Summary report of the meeting of experts under the UAE–Belém work programme on indicators

16 September 2025

I. Introduction

A. Mandate

1. CMA 5 adopted the UAE Framework for Global Climate Resilience, which includes seven thematic and four-dimensional targets. It also launched a two-year UAE–Belém work programme on indicators for measuring progress achieved towards the targets referred to in paragraphs 9–10 of decision 2/CMA.5. The subsidiary bodies (SBs) at their sixtieth sessions further elaborated on the modalities of the work programme. This included mandates for technical work led by experts convened by the Chairs of Subsidiary Bodies, as well as for the convening of workshops and preparation of related outputs.

2. The SB 62 conclusions provided further guidance to the experts, namely, to continue working immediately to reduce the number of indicators to no more than 100[1], using additional guidance[2], and to submit their final technical report, including information on methodologies, and the final list of potential indicators to the secretariat in August 2025[3].

3. The SB 62 conclusions[4] requested the SBSTA and the SBI Chairs to organize, with the support of the secretariat, a meeting of the experts, in a hybrid format, during which the experts will:

(a) Verify the completed columns for metadata and data collection for the final list of potential indicators;

(b) Verify that the indicators are in line with the guidance in paragraphs 14–15 of the SB 62 conclusions;

(c) Undertake peer review of their indicator lists to ensure consistency and identify and resolve redundancies in indicators across the targets referred to in paragraphs 9–10 of decision 2/CMA.5;

(d) Conduct quality control checks with a view to standardizing the format of the indicators.

B. Proceedings

4. The meeting of experts under the UAE–Belém work programme on indicators[5] was held in a hybrid format from August 20 to 22, 2025, at the United Nations Office at Nairobi, Kenya. The plenary sessions were broadcast live on YouTube[6]. A total of 27 experts attended in person, with additional experts participating virtually.

5. The meeting was opened with remarks by Ms. Julia Gardiner, Chair of the SBI, delivered online, and by Ms. Anacláudia Rossbach, Executive Director of UN-Habitat, through a video message.

[1] SB 62 conclusions, para. 13
[2] SB 62 conclusions, paras. 15-16
[3] SB 62 conclusions, para. 18
[4] SB 62 conclusions, para. 17
[5] The concept note and agenda for the meeting of experts are available at https://unfccc.int/documents/649220
[6] Available at https://www.youtube.com/playlist?list=PLBcZ22cUY9RIFcvwfkPyT9lWZ_GVw26Ei

II. Summary of discussions

A. Updates from experts on the indicator process

6. One expert took the floor to provide a high-level overview of the progress of the work and noted that the consolidated list from May 2025 had been streamlined. The working list now contains approximately 113 indicators (10–15 per target), including 15 for means of implementation (MOI), with the caveat that more indicators could be considered as such. It was further noted that indicators for target 10c (implementation) are still to be finalised.

7. Additionally, it was explained that the experts had continued working immediately after SB 62 and have met regularly since then, using an agreed template. It was noted that further work is needed, including shortening the list to 100, considering the final structure, conducting the peer review, addressing overlaps between targets, standardising indicators, and agreeing on how disaggregation should be applied.

8. Several experts took the floor and highlighted the importance of reaching agreement on how to reflect and place MOI indicators across the different targets and indicators, including through standalone indicators and those applicable across thematic areas. Another expert noted the importance of including indicators on technology and capacity-building as well as finance. Additionally, one expert highlighted that enablers must be considered alongside MOI indicators. Experts observed that overlapping indicators present opportunities for reducing the list, but also that gaps remain, including on cross-cutting considerations and it was suggested that it would be useful to reach consensus on how these are approached.

9. Following the initial round of reflections and noting questions from experts on whether their list must contain exactly 100 indicators or if some flexibility was possible, the SBI Chair explained that experts need not focus solely on leaving the meeting with precisely 100 indicators, as a slightly larger expert list would provide Parties with the opportunity to refine it further. She stressed that it would ultimately be up to the Parties to determine how they use the list provided by the experts.

10. Following this, experts provided updates on their progress since SB 62, key challenges, and unresolved issues.

(a) The **water** experts outlined their approach, noting that their list had been reduced to 10 indicators, which were deemed the most water-specific, with an additional four related to MOI and enablers. Some rephrasing was undertaken to include adaptation relevance, but it was noted that this poses challenges related to attribution (i.e. distinguishing what results from an adaptation action as opposed to what does not).

(b) The **food and agriculture** experts reported that they had applied additional criteria to their indicators, reducing their list to nine. Previous "sub-indicators" were subsumed into the nine through disaggregation. This group also mapped the indicators that had been dropped to assess the extent to which they were covered by other targets, in collaboration with other groups' experts. The update also raised the issue of how to capture climate context through indicators, and stressed the importance of ensuring consistency across all targets in how information is included in the different columns of the template.

(c) The **health** experts explained that they had reduced their list from 62 indicators to 10. They reported having held numerous discussions with stakeholders, which had provided valuable insights and highlighted that adaptation relevance and a climate signal were key criteria for inclusion, but noted that further work is needed on links to the dimensional target indicators as well as overlapping thematic targets.

(d) The **ecosystems** experts have reduced their list to 12 indicators, covering the three objectives of the global goal on adaptation (enhancing adaptive capacity, strengthening resilience, and reducing vulnerability), as well as three MOI indicators. It was noted that enhanced resilience is incorporated via indicators on nature-based solutions and restoration, and that there are several overlaps with paragraph 10 (e.g. policies on NBS), including how

early warning systems can be applied to ecosystems. Lastly, it was observed that half of their indicators are drawn from existing frameworks with established metadata.

(e) The **infrastructure** experts explained that they have been reducing their list to 13 indicators, with the possibility of further reduction. They noted that literature and inputs from various stakeholders had been reviewed to inform their decisions.

(f) The **poverty and livelihoods** experts reported that they had reduced their list to 10 indicators, with an additional three MOI indicators that could be incorporated under the thematic targets or under paragraph 10. They further noted that the group had held numerous meetings with other thematic groups to discuss overlaps, and had consulted several external experts, including from custodian agencies of existing indicators. Lastly, they highlighted challenges around climate attribution for this target, and noted that whilst sub-indicators could be converted into main indicators, disaggregation remains an issue.

