystem Resilience Index, but less frequently report the calculated index values themselves
9(e) infrastructure and human settlements	Low. Limited availability of methodologies	Low	Existing reporting captures some relevant information, but methodological development and clearer definitions of the terms used in the Indicators such as “sustained engagement” are needed before broader application is possible
9(f) poverty eradication and livelihoods	Moderate. Existing poverty and social protection indicators provide a solid methodological basis, although adaptation-specific components and climate-risk dimensions remain underdeveloped	Moderate	National poverty and social protection systems already provide relevant information, though information regarding adaptation-specific components of Indicators is limited
9(g) cultural heritage	Low. No globally agreed methodologies or metadata are currently available for the Indicators under this target, although national reporting pathways may exist	Very low. Smallest reporting volume	Limited methodology and metadata availability and reporting experience across all Indicators relevant to this target
10(a) impact, vulnerability and risk assessment	High. This target benefits from the highest methodological maturity	High	Substantial alignment of Indicators with existing national reporting and extensive use of established Sendai Framework methodologies
10(b) planning	High. Methodologies and reporting pathways are available for all Indicators, with several capable of being assessed directly from information already available through NAP Central and other reporting processes	High	Adaptation planning instruments correspond closely to the target, but reporting on the extent to which planning processes are gender-responsive or incorporate traditional and Indigenous knowledge is limited
10(c) implementation	High. Several Indicators draw directly on established ETF (10c(d)-(f)) and Sendai Framework reporting methodologies (10c(b))	Moderate to high	Target for which exact alignment between country-reported indicators and the Belém Adaptation Indicators is highest, particularly for finance-related ones
10(d) MEL	Low to moderate. Existing MEL systems provide a basis for reporting, but standardized methodologies remain limited	Moderate	Reporting focuses primarily on the design and operation of MEL systems, with less evidence of the use of findings in decision-making

^a Methodological maturity: High = most indicators supported by established methodologies; Moderate = methodologies available for some indicators but important gaps remain; Low = limited methodological basis and substantial development needed.

^b High = substantial correspondence with reported information; Moderate = partial or indirect correspondence; Low = limited correspondence; Very low = very limited reporting and correspondence.

32. In the light of these findings, convergence between country reporting and the Belém Adaptation Indicators is likely to occur at different rates across the various targets. Indicators associated with targets 9(a), 10(a), 10(b) and 10(c) benefit from relatively mature methodological foundations and stronger alignment with existing reporting systems and could therefore be operationalized more readily. Indicators associated with 9(b), 9(c), 9(d), 9(f) and 10(d) build on existing methodologies and reporting practices but would benefit from additional methodological development, metadata and guidance, particularly in relation to adaptation-specific components, aggregation approaches and qualitative concepts. By contrast, Indicators associated with 9(e) and 9(g) currently have more limited methodological foundations and alignment with existing reporting, suggesting that further methodological development and clarification of Indicator definitions may be needed to support broader application.

33. The analysis above indicates that use of the Belém Adaptation Indicators is constrained by a combination of metadata, methodological, data, capacity and financial challenges. These findings have implications for future technical work under the Belém-Addis Vision on adaptation and are discussed in chapter VI.

IV. Mapping of existing synthesis report processes

34. This chapter maps existing synthesis report processes that compile or synthesize adaptation information relevant to the global goal on adaptation. For the purposes of the mapping, a synthesis report process is defined as a process that synthesizes adaptation-relevant information reported by Parties, is relevant to the global goal on adaptation, and is considered as part of the formal UNFCCC process.

35. Each process covered by the mapping was characterized by its mandate, frequency of publication, data sources, and its relevance to the thematic and dimensional targets and the Belém Adaptation Indicators.

36. Table 2, presented below, provides an overview of the main synthesis reports providing relevant outputs. In reviewing progress under the global goal on adaptation, it should be noted that (1) a substantial body of annual and biennial synthesis reports containing relevant information already exists, meaning that the review may not need to create new reporting process(es); and (2) several milestone events are scheduled to take place in 2027–2028, including the guidance on operationalizing the Indicators, expected at CMA 9, and the conclusion of the second global stocktake.

37. **NAP progress reports:** the Least Developed Countries Expert Group, in the context of its mandate to provide technical guidance and support on NAPs,³¹ prepares annual reports on progress in the process to formulate and implement NAPs,³² synthesizing information from submitted NAPs on NAP Central, NAP country dialogues and NAP Expos, approved Green Climate Fund funding proposals and an annual questionnaire. The latest iterations (2025, and the upcoming 2026 report) are, for the first time, structured along the modules of the updated NAP technical guidelines, which reflect the dimensional targets and analyses experience in implementing by thematic target,³³ making this the UNFCCC synthesis report process most directly organized around the United Arab Emirates Framework for Global Climate Resilience. Currently, these reports only focus on developing country Parties.

38. **NDC synthesis reports:** the secretariat prepares annual synthesis reports on NDCs,³⁴ covering, inter alia, the adaptation components of new and updated NDCs, their priority areas and their relationship with NAPs and the global goal on adaptation. The reports provide a

³¹ Decision [5/CP.17](#), para. 13.

³² As per decisions [5/CP.17](#), para. 36 and [3/CP.26](#), para. 5.

³³ See document [FCCC/SBI/2025/17](#), para. 26, figure 1 and chap. V.

³⁴ In response to decision [1/CP.21](#), para. 25.

regular, globally comparable picture of the role of adaptation in national climate strategies, but their adaptation content is descriptive and derived from heterogeneous, self-defined NDC structures. Some of the more recent NDCs also describe indicator-based national MRV or MEL systems intended to assist with reporting efforts under the ETF and to link adaptation tracking across instruments.

39. **BTR synthesis reports:** under the ETF, the secretariat prepares synthesis reports on BTRs,³⁵ with the latest report being published in 2025³⁶ containing a chapter on information related to climate change impacts and adaptation under Article 7 of the Paris Agreement. BTRs are one of five reporting channels named in paragraph 12 of decision [12/CMA.7](#) (alongside adaptation communications, national communications, NAPs and NDCs). Some BTRs document indicator-based national monitoring and evaluation systems that could facilitate future reporting under the Indicators.

40. **Synthesis report on the state of adaptation efforts, experience and priorities:** The secretariat prepares for each global stocktake a synthesis report on the state of adaptation efforts, experience and priorities,³⁷ summarizing information referred to in Article 7, paragraphs 2, 10, 11 and 14, and the reports referred to in Article 13, paragraph 8, of the Paris Agreement.³⁸ Drawing on adaptation communications, NAPs, NDCs, BTRs and other relevant inputs, the report functions as a synthesis of syntheses across the adaptation architecture under the Paris Agreement. The secretariat will also include, in future reports, information related to the targets under the United Arab Emirates Framework for Global Climate Resilience.³⁹ The report therefore provides a direct synthesis of information relevant to assessing collective progress towards the global goal on adaptation and serves as a key input to the global stocktake.

41. **Synthesis report by the co-facilitators on the technical dialogue of the global stocktake:** The global stocktake, which takes place quinquennially, is explicitly mandated to review overall progress in achieving the global goal on adaptation,⁴⁰ and the targets of the UAE Framework were included in the outcome of the first GST.⁴¹ Decision [12/CMA.7](#) confirms that the Belém Adaptation Indicators will constitute a source of input, including through reporting by Parties, to future stocktakes.⁴² The GST includes a technical assessment, which includes several technical dialogues and focuses on taking stock of the implementation of the Paris Agreement to assess the collective progress towards achieving the purpose and long-term goals of the Paris Agreement, as well as opportunities for enhanced action and support to achieve its purpose and goals. Following the technical dialogues, a synthesis report is prepared by its co-facilitators.⁴³

42. **Reports of relevant constituted bodies:** The Adaptation Committee and the Least Developed Countries Expert Group respond to several mandates and publish several relevant reports. Both bodies respond to the mandate in decision [19/CMA.1](#), para. 24, which invites the relevant constituted bodies to prepare synthesis reports on the information identified in paragraph 36 of that decision (sources of input to the global stocktake) in their areas of expertise. The report, published by the Adaptation Committee in 2022,⁴⁴ as an input to the first global stocktake, included chapters on promoting coherence in adaptation under the Convention and the Paris Agreement, experiences of Parties and other stakeholders in relation to adaptation action and support, and reviewing the adequacy and effectiveness of adaptation support and the overall progress towards the global goal on adaptation. The next reports of the bodies prepared in this regard are planned to be submitted by the deadline of

³⁵ As per decision [18/CMA.1](#), para. 6(a).

³⁶ See document [FCCC/PA/CMA/2025/16](#).

³⁷ As per decision [19/CMA.1](#), para. 23(b).

³⁸ As per decision [19/CMA.1](#), para. 36(c).

³⁹ As per decision [2/CMA.5](#), para. 17.

⁴⁰ Article 7, para. 14(d) of the Paris Agreement.

⁴¹ As per decision [1/CMA.5](#), paras. 63–64.

⁴² Article 7, para. 14(d), and Article 14 of the Paris Agreement; decision [19/CMA.1](#); decision [12/CMA.7](#), para. 13.

⁴³ As per decision [19/CMA.1](#), para. 6(c).

⁴⁴ Available at: <https://unfccc.int/documents/476683>.

28 February 2027. Additionally, decision [12/CMA.7](#)⁴⁵ invites the Adaptation Committee to analyse the information on the thematic and dimensional targets contained in adaptation communications, BTRs, national communications, NAPs and NDCs through the lens of the targets, with a view to assessing progress under the global goal on adaptation and informing future global stocktakes. The work under this mandate is ongoing.

43. **Reports on means of implementation:** the Standing Committee on Finance (SCF) prepares the biennial assessment and overview of climate finance flows⁴⁶ and the periodic report on the determination of the needs of developing country Parties related to implementing the Convention and the Paris Agreement,⁴⁷ both of which compile adaptation finance information from national reports, reports by the operating entities of the Financial Mechanism and reports by external data providers. These reports are directly relevant to the means of implementation dimension of target 10(c) and to the Indicators on adaptation finance, technology and capacity-building, which are framed by reference to ETF reporting.⁴⁸ In addition, the Technology Executive Committee, in response to the mandate of [19/CMA.1](#), paras. 24 and 36, prepared a synthesis report for the technical assessment component of the first global stocktake, including information on matters related to technology development and transfer, including the information referred to in Article 10 of the Paris Agreement, barriers and challenges faced by developing countries and good practices, experiences and potential opportunities to enhance international cooperation on mitigation and adaptation.⁴⁹ The Paris Committee on Capacity-building will prepare its first state of capacity-building report in November 2027, as included in its 2025–2029 workplan, endorsed by COP 30 and CMA 7,⁵⁰ which will be relevant to Indicator 10c(f).

44. In addition to the synthesis report processes mentioned in this chapter, examples of relevant synthesis report processes outside the UNFCCC process were also reviewed. Details are contained in annex IV.

Table 2

Relevant existing synthesis report processes considered as part of the UNFCCC process

<i>Process (Lead)</i>	<i>Mandate</i>	<i>Frequency</i>	<i>Data sources</i>	<i>Relevance to the targets and indicators</i>
NAP progress reports (LEG)	Decision 5/CP.17 and subsequent mandates	Annual	National Adaptation Plans on NAP Central, country dialogues, GCF data, annual questionnaire	High: analysis already organized by thematic target; direct source for targets 10(a)-(d) status
NDC synthesis reports (Secretariat)	Decision 1/CP.21 and subsequent CMA requests	Annual	NDCs in the registry	Medium: signals target-aligned priorities; limited indicator-grade data
BTR synthesis reports (Secretariat)	Decision 18/CMA.1 (MPGs)	Biennial	Biennial Transparency Reports	Medium: One of five reporting channels named in decision 12/CMA.7 , para. 12 (with adaptation communications, national communications, NAPs, NDCs)

⁴⁵ Decision [12/CMA.7](#), para. 15.

⁴⁶ Decision [2/CP.17](#), para. 121(f).

⁴⁷ Decision [4/CP.24](#), para. 13.

⁴⁸ Decisions [12/CMA.7](#), annex, para. 12(d-f); and [18/CMA.1](#), annex, chaps. V–VI.

⁴⁹ Available at: <https://unfccc.int/documents/461611>.

⁵⁰ Decisions [14/CP.30](#) para. 10, and [25/CMA.7](#), para. 11.

Secretariat synthesis report on the state of adaptation efforts, experience and priorities (Secretariat)	Decision 19/CMA.1 , para. 23(b); information identified in para. 36(c); Decision 2/CMA.5 , para.17	Quinquennial	Adaptation communications, national communications, NAPs, NDCs, other relevant reports prepared under the ETF, other inputs to the GST, IPCC and other relevant scientific bodies	High: synthesis of syntheses feeding directly into the GST; decision 2/CMA.5 , para. 17 requests inclusion of information related to the UAE Framework targets
GST Technical Dialogue synthesis report (CFs of TD)	Article 14; decision 19/CMA.1 , para. 6(c)	Quinquennial	Information shared during the technical dialogues	High: apex review process; Belém Adaptation Indicators designated as input
Adaptation Committee Reports	Cancun Adaptation Framework; decision, 19/CMA.1 , paras. 24 and 36. 12/CMA.7 , para. 15	Annual reports; SoA Portal on an ongoing basis	CB's work, Adcoms, NAPs, NDCs, BTRs	High: mandated standing analysis through the lens of the targets
LEG Synthesis Report	19/CMA.1 , paras. 24 and 36	Quinquennial	LEG input to the technical assessment component of the GST	High: for the Indicators for targets 10(a)–(d)
SCF Biennial Assessment and Needs Determination	Decisions of the COP/CMA on the SCF	Biennial/quadrennial	Primarily Parties reports to UNFCCC, supplemented with other international sources	High for MOI Indicators 10c(d)-10c(f) and target 10(c)
TEC Synthesis Report	19/CMA.1 , paras. 24 and 36	Quinquennial	TEC input to the technical assessment component of the GST	Medium for Indicator 10c(e)
State of Capacity Building Report	14/CP.30 and 25/CMA.7	Periodic	NDCs, BTRs, NAPs, LT-LEDs, Complementary sources	Medium for Indicator 10c(f)

V. Guidelines, tools and methodologies for aggregation

45. This chapter analyses guidelines, tools and methodologies for aggregating the Belém Adaptation Indicators and targets under the United Arab Emirates Framework for Global Climate Resilience with a view to measuring progress towards achieving the global goal on adaptation.

46. For the purpose of this chapter, aggregation refers to a sequence of methodological processes operating at different levels. The sequence of methodological processes is as follows: The first step is to combine multiple sources and components of information at multiple scales to derive a reportable value and accompanying narrative or information where relevant for an individual Indicator. Once values have been derived for multiple Indicators relevant to a certain target, they then need to be synthesized into a statement commenting on progress towards that target. Lastly, those target-level findings are to be synthesized into a statement assessing collective progress towards the global goal on adaptation. These three dimensions are examined separately in this chapter because they involve different challenges and are undertaken by different actors. The dimensions are summarized in table 3.

Table 3

Dimensions of the process for aggregating the Belém Adaptation Indicators and targets under the United Arab Emirates Framework for Global Climate Resilience

<i>Dimension</i>	<i>Process</i>
Construction of national-level indicator values	Component sub-measures (e.g. base measures, hazard scenario components, adaptation outcome overlay) are combined into one national value, including through the integration of qualitative and quantitative information where relevant and the aggregation of information across scales and geographies
Aggregation from Indicators to targets	Multiple Indicator values (e.g. the eight Indicators relevant to target 9(c)) are synthesized into a statement about progress towards the relevant target
Aggregation from targets to the global goal on adaptation	Multiple target statements are synthesized into a statement about progress towards the global goal on adaptation

47. In the light of the mandates set out in paragraphs 7–9 of decision [12/CMA.7](#), the process for aggregating the Indicators and targets needs to operate within a set of ‘safeguards’. Practically, this implies that (1) the aggregation process should involve aggregating values ‘up’ to create target-level and global goal on adaptation statements, rather than comparing or ranking countries against one another through league tables, country scores and composite country indices; (2) asymmetry in participation in reporting Indicators is a feature of the expected reporting process, not an error, and aggregated values must always be accompanied by statements on how many Parties reported relevant information and for which Indicators; (3) guidelines, tools and methodologies for the aggregation process may be offered to assist Parties but must not be imposed upon them, and guidance must accommodate nationally determined definitions and disaggregation of Indicators; and (4) the aggregation process must preserve, not average away, dimensions of disaggregation (i.e. social categories, climate-related hazards, geographical characteristics, ecosystems, administrative and settlement levels, type of adaptation measures, thematic sectors referred to in para. 9 of decision [2/CMA.5](#) and subcomponents of the thematic targets), through which the Indicators are designed to capture context.⁵¹

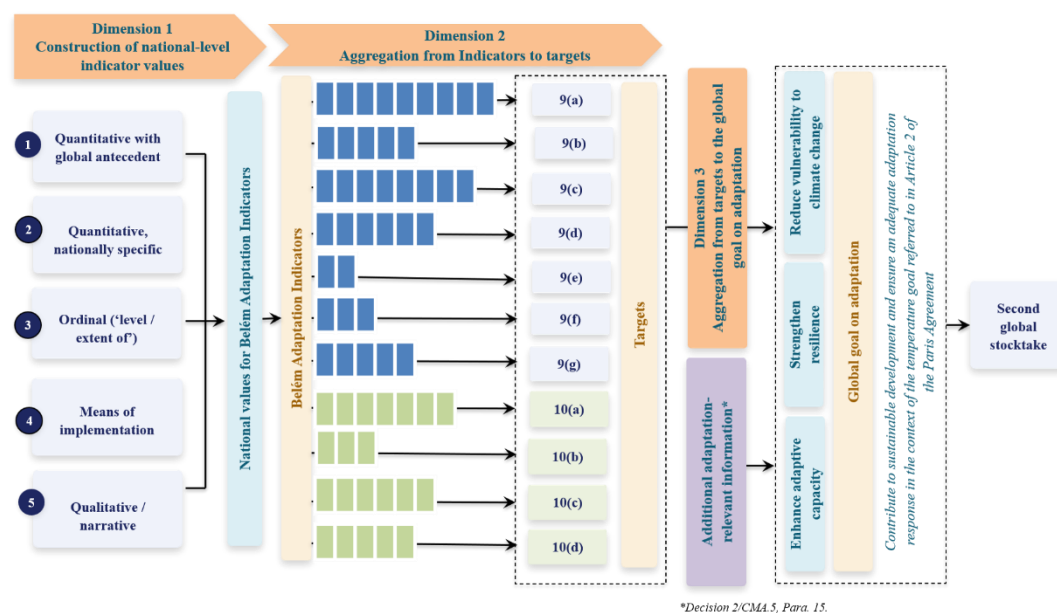
48. To identify possible approaches to the aggregation process as set out above, relevant guidelines, tools and methodologies were reviewed. Existing methodologies were found to provide a substantial foundation for the aggregation process.

Possible approaches to aggregating the Indicators and the targets

49. This subchapter looks at possible approaches to the aggregation process, considering the three dimensions set out above. Figure 3 illustrates a conceptual pathway to aggregating the Indicators and targets under the three dimensions.

⁵¹ As per decision [12/CMA.7](#), annex, para. 1.

Figure 3
Pathway to aggregating the Indicators and targets under the three dimensions



1. Construction of national-level Indicator values

50. This dimension involves three possible methodological tasks: (1) Unpacking Indicator components and combining multiple components within a single Indicator, such as a core measure, an adaptation outcome component, or a hazard- or warming scenario-based component; (2) aggregating information reported across administrative levels, geographies, sectors or other disaggregation categories into a national-level value; and (3) integrating into the value quantitative and qualitative information, particularly for Indicators expressed as a “level of” or “extent of” achievement (further details on such Indicators are provided below).

