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United Arab Emirates just transition work programme

Dialogues under the United Arab Emirates just transition work programme

Annual summary report by the Chairs of the subsidiary bodies

Summary

This third annual summary report on the dialogues held each year as part of the United Arab Emirates just transition work programme contains information on the two dialogues held in 2026, which focused on just transition pathways for holistic approaches to food security, including with a focus on agriculture and the ocean, in the context of element (c) of paragraph 2 of decision 3/CMA.5, and holistic approaches to nationally determined just transition pathways for the industry sector: technology, innovation and equitable value chains. Each dialogue summary is aimed at reflecting, in a comprehensive and balanced manner, the discussions held and key findings identified at the dialogue, as well as information on opportunities, best practices, actionable solutions, challenges and barriers relevant to the respective topic.

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I. Introduction

A. Mandate

1. At its fourth session the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) decided to establish a work programme on just transition for discussion of pathways to achieving the goals of the Paris Agreement outlined in Article 2, paragraph 1, in the context of Article 2, paragraph 2.[1]

2. CMA 5 established the scope and modalities of the United Arab Emirates just transition work programme, including deciding that it shall be implemented under the guidance of the subsidiary bodies through a joint contact group to be convened at each of their sessions, starting at their sixtieth sessions.[2]

3. CMA 5 also decided that at least two dialogues shall be held each year as part of the work programme, with one to be held prior to the first regular sessions of the subsidiary bodies, starting with their sixtieth sessions, and one prior to the second regular sessions of the subsidiary bodies, starting with their sixty-first sessions, and that such dialogues should be conducted in hybrid format to allow both in-person and virtual participation.[3]

4. Furthermore, CMA 5 requested the Chairs of the subsidiary bodies to prepare in a timely manner, with the assistance of the secretariat, an annual summary report on the dialogues.[4]

5. CMA 7 emphasized the importance of continuing to ensure the inclusive and active participation of Parties, and observers and other non-Party stakeholders in future dialogues under the work programme, including by introducing interactive formats that foster the engagement of and constructive discussion among all participants, whether they are attending in person or online.[5]

6. CMA 7 also emphasized the importance of comprehensively and systematically considering all elements of the work programme, as outlined in paragraph 2 of decision 3/CMA.5, without selective focus on any aspect,[6] and invited the work programme to integrate the outcomes of the first global stocktake relevant to just transition in line with paragraph 186 of decision 1/CMA.5.[7]

B. Scope of reporting

7. At their sixtieth sessions the subsidiary bodies encouraged their Chairs to prepare and publish, starting from the first dialogue and immediately following each dialogue under the work programme, an informal summary of the discussions at that dialogue, including information on opportunities, best practices, actionable solutions, challenges and barriers relevant to the dialogue topic, ensuring that those discussions are reflected in a comprehensive and balanced manner.[8]

8. Pursuant to this mandate, the secretariat prepared and published, under the guidance of the Chairs of the subsidiary bodies, informal summary reports on the first,[9] second,[10]

[1] Decision 1/CMA.4, para. 52.
[2] Decision 3/CMA.5, para. 4.
[3] Decision 3/CMA.5, para. 5.
[4] Decision 3/CMA.5, para. 10.
[5] Decision 2/CMA.7, para. 14.
[6] Decision 2/CMA.7, para. 7.
[7] Decision 2/CMA.7, para. 8.
[8] FCCC/SBSTA/2024/7, para. 98, and FCCC/SBI/2024/13, para. 45.
[9] Available at https://unfccc.int/documents/640155.
[10] Available at https://unfccc.int/documents/642594.

third,[11] fourth,[12] fifth[13] and sixth[14] dialogues under the work programme. The information on the first and second dialogues is also included in the first annual summary report on the dialogues by the Chairs of the subsidiary bodies,[15] and the information on the third and fourth dialogues in the second annual summary report.[16]

9. This third annual summary report presents a compilation of the proceedings of and the summaries of the discussions, including key findings, opportunities and barriers identified, at the fifth and sixth dialogues under the work programme in annexes I and II respectively.

II. Topics of the dialogues held in 2026 under the United Arab Emirates just transition work programme

10. CMA 5 invited Parties, observers and other non-Party stakeholders to submit views on work to be undertaken under, as well as possible topics for the dialogues under, the work programme by 15 February each year, beginning in 2024. Taking into consideration the submissions, the Chairs of the subsidiary bodies are to decide on and communicate the topics to be discussed at each dialogue to be held in each year no later than eight weeks before each dialogue in advance of the respective regular sessions of the subsidiary bodies.[17]

11. Taking into consideration the submissions from Parties, observers and other non-Party stakeholders on work to be undertaken and topics for the dialogues under the work programme in 2026, the Chairs of the subsidiary bodies decided that the dialogues to be convened under the work programme in 2026 would focus on the element of the work programme referred to in paragraph 2(c) of decision 3/CMA.5.[18]

12. Following informal virtual consultations among Parties convened by the Chairs of the subsidiary bodies on 17 March 2026, the Chairs of the subsidiary bodies decided and communicated, taking into consideration the views expressed during those informal virtual consultations, as well as the submissions from Parties, observers and other non-Party stakeholders on work to be undertaken and topics for the dialogues under the work programme in 2026, that the topic of the fifth dialogue under the work programme would be just transition pathways for holistic approaches to food security, including with a focus on agriculture and the ocean, in the context of element (c) of paragraph 2 of decision 3/CMA.5.

13. Following informal virtual consultations among Parties convened by the Chairs of the subsidiary bodies on 28 July 2026, the Chairs of the subsidiary bodies decided and communicated, taking into consideration the views expressed during those informal virtual consultations, as well as the submissions from Parties, observers and other non-Party stakeholders on work to be undertaken and topics for the dialogues under the work programme in 2026, that the topic of the sixth dialogue under the work programme would be holistic approaches to nationally determined just transition pathways for the industry sector: technology, innovation and equitable value chains.

[11] Available at https://unfccc.int/documents/650431.
[12] Available at https://unfccc.int/documents/652861.
[13] Available at https://unfccc.int/documents/658279.
[14] Available at https://unfccc.int/documents/663464.
[15] FCCC/SB/2024/7.
[16] FCCC/SB/2025/10.
[17] Decision 3/CMA.5, paras. 6–7.
[18] The element of the work programme referred to in paragraph 2(c) of decision 3/CMA.5 focuses on opportunities, challenges and barriers relating to sustainable development and poverty eradication as part of transitions globally to low emissions and climate resilience, taking into account nationally defined development priorities.

Annex I

Informal summary of the fifth dialogue under the United Arab Emirates just transition work programme*

I. Introduction

A. Mandate

1. Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) at its fourth session decided to establish a work programme on just transition for discussion of pathways to achieving the goals of the Paris Agreement outlined in Article 2, paragraph 1, in the context of Article 2, paragraph 2.[1]

2. CMA 5 established the scope and modalities of the United Arab Emirates (UAE) just transition work programme (JTWP), deciding that it shall be implemented under the guidance of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) through a joint contact group to be convened at each of their sessions, starting at the sixtieth sessions of the subsidiary bodies (SB 60).[2]

3. CMA 5 also decided that at least two dialogues shall be held each year as part of the JTWP, with one to be held prior to the first regular sessions of the subsidiary bodies, starting with SB 60, and one prior to the second regular sessions of the subsidiary bodies, starting with SB 61, and that such dialogues should be conducted in hybrid format to allow both in-person and virtual participation.[3]

4. Furthermore, CMA 5 requested the Chairs of the subsidiary bodies to prepare in a timely manner, with the assistance of the secretariat, an annual summary report on the dialogues.[4] At SB 60, the SBSTA and the SBI encouraged their Chairs to prepare and publish, starting from the first dialogue and immediately following each dialogue under the JTWP, an informal summary of the discussions at that dialogue, including on opportunities, best practices, actionable solutions, challenges and barriers, ensuring that those discussions are reflected in a comprehensive and balanced manner.[5]

5. Pursuant to this mandate, the secretariat prepared and published, under the guidance of the Chairs of the subsidiary bodies, informal summary reports on the first,[6] second,[7] third[8] and fourth[9] dialogues held under the JTWP. The information contained in the informal summaries on the four dialogues held so far under the JTWP is included in the first[10] and second[11] annual summary reports by the Chairs of the subsidiary bodies.

6. This informal summary on the fifth dialogue held under the JTWP has been prepared under the guidance of the Chairs of the subsidiary bodies, reflecting the discussions held at the fifth dialogue in a comprehensive and balanced manner, including a summary of the discussions and the key findings, opportunities and barriers identified in the world café session, breakout discussion sessions and plenary discussions.

* Not formally edited or formatted.

[1] Decision 1/CMA.4, para. 52.

[2] Decision 3/CMA.5, para. 4.

[3] Decision 3/CMA.5, para. 5.

[4] Decision 3/CMA.5, para. 10.

[5] FCCC/SBSTA/2024/7, para. 98, and FCCC/SBI/2024/13, para. 45.

[6] Available at https://unfccc.int/documents/640155.

[7] Available at https://unfccc.int/documents/642594.

[8] Available at https://unfccc.int/documents/650431.

[9] Available at https://unfccc.int/documents/652861.

[10] Available at https://unfccc.int/documents/641865.

[11] Available at https://unfccc.int/documents/652998.

7. The informal summary captures and summarizes views shared during the fifth dialogue but does not represent an exhaustive summary of all interventions.

B. Proceedings

8. The fifth dialogue under the JTWP took place in Yeosu, Republic of Korea, from 24 to 25 April 2026. The fifth dialogue took place in hybrid format, with participants from Parties, United Nations and other intergovernmental organizations and non-governmental organizations (NGOs).[12] The dialogue was hosted by the Government of the Republic of Korea as part of the first Climate Week of 2026. The topic of the fifth dialogue was **just transition pathways for holistic approaches to food security, including with a focus on agriculture and oceans, in the context of element c) paragraph 2 of decision 3/CMA.5**.[13]

9. In the opening plenary, participants were welcomed by remarks delivered by Damon Jones, United Nations Framework Convention on Climate Change (UNFCCC) secretariat, Pedro Luiz do Nascimento Filho, Presidency of the thirtieth session of the Conference of the Parties (COP 30 Presidency) and Ambassador Adonia Ayebare, SBSTA Chair. Following the welcoming remarks, Julia Gardiner, SBI Chair, provided participants with an introduction to the scope and format of the fifth dialogue under the JTWP.

10. Following the welcoming and introductory segment, the format shifted to a world café session to provide the opportunity for focused interventions of the delegates in-person and virtually around three subtopics. Three world café tables, two in-person and one virtual, were set up for each of the three subtopics. After 40 minutes of discussion, participants moved to a table on a different subtopic, thus allowing all participants to participate in discussions on each of the three subtopics over the course of the three rounds of the world café session.

11. The discussions at the world café tables were guided by facilitators who used the following guiding questions to provide a framework for the discussions:

(a) **Workforce considerations, livelihoods and the role of social dialogue in the context of just transition pathways that enhance food security** focused on the following guiding questions:

(i) What role can labour rights, participatory approaches and social protection systems play in ensuring inclusive, context specific and equitable just transitions, including agriculture and ocean-based activities?

(ii) What are best practices in supporting decent work, sustainable livelihoods, and income security for smallholder farmers, family farmers, artisanal fishers, pastoralists, migrants and workers across food value chains, including those in the informal economy and what could be the role of the private sector, including medium, small and micro enterprises?

(iii) How can education, training, skills development, reskilling and upskilling initiatives support workers and communities in transforming and adapting to changing food systems while enhancing productivity, addressing emissions and increasing resilience and sustainability?

(b) **Human rights, gender considerations and social inclusion in the context of just transition pathways that enhance holistic approaches to food security that leave no one behind** focused on the following guiding questions:

(i) How can human rights be integrated into just transition pathways that enhance food security to ensure equitable and inclusive outcomes?

[12] The agenda, webcast recordings and presentations are available at https://unfccc.int/event/fifth-dialogue-under-the-united-arab-emirates-just-transition-work-programme.

[13] Element (c) in paragraph 2 of decision 3/CMA.5 refers to Opportunities, challenges and barriers relating to sustainable development and poverty eradication as part of transitions globally to low emissions and climate resilience, taking into account nationally defined development priorities;

(ii) What are effective approaches for promoting youth participation, gender equality and empowering rural women, in particular in agriculture and ocean-based action, including in decision making processes and access to resources?