(g) The **cultural heritage** experts explained that they had reduced their list to nine indicators through a combination of merging and rewording, ensuring that all sub-components of the targets were covered. They noted strong interlinkages with targets 10a and 10b, as well as overlaps with infrastructure and ecosystems, which could be further explored.

(h) Finally, the **adaptation cycle** experts reported that disaggregation had enabled them to reduce the number of indicators. They noted that whilst target 10a has a sub-indicator, targets 10b–10d currently only have main indicators, but that this can be refined. It was also observed that indicators for 10c would require further work, following the discussion on MOI.

B. Peer review of indicators and addressing overlaps and synergies

11. The session focused on the peer review of indicators prepared by the target groups, conducted through plenary and breakout group discussions. Experts undertook an initial review of all 113 indicators and provided comments using a shared Google Sheet, a Microsoft Form circulated by the secretariat, and a Word document.

12. Four breakout groups (three in person and one online) were convened to discuss overlaps and synergies across targets and to ensure consistency among indicators.

13. In one breakout group, experts began by considering overlaps with target 9a (water). They noted that several indicators could be included under 10b or 10c, and suggested ways to incorporate implementation indicators across the targets, including ensuring that each thematic target has at least one implementation-oriented indicator. The experts also discussed the importance of terminology, noting that under the UNFCCC, ‘planning’ and ‘implementation’ have distinct meanings, which differs from how these are understood under the Sendai Framework . They further highlighted that the “local” element of implementation in the thematic targets is not always captured under 10c.

14. Additionally, in this group, experts discussed that by disaggregating an indicator on early warning systems under target 10a, context specificity could be captured, and thus each thematic group would not require a separate indicator. The group also considered indicators on available finance and suggested establishing one overarching indicator under 10c, which could then be disaggregated by sector to cover the thematic areas and potentially be linked to actions outlined in National Adaptation Plans (NAPs). Finally, experts noted that indicators on technology could be placed under 10c and disaggregated accordingly, and identified overlaps between food and agriculture, health, and water indicators.

15. Another breakout group (online) discussed key principles for evaluating indicators and ways to address challenges encountered. This included cases where attribution to climate change or an adaptation intervention is not always clear (e.g. undernutrition), and how to ensure that indicators genuinely capture adaptation sensitivity. The group also discussed indicators more closely related to evaluating climate hazards. While recognising that such indicators provide valuable inputs to adaptation actions (and could therefore be incorporated into the adaptation cycle), they noted that they do not always measure resilience specifically

and, in many cases, may not be relevant to this process. Finally, regarding loss and damage indicators, the group agreed that simply measuring losses does not indicate adaptation progress, but that changes over time can provide useful inputs on the effectiveness of adaptation actions (e.g. in the health target where language refers to reducing morbidity and mortality).

16. In another breakout group, experts discussed the placement of MOI indicators, noting that generic MOI indicators could be included under the dimensional targets with disaggregation by sector, while target-specific MOI indicators should remain under the relevant thematic targets. It was suggested that the linkages of each indicator to other targets should be documented to ensure clarity. The group noted that several thematic areas, including infrastructure, water, and culture, contained finance-related indicators that could be moved to the dimensional targets, and emphasised the need for standardised language on finance, particularly in distinguishing between official development assistance (ODA) and climate finance, in line with COP and SBI decisions.

17. On capacity-building, participants observed that indicators currently focus mainly on training, and that institutional capacity development should also be considered. On technology, experts noted that indicators insufficiently capture technology development in addition to transfer, and that this dimension should be better reflected under both the dimensional targets and the thematic areas. The group stressed the importance of early agreement on the placement of finance, technology, and capacity-building indicators to avoid reopening discussions across groups and underlined the need for consistent and explicit language throughout the full indicator set.

18. Experts in another breakout group highlighted the challenge of attribution, noting that indicators should refer to climate-related or climate-associated phenomena rather than attempting to establish strict causality. They agreed that further clarification could be provided through metadata, supported where necessary by qualitative information. The group identified overlaps across targets in relation to early warning systems, finance, insurance, assessments, adaptation planning and integration, as well as loss and damage and climate impacts, emphasising the importance of counting unique indicators and avoiding duplication. Social inclusion, including consideration of marginalised groups, was highlighted as a cross-cutting element to be systematically addressed across the list of indicators. Methodological feasibility was also discussed, including the need for clear disaggregation approaches, quality assurance measures, consideration of data availability and the associated reporting burden for both Parties and custodian organisations, while ensuring that indicators remain operationalizable and adaptation-relevant. The group also examined framing issues, such as whether changes over time (e.g. in morbidity or mortality) adequately capture adaptation progress; the treatment of headline versus sub-indicators; the role of composite indicators; and whether sub-indicators are necessary when disaggregation already provides the required granularity. On MOI, experts agreed that further discussion is required to ensure alignment of MOI indicators with the Paris Agreement.

19. Following the initial individual review and breakout group discussions, the experts reviewed the indicators from each target in plenary.

20. In the discussion on **water** target indicators, experts raised concerns about the clarity of water-related hazards referenced in the indicators. Questions were posed on how specific indicators would be measured, including the use of "proportion" in the indicator on critical water infrastructure adaptation, which may not account for differences in size and value across reservoirs, irrigation systems, and water supply networks. Some indicators were considered complex, combining multiple Water, Sanitation and Hygiene (WASH) aspects, and may require rephrasing to improve feasibility. Reporting by total versus exposed populations was also highlighted, suggesting that reporting on exposed populations potentially provides more targeted insights. Water use efficiency indicators were questioned, as efficiency gains do not always reduce overall water use and can increase consumption which may lead to maladaptive outcomes in other sectors.

21. The water group explained that water-related hazards align with the UNDRR standardized list and are included in the metadata. Also, it was mentioned that water use efficiency, despite the paradox, can still provide meaningful adaptation insights when disaggregated by sector and subnational region. Reporting WASH indicators by exposed populations was recognized as a useful approach to enhance understanding of adaptation outcomes.