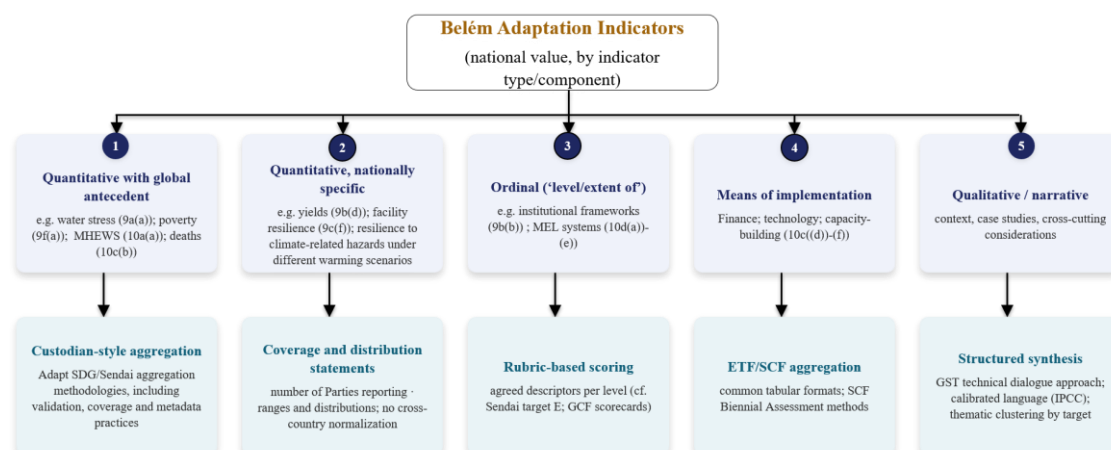
(a) Unpacking Indicator components

51. The Indicators vary considerably in how many subcomponents must be combined to produce a single national value, and in whether a methodology for that combination currently exists. For analytical purposes, five Indicator or Indicator component types can be distinguished, each with its own aggregation requirements: (1) quantitative Indicators or components for which highly relevant global frameworks, and thus aggregation methods, already exist (e.g. those relating to water stress, poverty, multi-hazard early warning coverage and disaster mortality); (2) quantitative Indicators or components that are nationally specific in definition or coverage (e.g. those relating to yields in areas under adaptation-relevant management, shares of climate-resilient facilities, resilience to climate-related hazards under different warming scenarios), for which no common methodology exists; (3) ordinal Indicators formulated as a “level of” or “extent of” achievement (e.g. those relating to establishment of institutional frameworks and operationalization of MEL systems), which require scoring rubrics before any aggregation can take place; (4) means of implementation Indicators, for which relevant information is already reported under the ETF. The common tabular formats provide structured, machine-readable reporting of support provided, mobilized, needed and received. The SCF Biennial Assessment aggregates Party-reported data and data from external data sources to generate global adaptation finance estimates, applying documented methods to address double counting, face-value versus grant-equivalent accounting and coverage gaps.⁵² and (5) Indicators or Indicator components pertaining to qualitative and contextual information that can be synthesized into statements but not summed.⁵³ Early Party experience referred to in paragraph 19 shows that reporting on Indicators will involve a mixture of these Indicator or Indicator component types. Figure 4 illustrates the different aggregation methods for Indicator types and components.

⁵² Decision [18/CMA.1](#), annex, para. 109(a).

⁵³ See decision [12/CMA.7](#), annex, paras. 2–13.

Figure 4
Aggregation methods for Indicator types and components



52. The Indicators pose two recurring challenges in constructing national indicator values for aggregation. The first is in relation to the adaptation outcome component, which appears across many Indicators but lacks an agreed methodology for combining adaptation-related information with the underlying measure. The second relates to the hazard intensity or warming scenario component, for which methodologies based on Earth observation could be used, as mentioned in annex II, but gaps exist to integrate such information consistently into a single reported indicator value. Addressing these challenges is a priority for future aggregation methodological development.

(b) Aggregating information reported across scales and disaggregation categories

53. For many Indicators, information reported needs to be aggregated across different scales and disaggregation categories in order to derive a reportable national value. Depending on the Indicator and national context, such information may relate to different administrative levels, sectors, ecosystems, population groups or geographical regions.

54. For Indicators or Indicator components that are related to the SDG indicators or Sendai Framework Indicators, existing custodian-style aggregation approaches can often be adapted, drawing on their established statistical methodologies for consolidating information across administrative levels and data sets. The SDG global indicator framework offers the most established body of guidance for aggregating national indicator values. The custodian agencies compute regional and global aggregates under agreed rules covering data validation, country consultation, imputation and the flagging of country data versus international estimates. The arrangements are coordinated through the Inter-Agency and Expert Group on SDG Indicators and its guidelines on data flows and global data reporting. The tier classification sequences indicators by methodological and data readiness.⁵⁴

55. Where Indicators are nationally specific, statements (describing the coverage, distribution and completeness of underlying observations) avoid spurious comparability while still conveying a picture of the overall situation.

56. Methodologies for aggregating information reported across scales and disaggregation categories should preserve the disaggregated architecture of the Indicators. For example, Parties may report information by geography, ecosystem, hazard type, social categories, administrative level or thematic that is subsequently consolidated into a national value, with the underlying disaggregated information reflected therein. Preserving this information is important to avoid masking differences in adaptation outcomes across contexts. Similar approaches are used under the SDG global indicator framework and Sendai Framework Monitor, where disaggregated information remains essential for interpretation.

⁵⁴ Inter-Agency and Expert Group on SDG Indicators, Guidelines on Data Flows and Global Data Reporting for the Sustainable Development Goals; SDG Indicator metadata repository and tier classification, available at <https://unstats.un.org/sdgs>.

(c) Integrating qualitative and quantitative information

57. Many of the Indicators combine quantitative with qualitative information. There are three possible approaches to integrating qualitative and quantitative information into the reported value.

58. First, the Indicators that measure “level of” and “extent of” can be assessed using ordinal rubrics with agreed descriptors (e.g. low, moderate and high levels). These categories can be converted into scores that can be summarized as distributions (i.e. the distribution of reporting Parties at each level) rather than as averages. Similar scoring approaches are applied in the Sendai Framework target E methodology,⁵⁵ Green Climate Fund scorecards⁵⁶ and the criteria-based assessment of the quality of national adaptation planning instruments set out in the United Nations Environment Programme Adaptation Gap Report 2025.⁵⁷ The Sendai Framework provides a methodological example for the aggregation of disaster-related data. The UNDRR technical guidance for monitoring and reporting on the global targets specifies normalization conventions (per 100,000 population), minimum data requirements and computation rules for deriving global target values from national self-reporting. For target E, the guidance includes a scoring method that converts qualitative attributes of national strategies into a 0-1 score. The Green Climate Fund’s integrated results management framework similarly aggregates core Indicators including numbers of direct and indirect beneficiaries across its portfolio, using scorecards for qualitative dimensions.

59. Second, calibrated language, as codified in the Intergovernmental Panel on Climate Change guidance note on the consistent treatment of uncertainties,⁵⁸ allows target-level statements to integrate quantitative aggregates with qualitative evidence while stating confidence in conclusions explicitly.

60. Third, structured narrative synthesis, such as thematic clustering, systematic coding of narrative reports and structured expert judgment, underpinned the technical assessment phase of the first global stocktake and the analyses of adaptation reporting in the United Nations Environment Programme Adaptation Gap Report 2025. Because many Indicators combine a quantitative core (e.g. a rate, proportion or count) with a qualitative or “level of” component describing the enabling context, approaches of the latter kind are likely to be the most broadly applicable across the Indicators of those mentioned in this paragraph.

61. The application of these methods would require several safeguards including transparency regarding the assessment of rubrics and coding frameworks used, clear distinction between reported data and any estimates and interpretations, avoidance of false precision (no decimal point scores derived from qualitative judgments) and retention of the qualitative record alongside any scores derived from it.

62. The technical assessment of the first global stocktake demonstrated a structured approach to synthesizing heterogeneous adaptation-related information. Under this approach, inputs from Party reports, constituted bodies and non-Party stakeholders were collected, clustered by theme, discussed through the technical dialogue and synthesized by the co-facilitators with explicit attribution to sources.⁵⁹ This approach may provide a relevant methodological basis for the qualitative component aggregation.

⁵⁵ See UNDRR. 2017. Technical Guidance for Monitoring and Reporting on Progress in Achieving the Global Targets of the Sendai Framework for Disaster Risk Reduction. Available at <https://www.undrr.org/quick/11641>.

⁵⁶ See Green Climate Fund. 2021. Integrated Results Management Framework. GCF Board decision B.29/01. Songdo: GCF. Available at <https://www.greenclimate.fund/document/integrated-results-management-framework>.

⁵⁷ See United Nations Environment Programme. 2025. Adaptation Gap Report 2025: Running on Empty - The World is Gearing up for Climate Resilience — without the Money to get there. United Nations Environment Programme. Available at <https://wedocs.unep.org/20.500.11822/48798>.

⁵⁸ See Mastrandrea, M.D., et al. 2010. Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties. Geneva: IPCC. Available at https://www.ipcc.ch/site/assets/uploads/2017/08/AR5_Uncertainty_Guidance_Note.pdf.

⁵⁹ Decision [19/CMA.1](#); the synthesis reports and the reports of the technical dialogue of the first global stocktake are available at <https://unfccc.int/topics/global-stocktake>.

2. Aggregation from Indicators to targets

63. This second dimension of the aggregation process concerns methodologies for synthesizing reported Indicator information at the collective level with a view to enabling an assessment of progress towards the targets.

64. Four main options exist for forming statements at the level of each target on the basis of the Indicators relevant to it. The first option is a headline dashboard reporting information relevant to each Indicator separately, with a global aggregate or coverage statement per Indicator and Indicators grouped by target. This option provides transparency and traceability of information but leaves it to the reader to deduce a target-level narrative. The second option is a tiered headline approach, which designates one or two Indicators per target as headline Indicators (following the Global Biodiversity Framework model)⁶⁰ with the remaining Indicators providing supplementary information. But this option focuses attention on specific Indicators. The third option, a composite index for each target, condenses Indicator information into a single number. This option provides a compact indication of progress but is dependent on weighting choices, prone to masking and, if computed per country, inconsistent with the non-comparative safeguard set out in paragraph 7 of decision [12/CMA.7](#). The fourth option is a structured synthesis panel approach, which combines the headline dashboard from the first option with a short, calibrated narrative per target that integrates quantitative aggregates, score distributions and qualitative findings. This option is the most similar approach to that used for the first global stocktake. In sharing experience of testing the Indicators in response to the invitation referred to in paragraph 19 above, one group of Parties cautioned that aggregation from Indicators to targets should focus on collective progress towards the targets rather than standardizing or comparing national indicators across countries.

65. Table 4 compares the first and fourth aggregation options against six evaluation criteria. The ratings indicate the extent to which each option performs against each criterion.

Table 4

Two options for aggregating information reported under the Indicators to apply at the target level

<i>Evaluation criterion</i>	<i>Headline dashboard</i>	<i>Structure synthesis panel</i>
Transparency and traceability of reported information	High: each Indicator is shown visibly, with metadata provided	High: the narrative is explicitly targeted at the Indicators
Information retention	High: no compression. All reported information remains visible and is not reduced to a single aggregate measure	High: quantitative and qualitative findings are retained and presented together
Consistency with 'safeguards' in the light of paragraphs 7–9 of decision 12/CMA.7	High: coverage statements are provided	High: the panel is designed around voluntary, non-comparative reporting
Reporting and analytical burden	Moderate: the burden will grow as the number of Indicators reported by Parties increases	Moderate: the panel requires capacity within the secretariat and constituted bodies to synthesise information
Handling of mixed (qualitative/quantitative) evidence	Low: qualitative information sits outside the dashboard	High: quantitative aggregates, score distributions, qualitative findings and narrative assessment are considered together
Treatment of uncertainty	High: Uncertainties are identified for each Indicator	High: calibrated language is used for each statement

66. The findings point towards the benefit of using a combination of those options: a per-target reporting panel comprising an Indicator dashboard, coverage statement, disaggregation

⁶⁰ See Convention on Biological Diversity decision 15/5.

highlights and a calibrated narrative with tiering used as a pragmatic sequencing mechanism to support implementation. Under this approach, aggregation could begin with Indicators for which methodologies and data sources are already available, while methodologies and reporting practices for other Indicators continue to be developed and tested. Such tiering would not imply a permanent hierarchy among Indicators.

3. Aggregation from targets to the global goal on adaptation

67. In order for an assessment of collective progress towards the global goal on adaptation to build on a synthesis of evidence across all targets of the United Arab Emirates Framework for Global Climate Resilience, the object of this third dimension is to take the set of target-level findings developed under the second dimension and aggregate them into a statement on progress towards the global goal on adaptation.

68. The options for forming statements at the level of each target, described in paragraph 64 above, can also be applied to the aggregation of target-level findings into an assessment of collective progress towards the global goal on adaptation. There are two broad options for aggregation at this level. The first is the headline dashboard approach, whereby findings for each target are presented side by side without further synthesis. This maximizes transparency and preserves the distinct character of each target but leaves the assessment of overall progress largely to the reader to decide. The second is a structured framework synthesis, under which target-level findings are reviewed collectively and synthesized into an overarching narrative using calibrated language, explicit treatment of uncertainty and transparent sourcing of information.

69. The option involving the structured framework synthesis appears most consistent with applying safeguards related to paragraphs 7–9 of decision [12/CMA.7](#) and with approaches used in the technical assessment phase of the global stocktake. Under this approach, the target-level assessments produced under the second dimension would be synthesized to identify areas of progress, gaps and cross-cutting patterns while preserving information on uncertainty and reporting coverage. Such an approach would reflect the multidimensional nature of adaptation and provide a transparent basis for assessing collective progress towards the global goal on adaptation. The targets cannot be applied on a one-for-one basis to the elements set out in Article 7, paragraph 1, of the Paris Agreement. Those elements – enhancing adaptive capacity, strengthening resilience, reducing vulnerability to climate change, contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2 of the Paris Agreement – are cross-cutting concepts that may draw on evidence from multiple targets. As such, an assessment of collective progress towards the global goal on adaptation is likely to depend on a synthesis of information across the Framework as a whole, rather than on information reported under any individual target or subset of Indicators.

4. Recommended integrated aggregation approach

70. On the basis of the practices reviewed, a tiered aggregation approach may be the most appropriate. Information reported under the Indicators could be aggregated at the Indicator level, consolidated into target-level assessments through structured synthesis panels and subsequently synthesized across all targets to inform assessments of collective progress towards the global goal on adaptation. Such an approach would ensure application of safeguards relating to paragraphs 7–9 of decision [12/CMA.7](#) while providing a transparent basis for assessing collective progress towards the global goal on adaptation in future global stocktakes.

VI. Synergies, gaps and potential ways to fill them

71. This chapter synthesizes the information set out in chapters II–V above and identifies synergies, gaps and potential ways to address them.

A. Synergies

72. Adaptation planning instruments are increasingly being structured around the targets under the United Arab Emirates Framework for Global Climate Resilience. For example, priority sectors identified in NAPs are being mapped against the thematic targets and dimensional targets are embedded directly within the updated NAP technical guidelines.

73. For many of the Indicators, relevant frameworks relating to, inter alia, the SDGs, the Sendai Framework and the Kunming-Montreal Global Biodiversity Framework already exist, meaning that existing methodologies can be drawn upon. Where Indicator content overlaps with that covered by established international reporting frameworks, aggregation methodologies already in place for those frameworks offer a starting point for aggregating the Indicators, reducing the need for entirely new methodologies to be created.

74. Existing synthesis report processes provide complementary coverage of targets across several reporting channels, reducing the need for separate processes for synthesising the information reported in relation to the targets and Indicators. Some of the Indicator-based monitoring systems mentioned by Parties in their experience sharing (see paragraph 19) are designed to feed information into more than one reporting channel at once.

B. Gaps and potential ways to fill them

75. Table 5 summarizes the areas in which gaps exist in the use of targets and Indicators, as well as potential ways to address them. While the table captures all gaps identified through the analyses conducted for this paper, potential ways to address them are provided only for technical and methodological issues and are not provided for gaps relating to national circumstances, institutional arrangements at national level, and financial support needs, as these fall outside the scope of the secretariat's work.

Table 5

Gaps in the use of targets and Indicators and potential ways to fill the gaps

<i>Area in which gaps exist</i>	<i>Potential ways to fill the gaps</i>
	<i>Targets</i>
Thematic areas: While some Parties are using the targets as a basis for organizing information in their reporting instruments, some have also identified priority areas that fall outside the scope of the targets under the United Arab Emirates Framework for Global Climate Resilience, reflecting differing national circumstances and evolving adaptation priorities	The efforts within those areas can still contribute to progress towards the global goal on adaptation by complementing reporting against the UAE Framework targets with information on nationally identified adaptation priorities and efforts, where relevant, to provide a more complete picture of progress towards the global goal on adaptation in line with decision 2/CMA.5 , para. 15
Measuring progress towards the targets: Given that the Belém Adaptation Indicators were adopted less than a year ago, the framework for measuring progress towards the targets is not yet fully operational	Parties may require sufficient time to test the Indicators in national contexts. In the interim, consistent with decision 2/CMA.5 , paragraph 15, progress may also be measured by drawing on the sources of information referred to in decision 19/CMA.1 , paragraph 37, while the Indicators are being operationalized
	<i>Indicators</i>
Metadata and methodological challenges for operationalizing the Indicators. The majority of the Indicators have only partially available methodology, largely because of component, aggregation, or definitional gaps	Metadata and methodological guidance for the Indicators could be developed under Belém-Addis Vision through modalities to be agreed by the subsidiary bodies. These could include technical work by a possible task force, submissions on metadata and methodologies, expert consultations and surveys
Component gaps: Several Parties, in their testing experiences, shared methodological constraints	The adaptation outcome qualifier should be understood as an instruction to test, where data allow, whether tracking the outcome of an adaptation

<i>Area in which gaps exist</i>	<i>Potential ways to fill the gaps</i>
regarding measuring the adaptation outcome qualifier of Indicators	intervention provides information or value when compared to a similar context without such intervention As an initial approach, this may be best captured through qualitative methods applied alongside the primary quantitative measure to assess how adaptation actions, or the lack thereof, have influenced that measure. The qualifier "where applicable" provides flexibility for reporting, recognizing that not all Parties will have implemented adaptation actions relevant to the indicator. In such cases, Parties could report the core measure without providing information on the adaptation outcome component. As methodologies evolve and reporting experience grows, quantitative approaches may also be developed where feasible. Some contextual information may also be captured through disaggregation. For example, Indicator 10c(a) measures the extent of implementation of national adaptation plans, policies and strategies relative to their planned implementation. Where reporting is disaggregated by thematic target, the adaptation actions implemented under each target can be identified. This information may be complemented by a set of qualitative questions designed to address the indicator-specific adaptation qualifier For example, for Indicator 9a(h), "Proportion of bodies of water with good ambient water quality for drinking water supply, including as an outcome of adaptation actions where applicable", countries already report the core measure under SDG Indicator 6.3.2. Only the component "including as an outcome of adaptation actions where applicable" would require supplementary questions to examine whether and/or how implemented adaptation actions have influenced the measured outcomes and impacts in water quality for drinking water supply
Component relating to "resilience to climate-related hazards under different warming scenarios", for which related assessment approaches exist, but for which data required for application in the context of the Indicator may not yet be consistently available	Consideration of different warming scenarios is already integrated into risk assessments in some countries, including as reported in certain biennial transparency reports (BTRs).⁴ Building on these existing approaches and strengthening data availability for conducting such assessments may facilitate operationalization of this component
Definitional gaps: the underlying data exists and is reportable, but a qualifying threshold, scale, or scope term in the Indicator such as "level," "extent," or "status" has not been agreed	These terms may require the development of thresholds, scales or classification approaches. Relevant precedents exist within the SDG global indicator framework. For example, SDG Indicator 6.4.2 ("level of water stress") defines discrete bands across a 0–100% scale in 25-percentage-point intervals, ranging from no stress to critical and SDG Indicator 17.15.1 ("extent of use of country-owned results frameworks and planning tools") operationalizes the concept of "extent" through a composite measure derived from multiple dimensions
Baselines and historical time series: the absence of baselines and historical time series against which progress towards the targets can be measured was a frequently cited challenge	Many of the Indicators are linked to forward-looking targets and assess progress towards achieving adaptation and resilience objectives under current and future risk conditions, rather than changes from a historical starting point. In such cases, future baselines derived from assessing risk, impacts and vulnerability may be more relevant than historical baselines. Sharing examples of how countries have developed and applied such baselines could help address this gap