(iii) How can whole of society approaches, including inclusive governance and participatory planning processes, contribute to ensuring that transitions leave no one behind?

(c) **Indigenous Peoples' knowledge, traditional knowledge and locally led approaches in the context of just transition pathways that enhance food security** focused on the following guiding questions:

(i) How can Indigenous Peoples' knowledge, traditional knowledge, and local knowledge systems be effectively recognized, protected, and integrated into just transition pathways that enhance food security?

(ii) What are examples of locally led and community-based approaches, including in the context of agriculture and oceans, that contribute to just transitions?

(iii) What are some best practices for ensuring the full and effective participation of Indigenous Peoples, including through free, prior and informed consent, the integration of traditional knowledge and the preservation of cultural heritage in the context of just transition pathways that enhance food security?

12. Following the world café session, the facilitators reported back on the discussions to the plenary, where participants had the opportunity to reflect on those discussions and then engage in an open exchange to react to and supplement the information reported back before closing for the day.

13. The second day of the dialogue commenced with opening remarks by Ingrid Lundberg, Head of Australia's thirty-first session of the Conference of the Parties (COP31) Presidency of Negotiations Branch. Following these opening remarks, and before engaging in breakout group discussions, participants had the opportunity to hear three scene-setting presentations. These were delivered by Kate Hughes, from the Asian Development Bank, Stig Svenningsen, member of the Technology Executive Committee and Sangji Lee, from the United Nations Development Programme, and aimed at framing and inspiring subsequent discussions.

14. The breakout group discussions were divided into three distinct thematic discussions running in parallel. Participants were assigned to one of three breakout discussion rooms. After each round of discussions lasting 45 minutes, facilitators rotated to a different breakout room, allowing all participants to attend each thematic discussion over the remainder of the day. The three discussion topics were the following:

(a) **Topic 1: International cooperation and climate finance as an enabler for just transition pathways to food security** framed by the following guiding questions:

(i) What lessons are being learned on financing nationally defined just transition pathways for food security aligned with the outcome of the first Global Stocktake, including through enhancing access to climate finance, innovative and blended finance, crowding in of the private sector in a way that complements public finance, and financing for social protection systems?

(ii) What financing approaches and partnerships can accelerate nationally determined just transitions toward resilient, low-emission and sustainable food systems consistent with pathways to limit global warming to 1.5°C, while safeguarding livelihoods and ensuring food security?

(iii) How can countries translate nationally determined contributions (NDCs), national adaptation plans (NAPs), and food systems strategies into investable, programmatic pipelines that mobilize sustained, scaled-up finance for just transitions?

(b) **Topic 2: Innovation, technology transfer, capacity-building and knowledge sharing** framed by the following guiding questions:

(i) How can access to climate resilient and context appropriate technologies enhance adaptive capacity, strengthen food security, and support locally led solutions, particularly in vulnerable communities?

(ii) How can innovation and technology development and transfer support just transition pathways to climate resilient, low-emission and sustainable food systems, including through sustainable value chains, circular practices and clean production methods?

(iii) How can capacity-building initiatives strengthen institutional and human capacities to design and implement inclusive, nationally determined just transition pathways that enhance food security?

(c) **Topic 3: Enabling Environments** framed by the following guiding questions:

(i) What policy and regulatory frameworks can attract investment into resilient and low emissions agriculture and ocean-based action, while ensuring food security and livelihoods?

(ii) How can enabling environments ensure that investment in agriculture and ocean-based action deliver inclusive outcomes, like decent work, resilience and sustainable resource use?

(iii) What enabling conditions are needed to support a global shift toward resilient and low emissions agriculture?

15. Following three breakout group discussion rotations, the facilitators reported back on the discussions to the plenary. The morning of the second day of the dialogue was concluded with an open discussion in plenary before breaking for lunch.

16. The afternoon of the second day started with two scene-setting presentations providing an introductory overview for the three different themes. The first presentation which provided an initial framing context for topics 1 and 2 was delivered by Janek Toepper from the Food and Agriculture Organization of the United Nations (FAO). Damon Jones from the UNFCCC secretariat delivered a scene-setting presentation on topic 3.

17. The breakout group discussions on the three different topics ran in parallel. Participants were assigned to one of three breakout discussion rooms. After each round of discussions lasting 45 minutes, facilitators rotated to a different breakout room, allowing all participants to attend discussions on each of the three topics. The three discussion themes were the following:

(a) **Topic 1: Agriculture, agroecology, agroforestry and circularity in nationally determined transition pathways that enhance food security** framed by the following guiding question:

(i) How can agroecological and agroforestry approaches and circular economy principles support holistic and nationally determined just transition pathways that enhance food security, advance mitigation and adaptation synergies, strengthen resilience, improve health, and promote sustainable livelihoods while minimizing food loss and waste?

(b) **Topic 2: Ocean-based action in nationally determined just transition pathways that enhance food security** framed by the following guiding question:

(i) How can ocean-based action, including the protection and restoration of marine and coastal ecosystems and the promotion of sustainable fisheries and aquaculture, contribute to holistic and inclusive nationally determined just transition pathways that strengthen food security and resilience while delivering mitigation co benefits?

(c) **Topic 3: Looking ahead: the potential roles of the UAE just transition work programme and of the just transition mechanism** framed by the following guiding question:

(i) What roles could the UAE just transition work programme, including following its review, play in advancing the design and implementation of nationally

determined just transition pathways for holistic approaches to food security, including with a focus on agriculture and oceans, including in the context of paragraph 8 of decision 2/CMA.7? What could be the role of the just transition mechanism?

18. Following three breakout group discussion rotations, the facilitators reported back on the breakout group discussions to the plenary. Following the report back, participants had the opportunity to reflect on the report back and engage in an open discussion on the three topics.

19. The fifth dialogue concluded with closing address by Julia Gardiner, SBI Chair and Deputy Director Tuğba Dinçbaş, Incoming COP 31 Presidency.

II. Summary of discussions and key findings

A. Workforce considerations, livelihoods and the role of social dialogue in the context of just transition pathways that enhance food security

20. The world café discussions on this subtopic were facilitated by Camilla Roman from the International Labour Organization (Table 1), Bert De Wel from the International Trade Union Confederation (Table 2) and Alexandra Mutungi from the United Nations Environment Programme (Table 3, virtual).

1. Summary of discussions and key findings

21. Many participants emphasized the importance of labour rights, social protection systems and participatory approaches in supporting just transition pathways that enhance food security, including in agriculture and ocean-based action. Participants highlighted that integrating these elements into the design and implementation of transition pathways can support workers, farmers, fishers and communities affected by both climate change and transition-related changes. Many participants highlighted the importance of decent work, sustainable livelihoods and income security across food value chains. Several participants noted the importance of supporting smallholder farmers, family farmers, artisanal fishers, pastoralists, migrant workers and workers in the informal economy, while recognizing the diversity of circumstances and livelihood systems across countries and regions. Some participants emphasized that limiting global warming to 1.5 degrees Celsius is itself a fundamental protection for agricultural workers and food producers, particularly in least developed countries (LDCs) and small island developing States (SIDS), noting that higher levels of warming directly undermine workers' capacity to work and maintain productivity, and that climate ambition and the protection of livelihoods are therefore inseparable.

22. Many participants highlighted the importance of addressing the needs of workers in the informal economy, noting that they represent a significant share of employment across agriculture and food systems in many countries. Participants observed that informal workers often lack access to labour rights, social protection, skills development opportunities and formal representation. Several participants emphasized the importance of extending protections, including strengthening access to social protection systems and ensuring that informal workers are included in social dialogue, decision-making and planning processes. Many participants noted that social protection measures can help address income insecurity associated with climate impacts, changing production systems and economic disruptions. Participants referred to a range of approaches, including social protection floors, cash transfers, income support measures, insurance schemes and other forms of assistance aimed at supporting vulnerable groups and reducing inequalities.

23. A number of participants highlighted the importance of social dialogue in the context of just transition pathways that enhance food security. Several participants also reflected on the importance of meaningful participation, emphasizing that workers, farmers, fishers, Indigenous Peoples, women, youth, local communities and other affected groups should be involved in the design, planning and implementation of just transition pathways. Several participants noted that participation should move beyond consultation, highlighting the importance of community-led approaches and of ensuring that participation is culturally appropriate and grounded in local realities.

24. Many participants stressed the importance of education, training, skills development, reskilling and upskilling in supporting transitions in food systems. Participants noted the need to strengthen access to vocational training, agricultural education, peer-to-peer learning initiatives and capacity-building programmes. Several participants highlighted the importance of ensuring that such initiatives respond to local needs and realities, including in rural communities, coastal areas and SIDS. Several participants emphasized the importance of access to technology and innovation in supporting food security, productivity, adaptation and resilience. Participants highlighted that access to technologies remains uneven and noted the importance of technology transfer, capacity-building and support for the development of context-specific technologies. Some participants stressed that technology-related challenges should be considered alongside workforce development and skills-building efforts.

25. Many participants reflected on the role of the private sector in supporting just transition pathways that enhance food security. Participants noted that private sector actors can contribute to strengthening market access, supporting producers' integration into formal value chains and creating opportunities for sustainable livelihoods. Several participants emphasized the importance of enabling environments that support smallholder farmers, fishers and micro, small and medium-sized enterprises in accessing markets and benefiting from transition-related opportunities. At the same time, some participants highlighted limitations associated with existing business models and noted that private sector investment may not be sufficient to address structural challenges related to food security, adaptation and resilience. Some participants also raised concerns regarding power imbalances within food systems and the distribution of benefits across value chains.

26. A number of participants also highlighted differing perspectives regarding priorities within food systems transitions. Several participants emphasized that adaptation, resilience-building, food security and poverty eradication remain primary priorities for many developing countries. Some participants noted that synergies between productivity, emissions reduction, resilience and sustainability may not always be present and stressed the importance of reflecting national circumstances and development priorities in transition pathways. Some participants also acknowledged the role of food systems transitions in contributing to emissions reductions, while emphasizing that approaches should be designed to reflect national circumstances and avoid creating additional burdens for smallholder farmers and vulnerable communities.

27. A number of participants highlighted the importance of recognizing and protecting the rights, knowledge systems and livelihoods of Indigenous Peoples and local communities. Participants emphasized the value of traditional knowledge and locally adapted practices in supporting food security and resilience. Several participants also highlighted concerns regarding the impacts of certain transition-related activities on Indigenous Peoples, local communities, lands, livelihoods and cultural heritage.

28. Many participants emphasized the importance of gender-responsive approaches and highlighted the role of women throughout food systems. Participants noted that women often face barriers in accessing social protection, training opportunities, land rights and participation in decision-making processes. Several participants also highlighted the importance of recognizing unpaid care work and addressing gender-specific constraints when designing policies and programmes.

29. Several participants highlighted concerns regarding intellectual property rights and access to agricultural innovations, including seeds. Some participants noted that intellectual property arrangements may affect access to technologies and agricultural inputs and raised concerns regarding potential implications for smallholder farmers, Indigenous Peoples and traditional farming practices. Many participants highlighted the importance of means of implementation (finance, technology and capacity-building). Participants stressed that these elements are necessary to support workforce development, technology access, adaptation efforts and broader just transition pathways, in developing countries, particularly in LDCs and SIDS.

30. A number of participants highlighted challenges associated with standards and certification requirements affecting agricultural producers and food value chains. Participants expressed concerns regarding compliance costs, certification requirements, technological

barriers and associated impacts on smallholder farmers, workers and rural communities. Several participants emphasized the need for support, financing, capacity-building and technology transfer to address these challenges. Other participants highlighted the role of such standards and requirements in advancing climate, environmental, human rights and labour rights objectives across food system value chains, and noted that support is available to developing country producers in meeting related requirements. Participants also highlighted the importance of considering workforce impacts across entire food value chains, including production, processing, transport, marketing and distribution. Several participants emphasized the need to ensure that transition pathways contribute to fairer outcomes for workers and producers throughout these value chains.