22. Ecosystem experts emphasized the role of nature-based solutions, including mangroves in coastal areas and healthy ecosystems in drought-prone regions, for reducing vulnerability and supporting water regulation. Urban ecosystems surrounding water sources were noted as important for maintaining the water cycle, and evidence suggests natural infrastructure can sometimes be more effective than engineered approaches. While general water adaptation metrics can cover both nature-based and engineered solutions depending on context, the water group remains open to exploring explicit indicators for these aspects. It was clarified that marine ecosystems fall under the ecosystem target, with ecosystem services disaggregated by type in metadata to ensure sectoral priorities remain visible. Transboundary considerations were discussed, with the group recommending framing indicators around all basins rather than focusing solely on transboundary issues, due to political sensitivities.

23. The integration of health indicators was also raised, with diarrhea proposed as a proxy for waterborne disease under the health target. The water group supported this, noting it provides a practical link to water interventions, even if it does not fully capture climate-health interactions. On finance and training, the group clarified that some finance indicators are marked for merging, while training indicators remain specific to water. Experts cautioned that merging water indicators for climate-resilient water supply and sanitation under critical infrastructure could risk misinterpreting target intentions.

24. One key point raised during the discussion on **food and agriculture** target indicators was the concern that some indicators, particularly those measuring losses, might be mistaken for loss and damage metrics instead of adaptation indicators. Experts suggested clarifying the relevance to adaptation, as most current indicators primarily capture vulnerability rather than specific adaptation outcomes.

25. Regarding the indicator "*Proportion of agricultural land under climate-resilient practices and technologies*," experts debated its definition and measurement difficulties. Suggestions included standardizing the metric per unit of land and linking it to land degradation and restoration objectives. Clarifications emphasized that the indicator is intended to be anticipatory, not just for land currently exposed to climate change, but also for areas at future risk, recognizing shifting climate hotspots and allowing reporting entities the flexibility to define resilient practices locally. This approach also helps countries account for agricultural land transfers due to increased climate impacts.

26. The group also discussed the distinction between indicators on agricultural loss and damage and those on yield or productivity change. Experts recommended that "productivity" alone be used, as it inherently covers production measures per unit area. There was consensus on the need to reword these indicators to explicitly mention climate change as the causal factor. Additionally, the experts underscored the importance of capturing value chain dynamics, tracking how agricultural production moves through markets to influence farmers' incomes and overall livelihoods. While measuring the productivity change due to climate change presents challenges, a food group expert clarified that productivity and food security indicators help assess the resilience of food systems to climate shocks.

27. Concerning dietary diversity, experts noted that the minimum dietary diversity indicator currently covers only women and children, urging inclusion of additional vulnerable groups and better metadata clarity. There was also discussion about combining undernourishment and food insecurity indicators for a more integrated approach.

28. Food experts also explained that in streamlining indicators, each was mapped for relevance to other targets, and some, especially those focused on research and development and extension services, were shifted out of the current list and into dimensional targets.

29. In the discussion on **health**, a concern was raised about measuring some indicators per 100,000 population. The health expert clarified that this is standard practice and consistent with SDG indicators.

30. An expert noted that the mortality indicator currently considers only heat exposure and suggested including infectious diseases. The health experts explained that the indicator is standardized and that they are also considering full and long-term effects.

31. A suggestion was made to move indicators related to planning and NAPs to the dimensional target. The health group responded that a few indicators have been flagged for discussion with dimensional target experts. But there is concern that if key health-related indicators on climate-sensitive diseases and vulnerability assessments are moved to paragraph 10, it may create gaps in monitoring responsibilities and risk excluding health-specific indicators from the overall framework.

32. Concerns were raised regarding the language and scope of certain indicators. The term "food insecure population" was noted as subjective and requiring explanation in the metadata, with one expert suggesting its removal as it falls under the food target. Questions were also raised about the indicator on health facilities destroyed or damaged, specifically whether it refers to full or partial damage. The health experts clarified that both the food insecurity and health facility indicators are standardized, with existing methodologies and data. Another related concern was the indicator "*Change in the incidence of climate-sensitive infectious diseases*," with suggestions to rephrase it to capture the proportion of the population affected and to include vector-borne diseases. The health group noted that collecting vector data is costly and time-consuming, and the indicator is under discussion for possible rephrasing.

33. Comments were made that many health indicators are impact-focused, with fewer action-oriented indicators. It was also noted that universal health coverage indicators do not account for climate shocks and the inclusion of a climate perspective was recommended. Experts emphasized that while fast-onset extreme events are highlighted, slow-onset events, such as those driving food insecurity, should also receive attention to ensure a balanced treatment across the indicator set.

34. In the discussion on the indicators under the **Ecosystem** target, experts noted that some indicators lacked a clear link to adaptation, particularly the "Red List of Ecosystems" and "Services provided by ecosystems." Concerns were raised that the list included standard indices that may be difficult for non-experts to interpret. It was suggested to rephrase the titles of such indicators and explain ecosystem services more clearly, given that some may be relevant to mitigation rather than adaptation. Another expert proposed that the extinction indicator should also consider habitability in relation to adaptation. Suggestions were made to develop a methodology that could consistently define which ecosystems and services contribute to climate resilience, to ensure uniform reporting.

35. The Ecosystem group clarified that the Red List Index is the only biodiversity-related indicator in the list. While primarily a vulnerability index assessing species' extinction risk and exposure to climate change, it was chosen because it helps convey both biodiversity risks and the state of ecosystems under climate shocks. The group emphasized that they aim to link it to adaptation, and that it remains a strong existing indicator of ecosystem vulnerability without requiring the creation of a new measure. They also highlighted that the indicator "*Bioclimatic Ecosystem Resilience Index*" specifically addresses resilience.

36. Concerns were raised about the indicator on "*Rate of sea-level rise / Mean temperature anomaly*," with experts noting that it does not reflect adaptation actions. It was suggested that it be reframed to capture efforts taken to protect ecosystems from such impacts.

37. Another expert pointed out that the list lacks indicators on adaptation actions as well as the people dimension of ecosystems and biodiversity. The group responded that the ecosystem services indicator is intended to capture the people aspect.

38. Overlaps were highlighted between targets, particularly in themes such as forestry and fisheries, which are relevant for both the ecosystem and food groups.