<i>Area in which gaps exist</i>	<i>Potential ways to fill the gaps</i>
Limited operational experience and early-stage implementation of the Indicators	The Indicators were adopted less than a year ago and experience under other multilateral frameworks suggests that this equates to an early stage in a normal maturation process. It took between two and four years for the SDG indicator framework, the Sendai Framework Monitor and the monitoring framework of Kunming-Montreal Global Biodiversity Framework to transition from adoption to operational reporting systems and in each case the first reporting round was treated as partial rather than complete. Parties will need a comparable period to test the Indicators within their national contexts and any short-term assessment of their use should be read as an early snapshot rather than a definitive picture. Reporting could begin with Indicators for which methodologies are already available, while prioritizing methodological development for Indicators at a less mature stage.
Interpreting Indicators with multiple components: Several Parties identified challenges relating to the interpretation of Indicators that have multiple components, require qualitative reporting or are dependent on undefined concepts	Challenges in interpreting the Indicators can be addressed by presenting available methodologies and metadata in a manner similar to that in annex II. A survey or call for submissions, for example, could be issued to gather input from Parties on their early use of the Indicators, specifically on the challenges encountered.
Partial alignment of the Indicators with existing national reporting systems	The assessment presented in annex III can be extended to cover adaptation communications, BTRs, NAPs, and NDCs submitted outside the current analysis window, thereby providing more comprehensive and accurate findings on alignment as a first step that can inform Parties' deliberation on the policy alignment process of the Belém-Addis Vision on adaptation ^b .
Incomplete coverage of target subcomponents by the Indicators	Additional adaptation-relevant information (2/CMA.5 para 15) could be used to help address coverage gaps. The review of the Indicators ^c that will be undertaken as part of the review of the Framework following the second global stocktake presents an opportunity to address this gap.
Data and capacity constraints: several Parties reported that they have significant reporting burdens but have limited technical capacities in this regard. Challenges include collecting and aggregating data, modelling to assess climate impacts, and compiling data from different administrative levels. Parties emphasized the importance of targeted technical support and capacity-building in this regard at the national, regional and global level.	For several Belém Adaptation Indicators, relevant data are already collected and maintained by other international organizations acting as custodians of the underlying datasets. Several Parties see value in drawing on such data to reduce reporting burden by avoiding duplicative collection of information already compiled internationally. Such arrangements would need to account for uneven membership and differing reporting principles across frameworks, and remain consistent with the country-driven, voluntary nature of reporting. A relevant practice within the UNFCCC process may serve as a useful model: the Adaptation Committee's country profile portal compiles information from country reports but invites each country to review and validate its profile before use. A similar validation step, whereby Parties confirm, correct or decline the use of externally held data for a given Indicator, could enable such arrangements while preserving Party ownership of how national circumstances are represented and consistent with the safeguards under decision 12/CMA.7.
Institutional coordination and data-collection systems: since the thematic targets cover multiple sectors, using the Indicators requires whole-of-government	

<i>Area in which gaps exist</i>	<i>Potential ways to fill the gaps</i>
engagement rather than leadership by a single agency. Parties reported that indicator application is generally more feasible if national ministries, statistical offices and established MEL systems are already collecting the relevant information, with those Indicators requiring entirely new institutional arrangements or data systems to be set up harder to operationalize. However, organizing sustained data-collection efforts, coordinating action across institutions and maintaining long-term monitoring systems are significant challenges Financial constraints: several Parties highlighted the challenge of insufficient resources, in particular finance, in undertaking work relating to the Belém Adaptation Indicators. Some highlighted that they require targeted technical and financial support for reporting information relevant to the Indicators, with one noting that, while it is receiving some financial support for developing its MEL framework, much greater financial assistance would be required if it were to develop an operational MEL framework across all sectors. Additionally, reporting under some Indicators requires cost-intensive satellite data collection or geospatial mapping, with some Parties highlighting that this may be easier for developed country Parties, where resources for such activities are already available	

^a See documents: Australia's first Biennial Transparency Report, pages 181–182; First Biennial Transparency Report of France, pages 239–245; Indonesia First Biennial Transparency Report, pages 99–107; Namibia's First Biennial Transparency Report And Fifth

^b See decision 12/CMA.7, para.21.

^c Decision 12/CMA.7, paras. 32–33.

Annex I

Overview of early Party experience with the Belém Adaptation Indicators, as reflected in information shared by Parties as at 31 August 2026

The table provides an overview of the responses received by the secretariat to the invitation to share any available information and experience in testing and/or using the Belém Adaptation Indicators, to inform the preparation of this technical paper, as outlined in paragraph III.1.19. The absence of an entry in this table does not indicate that a Party has not conducted testing of the Indicators or does not have relevant views or experiences to share. The inputs received were wide-ranging in their scope, level of detail and structure, and the table below is an attempt to capture the points most relevant to this paper.

Table 1
Party experiences in testing the Belém Adaptation Indicators

Party/Group	Focus of experience shared	Key findings	Key challenges identified	Illustrative practice
African Group	Experiences from countries across Africa in testing the Belém Adaptation Indicators	Countries are already reporting on elements relevant to Belém Adaptation Indicators, but the balance is uneven Countries have many national indicators, requiring a deliberate alignment process with Belém Adaptation Indicators There is an overall alignment of Belém Adaptation Indicators with national indicators for certain sectors Aligning with existing structures, frameworks and institutions beyond adaptation tracking is critical for reporting on the Indicators, as countries are prioritising indicators where current national reporting frameworks and institutions already align with GGA data needs There is a need for additional guidance on interpreting the Belém Adaptation Indicators. For example, terms such as “level of” or “extent” remain unclear and may lead to inconsistent interpretation across users	Lack of clear methodologies, including on how to approach critical issues such as baselines Terminologies such as ‘extent or level of’, with a need for clearer indicator definitions, agreed-upon units of measurement, and guidance on data collection methodologies Limited data availability, beyond the core quantitative metrics, including that on adaptation outcomes Limited time and resources: African countries require targeted technical and financial support to report on adaptation and demonstrate progress against Belém Adaptation Indicators and GGA targets. The lack of alignment between the Belém Adaptation Indicators and national NDC indicators may make reporting on the Belém Adaptation Indicators difficult for many African countries	Existence of data for level of water stress, but little data on its link to adaptation outcomes and related to hazards Exercises to consider alignment with existing policies such as Health National Adaptation Plans
Belize	Multisectoral NAP under development covering five priority areas;	Many SIDS lack established MEL systems to effectively track and report progress on adaptation actions	Absence of established MEL systems in SIDS Limited capacity and access to finance	Cabinet-level decision consolidating sectoral NAPs

<i>Party/Group</i>	<i>Focus of experience shared</i>	<i>Key findings</i>	<i>Key challenges identified</i>	<i>Illustrative practice</i>
	consolidation of four sectoral NAPs	Financial, technological and capacity support is needed for effective reporting and learning on adaptation	While significant efforts have been made, integration and reporting of the Indicators at an early stage	Identification of targeted support needs (MRV system upgrade, SIDS peer learning)
Brazil	Objectives of the Climate Plan for Adaptation were structured around the targets Data availability exercise conducted for all 59 Belém Adaptation Indicators	Data are available for reporting Brazil's progress on at least 18 of the 59 Belém Adaptation Indicators, including components of five of the thematic targets and all of the dimensional targets	Challenges related to the availability of historical time series, methodological standardization, territorial disaggregation, and integration across sectoral databases Need for continued strengthening of institutional capacities for the future operationalization of the Belém Adaptation Indicators	Interministerial coordination through a dedicated adaptation subcommittee Explicit attention to coherence among the Indicators and monitoring instruments for the adaptation plan, BTR and national communication
European Union	Questionnaire to Member State experts comparing national adaptation indicators in use with the Belém Adaptation Indicators; existing aggregation under the EU Governance Regulation	Results from the EU questionnaire show that there is currently no direct correspondence between existing adaptation-related indicators in use at the national level and the Belém Adaptation Indicators Further work is needed on metadata, definitions, and methodologies before broader use of and reporting towards the Belém Adaptation Indicators can be feasible Even slight reformulations of existing indicators risk misalignment with established metrics and reporting workflows	Indicators considered not yet usable in their current form (several too generic, vague, complex or methodologically unclear to be applied consistently in national systems) Data are often fragmented across institutions, sectors or regions Distinguishing between the existence of a policy and its implementation Disaggregation by vulnerable groups and regional disparities Clarity is needed for qualitative terms, including 'under different warming scenarios' and 'including as an outcome of adaptation actions'	Biennial Member State reporting synthesized into an EU-level assessment Emphasis on consistency with SDG, Sendai Framework and CBD Indicators and on building on existing datasets and methodologies
Ghana	Mapping of the Belém Adaptation Indicators against domestic reporting indicators	A large number of the Belém Adaptation Indicators have either significant (25/59) or partial (8/59) alignment with a domestic/national reporting indicator, and national adaptation priorities	Partial coverage of some subcomponents by existing national indicators, with 26 of the Indicators having no alignment with national priorities	Structured mapping template covering alignment, methodological availability, temporal/spatial coverage and gender and social inclusion relevance
Guatemala	Review of Indicators through technical working sessions, and prioritization of the 59 Belém Adaptation Indicators to build a national MEL system, to be integrated into the	There is significant value in engaging with sectoral ministries Some relevant information is available, but it is scattered across different sources	Absence of official national adaptation indicators Adapting global indicators to the national context without losing their ability to measure adaptation outcomes	Traffic-light classification retaining 37 Indicators (21 readily applicable, 16 applicable with further work); inter-ministerial validation with sectoral institutions

<i>Party/Group</i>	<i>Focus of experience shared</i>	<i>Key findings</i>	<i>Key challenges identified</i>	<i>Illustrative practice</i>
	updated National Climate Change Plan			
Japan	No testing has taken place within the national context, but the targets may be mapped against existing national KPIs in the Climate Change Adaptation Plan	A more flexible approach, including reporting based on the targets of the UAE Framework for Global Climate Resilience, using existing national indicators and using narrative information regarding policies, implementation and effects would enable meaningful and practical information that reflects national circumstances	The Belém Adaptation Indicators are primarily outcome-oriented; however, outcomes highly depend on region-specific characteristics and are affected by various climatic, social and institutional factors. Therefore, it is difficult to directly capture adaptation progress through indicators that measure outcome aspects only This leads to practical constraints around the causal relationship between adaptation measures and outcomes, long-term timeframes, limited data availability, and inconsistencies with existing national MEL systems	Using KPI mapping to compile information related to the UAE Framework for Global Climate Resilience to be provided through Japan's BTR, adaptation communication and other national reports
Lesotho	Testing of Belém Adaptation Indicators for targets 9(a) and 9(b)	The Belém Adaptation Indicators are considered to be a promising framework for strengthening adaptation planning, monitoring, and reporting Further stakeholder engagement, validation of data, and strengthening of national data systems will be necessary to support their effective application and ensure that they accurately reflect adaptation progress and outcomes at both national and sub-national levels	Limited disaggregation of national data by district, gender, age, disability and livelihood group; data used in testing not yet nationally validated	Mapping of national targets and indicators against thematic and process dimensions of the global goal on adaptation
Malawi	Alignment of the draft NAP and NDC with the targets (all except 9(g)); stocktake of national and district indicators against the UAE Framework targets and Indicators	There is substantial alignment with NAP priority sectors; however, some Indicators are difficult to link to national adaptation priorities	Challenges exist around definitions, costing of MEL systems to report and reporting against multiple development and multilateral environmental agreements Metadata needs to be further developed Harmonizing multiple national monitoring frameworks (NAP, NDC, biodiversity strategy, land-degradation neutrality) Submission-timeline constraints Complex indicator definitions Limited institutional capacity, and the need for further technical and financial assistance	Building on functional, budgeted monitoring systems, including MEL activities related to ecosystem-based adaptation, that align with work under targets 9(a), 9(b), 9(d) and 10(d) Interest in peer collaboration (e.g. Brazil)
Mauritius	Informal stakeholder assessment of the Belém Adaptation	Belém Adaptation Indicators are umbrella indicators that are	"Umbrella" indicators are challenging to adopt	Use of existing national statistics (relative poverty index) for the

<i>Party/Group</i>	<i>Focus of experience shared</i>	<i>Key findings</i>	<i>Key challenges identified</i>	<i>Illustrative practice</i>
	Indicators in a SIDS context	challenging to adopt in a SIDS context Indicators regarding poverty are deemed feasible given that the national statistics office generates the relative poverty index However, the testing and /or adoption of other sectoral indicators are significantly challenging	In-depth modelling techniques are required to assess climate change impacts on all aspects of health (physical and mental). The challenge foreseen is the capacity to understand modelling techniques and undertake data collection Lack of high-resolution data, climate models and expertise in big data and artificial intelligence	poverty Indicators, deemed most readily feasible
Mexico	Indicator-by-indicator assessment for water, agriculture, health, poverty, cultural heritage and assessment targets, against national planning Indicators	Many of the Belém Adaptation Indicators have overlaps with existing work and indicator processes at a national level across the target areas assessed, however these are at differing levels of implementation, with some providing significantly more usable information than others On some Indicators, e.g. cultural heritage, Mexico has an existing understanding of what this includes (e.g. tangible and intangible assets)	Baseline data needs to be established Discontinuity of pilots owing to budgetary constraints Existing sectoral indicators do not isolate adaptation outcomes No national baselines, validated methodologies or documented experiences regarding the operationalization of the Belém Adaptation Indicators in the health sector Technical and capacity constraints to undertake monitoring	Farmer-to-farmer knowledge transfer programmes Epidemiological surveillance systems for extreme temperatures Use of the national multidimensional poverty measurement with disaggregation aligned to the Indicators
Norway	Review of the Belém Adaptation Indicators by the national environment agency with sectoral agencies and the statistical office; reporting planned in BTR 2	Several of the Indicators are highly complex, consisting of multiple components, which makes them difficult to report on. In particular, it is challenging to respond to all elements of the Indicators in a comprehensive manner For several Indicators, it is difficult to distinguish a specific climate change adaptation component Many of the Indicators are open to interpretation, which may limit comparability at the global level, as Parties may report on different aspects Despite the quantitative nature of many Indicators, in many cases it is not possible to provide a numerical value Relevant data may exist at the local level, but are not currently collected or	Complex multi-component Indicators Difficulty isolating the adaptation component for most Indicators Need for clearer definitions and guidance on how the Indicators should be interpreted (e.g. “climate-related hazard”) Local data not aggregated nationally Risks of further increasing reporting burdens	Multi-agency institutional review Intention to report relevant Indicators through the BTR Call for alignment with SDG and other international reporting

<i>Party/Group</i>	<i>Focus of experience shared</i>	<i>Key findings</i>	<i>Key challenges identified</i>	<i>Illustrative practice</i>
		aggregated at the national level		
Russian Federation	Pilot testing is scheduled for 2026	Significant overlap between the GGA thematic target areas and Russia's National Action Plan for Adaptation	Information on challenges encountered during testing may be provided in due course	Sectoral plans for 10 climate-sensitive economic sectors, including the agro-industrial complex and fisheries, healthcare, and construction, housing and utilities
United Kingdom	Cross-government testing of the Belém Adaptation Indicators coordinated by the domestic adaptation team	Many of the process-oriented targets were already closely aligned with the ministry's existing aims and objectives	Indicators often unclear Data are not accessible to policy teams Some targets were considered not achievable in a domestic context	Alignment of dimensional targets with the published NAP MEL framework; whole-of-government engagement in testing
Zambia	Sample reporting on the Indicators for target 9(a)	Reporting, albeit in some different forms, is possible for all 9 Indicators, with a mix of core metrics and qualitative information about adaptation actions Some composite Indicators may need to be disaggregated into their constituent components, with a measure estimated for each component before these are combined into an overall composite measure	Some Indicators require specific definitions, including on warming scenarios, with others, e.g., 9a(g) considered too complicated in their current formulation On Indicator 9a(h), the inclusion of 'adaptation actions' makes the Indicator highly complex Differentiating between natural, seasonal water quality fluctuations and the specific positive outcomes of climate interventions requires advanced, long-term modeling that is rarely available	Further work on disaggregation is needed to bring out regional variability across the country More thorough assessment of the Indicators will be conducted soon

Annex II

Availability of methodologies and metadata for the Belém Adaptation Indicators as at 31 August 2026

1. The availability of methodology for the Indicators was analysed, and the Indicators were mapped as (a) available, (b) partially available, (c) no global methodology available, but national reporting possible and (d) not available based on the methodology availability. The criteria used for classification are as follows:

(a) Available: a global methodology available for measuring progress achieved towards the relevant targets (e.g. existing methodologies connected with the Sendai Framework Monitor or the ETF that could be used to measure the indicator as worded);

(b) Partially available: global methodology exists for part of the Indicator (typically a related SDG/Sendai/GBF indicator), but a defined gap remains before the Indicator as worded can be fully reported. Three recurring gap types:

(i) Component gap: one or more required elements of the Indicator lack a fully established or agreed methodology (e.g. as an outcome to adaptation actions);

(ii) Aggregation gap: all required elements are individually measurable, but no accepted method exists to combine them into the single Indicator value;

(iii) Definitional gap: the underlying data exists and is reportable, but a qualifying threshold, scale, or scope term in the Indicator wording (e.g., "level," "status," "extent") has not been agreed.

(c) No global methodology available, but national reporting possible: No globally agreed methodology exists for the Indicator as worded, but countries could report using existing national data and nationally defined criteria;

(d) Not available: Neither a global methodology nor an evident national data pathway currently exists; both would need to be developed.

2. Metadata availability is classified as available, partially available, or not available. Metadata is considered fully available when the technical documentation required to measure and report all components of an indicator is established and available. Metadata is considered partially available when such documentation exists for some, but not all, components of the indicator. Metadata is considered not available when the required technical documentation has not yet been developed and would need to be established from scratch.

3. A number of organizations¹ also provided inputs relating to the Indicators that were taken into account in preparing this annex.²

¹ African Development Bank, European Space Agency, Food and Agriculture Organization of the United Nations, International Labour Organization, International Renewable Energy Agency, United Nations Children's Fund, United Nations Economic Commission for Europe, United Nations Office for Disaster Risk Reduction, United Nations University, World Food Programme, World Health Organization and World Meteorological Organization.

² These submissions were not provided in response to a specific invitation from the secretariat.