2. Opportunities, best practices, actionable solutions, challenges and barriers

31. Many participants identified opportunities to strengthen just transition pathways that enhance food security through the integration of labour rights, social protection systems and participatory approaches into relevant policies and programmes. Participants highlighted opportunities to improve livelihoods, strengthen resilience and support food security through approaches that actively involve workers, farmers, fishers, Indigenous Peoples, local communities, women and youth in decision-making processes.

32. Several participants highlighted social protection systems as an important actionable solution for supporting workers and communities affected by climate impacts and transitions in food systems. Participants referred to a range of approaches, including universal social protection coverage aligned with International Labour Organization (ILO) Recommendation 202,[14] social protection floors, universal basic income schemes, cash transfers, income support measures and insurance schemes. Several participants also emphasized the importance of ensuring that social protection systems are accessible to workers in the informal economy and responsive to the needs of women and other groups in vulnerable situations.

33. Many participants highlighted opportunities to strengthen support for workers in the informal economy. Participants emphasized the importance of extending labour protections, social protection and skills development opportunities to these workers. Some participants highlighted the formalization of informal workers as a potential approach to improving access to rights, protections and decent work. Other participants cautioned, however, that formalization should not be treated as a universal solution, noting that it may not reflect the realities and priorities of Indigenous Peoples and local communities whose livelihoods are grounded in customary systems, and that the quality of conditions in the formal sector is as important as formal status itself.

34. Many participants identified education, training, reskilling and upskilling as important actionable solutions. Participants referred to examples including vocational training programmes, agricultural colleges, technical and vocational education initiatives and skills accelerator programmes. Some participants also highlighted Farmer Field Schools and other peer-to-peer learning approaches as examples that support knowledge-sharing, strengthen capacities and create opportunities for collective action. Several participants emphasized the importance of ensuring that education and training initiatives are linked to local needs, employment opportunities and evolving sectoral realities, and cautioned against treating reskilling as a standalone activity disconnected from available technologies, decent working conditions and market access. Other participants noted that for Indigenous Peoples and local communities whose livelihoods are rooted in land, forest and ocean systems, transition support should not assume that reskilling into different occupations is desired or appropriate, emphasizing that these communities may seek to continue traditional ways of living with adequate support and protection rather than transitioning to new occupations.

35. Participants also identified opportunities to strengthen livelihoods through support for producer organizations, cooperatives and community-based approaches, noting that such structures can improve market access, strengthen bargaining power and enable producers to

[14] The ILO Social Protection Floors Recommendation, 2012 (No. 202) is available at: https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:3065524.

retain a greater share of revenues. Several participants highlighted opportunities associated with improved access to markets and stronger value chains, including through support for micro, small and medium-sized enterprises, local value addition and more equitable distribution of benefits across food value chains.

36. Despite these opportunities and actionable solutions, participants identified a number of persistent challenges and barriers. Many highlighted low and unstable incomes, climate-related risks, food insecurity and limited access to social protection as significant challenges, with workers in the informal economy often facing heightened vulnerability. Several participants highlighted concerns regarding intellectual property rights and access to agricultural innovations, including seeds, and raised concerns regarding implications for smallholder farmers, Indigenous Peoples and traditional farming practices. A number of participants also highlighted challenges associated with approaches such as carbon border adjustment mechanisms, which they framed as climate change-related trade-restrictive unilateral measures, and potential negative impacts on just transitions in developing countries. They also highlighted that standards and compliance requirements in developed countries can impose costs and technological requirements on smallholder farmers and producers in developing countries. Other participants highlighted the role of such standards and requirements in advancing climate, environmental, human rights and labour rights objectives across food system value chains, and noted that support is available to developing country producers in meeting related requirements. Many participants emphasized that approaches should be tailored to national circumstances and cautioned against one-size-fits-all solutions.

B. Human rights, gender considerations and social inclusion in the context of just transition pathways that enhance holistic approaches to food security that leave no one behind

37. The world café discussions on this subtopic were facilitated by Romchat Wachirarattanakornkul from the Office of the High Commissioner for Human Rights (Table 4), Carmen Wabnitz from children and youth non-governmental organizations (YOUNGO) (Table 5) and Felicitus Okoko from the Women and Gender Constituency (Table 6, virtual).

1. Summary of discussions and key findings

38. Many participants emphasized the importance of meaningful participation and inclusive governance in the design and implementation of just transition pathways that enhance food security, including in agriculture and ocean-based activities. Participants highlighted that affected groups should be involved throughout policy and decision-making processes and emphasized that participation should extend beyond consultation to enable meaningful engagement in the development, implementation and review of policies and programmes. Several participants noted that participation and the ability to meaningfully influence decision making are particularly important in the context of transitions that may affect livelihoods, access to resources and food systems.

39. Several participants highlighted the importance of ensuring that participation processes are inclusive, accessible and responsive to local contexts and circumstances. Many participants noted that participation should involve Indigenous Peoples, local communities, women, youth, persons with disabilities, older persons, workers in the informal economy and people living in poverty, among other groups. Participants emphasized the importance of providing accessible information, including through local languages and culturally appropriate communication, and noted that meaningful participation often requires time, resources and capacity. Several participants also highlighted concerns regarding consultation fatigue, tokenistic participation and situations in which consultation takes place only after key decisions have already been made.

40. Many participants emphasized the importance of ensuring that those most affected by transition-related decisions can participate effectively in decision-making processes and highlighted the importance of identifying and engaging stakeholders whose voices may otherwise remain unheard, including informal workers, seasonal workers, migrant workers

and women engaged across food value chains. Several participants drew attention to power imbalances within food systems and the influence of larger actors in dominating consultative spaces, stressing that participatory processes must be actively designed to ensure equitable representation rather than inadvertently reinforcing existing inequalities.

41. A number of participants highlighted the importance of Indigenous Peoples' rights in the context of just transition pathways that enhance food security. Participants emphasized the importance of land rights, customary rights, food systems, traditional knowledge and the principle of free, prior and informed consent, noting that land and tenure rights are closely linked to food security, livelihoods, cultural identity and well-being. Several participants highlighted concerns regarding activities that may affect Indigenous Peoples' lands, territories and resources, and emphasized the importance of ensuring the meaningful participation of Indigenous Peoples in decision-making processes affecting them.

42. Many participants emphasized the important role of women in food systems and highlighted structural barriers that women often face including in the context of security of land tenure and land rights, access to finance, training, information and decision-making opportunities. Participants underlined the need to address these barriers, including the disproportionate burden of unpaid care responsibilities, when designing policies and programmes related to food systems transitions. Participants also highlighted the importance of youth participation and empowerment, noting concerns regarding the underrepresentation of young people in decision-making processes and emphasizing the importance of creating meaningful opportunities for younger generations in the context of just transition pathways that advance food security.

43. Many participants highlighted the importance of integrating human rights considerations into just transition pathways, emphasizing that transitions should respect, promote and fulfil human rights. Some participants stressed that the right to development is fundamental to any discussion of human rights in the context of just transitions and food security, noting that material conditions, including access to food, productive resources and decent livelihoods -must be addressed alongside governance and participation considerations. Some participants cautioned that human rights discussions under the UNFCCC should remain consistent with relevant mandates, noting that detailed human rights frameworks fall within the purview of other United Nations processes, and that just transitions should focus on respecting, promoting and fulfilling human rights as a foundational commitment. A number of participants also emphasized the importance of food sovereignty alongside food security, highlighting that food security encompasses not only access to food but also the ability of people and communities to shape decisions affecting food systems, natural resources and food production.

44. Participants highlighted the importance of legal, regulatory and institutional frameworks in supporting inclusive and equitable transition processes. Several participants shared examples of consultation requirements, social impact assessment processes and institutional arrangements designed to identify impacts on different groups and strengthen stakeholder participation. Many participants emphasized the importance of ensuring that participation contributes to tangible outcomes, noting that inclusive processes should support implementation and influence decision-making rather than serving as procedural exercises. Some participants also highlighted the importance of means of implementation (finance, technology and capacity-building) as essential enabling conditions for genuine inclusion, particularly in developing countries where poverty eradication, food security and broader development needs remain pressing priorities.

2. Opportunities, best practices, actionable solutions, challenges and barriers

45. Several participants identified opportunities to advance just transition pathways that enhance holistic approaches to food security by strengthening participation and inclusive governance through institutional arrangements that provide affected groups, including Indigenous Peoples, women, youth and workers in the informal economy, with formal roles in decision-making processes rather than observer status. Participants noted that such arrangements can strengthen accountability, improve the responsiveness of policies and technical outputs to community realities, and help connect international processes with national and local contexts. Some participants also highlighted the potential of multi-

stakeholder platforms and consultative bodies that bring together governments, civil society, producers and rights holders as approaches that can improve legitimacy and reduce the risk of exclusionary transitions.

46. Several participants highlighted legal and regulatory frameworks as important enablers of inclusive and equitable transition processes. Approaches cited included mandatory consultation requirements embedded in policy development processes, social and human rights impact assessment tools applied to transition-related policies and investments, and grievance and redress mechanisms that enable communities to raise concerns and seek accountability. Some participants also highlighted the value of governance arrangements that institutionalize the participation of women, youth and Indigenous Peoples in national consultative bodies related to food systems and climate action. Several participants also highlighted the importance of ensuring the meaningful participation of constituencies and civil society organizations in governance processes and UNFCCC constituted bodies, noting that institutionalized arrangements providing rights holders with dedicated roles and decision-making participation, rather than observer status, can help ensure that the perspectives of workers, women, Indigenous Peoples, youth and other affected groups are systematically reflected in policy outcomes.

47. Several participants highlighted approaches aimed at strengthening gender-responsive and intergenerational inclusion within food systems transitions. These included targeted measures to address structural barriers affecting women's access to land, finance, training and decision-making, as well as initiatives that support women-led organizations and recognize unpaid care work as a consideration in policy design. Participants also referred to approaches that create entry points for youth within food and agricultural systems and that support intergenerational knowledge-sharing between older and younger producers.

48. Some participants highlighted opportunities to strengthen food security through approaches informed by the right to food and food sovereignty, including participatory governance mechanisms that enable communities to influence decisions affecting food systems, natural resources and food production, as well as approaches that strengthen local food systems and improve access to locally produced food. Several participants noted that existing international instruments in this area provide a foundation for the kinds of participatory and rights-based frameworks needed to support just transitions.

49. Despite these opportunities, participants identified a number of persistent challenges and barriers. Many highlighted that power imbalances within food systems mean that larger actors can dominate consultative spaces, and that participatory processes may not always reach the most marginalized groups. Several participants raised concerns about consultation processes that occur only after key decisions have already been made, as well as the risk of consultation fatigue where communities are repeatedly engaged without seeing meaningful change. Participants also emphasized that meaningful participation requires time, resources and capacity, conditions that are not always present, and that participation must ultimately translate into tangible outcomes and influence over decisions rather than serving as a procedural exercise. Several participants further highlighted that means of implementation (finance, technology and capacity-building) are essential enabling conditions for genuine inclusion, particularly in developing countries.

C. Indigenous Peoples' knowledge, traditional knowledge and locally led approaches in the context of just transition pathways that enhance food security

50. The world café discussions on this subtopic were facilitated by Agrafena Kotova, from the Facilitative Working Group of the Local Communities and Indigenous Peoples Platform (Table 7), Jazmin Burgess, from local government and municipal authorities (LGMA) (Table 8) and Rathana Peou Norbert-Munns from the UN Food Systems Hub (Table 9, virtual).

1. Summary of discussions and key findings

51. Many participants emphasized the importance of locally led and community-based approaches in supporting just transition pathways that enhance food security, including in

agriculture and ocean-based activities. Participants highlighted that Indigenous Peoples, local communities, small-scale food producers and fishers possess knowledge, governance systems and practical experience that can contribute to food security, resilience and sustainable resource management. Several participants emphasized that locally led approaches should be supported through inclusive governance arrangements that enable affected communities to participate in shaping decisions that affect their livelihoods, food systems and natural resources.

52. Many participants highlighted the importance of Indigenous Peoples' knowledge, traditional knowledge and local knowledge systems in supporting just transition pathways that enhance food security, in particular in the context of climate adaptation and resilience. Participants noted that these knowledge systems encompass agricultural practices, fisheries management, seed conservation, ecosystem stewardship and approaches to sustainable resource use developed over generations. Several participants emphasized that these knowledge systems should not be viewed solely as sources of information or technical inputs, but should be understood within the broader context of Indigenous Peoples' relationships with lands, territories, resources, governance systems, cultures, worldviews and ways of life.