39. In the review of **infrastructure** target indicators, experts noted inconsistencies in the use of certain terms, particularly "extent," which is sometimes applied qualitatively and other times numerically. This ambiguity was identified as a potential obstacle for clear reporting. It was recommended that the term be consistently defined and applied, with metadata providing qualitative scales (e.g., high, medium, low). For finance-related indicators, experts suggested replacing "extent of finance" with "amount of finance" for clarity. The infrastructure group explained that the term "extent" had initially been left open to accommodate multiple measurement approaches and agreed on the need to formalize a consistent methodology.

40. Several indicators were flagged as overly complex, combining multiple elements that could hinder clear interpretation and reporting. For example, an indicator measuring both population and assets covered by insurance was deemed too complex, with a recommendation to split it into separate indicators. Experts suggested that, for service-related indicators, the focus should be on the availability of climate-resilient infrastructure rather than population access.

41. The use of technical terms such as "tipping points," "cascading," and "compound" climate risks was also highlighted as potentially challenging for national-level reporting. The infrastructure group defended the inclusion of "tipping points" as essential for capturing complex, real-world risks and guiding adaptation beyond incremental measures, emphasizing its importance for adaptive governance.

42. Clarification was sought on indicators related to human settlements, particularly the distinction between "formal" and "informal" settlements. Experts noted that reporting on informal settlements could be politically sensitive in some countries, though others stressed that maintaining this distinction is important given disparities in service provision. The group clarified that these terms would be defined in the metadata, with informal settlements characterized by a lack of legal rights for residents.

43. Concerns were raised about the prescriptive nature of some finance-related indicators, including one referencing alignment with corporate standards or taxonomy (e.g., Climate Bonds Initiative taxonomy). Experts suggested that "aligned" could imply third-party verification, which may not be feasible for all public institutions, and that citing specific corporate standards could be restrictive. The group agreed to maintain flexibility in the indicator, providing examples in metadata rather than prescribing specific standards.

44. Experts also highlighted the interchangeable use of "funding" and "finance" within the indicator "*Extent of national finance and funding available for IHS adaptation*". Clarification was provided that "finance" generally refers to repayable resources like loans, debt funding, or ODA, including transfers from countries to countries and philanthropies, while "funding" includes non-repayable transfers or philanthropic support. Recommendations included splitting the indicator, restructuring it with a headline and sub-indicators, or removing one of the terms to avoid ambiguity.

45. Infrastructure was noted as a cross-cutting concept relevant to many sectors, prompting questions on whether a clear definition exists within the GGA or its targets. While nature-based infrastructure is included, experts highlighted the relevance of other types, including digital, energy, education, and health infrastructure. Inclusive infrastructure, particularly accessibility for persons with disabilities, was also emphasized and could be addressed through disaggregation under relevant indicators.

46. Gaps were identified in thematic coverage, particularly for food, agricultural, and educational infrastructure. Experts stressed that infrastructure supporting access to roads, markets, and food storage and processing is critical for adaptive capacity and food security, especially in rural areas. Educational infrastructure, though previously discussed, has now been integrated under broader infrastructure categories to streamline reporting.

47. The infrastructure group highlighted that emerging topics, such as migration, are cross-cutting and can be captured through dimensional target indicators.

48. The experts commenced the peer review of **poverty and livelihoods** indicators with a primary focus on conceptual clarity, standardization of terminology, and the treatment of disaggregation. Some experts underscored the importance of ensuring that the indicators accurately capture populations and areas affected by climate-related hazards, while avoiding formulations that could be interpreted as exposure-only indicators in light of paragraph 15 of the SB 62 conclusions. Some experts advised avoiding the term "climate risk exposed areas", as it conflates risk with vulnerability, with a preference expressed for "areas exposed to climate-related hazards." Experts also discussed whether the first set of exposure-related indicators should be merged to better reflect reductions in climate impacts on poverty: some experts supported consolidation to align with the target's focus on impact reduction, while an expert from the poverty and livelihoods group advised against merging, emphasizing the distinct functions of indicators using international and national poverty lines to ensure both global comparability and responsiveness to national circumstances.

49. Disaggregation by sex, age, employment status, rural/urban setting, and informality was widely discussed, with some agreement that standard variables should be captured in the disaggregation column, while highly relevant variables, such as formality in climate-sensitive sectors, should remain visible to ensure accurate interpretation.

50. Further deliberations addressed indicators on climate risk insurance, financial services, and adaptive social protection. Participants stressed that these are not finance volume indicators but relate to access to financial mechanisms, including insurance, credit, and social protection, with a distinction drawn between insurance for assets and income-protective social protection. There were proposals to merge certain indicators, such as those on social protection and universal health coverage, as well as to harmonize related indicators (e.g. 9f04 and 9f05) to ensure that smallholder farmers, informal workers, and self-employed persons are adequately covered and not left behind.

51. Further deliberations addressed indicators on climate risk insurance, financial services, and adaptive social protection. Some experts stressed that these are not finance volume indicators, but rather pertain to access to financial mechanisms, including credit, insurance, and social protection, with a distinction drawn between asset-based insurance and income-protective social protection. Some participants proposed merging indicators related to social protection and universal health coverage, while others highlighted the need to harmonize indicators on workers in climate-sensitive economic sectors and on livelihoods disruptions to ensure smallholder farmers, informal workers, and self-employed persons are adequately covered. It was clarified by the poverty and livelihood experts that climate risk insurance is a forward-looking mechanism, distinct from hazard-specific measures, and should also encompass other risk transfer mechanisms. Some experts also noted the potential alignment of indicators on insurance with those under infrastructure targets, while emphasizing the need to avoid duplication and clarify scope.

52. Several experts raised concerns about the feasibility of data collection, particularly in informal sectors and rural contexts, and called for a balance between ambition and practicality to avoid discouraging country reporting. It was emphasized that countries should be encouraged to progressively improve data availability, drawing on existing data frameworks and sources such as NAPs and NDCs. Another expert highlighted the need for indicators that capture enabling factors, including the integration of social protection systems into NAPs, legislation, and participatory processes, and suggested scored approaches for assessing the level of adaptation or preparedness of such systems.