Table 1
Availability of Methodologies and Metadata for the Belém Adaptation Indicators as at 31 August 2026

Indicator No.	Indicator Title	Methodology Availability	Information on Methodology	Metadata availability	Information on Metadata
9a. Water and Sanitation					
9a(a)	Level of water stress, including as an outcome of adaptation actions where applicable, accounting for relevant climate hazard intensity and/or frequency	Partially available (component gap, aggregation gap)	Parties report on the “level of water stress” under SDG 6.4.2^a The component “accounting for relevant climate hazard intensity and/or frequency” is partially covered through WMO methodologies and operational frameworks.^b However, this coverage is limited to the supply-side dimension and does not extend to the demand-side aspects of water stress The Copernicus Interactive Climate Atlas^c can be used as an input to analyze different warming scenarios. The Atlas lets users examine climate impacts at different global warming levels, such as: +1.5°C, +2°C, +3°C and +4°C relative to the pre-industrial baseline. Some countries have developed their own national methodologies using this global-warming-level approach, for example, France's TRACC framework^d (Météo-France) and Australia's Global Warming Levels framework^e (Australian Climate Service/CSIRO), which similarly analyze climate indicators at fixed warming levels drawing on the IPCC AR6 methodology, rather than at fixed future time periods WRI Aqueduct Water Risk Atlas (v4.0) projects water stress around three periods and three future scenarios^f Alternative method using Earth Observation (EO)^g: Compute basin/catchment water stress = withdrawals / (renewable supply - environmental flow). Use EO to estimate supply (precipitation-runoff, ET) and storage (surface water). Combine with national withdrawal statistics As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures targeting water stress have been implemented and how they relate to observed changes in water stress. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The quantitative water stress measure and the qualitative adaptation outcome qualifier could be aggregated based on the methods described in chapter V	Partially available	FAO is the custodian agency of SDG Indicator 6.4.2. Metadata are available for measuring water stress, but metadata guidance remains to be developed for the adaptation outcome qualifier and climate hazard intensity and/or frequency component
9a(b)	Level of water use efficiency, including as an outcome of adaptation actions where applicable	Partially available (component gap, aggregation gap)	Parties report on the “change in water-use efficiency over time” under SDG 6.4.1.^h Alternative method using EO: Estimate water productivity / water-use efficiency for agriculture and (where possible) other sectors. For agriculture: WUE = crop	Partially available	FAO as custodian agency of the SDG Indicator 6.4.1. Metadata are available for measuring water-use efficiency, but metadata guidance remains to be

<i>Indicator No.</i>	<i>Indicator Title</i>	<i>Methodology Availability</i>	<i>Information on Methodology</i>	<i>Metadata availability</i>	<i>Information on Metadata</i>
			yield/evapotranspiration (ET) (or biomass / ET). Use EO ET + crop maps; yield from EO-based models As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures targeting water use efficiency have been implemented and how they relate to observed water use efficiency. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The quantitative water use efficiency measure and the qualitative adaptation outcome qualifier could be aggregated based on the methods described in chapter V		developed for the adaptation outcome qualifier
9a(c)	Proportion of critical water and sanitation infrastructure systems that are resilient to climate-related hazards under different warming scenarios, as appropriate for regions and contexts, including as an outcome of adaptation actions where applicable	No global methodology available, but national reporting possible	Parties could report the number of critical water and sanitation infrastructure systems that are resilient to climate-related hazards, including as an outcome of adaptation action, and the total number of critical water and sanitation infrastructure systems, based on national data held by relevant ministries and institutions (water, agriculture, environment), to calculate the proportion The Copernicus Interactive Climate Atlas or national risk assessment methodologies can be used as an input for assessing resilience under different warming scenarios As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures targeting infrastructure resilience have been implemented and how they correspond to observed changes in the resilience of critical water and sanitation infrastructure systems. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve No agreed criteria for identifying "critical water and sanitation infrastructure systems"	Not available	Metadata guidance to be developed
9a(d)	Proportion of the total area of basins and cryosphere for which a climate adaptation plan has been developed and implemented on the basis of different warming scenarios, as appropriate for regions and contexts where applicable	No global methodology available, but national reporting possible	Parties report on "Proportion of transboundary basin area with an operational arrangement for water cooperation" under SDG 6.5.2 ⁱ . The spatial-proportion calculation method (basin area as denominator, plan-covered area as numerator) can be borrowed. For the numerator, countries can determine whether a plan has been developed and implemented, and whether it was developed on the basis of different warming scenarios, drawing on administrative/policy data already held by national basin and environment authorities	Not available	Metadata guidance to be developed

<i>Indicator No.</i>	<i>Indicator Title</i>	<i>Methodology Availability</i>	<i>Information on Methodology</i>	<i>Metadata availability</i>	<i>Information on Metadata</i>
9a(e)	Proportion of the population using safe and affordable potable water services that are climate-resilient, including as an outcome of adaptation actions where applicable	Partially available (component gap, aggregation gap)	"Proportion of population using safely managed drinking water services" is monitored via the WHO/UNICEF Joint Monitoring Programme (JMP) monitoring methodology^j under SDG 6.1.1. Affordability is already a built-in disaggregation category under SDG 6.1^k An additional adjustment is needed to account for what proportion of the safely managed drinking water services are climate resilient, including as an outcome of adaptation actions As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures targeting drinking water services have been implemented and how they relate to observed changes in the resilience of those services. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The core SDG 6.1.1 measure, climate resilience component and the adaptation outcome qualifier could be aggregated based on the methods described in chapter V	Partially available	WHO and UNICEF are the custodian agencies for the SDG Indicator 6.1.1. Metadata are available for safely managed drinking water services, but metadata guidance remains to be developed for the climate-resilience component and adaptation outcome qualifier
9a(f)	Proportion of the population using sanitation services that are safely managed and climate-resilient, including as an outcome of adaptation actions where applicable	Partially available (component gap, aggregation gap)	Proportion of population using safely managed sanitation services is monitored via the WHO/UNICEF Joint Monitoring Programme (JMP) monitoring methodology^j under SDG 6.2.1^m The climate-resilience component would require further methodological development to determine what proportion of safely managed sanitation services can be considered resilient to climate-related hazards As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures targeting sanitation services have been implemented and how they relate to observed changes in the resilience of those services. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The core SDG 6.2.1 measure, climate resilience component and the adaptation outcome qualifier could be aggregated based on the methods described in chapter V	Partially available	WHO and UNICEF are the custodian agencies for the SDG Indicator 6.2.1. Metadata are available for safely managed sanitation services, but metadata guidance remains to be developed for the climate-resilience component and adaptation outcome qualifier
9a(g)	Extent of measures taken to improve and extend water, sanitation and hygiene services to populations	Partially available (definitional gap)	Parties could report by overlaying existing WHO/UNICEF JMP data (who lacks basic/safely managed WASH services) with vulnerability assessments (who is disproportionately climate-affected or otherwise vulnerable), then tracking documented measures/programmes targeted at that overlapping population	Not available	Metadata guidance to be developed

<i>Indicator No.</i>	<i>Indicator Title</i>	<i>Methodology Availability</i>	<i>Information on Methodology</i>	<i>Metadata availability</i>	<i>Information on Metadata</i>
	disproportionately affected by climate change and to vulnerable groups relative to needs		The scales or thresholds required to measure "extent" need to be developed WHO-led GLAAS methodology assesses whether countries have adopted measures to improve and extend WASH services for populations disproportionately affected by climate change" To assess the extent of measures taken relative to needs, Parties may identify needs according to their national circumstances and adaptation and resilience objectives under future risk conditions		
9a(h)	Proportion of bodies of water with good ambient water quality for drinking water supply, including as an outcome of adaptation actions where applicable	Partially available (component gap, aggregation gap)	Parties report on "Proportion of bodies of water with good ambient water quality" under SDG 6.3.2^{o,p} Alternative method using EO: Classify water bodies meeting quality thresholds using EO water quality retrievals (e.g., turbidity, chlorophyll-a, CDOM) calibrated with in-situ sampling; report proportion with 'good' status As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures targeting water quality or drinking water supply have been implemented and how they relate to observed changes in ambient water quality. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The core SDG 6.3.2 measure and the adaptation outcome qualifier could be aggregated based on the methods described in chapter V	Partially available	UNEP is the custodian agency for the SDG Indicator 6.3.2. ^q Metadata are available for ambient water quality monitoring, but metadata guidance remains to be developed for the adaptation outcomes qualifier
9a(i)	Number of people per 100,000 supported in planned relocation processes in response to water-related hazards, where adaptation measures were taken to ensure safety of populations	No global methodology available, but national reporting possible	Parties could report this using existing disaster/civil-protection relocation records, isolating water-hazard-triggered relocations that included documented adaptation measures (as opposed to emergency evacuations), then scaling the count to per-100,000 population Alternative method using EO: EO can support the safety characterization of the new area (historical data, flood modelling)	Not available	Metadata guidance to be developed
9b. Food, Agriculture and Nutrition					
9b(a)	Proportion of area under management for food and agricultural production utilizing practices and technologies relevant to climate change adaptation	Partially available (component gap)	Parties report "Proportion of agricultural area under productive and sustainable agriculture" under SDG 2.4.1. ^r But 2.4.1 is a broad sustainability index (productivity, resilience, environment, decent work, etc.), not a targeted measure of "practices/technologies relevant to climate change adaptation" specifically, though the underlying SDG target 2.4 does explicitly reference strengthening capacity for climate adaptation among its aims, so an adaptation-specific subset	Partially available	FAO is the custodian agency for the SDG Indicator 2.4.1. ^t Metadata are available for sustainable agriculture, but metadata guidance remains

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			would need to be carved out of the existing sub-indicator set rather than built from scratch Identifying and reporting adaptation (vs. general sustainable agriculture) practices and technologies requires methodological guidance ^s		to be developed for adaptation-specific practices and technologies
9b(b)	Extent of implementation of institutional frameworks for knowledge transfer, research and development, and extension services supporting climate change adaptation in the areas of food and agriculture relative to needs	No global methodology available, but national reporting possible	Data on extension services and on research and development institutions' climate-relevant programme outputs are typically held by ministries of agriculture and national agricultural bodies. This administrative data can be compiled into an inventory of which institutional functions exist and are explicitly linked to climate adaptation (e.g., referenced in the NAP or agriculture sector adaptation plan) The scales or thresholds required to measure "extent" need to be developed To assess the extent of measures taken relative to needs, Parties may identify needs according to their national circumstances and adaptation and resilience objectives under future risk conditions	Not available	Metadata guidance to be developed
9b(c)	Level of degraded areas that are under management for food and agricultural production, including as an outcome of adaptation actions where applicable	Partially available (component gap, definitional gap)	Parties report "Proportion of land that is degraded over total land area" under SDG 15.3.1. ^u SDG 15.3.1 measures total land degradation across all land types, not specifically areas under active food/agricultural management, and it doesn't isolate degradation trends linked to adaptation actions. Both would need to be carved out as a sub-application of the existing methodology FAO's sub-indicator under SDG 2.4.1 specifically tracks soil degradation on agricultural land As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures have been implemented and how they relate to the level of degradation of areas that are under management for food and agricultural production. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve Alternative method using EO: Use EO land degradation metrics (SDG 15.3.1-style: land cover change + NPP/NDVI trend + soil organic carbon proxies) within agricultural management areas; report degraded area under management (and trends) The scales or thresholds required to measure "level" need to be developed	Partially available	UNCCD is the custodian agency for the SDG Indicator 15.3.1. Metadata are available for monitoring land degradation, but metadata guidance remains to be developed for agricultural production areas and adaptation outcome qualifier
9b(d)	Level of food and agricultural yield in areas that are under management for food and	No global methodology available,	FAOSTAT's agricultural production domain covers crop and livestock yields for 278 products, sourced from official annual production questionnaires distributed to countries, national publications, and official country websites. FAOSTAT	Partially available	FAO harmonizes this agricultural production data across 199 countries and territories. ^v Metadata

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	agricultural production, including as an outcome of adaptation actions where applicable	but national reporting possible	yield data is national/aggregate, not disaggregated to isolate only the areas under active climate-adaptation management versus conventional agriculture Alternative method using EO: Estimate yields using EO-driven crop models or empirical ML (vegetation indices, LAI, SIF, ET, rainfall) calibrated with sample surveys; compute yield levels/changes in managed areas; can be disaggregated by hazard year As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures targeting food and agricultural production have been implemented and how they relate to observed changes in food and agricultural yields. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The scales or thresholds required to measure "level" need to be developed		are available for agricultural yield reporting, but metadata guidance remains to be developed for yields in adaptation-managed production areas and the adaptation outcome qualifier
9b(e)	Proportion of the population with equitable access to adequate food and nutrition, including as an outcome of adaptation actions where applicable	Partially available (component gap, aggregation gap)	Parties report "Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)" under SDG 2.1.2.^{iv} FIES complements SDG Indicator 2.1.1 (Prevalence of Undernourishment), which measures caloric adequacy rather than direct experience of food insecurity; together the two give both an "adequate food" (2.1.1) and "access" (2.1.2) reading Methodological guidance remains to be developed for assessing the equity dimension As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures supporting food security and nutrition have been implemented and how they relate to observed changes in access to adequate food and nutrition. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The core SDG 2.1.2 measure, equity dimension and the adaptation outcome qualifier could be aggregated based on the methods described in chapter V	Partially available	Metadata are available for food insecurity measurement through FIES, ^x but metadata guidance remains to be developed for the equity dimensions and the adaptation outcome qualifier
9c. Health					
9c(a)	Rate of mortality associated with climate impacts compared with counterfactual rates, including as an outcome	Partially available (component gap)	Parties report on "Number of deaths attributed to disasters, per 100,000 population" under Sendai Indicator A2^v Alternative method using EO: Estimate hazard exposure (e.g., heat, flood, wildfire smoke, drought) from EO; link with vital statistics to compute excess	Partially available	UNDRR is the custodian agency for the Sendai Indicator A2 Metadata are available for disaster mortality reporting

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	of adaptation actions or coverage of early warning systems where applicable		mortality/morbidity vs counterfactual; EO helps define exposure and event footprints As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures and early warning systems have been implemented and how they relate to observed changes in mortality associated with climate impacts. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve		under Sendai A-2, for early warning system coverage under WMO, but metadata guidance remains to be developed for adaptation outcome qualifier
9c(b)	Level of incidence of climate-sensitive infectious diseases, including as an outcome of adaptation actions where applicable	No global methodology available, but national reporting possible	Incidence data for climate-sensitive infectious diseases is typically already collected through national disease surveillance systems and health management information systems Alternative method using EO: Model disease incidence as a function of EO-derived environmental covariates (rainfall, temperature, surface water, vegetation, humidity proxies) and socio-demographics; EO improves spatial completeness, but incidence comes from health surveillance As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures addressing climate-sensitive infectious diseases have been implemented and how they relate to observed changes in the incidence of such diseases. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The scales or thresholds required to measure "level" need to be developed	Not available	Metadata guidance to be developed
9c(c)	Rate of morbidity associated with climate impacts compared with counterfactual rates, including as an outcome of adaptation actions where applicable	Partially available (Component gap)	Parties report on "Number of injured or ill people attributed to disasters, per 100,000 population" under Sendai Indicator B2 Alternative method using EO: Estimate hazard exposure (e.g., heat, flood, wildfire, smoke, drought) from EO; link with vital statistics to compute excess mortality/morbidity vs counterfactual; EO helps define exposure and event footprints As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures have been implemented and how they relate to observed changes in morbidity associated with climate impacts. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve	Partially available	UNDRR is the custodian agency for the Sendai Indicator B2 Metadata available for disaster-related morbidity reporting, but metadata guidance remains to be developed for adaptation outcome qualifier

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9c(d)	Proportion of the population vulnerable to climate change with access to mental health and psychosocial support	No global methodology available, but national reporting possible	A country could construct this using two data streams: national mental health system data (e.g., availability of mental health centres, services, etc.) for the numerator, and climate vulnerability/exposure assessments (from NAPs or climate risk assessments) to define the "population vulnerable to climate change" denominator	Not available	Metadata guidance to be developed
9c(e)	Extent to which climate health services have remained at full capacity during and following climate-related events relative to pre-event service capacity	Partially available (component gap, definitional gap)	Sendai Framework Indicators D-1 and D-7 capture "Number of destroyed or damaged health facilities attributed to disasters." and "Number of disruptions to health services attributed to disasters." These can serve as partial proxies or component inputs; however, methodological guidance remains to be developed for assessing maintenance of health service capacity relative to pre-event levels The scales or thresholds required to measure "extent" need to be developed	Partially available	UNDRR is the custodian agency for the Sendai Indicators D-1 and D-7. Metadata are available for health-facility damage and service disruptions, but metadata guidance remains to be developed for service capacity dimension
9c(f)	Percentage of health facilities that are resilient to climate-related hazards under different warming scenarios, as appropriate for regions and contexts, including as an outcome of adaptation actions where applicable	Partially available (component gap)	WHO's Global Action Plan monitoring framework includes an indicator "Percentage of health facilities built or retrofitted to be climate resilient based on national, regional or global guidance" ^{zz} Alternative method using EO: Combine facility geolocations with EO hazard layers (e.g., flood, cyclone, heat, wildfire, smoke) and infrastructure condition proxies; score resilience under scenarios requires engineering standards + facility assessments The Copernicus Interactive Climate Atlas or national risk assessment methodologies can be used as an input for assessing different warming scenarios As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures targeting health facility resilience have been implemented and how they relate to observed changes in the resilience of health facilities. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve	Partially available	Metadata are available for climate-resilient health facilities, but metadata guidance remains to be developed for resilience under different warming scenarios
9c(g)	Coverage of essential health services that are supported by adaptation measures to ensure continuity during and	Partially available (component gap)	Parties report on 'Coverage of essential health services' under SDG 3.8.1. ^{aa} As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures supporting the continuity of essential health services during and following climate-related events have been implemented and how they relate to	Partially available	WHO is the custodian agency for the SDG Indicator 3.8.1. Metadata are available for essential health service coverage,

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	following climate-related events		observed service coverage. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve		but metadata guidance remains to be developed for reporting coverage maintained through adaptation measures during climate-related events
9c(h)	Proportion of health practitioners who have received capacity-building support pertaining to climate change adaptation and health	Partially available (component gap)	WHO's Global Action Plan monitoring framework ^{bb} includes an explicit indicator for whether "the Ministry of Health workforce has received training on climate change and health,". WHO Indicators are structured as categorical implementation-level selections or binary yes/no country reporting, not as a proportion of individual practitioners trained Methodological guidance remains to be developed for measuring the share of practitioners receiving climate adaptation and health-related capacity-building support	Partially available	Metadata are available for country-level reporting on climate and health workforce training, ^{cc} but metadata guidance remains to be developed for measuring the proportion of practitioners receiving such support
9d. Ecosystems and Biodiversity					
9d(a)	Proportion of climate-resilient ecosystems that are providing services to populations that depend on them	Partially available (aggregation gap)	Methodology to compute climate-resilient ecosystems exists under the IUCN Red List of Ecosystems (RLE), adopted as GBF headline Indicator A.1 ^{dd} Methodology to compute the "providing services to populations that depend on them" exists under GBF Indicator B.1. ^{ee} SEEA Ecosystem Accounting provides the methodological basis Alternative method using EO: Map ecosystems and condition/resilience proxies (e.g., productivity, fragmentation, canopy height, water availability). To link to 'services to populations', combine with population/usage layers and ecosystem service models The two methodologies aren't yet combined into a single methodology	Partially available	Metadata exist separately for GBF headline Indicators A.1 and B.1, but metadata guidance remains to be developed for a combined indicator linking climate-resilient ecosystems with ecosystem services provided to dependent populations
9d(b)	Proportion of ecosystem areas with adaptation actions implemented towards enhanced resilience and services	Partially available (component gap)	GBF Indicator A.2 measures the "Extent of natural ecosystems," which forms the denominator of this Indicator CBD Indicator 2.1 captures ^{ff} "Area under Restoration" which is a subset of adaptation actions and could be used in the numerator of this Indicator Alternative method using EO: Map ecosystems and condition/resilience proxies (productivity, fragmentation, canopy height, water availability). To link to 'services to populations', combine with population/usage layers and ecosystem service models	Partially available	Metadata exist for restoration activities under the GBF Indicator framework, but metadata guidance remains to be developed for the broader range of ecosystem adaptation actions that enhance resilience and ecosystem services