53. Several participants also emphasized the importance of recognizing, protecting and promoting the rights of Indigenous Peoples. Many participants highlighted the importance of self-determination, land tenure, customary rights, Indigenous governance systems and the principle of free, prior and informed consent. Several participants noted that the protection of Indigenous Peoples' rights is closely linked to food security, food sovereignty, cultural continuity and the effective integration of Indigenous knowledge systems into transition processes. A number of participants also emphasized the importance of food sovereignty alongside food security, highlighting that food security extends beyond access to food to include the ability of people and communities to participate in decisions affecting food systems, natural resources and food production, including through the protection of seed sovereignty and local food systems.

54. Many participants stressed the importance of meaningful participation and inclusive governance, emphasizing that Indigenous Peoples, local communities, women, youth, small-scale producers and other affected groups should be involved in the design, implementation and review of transition-related policies and actions. Several participants noted that participation should move beyond consultation and enable communities to influence decisions from the earliest stages of policy and project development. Participants also highlighted the importance of institutional arrangements that provide Indigenous Peoples and other rights holders with formal roles in governance and decision-making structures rather than participation solely as observers.

55. Several participants emphasized the importance of integrating different forms of knowledge, including Indigenous knowledge, local knowledge and scientific knowledge. Participants highlighted approaches based on co-development, co-production and partnerships among communities, researchers, policymakers and other stakeholders, stressing that such approaches should be based on mutual respect and equitable partnerships that recognize Indigenous Peoples and local communities as both knowledge holders and rights holders. A number of participants highlighted concerns regarding intellectual property rights, seed systems, access to genetic resources and Indigenous data sovereignty, emphasizing the importance of ensuring that Indigenous Peoples and local communities retain authority over how their knowledge, resources and innovations are accessed, used, shared and protected.

56. Some participants emphasized that climate policies and transition-related measures should avoid creating additional burdens for vulnerable communities or undermining food security, livelihoods, land access and local resource governance systems. Some participants cautioned that framing just transitions as primarily community-led should not result in communities bearing the burden of responding to climate change that they did not cause, stressing the importance of ensuring that state support, means of implementation and access to modern technologies complement rather than substitute for community-led action. Several participants highlighted the importance of ensuring that climate action, adaptation, food security and broader development objectives are pursued in an integrated and mutually supportive manner.

57. Many participants emphasized the importance of means of implementation (finance, technology and capacity-building) in supporting locally led and community-based approaches. Participants highlighted the need for support that strengthens local capacities, enables community-led initiatives and facilitates equitable participation in transition processes. Several participants also emphasized the importance of ensuring that financial and institutional arrangements are accessible to small-scale producers, Indigenous Peoples, local communities and workers in the informal economy, and highlighted the importance of holistic and integrated approaches that consider the interconnections between food systems, livelihoods, ecosystems, cultural heritage, climate resilience and sustainable development.

2. Opportunities, best practices, actionable solutions, challenges and barriers

58. Several participants identified opportunities to advance just transition pathways through locally led and community-based approaches. Participants emphasized the importance of ensuring the full and effective participation of Indigenous Peoples in decisions affecting their food systems, natural resources and livelihoods, in line with their rights under relevant international frameworks. Several participants also highlighted the role of local communities, small-scale food producers and artisanal fishers in contributing to food security, resilience and sustainable resource management, and noted that supporting their participation in transition-related planning and governance can help ensure that policies are grounded in local realities and priorities.

59. Many participants emphasized opportunities to strengthen the recognition and protection of Indigenous Peoples' rights as a foundational enabling condition for just transition pathways that enhance food security. Some participants highlighted the importance of land tenure, self-determination, customary rights and the full implementation of the principle of free, prior and informed consent, noting that these rights underpin not only the well-being and livelihoods of Indigenous Peoples but also the effective stewardship of ecosystems and resources that are central to food security. Several participants noted that the integration of Indigenous Peoples' knowledge into transition-related planning is most effective and durable when grounded in the recognition and protection of these rights.

60. Some participants highlighted opportunities to strengthen the integration of Indigenous Peoples' knowledge, traditional knowledge and local knowledge systems into just transition pathways through approaches that eschew extractive models and are based on co-production, co-development and equitable partnerships. Several participants noted that such approaches, when built on mutual respect and the free and informed participation of knowledge holders, can support more context-specific and culturally grounded responses to both food security and climate-related challenges. Participants emphasized the importance of ensuring that knowledge-sharing processes include robust safeguards against the misuse, appropriation or commercialization of traditional knowledge, and that Indigenous Peoples and local communities retain authority over how their knowledge and innovations are accessed and used.

61. Participants highlighted a range of community-led practices that illustrate how locally led approaches can contribute to food security, resilience and sustainable livelihoods, including community-based resource management systems, agroecological and agroforestry practices, community seed systems, ecosystem restoration efforts and locally governed approaches to the management of land, water and marine resources. Several participants noted that such practices can support food production, biodiversity conservation and cultural continuity while reflecting local priorities and values, and emphasized the importance of ensuring that these practices receive adequate financial and institutional support and are recognized within national and international just transition frameworks.

62. Several participants identified opportunities to strengthen implementation through legal, institutional and policy frameworks that recognize Indigenous governance systems, community rights and meaningful consultation processes. Approaches highlighted included the incorporation of free, prior and informed consent, consultation requirements and social impact assessment processes into policy and project development, as well as governance arrangements that provide Indigenous Peoples and local communities with formal roles in decision-making. Participants also noted the importance of ensuring that financial and institutional arrangements for capacity-building, technology transfer and broader means of

implementation are accessible to and designed in partnership with Indigenous Peoples, local communities, small-scale producers and workers in the informal economy. In this context, some participants reflected on the importance of two-way capacity building.

63. Despite these opportunities, participants identified a number of persistent challenges and barriers. Many highlighted that insufficient recognition of Indigenous Peoples' rights, governance systems and land tenure remains a fundamental constraint on locally led approaches and the effective integration of Indigenous Peoples' knowledge into transition processes. Several participants raised concerns regarding the misuse, appropriation and commercialization of traditional knowledge, genetic resources and community-managed practices, and highlighted intellectual property arrangements as a barrier to communities' ability to exercise control over their knowledge and agricultural practices. Some participants also cautioned that certain climate-related actions, conservation measures and transition-related activities may inadvertently affect community rights, land access, livelihoods and food systems, and stressed the importance of designing and implementing such measures in ways that support rather than undermine community well-being. Participants further noted that existing financial and institutional arrangements do not always adequately reach Indigenous Peoples, local communities, small-scale producers and workers in the informal economy, and emphasized the need for approaches that respond to local circumstances and support the long-term sustainability of community-led initiatives.

D. International cooperation and climate finance as an enabler for just transition pathways to food security.

64. The session on this subtopic was facilitated by Diana Alejandra Quezada Avila from the Global Green Growth Institute.

1. Summary of discussions and key findings

65. Many participants emphasized that climate finance and international cooperation are indispensable enablers of nationally determined just transition pathways that enhance food security, including in agriculture and ocean-based activities. Several participants underlined that predictable, adequate and accessible finance is necessary to support countries in advancing on their nationally determined just transition pathways, enabling them to achieve their own development priorities, climate objectives and food security goals. Many participants stressed that international cooperation should be demand-driven and country-owned rather than prescribing uniform approaches. Several participants noted that the key challenge is no longer defining the importance of food systems, agriculture, fisheries and ecosystems in national climate and development plans, where they are already prominently reflected in NDCs and NAPs, but rather translating these commitments into implementation at scale.

66. Some participants underlined that discussions on financing just transition pathways for food security must be grounded in the principles of equity and common but differentiated responsibilities and respective capabilities, and recalled the obligations of developed countries to provide and mobilize climate finance for developing country Parties under Article 9 of the Paris Agreement. Other participants emphasized that advancing just transition pathways for food security also requires improving the quality, coherence and programmatic design of financing approaches, and highlighted the importance of international cooperation in sharing best practices and mobilizing finance from a range of sources in support of nationally determined priorities. Some participants highlighted the importance of aligning financing approaches with efforts to limit the global temperature increase to 1.5 degrees Celsius while safeguarding livelihoods and ensuring food security.

67. Many participants highlighted that when it comes to climate finance for food system transitions, both quantity and quality matter. Several participants recalled that, under the Paris Agreement, developed countries have obligations related to the provision and mobilization of climate finance, and emphasized that grant-based and highly concessional finance is particularly important for just transition interventions in the context of food systems transitions which may lack commercial returns, such as social protection, income support for

farmers, smallholder resilience, ecosystem restoration and the transition to agroecological practices. Some participants cautioned against loan-heavy approaches that could undermine fiscal space and just transition objectives, particularly for LDCs, SIDS and other countries with high debt burdens. Several participants noted that food systems and food security, in particular its adaptation and resilience aspects, have historically attracted inadequate levels of climate finance relative to their importance and vulnerability.

68. Several participants highlighted a fundamental challenge in how just transitions are typically financed: when treated as a social add-on or safeguard applied reactively to climate projects, just transition components are difficult to fund and can be seen as adding cost or complexity. Some participants noted the potential of an alternative approach that treats just transition as an enabler of ambitious climate action from the outset, requiring early upstream analytical and technical assistance work to assess vulnerabilities and opportunities, followed by integrated programmatic design that sequences and matches different types of finance to different components. These participants noted that this approach enables countries to draw on a portfolio of financing instruments, including grants for social transition components, concessional loans for public good investments, and private finance for bankable components, rather than relying on a single instrument.

69. Many participants highlighted the importance of integrated, multi-sectoral approaches that address the interconnections among climate action, food systems, agriculture, fisheries, livelihoods and ecosystems. Several participants emphasized that financing food security and ecosystem health in the context of climate change is core to adaptation and just transitions, and noted that interventions across food, water and ecosystem dimensions are most effective when bundled into coherent cross-sectoral programmes rather than financed as isolated projects. Several participants also highlighted the growing importance of the urban and peri-urban dimension, noting that a significant share of people facing food insecurity live in urban and peri-urban areas and that subnational governments and local authorities are increasingly important actors in food system transitions that currently have very limited access to climate finance. Some participants emphasized that the core challenge for many developing countries is not only how to access existing climate finance, but the limited provision of grant-based and concessional climate finance and cautioned against framings that place the primary burden on developing countries to make their just transition programmes more investable.

70. Several participants reflected on existing instruments and approaches to mobilizing finance in the context of just transitions that advance food security. Some participants pointed to country-led investment platforms and programmatic approaches as important best practices, noting that bundling related interventions into coherent, nationally owned programmes with clear timelines, financing needs and potential funding sources creates the scale and coherence that supports sustained and scaled-up implementation. Some participants also highlighted domestic carbon pricing and emissions trading systems as mechanisms that can generate revenues redirectable to social and just transition interventions. Some participants highlighted the potential of redirecting existing public financial flows, including by repurposing public agricultural support towards sustainable food system transitions and phasing out inefficient fossil fuel subsidies that do not address food security or just transitions, as sources of finance that could generate revenues for just transition pathways that advance food security. Other participants noted that these matters fall within national sovereignty and the scope of other fora, and emphasized that discussions on finance for just transition pathways in the context of the topic of the dialogue should focus on the provision of support from developed to developing countries in line with their obligations under the Paris Agreement. Some participants emphasized the complementary roles of public finance, concessional finance, private investment and blended approaches, while noting that different interventions require different instruments and that people-centred measures and distributional policies in food systems typically require public grants or highly concessional terms.

71. Several participants underscored the importance of ensuring that finance reaches those most affected by climate change and transition-related challenges in food systems, including smallholder farmers, fishers, Indigenous Peoples, local communities, women, youth and workers in the informal economy. Participants highlighted the importance of direct access modalities, community-level financing mechanisms and locally led approaches in this regard.

Some participants noted the importance of human rights-based and gender-responsive approaches to financing, including robust participation mechanisms and safeguards. Other participants emphasized that financing arrangements should be guided by nationally determined priorities, and cautioned against the imposition of external conditionalities that may not reflect the circumstances and development needs of recipient countries. Several participants also emphasized that institutional capacity constraints, particularly for project preparation, costing and pipeline development, limit the ability of many developing countries to access and absorb available support, and highlighted the importance of readiness and technical assistance.