53. In addition, an expert proposed the rewording or removal of indicators considered less relevant to adaptation, e.g., an indicator on population with access to financial services. Also suggested precision in indicators, such as the indicator on enterprises adopting climate change adaptation measures, to clarify whether they refer to enterprise-level activities or employee-related measures, while preventing box-ticking practices. Others noted that certain indicators, such as the indicators on population covered by social protection systems and on

Parties with social protection systems, could be merged to avoid duplication in reporting social protection measures. Across the discussions, experts reaffirmed that risk should be understood as a function of exposure, vulnerability, and adaptive capacity, and that the refined indicators should collectively capture this complexity rather than focusing solely on hazard exposure.

54. In the peer review of **cultural heritage** indicators, experts sought clarification on the wording of several indicators. Concerns were raised regarding terms such as "assessed" in the indicator "*Percentage of listed cultural heritage sites and intangible practices with emergency preparedness and response plans in place for assessed climate change-related hazards*." Questions were also raised about the complexity of indicator language, which covers multiple aspects and may be difficult to track in practice, and the need for clear definitions of tangible and intangible cultural assets. Terms such as "extent to which safeguarding and management have measures in place" were highlighted as problematic, as safeguarding itself cannot literally have measures. The cultural heritage expert clarified that "assessed" refers to hazards identified by national authorities as risks and agreed on the inclusion of a description column to provide contextual explanations that cannot be fully captured in the indicator wording. Clarification was provided that indicators using the term "extent" are qualitative and include structured yes/no questions within their metadata to guide responses.

55. Further clarification was provided on the choice of terms "implemented" and "supported" over "adopted," emphasizing that these terms capture actions beyond planning, including tangible support measures such as legal, traditional, or technical practices, thereby avoiding recognition of efforts that exist only on paper or could result in maladaptation. Concerns were also raised regarding units of measurement, particularly for indicators on training, given the large number of adaptation programs across private sectors, subnational governments, and other actors, which complicates establishing a comprehensive baseline. Experts suggested revising these indicators to improve measurability and relevance, considering contexts where integration of cultural heritage may be limited.

56. It was suggested that the indicator "*Percentage of climate change adaptation policies, plans and strategies that incorporate the safeguarding and protection of tangible and intangible cultural heritage*" could be expanded to explicitly consider Indigenous Peoples in adaptation investments at the project level, reflecting emerging practices in countries such as Australia and New Zealand. Participants noted the limited coverage of cultural heritage in national adaptation planning, observing that few NDCs explicitly address the sector and that some adaptation interventions may inadvertently cause harm, such as protective measures that alter or damage heritage sites.

57. Concerns were raised regarding duplication and overlap among indicators, including separate indicators for tangible and intangible heritage and overlaps in digitization and documentation. Cultural heritage experts explained that such overlaps arise from attempts to comprehensively capture the sector, but emphasized ongoing efforts to simplify indicators while retaining specificity. They highlighted that cultural heritage encompasses built, natural, intangible, underwater heritage, and museum objects, justifying multiple indicators to reflect the full scope of the sector. Questions were also raised about the global applicability of indicators referencing engagement with Indigenous Peoples, as some countries may lack distinct Indigenous populations, leading to suggestions to merge these with broader indicators on inclusive adaptation policies.

58. Experts highlighted challenges in standardizing indicators and encouraging recognition of cultural heritage as a standalone sector. The absence of a universally recognized list or methodology for identifying heritage sites and objects was noted as a challenge for consistent reporting. Concerns were also raised that moving finance and capacity-building indicators on cultural heritage to dimensional targets could reduce their visibility, emphasizing the importance of ensuring these elements remain clearly tracked.

59. Experts discussed the indicators under the **dimensional targets 10a–10d,** which cover impact, vulnerability and risk assessment; planning; implementation; and monitoring,

evaluation and learning. It was noted that several indicators represent aggregations of sub-indicators from the previous list.

60. In the discussion on Target **10a. impact, vulnerability, risk assessment,** concerns were raised regarding the scope and language of early warning indicators. The term "multi-hazard" was considered potentially restrictive, and experts recommended allowing disaggregation by specific hazards such as floods, heatwaves, cyclones, and infectious diseases. Questions were also raised on the uniqueness of these indicators to GGA, given their alignment with the Sendai Framework, and on whether indicators should capture retrofitting or enhancements to account for shifting climate patterns and changing event frequencies.

61. Clarification was sought on the indicator "*Number of National Meteorological and Hydrological Services that have adopted and sustained the use of the Common Alerting Protocol*," particularly regarding how the number of services is established and comparability ensured. Food and agriculture experts noted the need for climate services to be integrated with agricultural advisory systems, ensuring agro-meteorological information is actionable for farmers rather than provided in isolation. The inclusion of early warning indicators for ecosystems was also emphasized, given that existing systems often focus on human dimensions.

62. Experts highlighted that multi-hazard early warning systems should be complemented by integrated risk communication systems to ensure communities can receive, understand, and act on warnings according to local circumstances. Effective systems should anticipate, predict, and generate warnings for both individual and combined hazards, supporting timely and informed adaptation actions.

63. The 10a expert group clarified that "multi-hazard" refers to hazards relevant to each country, with the possibility of disaggregation by hazard type. Countries are not expected to address hazards that are not locally relevant. The composition of a multi-hazard early warning system includes four pillars: risk assessment to identify hazards, vulnerabilities, and exposures; continuous observation and monitoring to detect thresholds for issuing warnings; risk communication to convey warnings to relevant communities; and actions taken by communities or authorities in response to warnings. Disaggregation by hazard type is feasible, allowing flexibility in reporting while maintaining comparability.

64. The discussion on **10b. Planning** indicators focused on ensuring that adaptation planning at national and subnational levels is measurable, inclusive, and reflective of diverse actors, including Indigenous Peoples and vulnerable communities. Experts highlighted the need for indicators that capture both formal planning instruments, such as NAPs and policy instruments, and broader mainstreaming of adaptation into legal, budgetary, and sectoral frameworks.

65. Experts highlighted issues regarding the indicator on the "*proportion of Parties with Indigenous Peoples that have developed dedicated adaptation plans*." Questions included whether the proportion should be calculated relative to countries with Indigenous populations or to the share of Indigenous Peoples within each country, and whether referencing "Indigenous Peoples" rather than "indigenous knowledge" could create sensitivity. Additional disaggregation by gender, coastal or forest communities, and other vulnerable groups was suggested. Experts noted that some Parties do not formally recognize Indigenous Peoples, potentially creating contention.