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			Methodological guidance remains to be developed for comprehensively capturing ecosystem adaptation actions aimed at enhancing resilience and ecosystem services		
9d(c)	Level of resilience of ecosystems, including as an outcome of adaptation actions where applicable	Partially available (component gap, aggregation gap, definitional gap)	The Bioclimatic Ecosystem Resilience Index (BERI)^{gg} measures the resilience of ecosystems Alternative method using EO: Compute resilience/condition indices from time-series: anomaly recovery time after shocks, vegetation water stress, trend stability, diversity/heterogeneity proxies. Report level and change As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures supporting ecosystem resilience have been implemented and how they relate to observed changes in ecosystem resilience. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The ecosystem resilience measure and the adaptation outcome qualifier could be aggregated based on the methods described in chapter V The scales or thresholds required to measure "level" need to be developed	Partially available	Metadata exist for the Bioclimatic Ecosystem Resilience Index (BERI), but metadata guidance to be developed for adaptation outcome qualifier
9d(d)	Level of threat status of ecosystems, including as an outcome of adaptation actions where applicable	Partially available (component gap, aggregation gap, definitional gap)	IUCN Red List Index of Ecosystems (RLE)^{hh} measures the threat status of ecosystems Alternative method using EO: Compute resilience/condition indices from time-series: anomaly recovery time after shocks, vegetation water stress, trend stability, diversity/heterogeneity proxies. Report level and change. As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures aimed at reducing threats to ecosystems have been implemented and how they relate to observed changes in ecosystem threat status. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The ecosystem threat status measure and the adaptation outcome qualifier could be aggregated based on the methods described in chapter V The scales or thresholds required to measure "level" need to be developed	Partially available	Metadata exist for the Red List Index of Ecosystems, but metadata guidance remains to be developed for adaptation outcome qualifier
9d(e)	Level of threat status of species, including as an	Partially available	IUCN Red List of Threatened Species measures the threat status of species ⁱⁱ	Partially available	Metadata exist for the Red List of Threatened Species, but metadata guidance remains to be developed

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	outcome of adaptation actions where applicable	(Component gap, aggregation gap, definitional gap)	Alternative method using EO: Derive threat pressure metrics (deforestation rate, fragmentation, land conversion, coastal erosion, fire recurrence) from EO; map % area under high threat As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures aimed at reducing threats to species have been implemented and how they relate to observed changes in species threat status. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The species threat status measure and the adaptation outcome qualifier could be aggregated based on the methods described in chapter V The scales or thresholds required to measure "Level" need to be developed		for the adaptation outcome qualifier
9d(f)	Level of adaptive capacity, resilience and vulnerability to climate impacts resulting from the implementation of ecosystem-based adaptation actions and nature-based solutions according to information reported by Parties, as appropriate	Not available	Methodology to be developed	Not available	Metadata guidance to be developed
9e. Infrastructure and Human Settlements					
9e(a)	Proportion of settlement upgrading programmes implemented that include climate change adaptation measures and maintain sustained engagement at the local level	No global methodology available, but national reporting possible	Parties could report the number of settlement upgrading programmes that include climate adaptation measures and maintained engagement at the local level, and the total number of settlement upgrading programmes, based on programme-level data typically held by national/municipal housing and urban development ministries, to calculate the proportion Alternative method using EO: Use EO to identify upgraded areas (roof materials, street layout, drainage features, impervious surface) and hazard exposure reduction; but programme implementation requires admin data Criteria for what constitutes "sustained engagement at the local level" need to be defined	Not available	Metadata guidance to be developed
9e(b)	Proportion of infrastructure and human	No global methodology	Parties could report the number of infrastructure and human settlements relocated to a safer location, and the total number identified as vulnerable to climate-	Not available	Metadata guidance to be developed

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	settlements vulnerable to climate-related hazards and other extreme events relocated to a safer location	gy available, but national reporting possible	related hazards and other extreme events, based on data typically held by national disaster management agencies and urban/settlement planning ministries, to calculate the proportion Alternative method using EO: Detect relocation by tracking built-up footprint decrease in risk zones and increase in safer zones (change detection). Combine with hazard maps to define 'vulnerable'		
9(f) Poverty eradication and livelihoods					
9f(a)	Level of population living in poverty, including as an outcome of adaptation actions where applicable	Partially available (component gap, definitional gap, aggregation gap)	Parties report “Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural)” under SDG 1.1.1^{jj} Parties report on “Proportion of population living below the national poverty line, by sex and age” under SDG 1.2.1,^{kk} with the World Bank as the custodian Parties report “Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions” under SDG 1.2.2^{ll} Alternative method using EO: EO proxies (e.g., night-time lights, roof/settlement morphology, accessibility, cropland productivity shocks) can estimate poverty at high resolution, but calibration with surveys is required As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures aimed at reducing poverty and vulnerability to climate change have been implemented and how they relate to observed changes in the population living in poverty. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve The poverty measure and the adaptation outcome qualifier could be aggregated based on the methods described in chapter V The scales or thresholds required to measure "Level" need to be developed	Partially available	ILO and the World Bank are the custodian agencies for the SDG Indicator 1.1.1 World Bank is the custodian agency for the SDG Indicator 1.2.1 World Bank, UNICEF and UNDP are the custodian agencies for the SDG Indicator 1.2.2 Metadata guidance remains to be developed adaptation outcome qualifier
9f(b)	Proportion of the population in climate-vulnerable areas with access to social protection services	Partially available (component gap)	Parties report on “Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable” under SDG 1.3.1.^{mm} Sub-national disaggregation to measure coverage in “climate-vulnerable areas” not yet availableⁿⁿ	Partially available	ILO is the custodian agency for the SDG Indicator 1.3.1. Comprehensive metadata are available for the measurement and reporting of social protection coverage. Metadata guidance remains to be

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					developed for climate-specific disaggregation
9f(c)	Level of social protection systems that consider climate risk management aspects and can respond to climate change impacts	No global methodology available, but national reporting possible	Parties could report on the level of social protection systems that consider climate risk management aspects and can respond to climate change impacts based on data typically held by ministries of social development/labour and national social protection registries, supplemented by international databases such as ILO's Social Protection database or the World Bank's ASPIRE database where relevant The scales or thresholds required to measure "Level" need to be developed	Not available	Metadata guidance to be developed
9g. Cultural Heritage					
9g(a)	Percentage of at-risk cultural and natural heritage sites and elements with adaptation measures implemented to enhance resilience to climate-related hazards under different warming scenarios, as appropriate for regions and contexts, guided by traditional, local or Indigenous Peoples' knowledge and practices, disaggregated, as appropriate, by tangible and intangible cultural elements	No global methodology available, but national reporting possible	Parties could report the number of at-risk cultural and natural heritage sites and elements with adaptation measures implemented, and the total number of at-risk sites and elements, based on country assessment data typically held by ministries of culture/heritage, national heritage registries, and UNESCO World Heritage listings where applicable, to calculate the percentage Alternative method using EO: Combine heritage site inventories with EO hazard layers (e.g., flood, coastal erosion, landslide, wildfire, subsidence) and site monitoring (e.g., InSAR deformation, shoreline change) to identify at-risk sites and track physical impacts; adaptation measures require site management data The Copernicus Interactive Climate Atlas or national risk assessment methodologies can be used as an input for assessing resilience under different warming scenarios Information on adaptation measures, resilience under different warming scenarios, and the required cultural heritage classifications and disaggregation could be aggregated based on the methods described in chapter V	Not available	Metadata guidance to be developed
9g(b)	Proportion of cultural heritage protected from climate impacts through digitization measures for preservation and recovery and by storing movable heritage in climate-resilient facilities	No global methodology available, but national reporting possible	Parties could report the number of cultural heritage items protected through digitization for preservation/recovery or stored in climate-resilient facilities, and the total number of cultural heritage items, based on assessment data typically held by ministries of culture/heritage, national heritage and museum registries, and digitization initiatives (e.g. UNESCO's Memory of the World programme), to calculate the proportion	Not available	Metadata guidance to be developed
9g(c)	Percentage of cultural heritage and sites with	No global methodology	Parties could report the number of cultural heritage sites with adaptation measures and emergency preparedness plans in place, and the total number of	Not available	Metadata guidance to be developed

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	adaptation measures and emergency preparedness plans in place for climate change-related hazards under different warming scenarios, as appropriate for regions and contexts	gy available, but national reporting possible	cultural heritage sites, based on assessments data typically held by ministries of culture/heritage, national heritage registries, and UNESCO World Heritage listings where applicable, to calculate the percentage The Copernicus Interactive Climate Atlas or national risk assessment methodologies can be used as an input for assessing resilience under different warming scenarios		
9g(d)	Level of establishment of institutional arrangements for the provision of regular training on climate change adaptation that incorporates guidance from traditional, local and Indigenous Peoples' knowledge where applicable	No global methodology available, but national reporting possible	Parties could report on the level of establishment of institutional arrangements for regular climate change adaptation training based on data typically held by ministries of education, environment, or capacity-building focal points, and national training/curriculum records, supplemented by NAP-linked capacity-building plans where available The scales or thresholds required to measure "Level" need to be developed	Not available	Metadata guidance to be developed
9g(e)	Percentage of climate adaptation measures focused on cultural heritage that maintain sustained engagement with Indigenous Peoples and/or local communities	No global methodology available, but national reporting possible	Parties could report the number of climate adaptation measures focused on cultural heritage that maintain sustained engagement with Indigenous Peoples and/or local communities, and the total number of climate adaptation measures focused on cultural heritage, based on data typically held by ministries of culture/heritage and national heritage registries, to calculate the percentage Criteria for what qualifies as "sustained engagement" with Indigenous Peoples and/or local communities need to be defined	Not available	Metadata guidance to be developed
10a. Impact, vulnerability and risk assessment					
10a(a)	Level of establishment of multi-hazard early warning systems	Partially available (definitional gap)	Number of countries that have multi-hazard early warning systems is reported under Sendai Indicator G1 EW4All Pillar 2 Rapid Assessment methodology: Uses a 1–5 maturity scale to evaluate hazard monitoring and forecasting CREWS Framework: An integrated institutional and technical approach based on WMO standards The scales or thresholds required to measure "Level of establishment" need to be developed	Available	UNDRR is the custodian agency for the Sendai Indicator G-1. EW4All Dashboard offers public access to Rapid Assessment country scorecards and underlying data

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10a(b)	Level of conduct of assessments of climate hazards, climate change impacts, and exposure to risks and vulnerabilities based on different global warming scenarios, as appropriate for regions and contexts	Partially available (definitional gap)	“Number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local levels” is reported under Sendai Indicator G-5 WMO’s Climapact tool: Statistical tool to compute standardized climate indices and trends EW4All Pillar 2 Rapid Assessment: Evaluates national capacity for risk-informed hazard monitoring WMO-No. 1287 incorporates RCP/CMIP/CORDEX-based scenario methodology, providing partial coverage of the warming-scenario component The Copernicus Interactive Climate Atlas or national risk assessment methodologies can be used as an input for assessing resilience under different warming scenarios The scales or thresholds required to measure "Level" need to be developed	Partially available	UNDRR is the custodian agency for the Sendai Indicator G-5. Metadata are available for Sendai Indicator G-5 and associated risk-assessment reporting, but metadata guidance remains to be developed for assessing climate impacts, exposure and vulnerabilities under different global warming scenarios
10a(c)	Level of establishment of multi-hazard monitoring and impact-based forecasting systems, including monitoring stations	Partially available (definitional gap)	The number of countries that have multi-hazard monitoring and forecasting systems is reported under Sendai Indicator G-2 Sendai Indicator G-2 does not explicitly include the “monitoring stations” component; however, this aspect is covered through the WMO Integrated Global Observing System (WIGOS), which provides standards for data validation and consistency across observing networks EW4All Pillar 2 Rapid Assessment: Specifically assesses observational infrastructure and forecasting capabilities The scales or thresholds required to measure "Level of establishment" need to be developed	Available	UNDRR is the custodian agency for the Sendai Indicator G-2
10a(d)	Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms	Available	Countries report on the number of people covered by early warning information under Sendai Indicator G-3. CREWS Monitoring, Evaluation, Accountability and Learning (MEAL) Framework EW4All Dashboard: shows overall hazard monitoring/forecasting capacity and hazard-specific capacity levels	Available	UNDRR is the custodian agency for the Sendai Indicator G-3. Methodology, data standards and data from over 100 countries are currently available
10a(e)	Percentage of the population in a country exposed to or at risk from climate-related disasters protected through pre-emptive evacuation	Available	Countries report percentage of population exposed to or at risk from disasters protected through pre-emptive evacuation following early warning under Sendai Indicator G-3 CREWS Framework: Supports linking early warning to preparedness and anticipatory action plans	Available	UNDRR is the custodian agency for the Sendai Indicator G-3. Methodology, data standards and data from over 100 countries are currently available. Parties

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	measures following early warning		EW4All Pillar 2 Rapid Assessment: Assesses warning services and MHEWS operations		may not report on this indicator if no evacuations were done in the reporting year
10a(f)	Level of establishment of climate information services for risk reduction and systematic observation to support improved climate-related data, information and services	Partially available (aggregation gap, definitional gap)	WMO structures this Indicator around 7 components of the climate services value chain (observations, data management, monitoring/analysis, forecasting, product tailoring, user uptake, governance) plus 3 cross-cutting areas (capacity development, quality management, MEL/socio-economic benefits) The scales or thresholds required to measure "Level of establishment" need to be developed	Partially available	Metadata are available through the EW4All Pillar 2 Rapid Assessment and associated WMO frameworks, but metadata guidance remains to be developed for consistently measuring the level of establishment of climate information services across countries
10a(g)	Extent of usage of climate risk information and comprehensive risk assessment based on different global warming scenarios, as appropriate for regions and contexts, to inform formulation of national adaptation plans, policy instruments, and planning processes and/or strategies	Partially available (definitional gap)	WMO-No. 1287: Guidance for integrating climate projections and risk analyses into NAPs and NDCs Methodology captures whether climate risk information is generated The Copernicus Interactive Climate Atlas or national risk assessment methodologies can be used for assessing resilience under different warming scenarios Countries may report the information regarding usage of risk information in their planning processes The scales or thresholds required to measure "Extent" need to be developed	Partially available	Metadata are available for climate information products and risk-assessment outputs, but metadata guidance remains to be developed for measuring the extent to which such information informs adaptation planning and decision-making
10b. Planning					
10b(a)	Status of having national adaptation plans, policy instruments, and planning processes and/or strategies in place	Available	Secretariat assessment of the existence/status of relevant plans, policies, processes and strategies based on information available through NAP Central and other reporting instruments	Available	UNFCCC secretariat maintains reporting guidance and documentation for National Adaptation Plans and other reporting instruments
10b(b)	Status of having gender-responsive adaptation plans, policy instruments,	Available	Secretariat assessment of the existence/status of gender-responsive adaptation plans, policy instruments, and planning processes and/or strategies based on information available through NAP Central and other reporting instruments	Available	UNFCCC secretariat maintains reporting guidance and

<i>Indicator No.</i>	<i>Indicator Title</i>	<i>Methodology Availability</i>	<i>Information on Methodology</i>	<i>Metadata availability</i>	<i>Information on Metadata</i>
	and planning processes and/or strategies in place				documentation for National Adaptation Plans and other reporting instruments
10b(c)	Existence of national adaptation plans, policy instruments, planning processes and strategies that have been informed by traditional knowledge, knowledge of Indigenous Peoples and local knowledge systems	Available	Secretariat assessment of the existence/status of relevant plans, policies, processes and strategies that have been informed by traditional knowledge, knowledge of Indigenous Peoples and local knowledge systems based on information available through NAP Central and other reporting instruments Note: the criteria for “informed” need to be agreed	Available	UNFCCC secretariat maintains reporting guidance and documentation for National Adaptation Plans and other reporting instruments
10c. Implementation					
10c(a)	Extent of implementation of national adaptation plans, policies and strategies relative to planned implementation thereof	No global methodology available, but national reporting possible	Parties could report the implementation information based on the data that exists via national NAP M&E frameworks The scales or thresholds required to measure "Extent" need to be developed	Not available	Metadata guidance to be developed
10c(b)	Number of deaths and missing persons associated with climate-related hazards, per 100,000 people, including as an outcome of adaptation actions where applicable	Partially available (component gap)	Parties report on the Number of deaths and missing persons attributed to disasters, per 100,000 population under Sendai Indicators A1, A2 and A3 As an initial approach, the adaptation outcome qualifier could be assessed qualitatively through indicator-specific questions examining whether adaptation measures have been implemented and how they relate to observed changes in mortality and the number of missing persons associated with climate-related hazards. Where no relevant adaptation measures have been implemented, Parties could report only the core measure. Quantitative approaches may be developed as methodologies and reporting experience evolve	Partially available	UNDRR is the custodian agency for Sendai indicators A1, A2 and A3. Metadata are available for mortality and missing-person reporting, but metadata guidance to be developed for the adaptation outcome qualifier
10c(c)	Net savings as a percentage of gross domestic product from avoided losses, including as an outcome of	Partially available (component gap)	Sendai Framework Target C and its corresponding Indicators (feeding into SDG 1.5.2, 11.5.2, 13.1.2) measure direct disaster economic loss in relation to global GDP. Methodology for quantifying 'net savings from avoided losses' resulting from the implementation of adaptation actions specifically remains to be developed	Partially available	Metadata are available for disaster economic losses under Sendai Target C, but metadata guidance remains to be developed for estimating avoided losses

<i>Indicator No.</i>	<i>Indicator Title</i>	<i>Methodology Availability</i>	<i>Information on Methodology</i>	<i>Metadata availability</i>	<i>Information on Metadata</i>
	adaptation actions where applicable				and linking savings to adaptation actions.
10c(d)	Amount of finance for climate adaptation reported in line with chapters IV, V and VI, as relevant and as appropriate, of the annex to decision 18/CMA.1, disaggregated by the parameters listed in paragraphs 123, 125, 133 and 134, as applicable, of the same decision, which includes the amount of international public finance for climate adaptation provided by developed countries and received by developing countries for the implementation of national adaptation plans, policy instruments, and planning processes and/or strategies	Available	Decision 18/CMA.1 reporting framework exists	Available	Metadata and reporting requirements are established under decision 18/CMA.1 and the Enhanced Transparency Framework
10c(e)	Technology development and transfer for climate adaptation reported in line with chapters IV, V and VI, as relevant and as appropriate, of the annex to decision 18/CMA.1, disaggregated by the parameters listed in paragraphs 127, 136 and 138, as applicable, of the same decision, which includes technology development and transfer	Available	Decision 18/CMA.1 reporting framework exists	Available	Metadata and reporting requirements are established under decision 18/CMA.1 and the Enhanced Transparency Framework

<i>Indicator No.</i>	<i>Indicator Title</i>	<i>Methodology Availability</i>	<i>Information on Methodology</i>	<i>Metadata availability</i>	<i>Information on Metadata</i>
	support for climate adaptation provided by developed countries and needed and received by developing countries for the implementation of national adaptation plans, policy instruments, and planning processes and/or strategies				
10c(f)	Capacity-building for climate adaptation reported in line with chapters IV, V and VI, as relevant and as appropriate, of the annex to decision 18/CMA.1, disaggregated by the parameters listed in paragraphs 129, 140 and 142, as applicable, of the same decision, which includes capacity-building support for climate adaptation provided by developed countries and needed and received by developing countries for the implementation of national adaptation plans, policy instruments, and planning processes and/or strategies	Available	Decision 18/CMA.1 reporting framework exists	Available	Metadata and reporting requirements are established under decision 18/CMA.1 and the Enhanced Transparency Framework
10d. Monitoring, Evaluation and Learning					
10d(a)	Extent of design of a system for monitoring, evaluation and learning for national adaptation efforts relative to needs	No global methodology available, but national	Parties could report on existing MEL design documentation The scales or thresholds required to measure "Extent" need to be developed To assess the extent of design relative to needs, Parties may identify needs according to their national circumstances	Not available	Metadata guidance to be developed

<i>Indicator No.</i>	<i>Indicator Title</i>	<i>Methodology Availability</i>	<i>Information on Methodology</i>	<i>Metadata availability</i>	<i>Information on Metadata</i>
		reporting possible			
10d(b)	Level of operationalization of a system for monitoring, evaluation and learning for national adaptation efforts	No global methodology available, but national reporting possible	Parties could report on the operationalization of a system for monitoring, evaluation and learning for national adaptation efforts based on the national data The scales or thresholds required to measure "Level" need to be developed	Not available	Metadata guidance to be developed
10d(c)	Level of periodic publication of monitoring, evaluation and learning findings regarding the implementation of national adaptation efforts	No global methodology available, but national reporting possible	Parties could report on periodic publication of monitoring, evaluation and learning findings regarding the implementation of national adaptation efforts based on the national data The scales or thresholds required to measure "Level" need to be developed	Not available	Metadata guidance to be developed
10d(d)	Level of integration of monitoring, evaluation and learning system findings into national adaptation efforts	No global methodology available, but national reporting possible	Parties could report on integration of monitoring, evaluation and learning system findings into national adaptation efforts based on the national data The scales or thresholds required to measure "Level" need to be developed	Not available	Metadata guidance to be developed
10d(e)	Level of institutional capacity to fully operate systems for monitoring, evaluation and learning for national adaptation efforts	No global methodology available, but national reporting possible	Parties could report on institutional capacity to fully operate systems for monitoring, evaluation and learning for national adaptation efforts in the national data The scales or thresholds required to measure "Level" need to be developed	Not available	Metadata guidance to be developed

^a 2017. STEP-BY-STEP MONITORING METHODOLOGY FOR INDICATOR 6.4.2. Available at https://www.unwater.org/sites/default/files/app/uploads/2020/02/EN-Step-by-step-for-indicator-6-4-2-V20190204_rev.pdf.