72. Many participants highlighted broader structural barriers affecting implementation, including limited fiscal space, high borrowing costs, debt burdens and the architecture of the international financial system. Several participants emphasized that these structural constraints must be addressed if just transition pathways for food security are to be adequately financed. Some participants noted that certain approaches such as carbon border adjustment mechanisms, which they framed as climate change-related trade-restrictive unilateral measures, could have negative impacts on just transitions in developing countries by hindering international cooperation and access to means of implementation. Other participants disagreed with such framing and highlighted the role of the approaches in question in advancing climate, environmental and sustainability objectives.

2. Opportunities, best practices, actionable solutions, challenges and barriers

73. Several participants identified opportunities to improve the quality, accessibility and effectiveness of climate finance in support of nationally determined just transition pathways that enhance food security, including in agriculture and ocean-based activities. Some participants noted the value of embedding just transition considerations in national planning and budgeting cycles, including in NDCs, NAPs and food system strategies, to enhance policy coherence and ensure that financing arrangements reflect nationally determined priorities. Some participants also noted the importance of social and environmental safeguards in financing arrangements, as well as of human rights-based and gender-responsive approaches, including robust participation mechanisms. Other participants emphasized that financing for just transition pathways must be provided in line with the needs and priorities of developing countries as outlined in their NDCs and NAPs, rather than being shaped by external conditionalities or earmarking determined outside national planning processes.

74. Several participants highlighted concrete best practices for translating nationally determined just transition pathways aligned with food system priorities into programmatic investment pipelines. Some participants highlighted the importance of sequencing different financing instruments within programmatic approaches, so that technical assistance and just transition components come first and create the enabling conditions for larger climate investments to follow. Some participants noted the value of programme designs that earmark a portion of revenues, including from carbon pricing where applicable, for just transition interventions such as income support, worker reskilling and community resilience in agriculture and fisheries. Participants also pointed to risk mitigation instruments, including guarantees, insurance facilities and first-loss tranches, as means of reducing the cost of capital for priority food system investments while maintaining social outcome safeguards.

75. Some participants highlighted an alternative framing for finance in the context of the topic, emphasizing the importance of aligning financial flows with developmental outcomes including livelihoods, resilience and equity rather than organizing finance around bankability and commercial returns alone. These participants noted that many priority food system interventions, such as smallholder support, ecosystem restoration, resilience-building and local value chain development, generate high social and ecological value that conventional financial metrics do not capture, and suggested that financial institutions should evolve their approach to better reflect these broader outcomes in whole-of-economy and whole-of-society approaches to just transition pathways that advance food security.

76. Several participants highlighted the importance of direct access modalities and localized finance, noting that only a very small number of global climate funds currently provide direct access to local governments despite their central role in food security and

designing and implementing just transition pathways at the community-level. Some participants highlighted direct grant programmes for Indigenous Peoples and local communities as approaches that can strengthen bottom-up implementation. Several participants emphasized the importance of strengthening project preparation capacities and technical support to enable developing countries to translate their nationally determined just transition pathways into investable programmes, with many noting that this challenge is particularly acute for LDCs and SIDS, which face the greatest constraints in accessing and absorbing available finance relative to their needs and vulnerability.

77. Several participants highlighted opportunities to strengthen international cooperation in support of just transition pathways that enhance food security, including enhanced coordination among multilateral development banks, bilateral donors and climate funds to reduce fragmentation and improve coherence in support of nationally determined priorities, as well as through bilateral and multilateral partnerships that combine finance with technical support and high social and environmental standards across food system value chains. Some participants also highlighted the potential of debt relief and debt swap arrangements as mechanisms to free up fiscal space for just transition investments, particularly in highly indebted developing countries.

78. Despite these opportunities, participants identified a number of persistent challenges. Many participants noted that just transition pathways that enhance food security, including in agriculture and ocean-based activities, require finance that goes beyond mitigation to adequately support adaptation measures, resilience-building, social transition components and ecosystem restoration. These were mentioned as areas that have tended to attract limited financing relative to identified needs. Several participants noted that capacity constraints, including for costing just transition measures and integrating them into national planning frameworks, remain a significant barrier for many developing countries in translating their food security and just transition priorities into programmes that can attract and absorb finance. Some participants cautioned against one-size-fits-all approaches and emphasized the importance of tailoring support to nationally determined priorities, food system contexts and local realities.

E. Innovation, technology transfer, capacity-building and knowledge sharing.

79. The session on this subtopic was facilitated by Emilly Caroline Costa Silva from research and independent non-governmental organizations (RINGO).

1. Summary of discussions and key findings

80. Many participants emphasized that innovation, technology development and transfer, capacity-building and knowledge-sharing are indispensable enablers of nationally determined just transition pathways that enhance food security, including in agriculture and ocean-based activities.

81. Participants also highlighted that innovation and technology, when accessible, affordable and responsive to national and local circumstances, can help advance just transition pathways, including by contributing to adaptation measures, resilience, sustainable livelihoods and food security. Several participants drew on the work of the Technology Executive Committee (TEC), noting that transforming agri-food systems requires an integrated, systems-based approach in which technologies cannot be considered in isolation as agricultural production depends on water availability and energy access, post-harvest systems rely on infrastructure, storage and transport, and all of these are shaped by policy, finance and market conditions. Some participants referred to knowledge products developed by the TEC and the Food and Agriculture Organization of the United Nations (FAO), which map climate technologies across agri-food value chains from production to processing, storage and distribution, and identify both opportunities and barriers including finance constraints, limited technical capacity and gaps in enabling environments.

82. Many participants highlighted adaptation and resilience as central objectives of technology deployment in the context of just transition pathways that enhance food security.

Several participants emphasized the importance of digital technologies, climate information services and early warning systems as important enablers, while noting concerns about equitable access, data governance and the risk of deepening inequalities if deployment is not inclusive. Other participants pointed to the role of agroecological and context-appropriate production technologies, efficient post-harvest and storage solutions, and sustainable fisheries technologies in strengthening adaptive capacity and reducing vulnerability for smallholder farmers, artisanal fishers and food-insecure communities.

83. Some participants highlighted the potential of innovation and technology to contribute to emissions reductions across agri-food value chains, noting that food production, processing and distribution remain heavily dependent on fossil fuels and that this dependence creates vulnerability to price volatility and supply disruptions with direct implications for food security and livelihoods. These participants pointed to clean and renewable energy technologies, bioenergy from agricultural residues, resource-efficient production methods and circular approaches as important contributors to both mitigation and food system resilience. They also noted that current NDCs present a significant mitigation action gap in agri-food systems, representing an important opportunity in the next round of NDC updates. At the same time, other participants emphasized the importance of maintaining a non-prescriptive approach that respects nationally determined pathways and the diversity of technological solutions available to countries, cautioning against narrowing the discussion to specific technologies or transition approaches.

84. Many participants stressed that technology transfer should move beyond the one-directional delivery of equipment or technical solutions and should become a deliberate, structured process of knowledge-sharing, capacity-building and institutional strengthening. Participants emphasized the importance of collaborative, demand-driven and people-centred approaches that enable countries and communities to adapt and develop technologies suited to their own circumstances, development priorities and food system realities. A recurrent concern highlighted by a number of participants was the risk of technology dumping, where technologies are transferred without meaningful capacity-building, without responding to local contexts or without consideration of longer-term operation and maintenance, which several participants noted had undermined outcomes in past initiatives. Some participants also raised concerns about certain innovations being tested without adequate assessment of risks or application of free, prior and informed consent, particularly in the context of lands and oceans in the Global South.

85. Many participants emphasized the importance of whole-of-society and inclusive approaches to innovation, technology deployment and capacity-building. Participants highlighted that co-designing technology-related initiatives with farmers, fishers, Indigenous Peoples, local communities, women and youth improves contextual relevance and helps ensure that technologies respond to real needs rather than displacing labour or local systems. Several participants also noted that technology choices should consider trade-offs between productivity, equity, resilience and employment, and that policies should avoid imposing top-down solutions.

86. Several participants also highlighted the importance of Indigenous Peoples' knowledge, traditional knowledge and local knowledge systems as valuable and effective approaches to sustainable resource management, food security and climate resilience in agriculture and fisheries. Participants stressed that innovation processes should recognize, respect and build upon these systems rather than displace them, and that combining them with modern technologies can lead to more robust and sustainable outcomes. Several participants emphasized that intellectual property rights, licensing arrangements and restrictions on seed saving and exchange can limit the ability of developing countries, Indigenous Peoples and local communities to access, adapt or develop needed technologies, and emphasized the importance of ensuring that innovation does not entrench dependency, exclusion or corporate control. Several participants further noted that technologies are not neutral and that their impacts on employment, livelihoods and equity should be assessed when designing technology-related initiatives.

87. Many participants highlighted the importance of enabling conditions for technology uptake in the context of just transitions that enhance food security, including appropriate infrastructure, financing, institutional support and policy frameworks, and noted the critical

role of international cooperation, South-South and triangular cooperation, and multilateral institutions in addressing persistent gaps in technology access, capacity-building and implementation support, particularly for LDCs and SIDS.

2. Opportunities, best practices, actionable solutions, challenges and barriers

88. Several participants identified opportunities to strengthen the development, transfer and deployment of technologies in support of just transition pathways for food security. Some participants highlighted context-specific and locally adapted technologies as an important category of actionable solutions, including AI-assisted agricultural and water management tools designed for low-literacy users in developing countries, climate-smart fisheries and water management technologies, and modular and decentralized solutions for agri-food processing and storage. Participants emphasized that such technologies are most effective when co-designed with the communities that will use them, when linked to capacity-building and maintenance support, and when informed by participatory technology needs assessments aligned with national climate strategies. Some participants also highlighted peer-to-peer learning initiatives, including Farmer Field Schools, as mechanisms that effectively combine technology uptake with knowledge-sharing and the collective organization of producers, and noted their relevance for scaling agroecological and other locally adapted practices.

89. Some participants highlighted opportunities to strengthen national and regional innovation ecosystems that connect research institutions, extension services, producer organizations, micro-, small and medium-sized enterprises (MSMEs) and the private sector, noting that effective innovation in food systems depends not only on the technologies themselves but also on the institutions and networks that facilitate learning and sustained implementation. Some participants suggested the establishment or strengthening of innovation hubs and testing facilities that can validate technologies under local conditions while also serving as platforms for skills development and accreditation. Some participants also highlighted the importance of developing regional standards for agri-food technologies to improve safety, interoperability and uptake. Several participants emphasized the role of South-South and triangular cooperation, peer-to-peer learning, pooled procurement and shared testing facilities in sharing locally developed and piloted food system technologies across similar contexts.

90. Several participants discussed opportunities to enhance the effectiveness of the Technology Mechanism in supporting implementation at scale in food systems. Some participants suggested strengthening operational links between the Climate Technology Centre and Network and the Financial Mechanism to pair technology support with concessional and grant-based finance for public good elements such as extension services, workforce training and social safeguards. Some participants also proposed that the just transition mechanism could play a matchmaking function, connecting countries with available expertise, technologies and financing, and helping identify which technical avenues are accessible and suited to specific national and local contexts. Other participants cautioned, however, that discussions under the JTWP should not prejudge or shape the design of the mechanism, which has its own dedicated deliberative process.

91. Intellectual property barriers were raised by a number of participants as key considerations for equitable technology deployment in food systems. Some participants suggested actionable solutions including voluntary licensing, patent pools, open-source platforms and open hardware designs to improve access, particularly for LDCs and SIDS. Several participants also highlighted the importance of safeguards against the misuse, appropriation or commercialization of Indigenous Peoples' knowledge, community-managed agricultural practices and traditional seed systems, emphasizing that knowledge-sharing should only take place with the free, prior and informed consent of knowledge holders.