66. For the indicator on the "*proportion of local authorities that have integrated climate change adaptation into policies, legal frameworks, budgets, plans, and processes*," experts suggested considering different governance levels, including national, subnational, rural, and urban contexts. It was also noted that some indicators omit reference to NDCs, and participants suggested integrating NDCs where appropriate, while the 10b expert clarified that NDCs are not explicitly mentioned in the target language. Questions were raised on the proposed indicator on climate risk in public procurement, with suggestions to broaden its

scope to reflect the use of climate information across planning, budgeting, and other processes.

67. Several experts emphasized the importance of including capacity-building indicators to strengthen national institutional capacities and adaptive capacity. The implementation gap in NAPs was highlighted, noting that many Parties have yet to formulate NAPs, and where plans exist, implementation has often lagged. Participants stressed the importance of capturing the types of support required, capacity, finance, or technical assistance, to ensure effective implementation. While implementation is addressed under Targets 10c and 10d, adaptation planning under NDCs was suggested to be reflected in separate indicators or policy instruments to capture convergence between NAPs and NDCs. Indicators combining adaptation budgeting with mainstreaming were noted to include distinct elements, and it was suggested that mainstreaming could be addressed separately, including at subnational levels. Concerns were raised regarding overlaps among indicators addressing legislation, legal requirements for public investment, and national frameworks, with suggestions to consolidate under a single indicator on environmental governance. For indicators disaggregated by gender, experts recommended following the global GESI framework and merging gender-responsive adaptation plan indicators with those on NAPs.

68. Regarding Indigenous Peoples, the 10b expert noted that some indicators already include disaggregation by Indigenous Peoples, while a separate indicator ensures that this dimension is explicitly captured. Experts highlighted the distinction between Parties preparing plans that address Indigenous Peoples and Indigenous Peoples preparing their own plans, reflecting the use of indigenous knowledge and recognition of Indigenous Peoples as actors in their own right. Concerns were raised about potential burdens on Parties if separate NAPs were expected from Indigenous Peoples, particularly where national planning capacity is limited. However, local-led adaptation initiatives were recognized as important, with interest from the private sector in supporting such plans. It was also noted that adaptation plans developed by Indigenous Peoples without alignment to national budgets may lack guidance for effective implementation. Despite variations in terminology across countries, the explicit use of "Indigenous Peoples" in the relevant decision was emphasized as important for clarity and alignment.

69. During the discussion on **10c. Implementation** indicators, concerns were raised regarding the inclusion of loss and damage indicators. One indicator derived from the Sendai targets was noted to overlap with thematic targets, raising questions about duplication and whether sub-components should be removed. Experts suggested that indicators on loss and damage should be carefully placed to avoid dispersing them across multiple targets. Some participants proposed focusing on recovery from direct economic loss rather than the loss itself, to better reflect adaptation effectiveness, while others emphasized the need to capture non-economic losses, such as impacts on social networks, cultural heritage, displacement, and mental health. However, experts cautioned that loss and damage indicators fall outside the current mandate.

70. Questions were also raised on the composition of specific indicators. For example, the indicator on the degree of implementation of a NAP or equivalent policy instrument includes tracking measurable targets or goals and the proportion of adaptation actions at different implementation stages. Some experts suggested combining these elements, while others noted that tracking actions alone may not reflect achievement of broader goals, supporting the retention of both components for additional detail. Concerns were expressed about adding evaluative terms, such as "effective," as data limitations could create misleading implications; it was recommended that effectiveness be addressed in the technical report rather than embedded in indicator wording.

71. Clarifications from the 10c expert group emphasized that "equivalent policy" refers to national-level plans, with flexibility for countries that do not formally call them NAPs. Composite indicators should clearly distinguish sub-components from disaggregation, and consistency in terminology across indicators is necessary. While some indicators may align with other targets, methodological differences exist, and care must be taken to maintain coherence. The inclusion of "measurable targets or goals" was explained as a practical

approach to assess progress on broad NAP objectives, such as reducing vulnerability or enhancing national resilience.

72. Other points of discussion included ensuring clarity on hazards and disasters, recognizing that smaller-scale hazards not officially declared as disasters can still cause damage. Experts noted that incorporating external evaluations of NAPs and M&E systems could enhance reliability, but this may be politically sensitive. Indicators on economic losses were discussed in terms of their scope, with some noting that sectoral losses, such as in agriculture, are largely asset-based and should be captured. The need to avoid overloading indicators while maintaining the ability to understand implementation outcomes was emphasized throughout the discussion.

73. During the discussion on **10d. Monitoring, Evaluation, and Learning (MEL)** experts emphasized the importance of having clear definitions for what constitutes a MEL system, including the degree of community involvement and whether sectoral MEL systems are integrated into national reporting. Concerns were raised regarding some indicators, noting that a few were more statements than measurable indicators and that the unit of measurement should be consistent across similar indicators.

74. Experts recommended simplifying certain indicators, such as the one on integration of adaptation into MEL systems, by measuring the number of countries that have incorporated adaptation into their MEL or relevant national data collection systems, rather than attempting to assess the level of integration. It was also highlighted that monitoring and evaluation are distinct from learning: monitoring and evaluation assess outcomes, whereas learning uses these assessments to inform future actions. Recognizing this distinction in the indicators was suggested to ensure the process of learning is captured separately, rather than conflated with monitoring and evaluation.

75. Clarifications from the expert group emphasized that Target 10d, consistent with the wording of the target, refers to a single national-level MEL system designed to track adaptation progress. While discussions considered the possibility of subnational or sectoral systems, the indicators were aligned with the target's singular framing to focus on national-level systems, ensuring consistency with the overall structure of Target 10c and 10d.

C. Verifying the metadata

76. As of the meeting, the groups had not yet completed the verification of the metadata columns; however, experts also discussed aspects of metadata during the peer review of indicators.

77. It was observed that some indicator titles captured complex information that was difficult to interpret. In such cases, experts suggested simplifying the titles and transferring the detailed information to the metadata columns.