^b WMO. 2026. Submission from WMO. Available at <https://wmo.int/events/meeting/climate-science-advisors-2026-1-2026-2>.

- ^c <https://atlas.climate.copernicus.eu/atlas>.
- ^d [TRACC framework](#).
- ^e [Australia's Global Warming Levels framework](#).
- ^f [Aqueduct 4.0](#).
- ^g Technical inputs from the ESA and the European Commission's Joint Research Centre (JRC).
- ^h [Step-by-step methodology 6.4.1 on water use efficiency](#).
- ⁱ [SDG indicator 6.5.2 metadata](#).
- ^j [JMP Methodology](#).
- ^k [SDG indicator 6.1 metadata](#).
- ^l [JMP Methodology](#).
- ^m [SDG indicator 1.1.1 metadata](#).
- ⁿ 2026. Operationalizing the Belém Adaptation Indicators on Water and Sanitation. Available at <https://www.unwater.org/publications/operationalizing-belem-adaptation-indicators-water-and-sanitation>.
- ^o [Step-by-step monitoring methodology for indicator 6.3.2](#).
- ^p [SDG indicator 6.3.2 metadata](#).
- ^q [SDG Water Quality Hub](#).
- ^r [Methodological note of SDG 2.4.1](#).
- ^s FAO submission to UNFCCC.
- ^t [SDG Indicator 2.4.1 portal](#).
- ^u [Good practice guidance. SDG indicator 15.3.1](#).
- ^v <https://www.fao.org/faostat/en/#data/OCL>.
- ^w [Step-by-step methodology of SDG 2.1.2](#).
- ^x [FAO's SDG Indicators Data Portal](#).
- ^y [Methodology can be accessed here \(Page 8\): https://www.undrr.org/publication/technical-guidance-monitoring-and-reporting-progress-achieving-global-targets-sendai#downloads](#).
- ^z [Indicators of climate resilience and GHG emissions in health systems](#).
- ^{aa} [SDG indicator 3.8.1 metadata](#).
- ^{bb} [Indicators of climate resilience and GHG emissions in health systems](#).
- ^{cc} [Health and Climate Change Global Survey](#).
- ^{dd} <https://www.gbf-indicators.org/metadata/headline/A-1>.
- ^{ee} <https://www.gbf-indicators.org/metadata/headline/B-1>.
- ^{ff} <https://www.gbf-indicators.org/metadata/headline/2-2>.
- ^{gg} <https://www.gbf-indicators.org/metadata/other/8-4-C>.
- ^{hh} <https://www.gbf-indicators.org/metadata/headline/A-1>.
- ⁱⁱ <https://www.gbf-indicators.org/metadata/headline/A-3>.
- ^{jj} [SDG indicator 1.1.1 metadata](#).
- ^{kk} [SDG indicator 1.2.1 metadata](#).
- ^{ll} [SDG indicator 1.2.2 metadata](#).
- ^{mm} [A Guidebook on SDG Labour Market Indicators](#).
- ⁿⁿ [Measuring Adaptive Social Protection for All under the Global Goal on Adaptation](#).

Annex III

Alignment between country-reported indicators and the Belém Adaptation Indicators

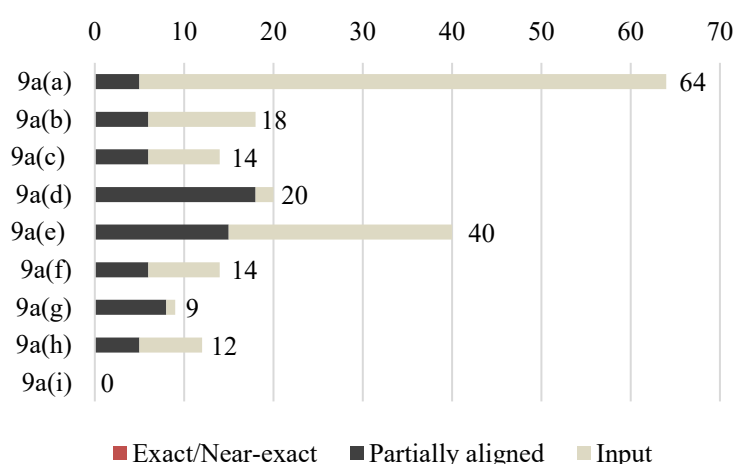
1. Country-reported indicators associated with the targets under the United Arab Emirates Framework for Global Climate Resilience contained in adaptation communications, NAPs, NDCs, and BTRs submitted between November 2024 and January 2026¹ (10 NAPs, 21 NDCs, 25 BTRs and 1 Adaptation communication) were assessed for their alignment with the Belém Adaptation Indicators. In total, 2,325 country-reported indicators were identified across the reporting instruments reviewed.
2. The alignment assessment applied a three-tier classification. The indicators were flagged as (i) exact/near-exact match, when they had the same measurement concept, the same unit of analysis, and essentially the same indicator worded differently (ii) partially aligned, when they measures the same underlying concept but narrower/broader scope, different unit, or missing a qualifier (e.g., missing "climate-resilient" or "as an outcome of adaptation actions") and (iii) input, when it is not a match itself, but could serve as a data input to compute the indicator.
3. For several targets, particularly 9(f) and 9(g), the aligned dataset is drawn from a small number of Parties (as few as three to six). Consequently, patterns identified for these targets should be regarded as indicative of reporting practices among the reviewed reports rather than representative of Party reporting more broadly. In addition, the current analysis is based on a subset of reports (57 reports) submitted between November 2024 and January 2026, out of the more than 300 reports submitted by Parties. Throughout the analysis presented below, references to the share of Parties (e.g. "one Party", "several Parties" or "most Parties") relate to this subset of reviewed reports and should not be interpreted as referring to all Parties.

9a. Water and Sanitation

	<i>Indicator title</i>
9a(a)	Level of water stress, including as an outcome of adaptation actions where applicable, accounting for relevant climate hazard intensity and/or frequency
9a(b)	Level of water-use efficiency, including as an outcome of adaptation actions where applicable
9a(c)	Proportion of critical water and sanitation infrastructure systems that are resilient to climate-related hazards under different warming scenarios, as appropriate for regions and contexts, including as an outcome of adaptation actions where applicable
9a(d)	Proportion of the total area of basins and cryosphere for which a climate adaptation plan has been developed and implemented on the basis of different warming scenarios, as appropriate for regions and contexts where applicable
9a(e)	Proportion of the population using safe and affordable potable water services that are climate-resilient, including as an outcome of adaptation actions where applicable
9a(f)	Proportion of the population using sanitation services that are safely managed and climate-resilient, including as an outcome of adaptation actions where applicable
9a(g)	Extent of measures taken to improve and extend water, sanitation and hygiene services to populations disproportionately affected by climate change and to vulnerable groups relative to needs

¹ This period was selected to allow Parties sufficient time to incorporate the targets under the UAE Framework for Global Climate Resilience, adopted in November 2023, into their reporting processes and submissions. November 2024 was therefore used as the starting point, while January 2026 was used as the cut-off date to allow time for the analysis of submissions for preparation of this paper. The selected period also captures the first major reporting cycle under the Enhanced Transparency Framework, during which most first Biennial Transparency Reports were submitted.

- 9a(h) Proportion of bodies of water with good ambient water quality for drinking water supply, including as an outcome of adaptation actions where applicable
- 9a(i) Number of people per 100,000 supported in planned relocation processes in response to water-related hazards, where adaptation measures were taken to ensure safety of populations



4. Of the country-reported water indicators reviewed against the nine Belém Adaptation Indicators under target 9(a), none of the indicators constitutes an exact or near-exact match. As with the general pattern described in paragraph III.3.26, no country indicator attempts to isolate the adaptation outcome qualifier in the level of water stress, efficiency, or access.

5. Indicator 9a(a) (level of water stress) accounts for the largest total volume of reported indicators under the theme (60), and the largest share of input classifications specifically (55, approximately 29 per cent of the full dataset). Because water stress has a concrete, well-established formula (withdrawal over availability), Parties tend to report the constituent elements of that ratio, such as reservoir capacity, groundwater levels and desalination infrastructure, rather than the computed ratio itself.

6. Indicator 9a(d) (adaptation plans for basins and cryosphere) displays the inverse pattern, with partial alignment (18) substantially outnumbering input classifications (2). Nearly every aligned indicator here is some version of "a water resource management plan exists or is being implemented," almost always missing only the warming-scenario disaggregation or the explicit basin/cryosphere framing.

7. Indicator 9a(e) (proportion of the population using climate-resilient potable water services) accounts for the second-largest volume of reported indicators under the theme (40), divided between input (25) and partial (15) classifications. This reflects the breadth of existing national reporting infrastructure built around SDG 6.1.1, with most Parties reporting general drinking water access rates that have not yet been adjusted to incorporate the climate-resilience qualifier specified under the adopted indicator.

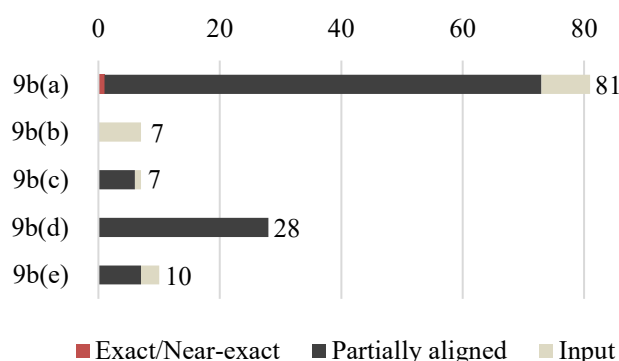
8. Indicator 9a(i) (number of people supported in planned relocation in response to water-related hazards) had no reported indicators, consistent with the absence of an established methodology noted in annex II.

9. 9a(g) (WASH extension to vulnerable populations) is almost entirely partial, with only 1 input. Nearly everything here is already close to the actual construct (emergency WASH response, resilient facility upgrades). It suggests that when countries do report on this indicator, they report it fairly directly, but very few countries report on it at all (only 8 total indicators, the second smallest set after 9a(i)).

9b. Food, Agriculture and Nutrition

Indicator title

-
- 9b(a) Proportion of area under management for food and agricultural production utilizing practices and technologies relevant to climate change adaptation
- 9b(b) Extent of implementation of institutional frameworks for knowledge transfer, research and development, and extension services supporting climate change adaptation in the areas of food and agriculture relative to needs
- 9b(c) Level of degraded areas that are under management for food and agricultural production, including as an outcome of adaptation actions where applicable
- 9b(d) Level of food and agricultural yield in areas that are under management for food and agricultural production, including as an outcome of adaptation actions where applicable
- 9b(e) Proportion of the population with equitable access to adequate food and nutrition, including as an outcome of adaptation actions where applicable
-



10. Of the country-reported food, agriculture and nutrition indicators reviewed against the five Belém Adaptation Indicators under target 9(b), only one constitutes an exact or near-exact match. Parties are reporting on substantively relevant agricultural adaptation content without yet adjusting their indicator formulations to match the precise wording. Across all five Indicators, partial alignment is the dominant category (113 of 133 indicators, approximately 85 per cent), for the same adaptation outcome qualifier reason described above.

11. Input classifications are concentrated in two indicators only, 9b(a) and 9b(b). This distribution reflects a structural feature of the adopted Indicator set: for 9b(a) and 9b(b), Parties frequently report information on adaptation practices, technologies, extension services, research activities and institutional arrangements that can serve as inputs to the Belém Adaptation Indicators but do not correspond directly to the indicators as defined. By contrast, 9b(c), 9b(d) and 9b(e) are framed as aggregate levels or proportions that Parties tend to report directly, even if imperfectly, resulting primarily in partial alignments rather than inputs.

12. Indicator 9b(a) accounts for the largest volume of reported indicators of any 9(b) indicator (81 of 133, over 60 per cent of the dataset), and contains the only exact/near-exact match identified across the theme. This suggests that, among the five Indicators, 9b(a) is the most readily operationalized by Parties, consistent with the finding that it benefits from an established methodology under SDG 2.4.1 and mature national reporting practice.

13. A substantial share of partial matches under 9b(a) report practice adoption in units other than area, such as percentage of farmers, farming households or livestock owners, rather than the area-based proportion specified in the adopted indicator. Where these unit-based indicators are reported without accompanying area data, a methodological conversion would be required to align them with the adopted construct. Land tenure security, land certificate documentation, and land tenure-secured pastoral areas repeatedly appear as input to 9b(a). This suggests Parties are already collecting the type of tenure-related data that could support a more complete operationalization of 9b(a).

14. All seven indicators identified under 9b(b) are classified as input. This is consistent with the finding that no established methodology exists for this indicator: Parties report discrete outputs of research and extension activity, such as the number of technologies developed or extension programmes implemented, but none report on the "extent of implementation relative to needs" as the adopted Indicator requires.

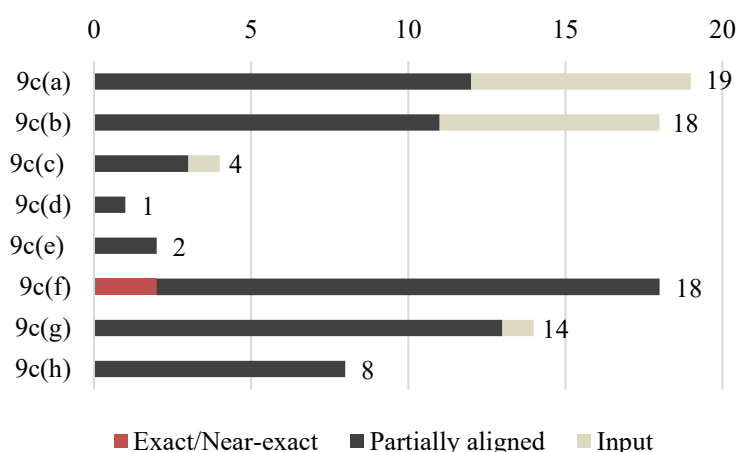
15. Reported indicators under 9b(c) are limited in number (seven) but consistently well-aligned in substance, with six of seven classified as partial. This suggests that, notwithstanding the low reporting volume, Parties that do report on this Indicator generally report the correct underlying construct, namely the area of degraded agricultural land brought under restoration or improved management.

16. All 28 indicators identified under 9b(d) are classified as partial, with no input or exact matches. This is the most homogeneous distribution of any target 9(b) indicator and reflects the wide availability of national crop, livestock and fisheries production statistics, consistent with the finding of FAOSTAT and FISHSTAT as mature, near-universal data sources. None of the reported indicators, however, isolate yield specifically within areas under adaptation management, nor link yield levels to adaptation actions.

17. Reported indicators under 9b(e) draw on a range of distinct data sources, including food insecurity prevalence, dietary diversity and per capita food consumption, reflecting the multiple SDG Indicators (2.1.1, 2.1.2, 2.2.4) identified as potentially relevant. However, none of the reported indicators incorporate a climate-exposure disaggregation or an adaptation-outcome component.

9c. Health

<i>Indicator title</i>	
9c(a)	Rate of mortality associated with climate impacts compared with counterfactual rates, including as an outcome of adaptation actions or coverage of early warning systems where applicable
9c(b)	Level of incidence of climate-sensitive infectious diseases, including as an outcome of adaptation actions where applicable
9c(c)	Rate of morbidity associated with climate impacts compared with counterfactual rates, including as an outcome of adaptation actions where applicable
9c(d)	Proportion of the population vulnerable to climate change with access to mental health and psychosocial support
9c(e)	Extent to which climate health services have remained at full capacity during and following climate-related events relative to pre-event service capacity
9c(f)	Extent to which climate health services have remained at full capacity during and following climate-related events relative to pre-event service capacity
9c(g)	Coverage of essential health services that are supported by adaptation measures to ensure continuity during and following climate-related events
9c(h)	Proportion of health practitioners who have received capacity-building support pertaining to climate change adaptation and health



18. Of the country-reported health indicators reviewed against the eight Belém Adaptation Indicators under target 9(c), only two constitute exact or near-exact matches

(approximately three per cent), both under Indicator 9c(f). Partial alignment dominates the dataset overall (67 of 78 indicators, approximately 86 per cent), and for the mortality, morbidity and incidence-based indicators (9c(a), 9c(b), 9c(c)), the recurring reason is the absence of a counterfactual comparison: Parties report raw mortality, morbidity or incidence figures without the baseline or counterfactual rate against which the adopted Indicators require these to be assessed.

19. Indicator 9c(a) draws input and partial contributions in comparable measure from both direct mortality reporting and early warning system coverage, consistent with the indicator's dual construction as either an adaptation-outcome measure or an early warning system coverage measure.

20. Indicator 9c(b) is the most heavily reported indicator under the target (18 of 78 indicators) and shows the clearest split between direct incidence reporting (partial) and surveillance system reporting (input), with disease-specific incidence data (malaria, dengue, vector-borne diseases) appearing consistently across multiple reporting instruments and countries.

21. Reported indicators under 9c(c) are limited in number (four) and largely overlap in substance with those reported under 9c(b), suggesting that Parties do not consistently distinguish between morbidity and incidence reporting in their national indicator frameworks.