92. Despite these opportunities, participants identified a number of persistent challenges and barriers. Many highlighted constraints related to finance, infrastructure, limited domestic manufacturing and supply chain capacity, and shortages of technical skills, particularly in LDCs and SIDS. Several participants noted the challenge of fragmented pilot initiatives that fail to progress to implementation at scale, and emphasized the importance of coordinating technology, finance and capacity-building processes to move from demonstration to sustained implementation. Participants highlighted the importance of ensuring that enabling

conditions, including institutional support, adequate finance and appropriate policy frameworks, accompany technology deployment and support its long-term sustainability, noting that without these conditions technology alone cannot deliver the equitable and inclusive outcomes that just transition pathways require.

F. Enabling environments

93. The session on this subtopic was facilitated by Luc Tezenas from the constituency of environmental non-governmental organizations (ENGO).

1. Summary of discussions and key findings

94. Many participants emphasized the importance of enabling policy, regulatory, institutional and financial environments in supporting nationally determined just transition pathways that enhance food security, including in agriculture and ocean-based activities. Participants highlighted that enabling environments should support the integrated achievement of climate, food security, livelihood and development objectives in a manner that reflects national circumstances, capacities and priorities. Many participants stressed that the key challenge is moving from fragmented, project-based approaches to coherent, programmatic responses that address the interlinkages between climate, food security and ecosystem health, and that embedding just transition principles into programme design from the outset is essential to ensure that this shift delivers equitable and inclusive outcomes for workers, producers and communities. Several participants emphasized that enabling environments are both preconditions for implementation and outcomes that require sustained investment, and that countries facing structural constraints may require additional international support to establish and maintain them.

95. Many participants highlighted the importance of policy coherence, regulatory certainty and long-term planning. Participants emphasized the value of whole-of-government and whole-of-society approaches that align climate, food security, agricultural, fisheries, development and social policies, and strengthen coordination across institutions, levels of governance and sectors. Several participants noted that just transition aspects should not serve as safeguards at the end of project or policy design, but should guide risk identification and project design from the earliest stages. Some participants highlighted the Intergovernmental Panel on Climate Change (IPCC)'s finding, with high confidence, that effective policy packages should be comprehensive, consistent, balanced across objectives and tailored to national circumstances, and emphasized that bottom-up implementation is necessary to ensure policies remain effective and consistent with national objectives.

96. Several participants emphasized the critical role of subnational governments, municipalities and local authorities as actors in enabling just transition pathways that enhance food security. Some participants noted that local governments are often closest to food-insecure communities and food systems and are best placed to ensure that national commitments are translated into locally responsive implementation. Participants highlighted the importance of embedding food systems, including urban and peri-urban food systems, into national policy planning instruments such as NDCs, NAPs and national just transition strategies, and of establishing national food strategies that strengthen urban food systems and improve policy coherence across ministries and levels of government.

97. Many participants highlighted the importance of rights-based approaches and social safeguards as core components of enabling environments. A number of participants emphasized that investment in food systems should be governed by safeguards that prevent land dispossession, exclusion from resources, and violations of labour rights. Several participants noted that agriculture and food systems must support not only greater productivity and climate resilience but also fair wages, decent working conditions and social protection across the whole value chain. Some participants stressed that for Indigenous Peoples land rights, tenure rights and free, prior and informed consent are essential enabling conditions for sustainable food systems and that just transition pathways should ensure sustained access to territories through secure tenure, meaningful consultation, social forestry and legal recognition.

98. Some participants highlighted that the quality and design of financing arrangements might be as important as their scale in creating enabling environments for just transitions in food systems. A number of participants noted that investment in food systems should be accompanied by strong social and environmental safeguards, benefit-sharing arrangements, participatory design processes and grievance mechanisms to ensure that finance supports equitable outcomes rather than inadvertently concentrating land, resources or benefits among larger actors. Several participants also emphasized the importance of ensuring that subnational governments and local communities have direct access to finance to implement locally responsive solutions, and noted that existing financial and institutional arrangements do not always adequately reach smallholder farmers, fishers, Indigenous Peoples and workers in the informal economy. Some participants highlighted the importance of ensuring that financial frameworks recognize locally led approaches, including Indigenous Peoples' practices, as investable and eligible for support.

99. Several participants also highlighted risks associated with poorly governed investment in food systems, including land concentration, exclusion of small producers, pressure on fishing grounds, water stress, overfishing and ecosystem degradation. Several participants noted that enabling environments should consider not only the intention of climate measures but also their distributional and cross-border effects. Some participants noted that certain approaches such as carbon border adjustment mechanisms, which they framed as climate change-related trade-restrictive unilateral measures, could have negative impacts on just transitions in developing countries by hindering international cooperation and access to means of implementation. Other participants highlighted the role of such approaches in advancing climate, environmental and sustainability objectives and emphasized that the UNFCCC and the Paris Agreement were not designed to assess individual parties' nationally determined policies and measures and have no mandate to do so.

100. Many participants highlighted broader structural challenges affecting enabling environments, including limited fiscal space, high cost of capital, debt burdens, institutional capacity limitations, siloed policy design, overly technical approaches and the difficulty of translating national goals into local implementation. Some participants emphasized that cascading policy frameworks from national targets to sectoral actions can create stability and reduce risk for investors while improving implementation, but that this requires multi-disciplinary approaches that align policies with local realities. Some participants noted that enabling environments for food system transitions require addressing the fossil fuel dependence of fertilizers and agricultural machinery, and emphasized the importance of providing policy signals to transition away from fossil fuels, including by addressing inefficient fossil fuel subsidies that currently strengthen the business case for fossil fuels in agriculture. Other participants stressed that effective climate action should focus on reducing greenhouse gas emissions rather than restricting particular energy sources, and emphasized that a balanced just transition strategy should emphasize flexibility in choosing efficient and cost-effective approaches.

2. Opportunities, best practices, actionable solutions, challenges and barriers

101. Several participants highlighted national just transition governance mechanisms and advisory bodies as important best practices for creating enabling environments for implementing nationally determined just transition pathways that advance food security. Many participants noted the value of dedicated institutional arrangements that bring together different ministries, levels of government, workers, employers, civil society and local communities to co-design and monitor just transition policies for food systems, and cited whole-of-economy and whole-of-government approaches from different national contexts that have succeeded in bridging climate, agriculture, fisheries, social protection and economic development agendas. Several participants also emphasized the role of interministerial coordination bodies in breaking policy silos and ensuring that sectoral strategies are coherent and mutually reinforcing across food, water, energy and ecosystem dimensions.

102. Some participants identified opportunities to strengthen enabling environments through cascading policy frameworks that translate national targets into sectoral actions and then into locally responsive implementation. These participants noted that such frameworks

can create stability, reduce risk and improve implementation outcomes, and highlighted the role of multi-disciplinary approaches that align policies with local realities, including the diversity of food production systems such as pastoral, livestock, artisanal fisheries and agroforestry. Some participants also emphasized the importance of embedding food systems, including urban and peri-urban food systems, into national planning instruments such as NDCs, NAPs and national food strategies, and highlighted municipal procurement, school feeding programmes and urban-rural linkages as practical levers for connecting food security, decent work and climate action at the community level. Other participants shared national experiences of developing regulatory frameworks and investment programmes for water management in agriculture under conditions of water scarcity, including desalination, wastewater reuse and precision irrigation, as examples of how nationally determined enabling environments can support food security under climate stress and illustrate the diversity of approaches that effective enabling environments may require.

103. Several participants identified the strengthening of land tenure security, recognition of customary rights and legal protection of Indigenous Peoples' rights as foundational actionable solutions. Many participants also referred to approaches that incorporate free, prior and informed consent, consultation requirements and social and human rights impact assessment processes into policy and project development as important tools for embedding equity and rights considerations from the early stages of policy or process design. Some participants highlighted the importance of ensuring that policy and financial frameworks explicitly recognize locally led and Indigenous Peoples' practices as valid approaches to food system transitions, rather than requiring compliance with externally defined standards that may not reflect local realities or be accessible to smallholder farmers and artisanal fishers.

104. Several participants identified opportunities to strengthen implementation by improving the quality of investment design. Some participants suggested that just transition principles should guide project and programme design from the outset rather than being added as end-stage safeguards, and highlighted the importance of benefit-sharing arrangements, participatory design processes and grievance mechanisms in ensuring that investment supports equitable outcomes. Some participants proposed integrity frameworks for just transition finance in food systems as an approach to embedding these principles systematically into investment design and accountability. Several participants also emphasized the importance of strengthening local institutional capacities for project preparation, implementation and monitoring, particularly in LDCs and SIDS, as a means of enabling countries to develop and manage programmes that can attract and sustain financing for food system transitions.

105. Despite these opportunities, participants identified a number of persistent challenges and barriers. Many highlighted limited institutional capacity, siloed policy design, weak coordination across levels of government and the difficulty of translating national goals into local implementation. Several participants raised concerns about the potential unintended social risks of certain climate-related policies, in particular when it comes to affecting traditional practices, cultural identity and food sovereignty, and emphasized the importance of integrating risk management and safeguarding Indigenous knowledge and climate-smart traditional practices throughout policy design and implementation. Some participants also noted that the terminology used in policy and financial frameworks can itself become a structural barrier, with certain labels inadvertently excluding smallholder farmers, informal workers and community-based actors from access to finance and policy support, highlighting the importance of ensuring that frameworks are designed to reach and recognize the full diversity of actors in food systems.

G. Agriculture, agroecology, agroforestry and circularity in nationally determined transition pathways that enhance food security.

106. The session on this subtopic was facilitated by Janek Toepper from FAO and Krib Sitathani from United Nations Development Programme (UNDP).

1. Summary of discussions and key findings

107. Many participants highlighted the potential of agroecological and agroforestry approaches, together with circular economy principles, to support holistic and nationally determined just transition pathways that enhance food security, strengthen resilience, improve health and promote sustainable livelihoods. Some participants noted that these approaches can contribute simultaneously to food security, ecosystem health, biodiversity conservation, soil fertility, carbon sequestration, water management and livelihood outcomes. Several participants drew on scientific evidence, including IPCC assessments, noting that agroecological approaches could significantly contribute to mitigation efforts needed to limit global warming to 1.5 degrees Celsius while simultaneously supporting adaptation and enhancing incomes for smallholder farmers. Some participants also highlighted the high dependence of agri-food systems on fossil fuels across production, processing and distribution, noting that reducing this dependence can simultaneously strengthen food system resilience and contribute to emissions reductions. Some participants highlighted that the transformation of agri-food systems is one of the most powerful strategies available to deliver on the Paris Agreement targets across mitigation, adaptation and loss and damage. Many participants emphasized that mitigation co-benefits should be recognized and valued, while others noted that finance for just transition pathways that enhance food security in developing countries should not be made conditional on mitigation outcomes. These participants cautioned that the recognition of agroecological and locally led approaches should not be used to substitute for means of implementation, emphasizing that the value of these approaches does not reduce the obligation to deliver finance, technology transfer and capacity-building to support developing country food system transitions. Some participants highlighted the importance of maintaining broad, non-prescriptive framing of circular approaches to allow countries to choose pathways consistent with their national circumstances and development priorities.

108. Many participants highlighted the importance of nationally determined and context-specific approaches, noting that food systems operate under diverse environmental, climatic, social and economic conditions and that multiple pathways may coexist. They also underlined that the nationally determined nature of just transition pathways in food systems must be grounded in the principles of equity and common but differentiated responsibilities and respective capabilities. Several participants noted the importance of applying agroecological principles across diverse production systems, including livestock, dairy and pastoral systems, and cautioned against approaches that narrow transitions to a single production channel rather than enabling the widest range of systems to improve their sustainability. Some participants also highlighted the importance of viewing food systems through the water-energy-food nexus, noting that agricultural production depends on water availability and energy access and that integrated systems-based approaches are necessary for effective transitions. Some participants reflected that transitions in food systems could involve real trade-offs. Some participants noted that land-based mitigation approaches, including offsets and afforestation, can under certain circumstances compete with food production and smallholder land tenure, raising concerns about food security particularly in developing regions that bear a disproportionate share of the land-based mitigation burden under global pathways. Other participants noted, however, that well-designed land-based mitigation approaches, including agroforestry and ecosystem restoration, can deliver both mitigation and food security outcomes simultaneously when governed with meaningful community participation and safeguards. Some participants also noted that conservation measures such as protected areas or fishing restrictions can impose costs on small-scale farmers, fishers and pastoralists unless paired with alternative livelihood support and transition finance. Other participants further highlighted the risk that agricultural intensification and digitalization, while potentially reducing emissions intensity, can concentrate benefits in larger operations at the expense of smallholder farmers, women, youth and informal agri-food workers if not carefully governed.