78. In other cases, the title of an indicator did not sufficiently convey its full meaning. To improve clarity, it was recommended to include additional supporting information in the metadata section to enhance understanding. For example, in the case of ecosystem indicators, the '*Red List Index*' and '*Red List of Ecosystems*' were found difficult to interpret due to missing context. The group clarified that these are Convention on Biological Diversity (CBD) indicators, which can be disaggregated by ecosystem type, and noted that details of the ecosystem types and species lists will be provided in the metadata.

D. Verifying the indicators based on criteria from SB62 conclusions

79. The mandate for this expert meeting and the SB Chair's agenda contained a section on verifying the indicators against the criteria from SB 62. Throughout the meeting, in particular during the peer review, experts discussed indicators in the context of these criteria.

80. On the third day, experts were divided into three breakout groups to consider indicators on MOI, in accordance with the criteria set out in the SB 62 GGA conclusions. The breakout groups focused on finance, technology transfer, and capacity-building, and discussed indicators relevant to each area.

81. **Finance**: Experts in the finance breakout group held a lengthy discussion covering many issues and measurement elements; however, they were unable to reach agreement on which finance indicators should be included. Conversations took place on indicators for costing of actions in NAPs and other instruments, to be placed under 10b. Some experts highlighted the importance of costing the needs of the most vulnerable groups, while noting that the language 'as appropriate' in target 10b can help resolve the issue around including cross-cutting considerations. Additionally, the experts discussed baselines and timeframes for such finance indicators, as well as whether to disaggregate by sector rather than by the target areas.

82. Following this, experts discussed indicators for the availability of finance, and whether to include a total funding indicator which could then be disaggregated by funding source (domestic, international, or private), by flows from developed to developing countries, and by whether funding was measured as provided or committed, or as received, accessed or utilised on the ground. It was mentioned that funding could also be disaggregated by thematic sector, while the main indicator would remain under target 10c. Several experts also raised the issue of the context of MOI within the Paris Agreement and how this should be reflected within the indicators, with others suggesting that the indicators are to measure progress towards the targets, rather than measuring all financial flows. Lastly, the experts discussed issues of utilisation and quality of finance but these points were not fully explored or agreed upon.

83. Aside from the breakout group discussion, finance indicators under MOI were a common theme throughout the workshop, including the peer review of paragraph 10 indicators. Experts recognized the challenge of finding a common ground on this matter.

84. **Technology transfer**: The group highlighted that technology indicators should mainly cover three aspects: the identification of technology needs (through Technology Needs Assessments), technology transfer, and technology deployment. Three indicators related to technology were discussed. The first concerned the share of relevant adaptation technologies identified by developing country Parties through national instruments (such as NDCs, NAPs, or equivalent policy frameworks) that had been transferred. The second focused on those that had been funded.

85. The group agreed to combine these into a single indicator on adaptation technologies identified by developing country Parties that have been supported, transferred, and funded by developed country Parties. They further emphasised the need for disaggregation, including by sector (such as water, agriculture, health, and ecosystems); by technology readiness level, ranging from research and validation to pilot and deployment; by type of funding (including grants, concessional loans, non-concessional loans, insurance, and reinsurance); and by adaptation theme.

86. Concerns were raised regarding the lack of clarity in the mandate on technology transfer, particularly with respect to the direction of transfer, whether it should be from developed to developing country Parties, or whether it could also involve flows from developing to developed Parties. It was further noted that while the Paris Agreement refers to both technology development and transfer, the 2/CMA.5 decision mentions only technology transfer.

87. An additional indicator was suggested on the number of technology demonstration projects showcasing the practical application and performance of adaptation technologies in developing countries, measured on a per-country, per-year basis. The group also suggested that indicators on finance and capacity-building should consider including technology development and transfer within their scope.

88. **Capacity building**: The experts unpacked the concept of capacity-building, identifying three levels (systemic, institutional, and individual), and considered potential

indicators against these levels. It was noted that most of the indicators were systemic or institutional, but that several indicators linked to individual capacity-building were included under the thematic targets. The experts also discussed the meaningfulness of capacity-building indicators, emphasising the need to move beyond simple counts (e.g. number of people trained in the past three years) towards indicators that capture the existence and institutionalisation of curricula, policies, and training programmes, as well as the systematic upscaling of local capacities. They recommended that the dimensional group revisit such indicators so that they measure more than a simple yes/no on whether capacity-building has been received.

89. Some experts highlighted the need for a capacity needs assessment as a foundational step and suggested including indicators on capacity-building adaptation plans (e.g. percentage of capacity development delivered). Examples discussed included awareness programmes for occupational health and safety and the importance of institutionalising training programmes. The group recommended focusing on the feasibility of capacity-related indicators and their alignment with adaptation objectives, rather than formulating new indicators at this stage. Experts also noted that there were capacity-building indicators under 10a, 10b, and 10d, aimed at enhancing capacity for these elements of the adaptation cycle. The group considered these valuable and worth retaining in their current places, whereas other capacity-building indicators could be placed under 10c and then disaggregated by theme or sector.

90. Following the breakout group discussions, the SBI Chair and the SBSTA Vice-Chair thanked experts for their hard work and progress during the meeting thus far. The SBI Chair recognised the request for additional guidance on MOI indicators from experts, and noted that whilst there is no formally agreed definition of the term, it is broadly understood to refer to financial resources, capacity-building, and technology development and transfer. She highlighted that it is a sensitive issue in the UNFCCC process and in its application to indicators work. The Chair acknowledged that there are differing views among Parties and experts, but reiterated that it is not expected or appropriate for experts to resolve such political issues. She stressed that experts are to advance the technical work so that a robust list is put forward for Parties' consideration, and explained that what experts should strive for is their best assessment of which indicators are globally relevant and helpful in understanding progress over time in relation to adaptation-related capacity-building, technology development, deployment and transfer, and financial resources.

91. The SBSTA Vice-Chair extended the appreciation of the SBSTA Chair, Ambassador Adonia, for the experts' work and dedication to date. The Vice-Chair reiterated that MOI indicators are a delicate matter, and experts are not expected to resolve broader definitional questions. She closed her remarks by encouraging experts to produce a coherent set of globally relevant indicators, including those for MOI.