22. Indicator 9c(d) is reported by only a single country, consistent with the absence of any established methodology. Indicator 9c(e) also shows very limited reporting (two indicators), despite the availability of a partial proxy methodology through Sendai Framework Indicators D-1 and D-7.

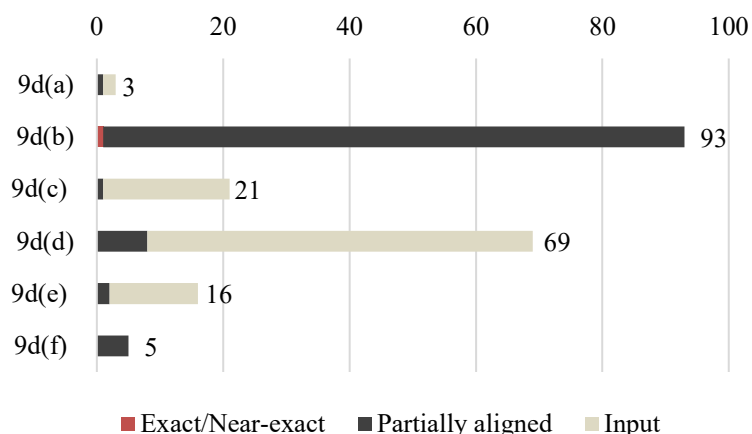
23. Indicator 9c(f) accounts for the largest volume of reported indicators under the target (18) and contains indicators that are exact/near-exact match identified across target 9(c).

24. Reported indicators under 9c(g) consistently capture service continuity and supply chain resilience (medicine availability, cold chain functionality, stock disruption), closely matching the adopted indicator's core construct, but none report coverage as a population-based proportion, missing the specific "coverage" framing required by the indicator.

25. All eight reported indicators under 9c(h) are partial, consistently reporting training counts or shares of professionals trained rather than a population-wide proportion of practitioners.

9d. Ecosystems and biodiversity

<i>Indicator title</i>	
9d(a)	Proportion of climate-resilient ecosystems that are providing services to populations that depend on them
9d(b)	Proportion of ecosystem areas with adaptation actions implemented towards enhanced resilience and services
9b(c)	Level of resilience of ecosystems, including as an outcome of adaptation actions where applicable
9b(d)	Level of threat status of ecosystems, including as an outcome of adaptation actions where applicable
9b(e)	Level of threat status of species, including as an outcome of adaptation actions where applicable
9b(f)	Level of adaptive capacity, resilience and vulnerability to climate impacts resulting from the implementation of ecosystem-based adaptation actions and nature-based solutions according to information reported by Parties, as appropriate



26. Of the country-reported ecosystems and biodiversity indicators reviewed against the six Belém Adaptation Indicators under target 9(d), only one constitutes an exact or near-exact match.

27. The distribution of categories varies markedly across the six indicators, in contrast to targets 9(a) through 9(c), where partial alignment consistently dominated. Under target 9(d), Input is the dominant category overall (97 of 207 indicators), driven principally by indicators 9d(c), 9d(d) and 9d(e), while partial alignment is concentrated almost entirely in Indicator 9d(b). This divergence reflects the underlying methodological structure of the six indicators: 9d(b) is built around a straightforward area-based ratio that Parties can report directly, whereas 9d(a), 9d(c), 9d(d) and 9d(e) rely on composite indices (combining ecosystem extent, condition, connectivity and species status) for which Parties tend to report only the constituent data layers rather than the computed index itself.

28. Indicator 9d(a) is the least reported indicator under the theme, consistent with the finding that no single, combined methodology yet exists for this indicator, since the "climate-resilient ecosystem" and "providing services to populations" components draw on two distinct and as yet unintegrated methodologies (IUCN Red List of Ecosystems and SEEA ecosystem accounting respectively).

29. Indicator 9d(b) accounts for the largest volume of reported indicators of any target 9(d) indicator by a substantial margin (93 of 207, approximately 45 per cent of the dataset), and is overwhelmingly partial (92 of 93). This indicates that restoration, rehabilitation and area-under-management reporting is by far the most common form of ecosystem-related adaptation content in national reporting instruments, and that Parties are, in principle, already generating much of the data this indicator requires, missing primarily the explicit linkage to an identified total area requiring adaptation or resilience enhancement, as specified in the indicator's denominator.

30. Indicator 9d(c) is reported almost entirely through input (20 of 21 indicators), with reported content concentrated on hazard exposure and monitoring data such as fire incidence, ocean acidification monitoring and landscape connectivity. This is consistent with the Bioclimatic Ecosystem Resilience Index (BERI) as a composite spatial measure that no country indicator could plausibly replicate directly, meaning that all country contributions to this indicator are, by construction, component data rather than the resilience measure itself.

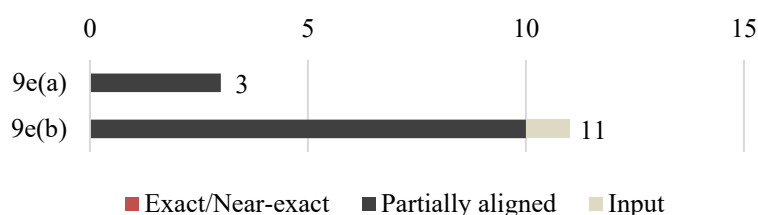
31. Indicator 9d(d) accounts for the second-largest volume of reported indicators under the theme (69) and, like 9d(c), is overwhelmingly input (61 of 69). Reported content is dominated by protected area extent, forest cover and deforestation data, reflecting the wide availability of national protected-area and forest-monitoring statistics as constituent inputs to the Red List Index of Ecosystems, notwithstanding the absence of any country indicator that computes the Index itself.

32. Indicator 9d(e) follows the same pattern as 9d(c) and 9d(d), with input again dominant (14 of 16 indicators), reflecting species conservation actions and Red List assessment counts reported as discrete activities rather than as an aggregated species-level threat index.

33. All five indicators reported under 9d(f) are from one Party and are generic "proportion of change" formulations not specific to ecosystems, rather than indicators purpose-built for this construct. This is consistent with the absence of an established methodology for 9d(f) and suggests that, at present, no Party has developed an ecosystem-specific indicator capable of directly addressing this indicator's combined adaptive capacity, resilience and vulnerability framing.

9e. Infrastructure and Human Settlements

<i>Indicator title</i>	
9e(a)	Proportion of settlement-upgrading programmes implemented that include climate change adaptation measures and maintain sustained engagement at the local level
9e(b)	Proportion of infrastructure and human settlements vulnerable to climate-related hazards and other extreme events relocated to a safer location



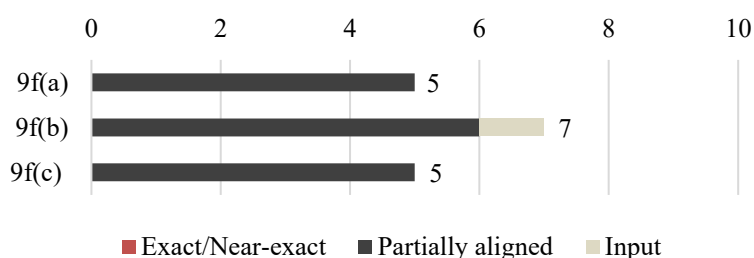
34. Of the country-reported infrastructure and human settlements indicators reviewed against the two Belém Adaptation Indicators under target 9(e), none constitute an exact or near-exact match. This is the smallest reporting volume of any thematic target, reflecting the narrow scope of the two adopted indicators relative to the far broader range of infrastructure and settlement content Parties typically report. In both indicators, Parties consistently report the numerator, such as housing units upgraded or households relocated, without the corresponding total (settlement-upgrading programmes, or vulnerable infrastructure and settlements) against which a proportion could be calculated, indicating that the barrier here is an absent denominator rather than a lack of activity data.

35. Indicator 9e(a) is reported by only three Parties, each reporting housing-upgrading activity (renovated housing, adaptation measures in settlements, green remodelling of public rental housing) rather than a settlement-upgrading programme as such. None of the reported indicators address the "sustained engagement at the local level" component of the adopted indicator, suggesting this qualifier is not yet reflected in national reporting practice at all.

36. Indicator 9e(b) accounts for the larger share of reported indicators under the theme (11 of 14) and shows a somewhat broader range of relevant content than 9e(a), including direct relocation counts, pre-emptive resettlement site approvals and regulatory measures preventing new settlement in hazard-exposed areas.

9f. Poverty and Livelihoods

<i>Indicator title</i>	
9f(a)	Level of population living in poverty, including as an outcome of adaptation actions where applicable
9f(b)	Proportion of the population in climate-vulnerable areas with access to social protection services
9f(c)	Level of social protection systems that consider climate risk management aspects and can respond to climate change impacts



37. Of the country-reported poverty and livelihood indicators reviewed against the three Belém Adaptation Indicators under target 9(f), none constitute an exact or near-exact match, and 16 of the 17 are partial. Reporting is limited in both volume and country coverage, drawn from only six Parties, and should be treated as indicative rather than representative of country reporting practice more broadly.

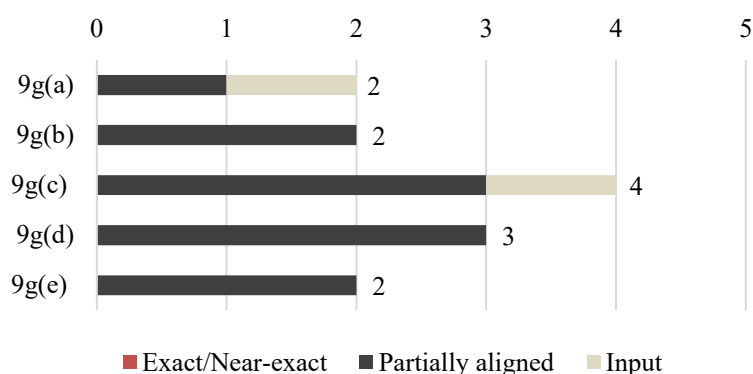
38. All five indicators reported under 9f(a) are standard national or subnational poverty-rate measures, several disaggregated by sex, age or geography, and are partial for a single, consistent reason: none incorporate the "as an outcome of adaptation actions" qualifier specified in the adopted indicator. This indicates that while Parties routinely collect and report poverty statistics through existing national systems, no methodology yet exists, nor has been applied, for attributing observed changes in poverty levels to adaptation interventions specifically.

39. Reported indicators under 9f(b) generally capture social protection coverage or support reaching climate-vulnerable populations, but several target vulnerability by occupational group (e.g., herder-specific social insurance coverage) rather than by the climate-vulnerable geography specified in the adopted indicator.

40. All five indicators reported under 9f(c) describe the design of specific climate-responsive social protection instruments, such as an adaptive social protection strategy, a climate-risk-integrated household registry and a parametric insurance pilot, rather than a system-level assessment of the kind implied by the indicator's "level of establishment" framing. Reporting on this indicator remains concentrated in a small number of Parties, consistent with the absence of an established methodology, and suggests that 9f(c) is, at present, operationalized only where a Party has undertaken bespoke adaptive social protection design work rather than through any standard reporting practice.

9g. Cultural Heritage

<i>Indicator title</i>	
9g(a)	Percentage of at-risk cultural and natural heritage sites and elements with adaptation measures implemented to enhance resilience to climate-related hazards under different warming scenarios, as appropriate for regions and contexts, guided by traditional, local or Indigenous Peoples' knowledge and practices, disaggregated, as appropriate, by tangible and intangible cultural elements
9g(b)	Proportion of cultural heritage protected from climate impacts through digitization measures for preservation and recovery and by storing movable heritage in climate-resilient facilities
9g(c)	Percentage of cultural heritage and sites with adaptation measures and emergency preparedness plans in place for climate change related hazards under different warming scenarios, as appropriate for regions and contexts
9g(d)	Level of establishment of institutional arrangements for the provision of regular training on climate change adaptation that incorporates guidance from traditional, local and Indigenous Peoples' knowledge where applicable
9g(e)	Percentage of climate adaptation measures focused on cultural heritage that maintain sustained engagement with Indigenous Peoples and/or local communities



41. Of the country-reported cultural heritage indicators reviewed against the five Belém Adaptation Indicators under target 9(g), none constitute an exact or near-exact match, and reporting is confined to four Parties (Viet Nam, Cambodia, Suriname, Venezuela), consistent with cultural heritage being a comparatively new area of adaptation reporting.

42. Several reported indicators recur across more than one 9(g) indicator, most notably one Party's site restoration and household-engagement indicator, which is relevant to both 9g(c) and 9g(e), and another Party's national heritage inventory and vulnerability assessment, which is relevant to both 9g(a) and 9g(c). This reflects the closely nested structure of the five indicators such that a single country-reported indicator addressing heritage-site status can plausibly inform more than one indicator simultaneously.

43. The two indicators reported under 9g(a) together illustrate the numerator-denominator structure the Indicator requires: One Party's national heritage inventory and vulnerability assessment establishes the total population of at-risk sites, while its community-led documentation projects represent the adaptation measures implemented. No single reported indicator, however, combines both elements into the proportion the Indicator specifies.

44. Only two indicators are reported under 9g(b) and it relate to documentation of traditional knowledge and oral histories rather than to digitization or climate-resilient storage of movable heritage as specifically defined in the indicator. This suggests that, while Parties are undertaking preservation-related activity broadly consistent with the intent of 9g(b), the specific adaptation measures the Indicator identifies, namely digitization and resilient storage, are not yet distinctly reflected in national reporting.

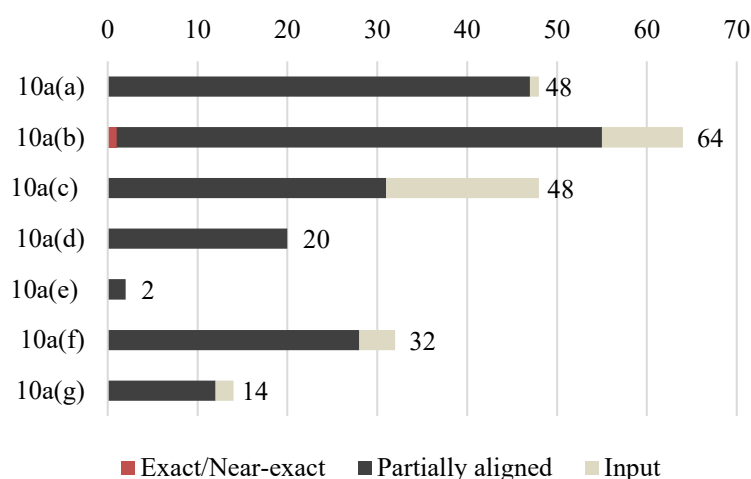
45. Indicator 9g(c) accounts for the largest volume of reported indicators under the theme (four), with one Party's site-level restoration and adaptive management data providing the closest substantive match identified across target 9(g). None of the reported indicators, however, address the emergency preparedness plan component of the indicator, nor the warming-scenario component, suggesting these remain unaddressed dimensions of the Indicator in current national reporting.

46. Reported indicators under 9g(d) reflect institutional or platform-level integration of traditional and Indigenous knowledge into adaptation planning and sectoral strategies, rather than a specific training-provision arrangement as such. This suggests that, where Parties report content relevant to 9g(d), it tends to be framed around broader knowledge-integration mechanisms rather than the regular training function that constitutes the indicator's core construct.

47. Both indicators reported under 9g(e) touch on community engagement in heritage-related adaptation activity, but neither clearly demonstrates the "sustained" quality of engagement the Indicator specifies, namely engagement across multiple phases of the adaptation cycle, regular interaction, or documented incorporation of feedback.

10a. Impact, Vulnerability and Risk Assessment

<i>Indicator title</i>	
10a(a)	Level of establishment of multi-hazard early warning systems
10a(b)	Level of conduct of assessments of climate hazards, climate change impacts, and exposure to risks and vulnerabilities based on different global warming scenarios, as appropriate for regions and contexts
10a(c)	Level of establishment of multi-hazard monitoring and impact-based forecasting systems, including monitoring stations
10a(d)	Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms
10a(e)	Percentage of the population in a country exposed to or at risk from climate-related disasters protected through pre-emptive evacuation measures following early warning
10a(f)	Level of establishment of climate information services for risk reduction and systematic observation to support improved climate-related data, information and services
10a(g)	Level of establishment of climate information services for risk reduction and systematic observation to support improved climate-related data, information and services



48. Of the country-reported impact, vulnerability and risk assessment indicators reviewed against the seven Belém Adaptation Indicators under dimensional target 10(a), only two constitute an exact or near-exact match, both under Indicator 10a(b). Partial alignment is the dominant category across all seven indicators (241 of 261 total classifications), while input is comparatively concentrated in three indicators only, 10a(c), 10a(f) and 10a(b). This distribution reflects the underlying structure of the Indicator set: 10a(a), 10a(d) and 10a(e) are framed as early warning system-level or population-level status measures that Parties tend to report directly, whereas 10a(c) in particular is built around discrete monitoring infrastructure (stations, networks, databases) that Parties report as itemized assets rather than as a composite level of establishment.

49. Reporting volume under target 10(a) is markedly higher than under any of the seven thematic targets, with 10a(b) alone accounting for 64 indicators, more than the entire reported dataset for several thematic targets. This reflects the cross-cutting nature of climate risk, vulnerability and early warning content, which recurs across virtually every sector of national adaptation reporting rather than being confined to a single thematic chapter.

50. Indicator 10a(a) contains the only genuine exact/near-exact match among "early warning system establishment" indicators, while the remaining 47 reported indicators are partial, generally reporting the establishment and operational status or performance of early warning systems.

51. Indicator 10a(b) accounts for the largest volume of reported indicators of any indicator under target 10(a) (64), reflecting the breadth of risk, vulnerability and hazard assessment activity that Parties report across virtually every sector. The nine input classifications identified largely represent named assessments or databases (such as national vulnerability

databases) rather than assessment counts, while the single exact/near-exact match demonstrates that where a Party reports assessment completion in terms directly mirroring the indicator's "level of conduct" framing, precise alignment is achievable.

52. Indicator 10a(c) shows the highest proportion of input classifications among the seven 10(a) indicators (17 of 48, over one third), consistent with Parties reporting individual monitoring assets, such as weather stations, radar networks and hydrometeorological databases, as discrete infrastructure counts rather than as a composite assessment of system maturity. This mirrors the pattern already observed for water Indicator 9a(a), where a well-defined technical construct is approximated through an accumulation of infrastructure-level reporting rather than direct measurement.

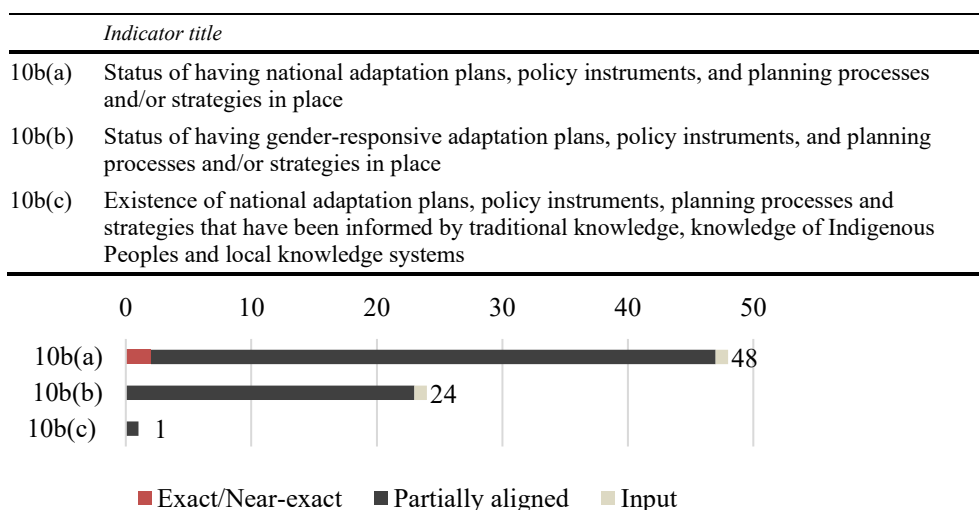
53. All 20 indicators reported under 10a(d) are partial, generally expressed as a percentage or proportion of a specific population group (e.g., farmers, herders, fishers, women and youth) with access to climate information or early warnings, rather than as the population-wide rate per 100,000 people specified in the adopted indicator. This suggests Parties are reporting coverage in terms relevant to their own thematic or demographic reporting priorities rather than the standardized population metric the Indicator requires.