109. Many participants highlighted food loss and waste reduction as a high-priority objective for food system transitions, noting that, while it remains under-financed and under-prioritized, it simultaneously improves food security, reduces emissions, strengthens value chains and increases incomes. Several participants noted that the primary driver of post-harvest losses is not inadequate knowledge but inadequate infrastructure, particularly in

developing countries, including storage facilities, cold chains, rural roads and processing capacity. Some participants called for explicit recognition of post-harvest infrastructure investments as eligible uses of climate finance for food security and just transitions.

110. Participants highlighted the importance of viewing food systems as integrated value chains, noting that just transition pathways must enable producers not only to produce sustainably but also to process, trade and capture value in evolving global markets. Several participants raised concerns about the concentration of power in global agri-food value chains, the limited bargaining power of small-scale producers relative to large buyers, and the implications of international sustainability and traceability requirements for developing country producers, including their compliance costs and market access implications. Other participants highlighted the role of such requirements in advancing climate, environmental and sustainability objectives, including halting and reversing deforestation, and noted their contribution to ensuring that products entering markets do not violate human rights or labour rights.

111. Several participants emphasized the growing importance of urban and peri-urban food systems, noting that a significant share of food-insecure people globally live in urban and peri-urban areas and that integrating agroecology into urban planning and climate action can support food security, circular economies, local livelihoods and social benefits. Participants highlighted the role of municipalities and subnational governments in advancing just transitions in food systems through urban food governance, local procurement and school feeding programmes, and emphasized the importance of embedding urban and peri-urban food systems into national planning instruments including NDCs and NAPs.

112. Several participants emphasized rights-based approaches as an essential foundation for food system transitions, highlighting the right to adequate food, land rights, water rights, food sovereignty and the principle of free, prior and informed consent. Some participants highlighted that in the Indigenous context agroecological and agroforestry approaches are most effective when led by communities and adapted to specific ecosystems, and that land rights, territorial rights and free, prior and informed consent (FPIC) are foundational conditions. Several participants also highlighted the importance of social protection, participatory approaches and skills development in supporting farmers, fishers and communities throughout transitions, noting the importance of income support and transition assistance to manage adjustment costs and protect livelihoods during periods of change.

2. Opportunities, best practices, actionable solutions, challenges, and barriers

113. Several participants highlighted a range of concrete policy approaches and best practices for supporting just transition pathways in food systems. Approaches cited included eco-schemes and agri-environment payments that financially reward farmers for adopting sustainable practices beyond baseline requirements, including agroforestry, crop diversification, organic farming and nutrient management; integrated food policy frameworks linking agricultural, climate, biodiversity, public health and land use objectives; and rural development measures supporting structural transformation, diversification, innovation and advisory services. Several participants also highlighted nationally determined circular economy frameworks as examples of integrated approaches that support both mitigation and adaptation, treating carbon not as a wasteful byproduct but as a resource that can support economic growth and food system sustainability. These were presented as examples of how nationally designed, context-specific pathways can deliver multiple objectives simultaneously without imposing prescriptive external approaches.

114. Several participants highlighted the explicit recognition of post-harvest infrastructure investments as an important actionable solution against food loss, including storage facilities, cold chains, processing capacity and transport infrastructure, noting that financing these investments through climate finance instruments would directly address a primary structural driver of food loss and simultaneously improve food security, strengthen value chains and reduce emissions. Participants also highlighted value-chain approaches that support processing, local value addition, cooperative development and improved market access for smallholder farmers and artisanal fishers as tools for ensuring equitable distribution of transition-related benefits.

115. Several participants highlighted the role of cooperatives, producer organizations and community-based governance structures as best practices for strengthening smallholder farmers' and fishers' position in food system transitions. Participants noted that such structures can improve market access, strengthen bargaining power and enable producers to retain a greater share of revenues while supporting locally led approaches to just transitions. Several participants also emphasized the potential of social innovation, including social dialogue, participatory governance and community co-design, as enablers of just transitions that complement technical and infrastructure solutions.

116. Several participants identified opportunities to strengthen the integration of Indigenous Peoples' knowledge, traditional knowledge and local knowledge systems into food system transitions through community-led, place-based approaches that are adapted to specific ecosystems and livelihoods. Participants emphasized the importance of long-term, predictable support and generational transmission of knowledge rather than short-term interventions, and highlighted the need for policies to create enabling conditions for locally led systems to thrive. Several participants also highlighted the importance of safeguards against the misuse or appropriation of traditional knowledge and community-managed genetic resources, and emphasized that engagement with Indigenous knowledge should be built on free, prior and informed consent.

117. Despite these opportunities, participants identified a number of persistent challenges and barriers. Many highlighted constraints related to finance, infrastructure, limited access to markets and technology, and institutional capacity for planning, coordination and implementation. Several participants noted that transitions may involve genuine trade-offs that require targeted support to manage fairly, including the risk that efficiency gains, intensification and digitalization concentrate benefits among larger operators at the expense of smallholder farmers, women, youth and informal agri-food workers. Participants also highlighted land tenure insecurity, limited recognition of customary rights and the risk of dispossession through poorly governed land, finance and conservation instruments as structural barriers. Some participants raised concerns regarding the implications of international sustainability standards, traceability requirements and trade-related measures for developing country producers and market access, emphasizing the importance of taking into account national circumstances, equity considerations and differing capacities, while other participants highlighted the role of such measures in advancing climate and environmental objectives and noted the support available to developing countries in meeting related requirements.

H. Ocean-based action in nationally determined just transition pathways that enhance food security

118. The session on this subtopic was facilitated by Leida Cea from the United Nations Human Settlements Programme (UN-Habitat).

1. Summary of discussions and key findings

119. Many participants emphasized the important role of ocean-based action in advancing just transition pathways that enhance food security, livelihoods, resilience and sustainable development, particularly for coastal communities, SIDS and LDCs. Participants highlighted that oceans and marine ecosystems underpin fisheries, aquaculture, employment in coastal communities, nutrition and local economies, and emphasized that ocean-based action should support both ecosystem health and socioeconomic well-being in a balanced and integrated manner. Several participants stressed that for many coastal and island countries, ocean-based food security is central to nationally determined just transition pathways, and that ocean-related activities including fisheries, aquaculture and coastal resource management must be treated as integral components of food system transitions.

120. Many participants emphasized sustainable fisheries and climate-resilient aquaculture as central components of ocean-based action in the context of just transition pathways, noting the need to strengthen resilience to climate impacts including ocean warming, acidification, ecosystem degradation and shifting fish stocks, while maintaining food production and

livelihood opportunities. Several participants noted that climate change poses a significant and growing threat to marine and freshwater environments, with projections indicating substantial declines in coastal catches for some regions by mid-century, creating increasing uncertainty for fisheries governance and heightening risks for coastal communities. Several participants highlighted the importance of addressing working conditions, social protection, workforce development and livelihood security for workers in fisheries and related activities, and drew particular attention to the circumstances of small-scale fishers, workers in informal employment, migrant workers and women involved in fisheries processing and value chains, stressing that transition pathways should not transfer costs to those least able to bear them.

121. Several participants highlighted the mitigation dimension of ocean-based action, noting that protecting and restoring marine and coastal ecosystems, including mangroves, seagrasses, coral reefs, coastal wetlands and other blue carbon ecosystems, can deliver significant mitigation co-benefits while simultaneously supporting fisheries productivity, food security, biodiversity conservation, coastal protection and climate resilience. Some participants highlighted ocean alkalinity enhancement as an approach that could help stabilize ocean acidity and restore ecosystems, while also enhancing the ocean's absorption of carbon dioxide. Several participants noted that the Global Stocktake outcome invites parties to preserve and restore oceans and coastal ecosystems and scale up ocean-based mitigation action, and highlighted this as an important mandate for integrating ocean-based action into nationally determined just transition pathways. Some participants also highlighted the potential of ocean-based approaches to emissions reduction in the shipping and aquaculture sectors, including for example, the implementation of the International Maritime Organization (IMO) net zero framework which uses revenues from shipping greenhouse gas pricing to support developing country fishing fleets, including through funding for cleaner fuels, technology uptake and capacity-building and equitable adoption of low-carbon approaches.

122. Many participants emphasized the importance of rights-based and people-centred approaches in ocean-based just transition pathways. Many participants highlighted the need to safeguard access to marine resources, recognize customary tenure systems and protect the rights of Indigenous Peoples, small-scale fishers and coastal communities, including through free, prior and informed consent and meaningful participation in decision-making. Some participants raised concerns regarding the risk of exclusion, displacement and loss of access to resources associated with conservation measures, blue economy initiatives and ocean-based developments where affected communities are not adequately consulted. Some participants cautioned that marine conservation frameworks that establish protected areas, no-take zones or access exclusions, and that do so without community consent, alternative livelihood support or compensation, could amount to livelihood dispossession and should not be supported. Other participants highlighted the role of well-governed marine protected areas as enablers of resilient fisheries and coastal economies when designed with meaningful participation and linked to skills development, income resilience and social dialogue.

123. Several participants highlighted the importance of social dialogue and inclusive whole-of-society governance as enabling conditions for ocean-based just transition pathways. Participants noted that involving fishers, workers, Indigenous Peoples, local communities, women, youth, employers and local governments in the design, implementation and monitoring of ocean-related policies can strengthen legitimacy, anticipate distributional impacts and improve outcomes. Some participants highlighted integrated ocean governance frameworks that explicitly link ecosystem restoration with skills development, generational renewal, income resilience and social dialogue as approaches that can serve as models for people-centred ocean-based just transitions.

124. Some participants highlighted the impacts of ocean warming, sea-level rise, coral bleaching, coastal erosion and changing fish distributions on food security and livelihoods, and emphasized the importance of adaptation, resilience-building and, in some cases, responding to the loss and damage dimensions associated with ocean-related climate impacts. Some participants also raised concerns regarding certain fisheries governance arrangements and access agreements that have historically transferred economic value away from coastal communities rather than supporting local food security and livelihoods, while other

participants emphasized the importance of well-designed cooperative frameworks that support sustainable fisheries, decent work and coastal development.

2. Opportunities, best practices, actionable solutions, challenges, and barriers

125. Several participants highlighted community-based marine resource management as an important best practice, noting that locally managed marine areas and similar arrangements that give communities formal authority over their marine resources can generate food security benefits, support biodiversity conservation and strengthen local livelihoods. Participants noted the importance of participatory governance approaches in which marine spatial planning, marine protected areas and ecosystem restoration programmes are co-designed with small-scale fishers, women, Indigenous Peoples and coastal communities, and highlighted integrated ocean governance frameworks that link conservation, skills development, income resilience and social dialogue as examples of approaches that treat environmental and social outcomes as complementary rather than competing objectives. Some participants shared examples of community-based fisheries management areas, managed by fisheries unions, Indigenous communities and local groups with legal authority, that have demonstrated food security benefits, including the restoration of vulnerable species and the strengthening of coastal communities' economic and ecological resilience.

126. Several participants identified decent work and labour protections in fisheries and aquaculture as important actionable areas for ocean-based just transition pathways. Some participants highlighted the role of existing international labour standards as a framework for advancing just transitions from a labour perspective in ocean-based activities, and noted the importance of wider adoption of relevant instruments to strengthen protections for workers in fisheries and aquaculture, particularly for small-scale fishers, women in processing and value chains, and workers in informal employment. Some participants also highlighted national programmes providing financial support and incentives for fishers transitioning to low-carbon and climate-resilient aquaculture, including species adaptation support, equipment and infrastructure assistance, as concrete examples of nationally determined approaches to ocean-based just transitions.

127. Several participants highlighted blue carbon ecosystems, including mangroves, seagrasses and coastal wetlands, as important actionable solutions that simultaneously support mitigation, adaptation, fisheries productivity and food security. Some participants emphasized that blue carbon programmes are most effective when governed transparently, structured to deliver direct benefits to the communities managing the relevant ecosystems, built on robust consent processes and designed to resist capture by external intermediaries, ensuring that mitigation co-benefits serve coastal communities first. Several participants also highlighted the importance of ecosystem restoration, including the conversion of abandoned fish ponds and the restoration of degraded coastal habitats, as approaches that could create employment in the fisheries sector while enhancing carbon sinks and strengthening climate resilience.