92. Finally, the SBI Chair noted that the guidance provided may not answer all of the experts' questions, but stressed the importance of avoiding bias on this issue. She closed with final words of encouragement for the experts as they concluded their work. During a short exchange between the Chairs and experts that followed, the Chairs made clear that Parties may treat the expert-prepared list as an input to their deliberations, and that Parties can edit or change it.

93. Following the guidance from the SB Chairs, experts held a longer plenary discussion on MOI. They shared examples from existing frameworks (e.g. Sendai) as well as experiences of capacity-building for NAP development and implementation from their own countries. Several experts also highlighted that, for MOI, qualitative indicators are very important, as purely numerical figures require contextualisation (e.g. a training programme could have anywhere between two and 200,000 participants depending on its nature). Experts further emphasised the need for clarity on reporting of MOI indicators and that these should be aligned with what governments can realistically measure.

94. One expert stressed the need for close alignment between paragraph 10 indicators and those for the thematic targets, noting that consultation among experts is required to ensure

that sectoral realities are reflected. Another expert supported the inclusion of a small number of standardised indicators to track finance flows consistently across contexts. Lastly, one expert highlighted that indicators should provide a clear distinction between finance provided by state/public sources and that provided by the private sector.

95. Throughout the workshop, including in this session, several participants reiterated the importance of indicators for enabling factors for adaptation. Several pointed to such indicators in the current list and discussed whether they should be placed under the thematic targets or under the dimensional targets. It was agreed to map the indicators relevant to MOI and enablers in the list. For enablers, some experts suggested using the seven enablers mentioned in paragraph 24 of 2/CMA 5 as a reference for the mapping. One suggestion, supported by several experts, was that while MOI and enabler indicators could primarily be placed under targets 10a–10d (with some disaggregation) where there is a specific relevance to a thematic target, they could be maintained under the paragraph 9 targets. The moderator closed this section by noting that the paragraph 10c experts would take this forward, reflecting both the conversations that took place and the guidance from the SB Chairs, and would work closely with the thematic experts to finalise this section of the list.

E. Quality control checks and standardising the format

96. Throughout the meeting, several issues requiring agreement across all experts were identified to ensure consistency. These were compiled in a separate file for later discussion. During the final session, experts reviewed these issues and noted that consistency should be ensured on the following:

(a) On whether to refer to Parties or countries, experts decided to use Parties, as this is consistent with the language of the targets and with the UNFCCC framework under which the GGA sits.

(b) On whether to measure the level or extent, experts decided to use level when class intervals are used or if there is an established scoring system. However, recognising that extent could also be relevant in some cases, it was agreed that experts would prepare a glossary of key terms and their meanings in relation to indicators, to be included with the list.

(c) Regarding whether to measure change over time (which requires a baseline) or to report absolute values for each year (capturing a point in time), experts agreed that Parties should report absolute values. Over a period, for example, five years, these values could then indicate change and progress. Using a single baseline was considered technically challenging for these indicators. It was also noted that, in some cases, the indicator itself should capture the existence of something, and subsequent analysis of these data would then reveal change. For example, the indicator could be "Does your country have a NAP (Y/N)?"—the number of countries reporting "Yes" over time would reflect progress. One expert, however, noted that for certain indicators, such as water use efficiency, measuring change directly can still provide valuable insights.

(d) Regarding attribution to climate change, different terms had been used, such as attributed to and attributable. Noting the complexities of this issue, and the fact that the extent to which something is caused by climate change often constitutes an estimation rather than a measurable output that informs adaptation progress and effectiveness, experts agreed to use the term associated with.

(e) It was agreed that all indicators should be relevant to at least one of the facets of the global goal on adaptation, as outlined in Article 7.1 of the Paris Agreement: namely, enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change.

(f) In relation to disaggregation, experts noted that the different SB and CMA mandates provide guidance for disaggregation by separate vulnerable groups, with the qualifier where applicable. Due to time constraints at this stage of the expert meeting, it was agreed to continue this discussion online in the coming days. It was suggested that the column on disaggregating variables be placed immediately next to the indicator name, since many

indicators rely heavily on these variables for proper interpretation, and placing them at the end could risk misrepresenting their scope or intent.

97. On indicators related to loss and damage, experts emphasized that the term "loss and damage" should not be used. Instead, it was suggested that indicators capture climate-related impacts – or, where appropriate, climate-related losses – directly reflecting the language of the relevant target. It was further noted that indicators could be made more adaptation-specific by capturing changes in impacts, consistent with the SB 62 guidance that such indicators be "refined." However, one expert stressed that any indicators measuring loss and damage (including non-economic losses) should not be included, regardless of their wording.

F. Discussion of the next steps

98. The final session of the workshop focused on the structure and template of the experts' technical report, and the steps required in the following week to ensure timely submission of outputs.

99. One expert shared a proposed template for the technical report on the screen and with the group, outlining the intended contents and a possible structure. Experts reviewed this point by point, and only minor adjustments were made. Key elements of the report include: background; the process for refining and reducing the number of indicators; descriptions of the indicators (to be prepared by the target groups); information on methodologies and metadata; and a glossary of key terms.

100. Experts sought clarity on whether the UNFCCC secretariat would edit the indicator list or assist in preparing the technical report. It was clarified that, as mandated, the experts would submit their products to the secretariat, which would publish them without edits. Experts were therefore required to prepare the full report themselves.

101. Experts also sought clarity on whether the deadline could be extended, noting the substantial volume of work remaining. The secretariat reiterated that the deadline mandated by SB 62 was August 2025.

102. Following a lengthy discussion, experts agreed on a timeline for the week ahead to ensure timely submission of the indicator list and technical report:

(a) 24 August, agreed indicator template shared

(b) 25-26 August, groups consult and refine their indicators following the expert meeting

(c) 27-28 August, meetings of all experts

(d) Throughout the week, several experts act as quality checkers to ensure consistency across the targets

(e) 28 August, the technical report is to be populated as much as possible

(f) 28 August, final list of indicators ready

(g) 29-30 August, technical report to be finalized

(h) 31 August, outputs submitted to the secretariat

103. Finally, experts agreed on the distribution of tasks. A small writing group was formed, with others volunteering to prepare the glossary and undertake quality and consistency checks.