54. Indicator 10a(e) is the least reported Indicator under target 10(a), with only two indicators identified, neither of which directly addresses pre-emptive evacuation as the protective mechanism specified in the indicator. Parties may not report on this Indicator in years without evacuations, and suggests that the specific evacuation framing of 10a(e) is not yet well reflected in national indicator frameworks generally.

55. Indicator 10a(f) accounts for the third-largest volume of reported indicators under the theme (32) and draws heavily on climate bulletin, advisory and information-platform reporting across the agriculture, water and general climate-services domains.

56. Indicator 10a(g) is comparatively underreported relative to 10a(a) through 10a(c) and 10a(f) (14 indicators), despite drawing on similar underlying climate information infrastructure. This suggests that, while Parties frequently report on the existence and output of monitoring, forecasting and information services, they report far less often on whether and how such information is subsequently used to inform national planning and policy processes.

10b. Planning



57. Of the country-reported planning indicators reviewed against the three Belém Adaptation Indicators under target 10(b), four constitute an exact or near-exact match (five per cent), with partial alignment dominant (70 of 74). Reporting is heavily concentrated in 10b(a) (48 indicators) relative to 10b(b) (25) and 10b(c) (one), indicating that the existence and status of adaptation planning instruments is far more consistently reported than either their gender-responsiveness or their traditional and Indigenous knowledge basis.

58. The three exact/near-exact matches identified under 10b(a) each report plan or policy existence in a form that corresponds directly to the "status of having...in place" framing of

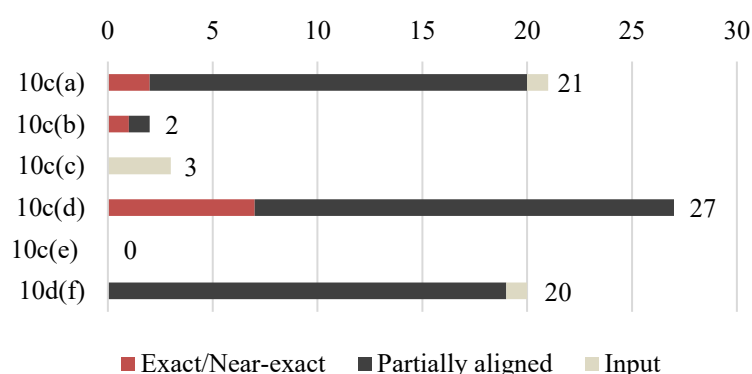
the adopted indicator. This suggests that, notwithstanding the broad range of plan-related content reported under this indicator, precise alignment is most readily achieved where a Party reports plan status as a straightforward existence or coverage measure, rather than through more elaborate or sector-specific planning content.

59. All 23 partial matches identified under 10b(b) report some dimension of gender-responsive planning or institutional participation, most commonly the proportion or number of women in leadership, decision-making or consultative roles within adaptation-related institutions and processes, rather than the gender-responsiveness of a plan or policy instrument as such.

60. Indicator 10b(c) is reported by only a single Party. This near-complete absence of reporting suggests that, notwithstanding the emphasis placed on traditional and Indigenous knowledge integration elsewhere in the UAE Framework for Global Climate Resilience, including under target 9(g) on cultural heritage, this dimension is not yet systematically captured in the planning-related content of national reporting instruments and may warrant particular attention in future methodological guidance.

10c. Implementation

<i>Indicator title</i>	
10c(a)	Extent of implementation of national adaptation plans, policies and strategies relative to planned implementation thereof
10c(b)	Number of deaths and missing persons associated with climate-related hazards, per 100,000 people, including as an outcome of adaptation actions where applicable
10c(c)	Net savings as a percentage of gross domestic product from avoided losses, including as an outcome of adaptation actions where applicable
10c(d)	Amount of finance for climate adaptation reported in line with chapters IV, V and VI, as relevant and as appropriate, of the annex to decision 18/CMA.1 , disaggregated by the parameters listed in paragraphs 123, 125, 133 and 134, as applicable, of the same decision, which includes the amount of international public finance for climate adaptation provided by developed countries and received by developing countries for the implementation of national adaptation plans, policy instruments, and planning processes and/or strategies
10c(e)	Technology development and transfer for climate adaptation reported in line with chapters IV, V and VI, as relevant and as appropriate, of the annex to decision 18/CMA.1 , disaggregated by the parameters listed in paragraphs 127, 136 and 138, as applicable, of the same decision, which includes technology development and transfer support for climate adaptation provided by developed countries and needed and received by developing countries for the implementation of national adaptation plans, policy instruments, and planning processes and/or strategies
10c(f)	Capacity-building for climate adaptation reported in line with chapters IV, V and VI, as relevant and as appropriate, of the annex to decision 18/CMA.1 , disaggregated by the parameters listed in paragraphs 129, 140 and 142, as applicable, of the same decision, which includes capacity-building support for climate adaptation provided by developed countries and needed and received by developing countries for the implementation of national adaptation plans, policy instruments, and planning processes and/or strategies



61. Of the country-reported implementation indicators reviewed against the six Belém Adaptation Indicators under target 10(c), ten constitute an exact or near-exact match, representing approximately 14 per cent of the dataset. This is the highest proportion of exact alignment identified across any target reviewed, driven principally by Indicator 10c(d) on

finance, and indicates that Parties' existing financial reporting practices, particularly those developed for the Enhanced Transparency Framework, correspond closely to the precise formulation of the adopted indicators.

62. Reporting volume and category distribution vary considerably across the six indicators. Indicator 10c(e) (technology development and transfer) has no reported indicators, while 10c(b) (mortality and missing persons) and 10c(c) (net savings from avoided losses) are each reported by only a small number of Parties. By contrast, 10c(a) (implementation extent), 10c(d) (finance) and 10c(f) (capacity-building) together account for the great majority of the dataset, reflecting the extent to which implementation, finance and capacity-building reporting is already embedded in reporting instruments.

63. Indicator 10c(a) contains two exact/near-exact matches, both reporting implementation or achievement rates in terms that directly mirror the "extent of implementation" framing of the adopted indicator. The remaining reported indicators are predominantly partial, generally describing the number or proportion of plans, programmes or measures implemented without expressing this relative to a defined baseline of planned implementation, indicating that while implementation activity is well reported, the specific ratio the Indicator requires is less consistently constructed.

64. Indicator 10c(b) is reported by only two Parties, one of which constitutes an exact/near-exact match through direct reporting of deaths, missing persons and persons affected attributed to climate-related disasters.

65. All three indicators reported under 10c(c) are classified as input, each reporting the cost of climate-related damages or losses rather than net savings from losses avoided through adaptation. This is consistent with the absence of any established methodology for this Indicator and indicates that while Parties are beginning to quantify climate-related economic losses, no Party has yet reported the counterfactual "avoided losses" calculation the indicator requires.

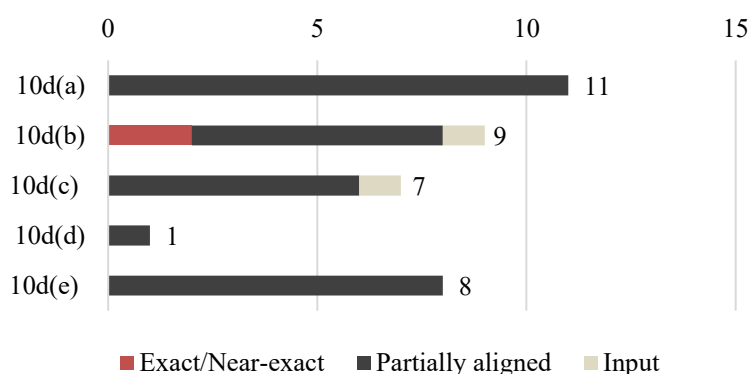
66. Indicator 10c(d) accounts for the largest volume of reported indicators under the theme (27) and the largest number of exact/near-exact matches identified across the entire crosswalk (seven). This indicates that national finance-tracking systems, several of which appear to have been developed in connection with Enhanced Transparency Framework reporting obligations, are considerably more advanced and more readily alignable with the Belém Adaptation Indicators.

67. No country-reported indicators were identified against Indicator 10c(e). All 20 reported indicators under 10c(f) are partial, with the exception of a single input classification, generally reporting training counts, numbers of participants, or proportions of staff trained in climate change adaptation, several disaggregated by gender. None of the reported indicators express capacity-building support in terms that align precisely with indicator wording

68. .

10d. Monitoring, Learning and Evaluation (MEL)

<i>Indicator title</i>	
10d(a)	Extent of design of a system for monitoring, evaluation and learning for national adaptation efforts relative to needs
10d(b)	Level of operationalization of a system for monitoring, evaluation and learning for national adaptation efforts
10d(c)	Level of periodic publication of monitoring, evaluation and learning findings regarding the implementation of national adaptation efforts
10d(d)	Level of integration of monitoring, evaluation and learning system findings into national adaptation efforts
10d(e)	Level of institutional capacity to fully operate systems for monitoring, evaluation and learning for national adaptation efforts



69. Of the country-reported MEL indicators reviewed against the five Belém Adaptation Indicators under target 10(d), three constitute an exact or near-exact match (nine per cent), and reporting volume declines progressively across the five indicators, from 11 under 10d(a) to a single indicator under 10d(d). This suggests Parties report more readily on the design and operationalization of MEL systems than on whether such systems' findings are subsequently integrated into national adaptation efforts, echoing the production-versus-application gap noted in Indicator 10a(g).

70. Reported indicators under 10d(a) are entirely partial and generally describe the development of monitoring tools, databases or disaggregated indicator sets, several with a specific focus on gender, age or disability disaggregation. None of the reported indicators, however, express system design relative to identified needs, as specified in the adopted indicator, suggesting that while Parties report the existence of MEL-related tools and data systems, no established practice yet exists for reporting the extent of design relative to the needs as worded in the Indicator.

71. Indicator 10d(b) contains two exact/near-exact matches, both reporting the existence of a functional national monitoring and evaluation system in terms that correspond directly to the adopted indicator's "level of operationalization" framing.

72. Reported indicators under 10d(c) consistently describe periodic reporting obligations and practices, including submissions to the UNFCCC Secretariat and national climate change assessment reports, indicating that this Indicator draws heavily on Parties' existing formal reporting cycles.

73. Indicator 10d(d) is reported by only a single Party. This near-complete absence of reporting suggests that the integration of MEL findings back into adaptation planning and implementation, as distinct from the mere existence of MEL systems and their periodic outputs, is not yet a distinctly reported practice.

74. All eight reported indicators under 10d(e) describe institutional arrangements, working groups, or specialized agencies engaged in climate change adaptation, rather than an assessment of institutional capacity to operate MEL systems specifically. This suggests that Parties are reporting general adaptation governance architecture as a proxy for MEL institutional capacity, in the absence of any Indicator that directly addresses the operational capacity dimension the adopted Indicator specifies.

Annex IV

Examples of other synthesis report processes

1. The following paragraphs include examples of synthesis report processes that are not part of the UNFCCC process. However, they do not constitute a comprehensive list, as compiling a complete inventory was beyond the available resources of the secretariat team.
2. While focusing on synthesis report processes that are considered part of the formal UNFCCC process in chapter IV, external processes are also selected for review based on three criteria: (1) a recurring institutional mandate; (2) global or near-global coverage; and (3) direct relevance to one or more targets or indicators.
3. Synthesis report processes outside the UNFCCC are relevant to the global goal on adaptation in two ways: as sources of adaptation-relevant information, particularly where Belém Adaptation Indicators correspond closely to indicators that those processes already monitor, and as sources of methodological lessons for operating a global, indicator-based review. The following processes are featured here considering their global coverage and periodic (as opposed to one-off) nature of reporting. A matrix mapping the processes is included in the table below.
4. **The SDG monitoring and review process.** The global indicator framework for the Sustainable Development Goals is maintained by national statistical systems and international focal agencies, with data compiled in the SDG global indicator database and synthesized annually in the Sustainable Development Goals Progress Report, with periodic review by the high-level political forum.¹ It has direct relevance: several Belém Adaptation Indicators correspond closely to established SDG indicators with existing methodologies, focal organizations and data flows (see annex II for indicator-level correspondences). Methodologically, the SDG process offers an established model of tiered indicators, agreed metadata and focal-agency stewardship.
5. **The Sendai Framework monitoring process.** Countries report against the seven global targets of the Sendai Framework for Disaster Risk Reduction through the online Sendai Framework Monitor; the United Nations Office for Disaster Risk Reduction (UNDRR) synthesizes progress in periodic editions of the Global Assessment Report on Disaster Risk Reduction and, with WMO, in the annual Global Status of Multi-Hazard Early Warning Systems (MHEWS) report, the primary monitoring product of the Early Warnings for All initiative.²
6. **The UNEP Adaptation Gap Report.** Published annually, it is the only recurring global synthesis dedicated specifically to adaptation, assessing planning, finance and implementation. Its finance-gap methodology (modelled needs ranges against tracked flows) and its NAP-quality assessments are directly relevant to targets 10(b) and 10(c).
7. **IPCC assessments.** The Intergovernmental Panel on Climate Change provides the scientific reference synthesis of impacts, adaptation and vulnerability through its Working Group II reports in each assessment cycle. Beyond assessment findings, the IPCC contributes the most systematic methodological model for the treatment of uncertainty in a consensus review, calibrated confidence and likelihood language agreed across governments, and its assessments of adaptation progress, limits and maladaptation provide framing concepts for interpreting indicator trends.³
8. **United Nations system thematic monitoring.** Several recurring thematic monitoring products monitor variables corresponding to individual thematic targets: The State of Food

¹ General Assembly resolutions 70/1 and 71/313; United Nations, The Sustainable Development Goals Report (annual); SDG global Indicator database, available at <https://unstats.un.org/sdgs>.

² Sendai Framework for Disaster Risk Reduction 2015-2030; Sendai Framework Monitor, available at <https://sendaimonitor.undrr.org>; UNDRR, Global Assessment Report on Disaster Risk Reduction (periodic); UNDRR and WMO, Global Status of Multi-Hazard Early Warning Systems 2025.

³ IPCC. 2022. Climate Change 2022: Impacts, Adaptation and Vulnerability (Working Group II contribution to the Sixth Assessment Report); IPCC guidance note on the consistent treatment of uncertainties.

Security and Nutrition in the World (FAO and partners, annual) for the food security dimensions of target 9(b); the WHO-UNICEF Joint Monitoring Programme updates (biennial) for the drinking water, sanitation and hygiene dimensions of target 9(a); the WHO Health and Climate Change Global Surveys and country profiles for the health-system dimensions of target 9(c); and national reporting under the monitoring framework of the Kunming-Montreal Global Biodiversity Framework for the ecosystem dimensions of target 9(d).⁴ These processes provide focal-agency-quality data streams but do not, at present, isolate climate-resilience components or adaptation outcomes. FAO is the focal or co-focal agency for a range of indicators under the SDGs and the Kunming-Montreal Global Biodiversity Framework (KMGBF), including six KMGBF headline indicators, and maintains the underlying data systems (FAOSTAT, AQUASTAT, FISHSTAT and the SDG Indicators Data Portal) that could support reporting against target 9(b) (food, agriculture and nutrition) and target 9(d) (ecosystems and biodiversity).

9. UNESCO's Culture|2030 Indicators framework offers 22 thematic indicators across four dimensions (environment and resilience, prosperity and livelihoods, knowledge and skills, and inclusion and participation), drawing on the periodic reporting mechanisms of the 1972 and 2003 UNESCO Culture Conventions together with national and local administrative sources. Indicator 3, "Climate adaptation and resilience", is directly relevant to the cultural heritage target: it is a checklist-based indicator assessing measures taken to foster climate change mitigation and adaptation and to enhance resilience through the sustainable safeguarding and management of tangible and intangible cultural heritage as well as natural heritage, applied at both national and urban levels.⁵

Table 1

Mapping matrix: selected synthesis report processes not part of the UNFCCC process

<i>Process (lead)</i>	<i>Mandate and source information</i>	<i>Frequency and country coverage</i>	<i>Thematic coverage</i>	<i>Data qualification</i>
SDG progress reports and indicator database (UNSD; focal agencies)	General Assembly resolutions 70/1 and 71/313; national statistics via focal agencies	Annual reports; database updated continuously; global	Poverty, water, food, health, ecosystems, cities, climate (Goals 1, 2, 3, 6, 11, 13, 15)	Tier classification; agreed metadata; national versus estimated data flagged
Sendai Framework Monitor and GAR (UNDRR)	General Assembly endorsement of the Sendai Framework (resolution 69/283); national reporting through the Sendai Framework Monitor	Continuous monitoring; GAR periodic; global	Disaster losses, risk governance, early warning (targets A-G)	Country-reported data; coverage and comparability caveats stated
Global Status of MHEWS (UNDRR/WMO)	Early Warnings for All initiative; Sendai Target G	Annual; global	Early warning coverage and comprehensiveness	Country-reported data; comprehensiveness scoring explained

⁴ FAO *et al.*, The State of Food Security and Nutrition in the World (annual); WHO and UNICEF, Joint Monitoring Programme updates (biennial); WHO, Health and Climate Change Global Survey Report (2021) and country profiles; CBD decision 15/5 (monitoring framework of the Kunming-Montreal Global Biodiversity Framework).

⁵ UNESCO. 2019. Thematic Indicators for Culture in the 2030 Agenda (Culture|2030 Indicators). Paris: UNESCO. Available at https://www.itl-worldwide.org/pdfs/culture_indicators_en.pdf.

<i>Process (lead)</i>	<i>Mandate and source information</i>	<i>Frequency and country coverage</i>	<i>Thematic coverage</i>	<i>Data qualification</i>
UNEP Adaptation Gap Report	UNEP mandate; UNEA	Annual; global	Adaptation planning, finance, implementation	Modelled ranges for needs; explicit assumptions
IPCC Working Group II assessments	IPCC mandate (WMO/UNEP)	Per assessment cycle (~ 5 - 7 years); global and regional	Impacts, adaptation, vulnerability across all systems	Calibrated confidence and likelihood language
SOFI (Joint publication by FAO, IFAD, UNICEF, WFP, WHO)	FAO mandate	Annual; global	Food security and nutrition	Statistical margins; scenario ranges
WHO-UNICEF JMP	Joint WHO/UNICEF monitoring programme and SDG custodianship (6.1/6.2)	Biennial updates; global	Drinking water, sanitation, hygiene	Service-ladder methodology; estimates flagged
WHO Health and Climate Change Global Survey and country profiles	World Health Assembly mandates	Periodic; global	Climate-resilient health systems, HNAPs	Survey-based; response-rate caveats
GBF monitoring framework (CBD)	CBD COP decision 15/5	National reports; periodic; global	Ecosystems, species, restoration	Headline/component/complementary indicator tiers
UNESCO Culture 2030 Indicators (UIS)	UNESCO Culture Conventions (1972, 2003); UIS technical coordination	Framework launched in 2019; voluntary national/urban uptake; country coverage uneven	Cultural heritage safeguarding, climate adaptation and resilience, cultural facilities	Checklist plus statistical indicators; draws on Convention periodic reports and national administrative data