128. Several participants highlighted the importance of incorporating ocean-based actions into national climate and development planning processes, including through NDC targets for marine protected areas, ecosystem restoration and sustainable fisheries, as a means of mobilizing finance and ensuring accountability. Some participants also highlighted the potential of technology transfer and capacity-building support for ocean-based sectors, particularly for LDCs and SIDS, including for climate-smart fisheries technologies, water management solutions and community-based water and food security infrastructure.

129. Despite these opportunities, participants identified a number of persistent challenges and barriers. Many highlighted the impacts of ocean warming, acidification, sea-level rise, coral bleaching, coastal erosion and shifting fish distributions on food security and livelihoods, particularly for coastal and island communities, and emphasized the importance of adaptation, resilience-building and, where necessary, responding to loss and damage. Several participants raised concerns about precarious employment, informal work, limited social protection and unequal access to opportunities in fisheries and related value chains. Some participants highlighted challenges related to inadequate consultation, exclusion from decision-making, displacement and loss of access to marine resources, as well as barriers to finance, technology and capacity-building. Several participants also raised the importance of

ensuring that internationally designed frameworks for fisheries governance and certification reflect the realities of developing country producers, respect national sovereignty and are accompanied by adequate means of implementation support, noting that poorly designed external frameworks can transfer costs to developing country communities without providing commensurate benefits.

I. Looking ahead: the potential roles of the UAE just transition work programme and of the just transition mechanism

130. The session on this subtopic was facilitated by Ana Vukoje from the UNFCCC secretariat.

1. Summary of discussions and key findings

131. Many participants reflected on the body of shared understanding built progressively through the five dialogues held under the JTWP. Several participants highlighted the important role of the technical work under the JTWP in developing a holistic and multi-sectoral understanding of just transitions; the nationally determined nature of just transition pathways and their relationship to national climate planning instruments; the people-centred and whole-of-society dimensions of transitions including decent work, labour rights, social protection and the informal economy; the integral role of adaptation and climate resilience; and the socioeconomic, workforce and energy and other dimensions of just transition pathways based on nationally defined development priorities. Several participants drew attention to paragraph 12 of Decision 2/CMA.7 as it highlights the advancing of this joint understanding through the key messages it recognizes, with many participants noting that these should guide both the future work of the JTWP and the design and governance of the just transition mechanism. A number of participants also highlighted the mandate in paragraph 8 of Decision 2/CMA.7 for the JTWP to integrate relevant outcomes of the first Global Stocktake (GST), noting the particular relevance of GST outcomes on food security, agriculture, deforestation and ocean-based action to the topic of this dialogue, while other participants emphasized that the dialogue and its outputs should not be linked to or used to directly inform other processes under the UNFCCC.

132. Many participants emphasized that the JTWP should continue to serve as a structured and Party-driven space for dialogue, the development of key messages and the provision of political guidance, while evolving towards a more outcome- and action-oriented phase focused on supporting countries in advancing nationally determined just transition pathways. Several participants noted that the accumulation of knowledge and insights across five dialogues, including on just transition pathways in relation to food security, agriculture and ocean-based action, provides a substantive foundation for both the review of the JTWP and the design and operationalization of the just transition mechanism, and stressed the importance of ensuring that the practical experiences and lessons shared in the dialogues are reflected in concrete support and implementation on the ground.

133. Participants devoted considerable attention to the potential roles of the just transition mechanism in advancing nationally determined just transition pathways for food security, including in agriculture and ocean-based activities. Several participants highlighted possible functions including: serving as a global knowledge hub consolidating and disseminating practical lessons and good practices from implementation; providing demand-driven technical assistance and capacity-building while avoiding duplication of programmes already underway; facilitating coordination and coherence among relevant institutions within and beyond the UNFCCC; providing guidance or signals to financial institutions on integrating just transition considerations into their portfolios; and serving as a matchmaking platform connecting countries with available technologies, expertise and financing. Several participants underlined the importance of the JTWP and the mechanism operating in a complementary and mutually reinforcing manner, with the JTWP retaining its role as a political and normative space, and the mechanism focused on implementation and knowledge-sharing. Some participants also highlighted the potential of the mechanism to address coordination gaps among the multiple financial actors operating under different mandates, risk frameworks and conditionalities, which several participants identified as one

of the most significant barriers to implementation in the context of just transition pathways that enhance food security.

134. Several participants emphasized the importance of a function-first approach to the design of the mechanism, noting that its form and institutional architecture should follow from a clear definition of the functions it is expected to perform, and that new structures should be established only where existing mandates and institutions cannot meet identified needs. Some participants highlighted the value of the secretariat's mapping exercise in this regard, noting that a thorough assessment of available support and existing gaps is a necessary precondition for any decisions on the mechanism's design. Other participants called for the mechanism to be operationalized at CMA 8 without deferral, arguing that transitions, including those in food systems, are already affecting communities across developing regions and that implementation support cannot wait for the conclusion of longer-term design processes.

135. Many participants stressed that work relevant to just transitions, including in the context of the implementation and review of the JTWP and operationalization of the mechanism, must remain Party-driven, nationally determined, non-prescriptive and grounded in the principles of equity and common but differentiated responsibilities and respective capabilities. Several participants emphasized that the mechanism must not promote a unified approach, issue universal guidelines or create new obligations, benchmarks or conditionalities for parties. Some participants cautioned that discussions in the dialogue should not prejudge or inform deliberations on the mechanism, which has its own dedicated submission and deliberative process. Others called on parties to be more proactive and specific in bringing forward concrete proposals, noting that sufficiently clear views on core functions have emerged from submissions and discussions to support progress on institutional design. Several participants also emphasized the importance of ensuring that constituencies, civil society organizations, subnational governments, workers, Indigenous Peoples, women, youth and other non-Party stakeholders have institutionalized roles in the mechanism governance, going beyond observer status, and that the mechanism should be accessible to the full diversity of actors central to food system transitions, including cooperatives, traditional authorities, municipalities and workers' organizations.

2. Opportunities, best practices, actionable solutions, challenges, and barriers

136. Several participants identified concrete opportunities to strengthen the contribution of the JTWP and the just transition mechanism to advancing nationally determined just transition pathways that enhance food security, including in agriculture and ocean-based activities. On knowledge generation and sharing, participants highlighted the opportunity to consolidate and disseminate the growing body of practical knowledge generated through the JTWP, including on food security, agriculture, fisheries and ocean-based action, through an accessible repository of case studies, lessons learned and implementation approaches, and through regional peer-to-peer learning and South-South cooperation platforms. Several participants suggested that the JTWP should continue to serve as a platform for thematic dialogues and political guidance working in tandem with the mechanism, particularly while the mechanism is being operationalized. Some participants also highlighted the need to ensure linkages with relevant UNFCCC processes, including the Koronivia Joint Work on Agriculture and the recommendations from the Ocean and Climate Dialogue.

137. On the functions of the just transition mechanism, some participants proposed the establishment of a technical assistance network that could help countries translate nationally determined just transition priorities relevant to food systems, agriculture and fisheries into programmes that can attract and absorb finance, coordinate capacity-building initiatives, link developing countries with relevant sources of support and monitor gaps in just transition assistance. Some participants proposed that the mechanism provide guidance to the operating entities of the Financial Mechanism and to multilateral development banks on integrating just transition considerations, including whole-of-economy and whole-of-society dimensions, into their portfolios and financing frameworks. Some participants also proposed a matchmaking function, noting that one of the most significant barriers to just transition in food systems is not only the lack of finance but the fragmentation of financial actors operating under different mandates and risk frameworks, and that the mechanism could actively

connect countries with available technologies, expertise and financing while clarifying the distinct roles of different stakeholders in making transition projects viable.

138. On governance and institutional design, several participants called for the mechanism to be operationalized as a constituted body under the CMA at its eighth session, with a formal link established between JTWP dialogue outputs and mechanism operational decisions to ensure that needs identified in the dialogue rooms inform what the mechanism is directed to support. Some participants proposed that the mechanism include both a political tier and a technical tier to enable it to fulfil both normative and operational functions. Several participants highlighted the importance of ensuring that the mechanism is accessible to the full diversity of actors central to just transition that enhance food security, and some proposed that technical assistance be available not only to national governments but also to subnational governments, workers' organizations, civil society and community organizations. Other participants cautioned, however, that discussions under the dialogue should not prejudge the design of the mechanism. On governance, some participants highlighted the importance of institutionalized roles for constituencies and non-Party stakeholders, going beyond observer status, and of building on paragraph 12 of Decision 2/CMA.7 as a guiding framework for the mechanism's design and operation.

139. On coordination and coherence, participants highlighted the value of strengthening linkages between the JTWP and relevant constituted bodies and workstreams under the Convention and the Paris Agreement, as well as with institutions working on food security, agriculture and ocean-based action beyond the UNFCCC. Participants underlined the importance of the mapping exercise in identifying what support is already available and where genuine gaps lie before establishing new structures, and proposed that the mechanism serve as a broker directing countries to existing support rather than duplicating it. Several participants also emphasized the importance of avoiding fragmentation and contrary guidance within the Paris Agreement architecture, noting that new institutional arrangements should complement and strengthen existing workstreams rather than create parallel processes.

140. Despite these opportunities, participants identified a number of challenges and persistent barriers. Many highlighted limited institutional capacity, fiscal space and debt burdens as structural constraints affecting countries' ability to design and implement nationally determined just transition pathways, particularly in food systems where priority interventions deliver high social value but limited commercial returns. Several participants emphasized that the mechanism must be grounded in a realistic assessment of budgetary constraints and the existing UNFCCC architecture, avoiding any duplication of work, and cautioned against decisions on design and operationalization that precede the completion of the mapping exercise. Other participants emphasized the urgency of early operationalization, noting the urgency of nationally determined just transitions that advance food security and that those communities that the mechanism is meant to serve are already bearing the costs of delayed implementation support.

Annex II

Informal summary of the sixth dialogue under the United Arab Emirates just transition work programme*

I. Introduction

A. Mandate

1. Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) at its fourth session decided to establish a work programme on just transition for discussion of pathways to achieving the goals of the Paris Agreement outlined in Article 2, paragraph 1, in the context of Article 2, paragraph 2.[1]

2. CMA 5 established the scope and modalities of the United Arab Emirates (UAE) just transition work programme (JTWP), deciding that it shall be implemented under the guidance of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) through a joint contact group to be convened at each of their sessions, starting at the sixtieth sessions of the subsidiary bodies (SB 60).[2]

3. CMA 5 also decided that at least two dialogues shall be held each year as part of the JTWP, with one to be held prior to the first regular sessions of the subsidiary bodies, starting with SB 60, and one prior to the second regular sessions of the subsidiary bodies, starting with SB 61, and that such dialogues should be conducted in hybrid format to allow both in-person and virtual participation.[3]

4. Furthermore, CMA 5 requested the Chairs of the subsidiary bodies to prepare in a timely manner, with the assistance of the secretariat, an annual summary report on the dialogues.[4] At SB 60, the SBSTA and the SBI encouraged their Chairs to prepare and publish, starting from the first dialogue and immediately following each dialogue under the JTWP, an informal summary of the discussions at that dialogue, including on opportunities, best practices, actionable solutions, challenges and barriers, ensuring that those discussions are reflected in a comprehensive and balanced manner.[5]

5. Pursuant to this mandate, the secretariat prepared and published, under the guidance of the Chairs of the subsidiary bodies, informal summary reports on the first,[6] second,[7] third,[8] fourth[9] and fifth[10] dialogues held under the JTWP. The information contained in the informal summaries on the two dialogues held in 2024 under the JTWP, is included in the first annual summary report by the Chairs of the subsidiary bodies,[11] and the informal summaries on the two dialogues held in 2025 under the JTWP, is included in the second annual summary report by the Chairs of the subsidiary bodies.[12]

6. This informal summary on the sixth dialogue held under the JTWP has been prepared under the guidance of the Chairs of the subsidiary bodies, reflecting the discussions held at the sixth dialogue in a comprehensive and balanced manner, including a summary of the

* Not formally edited or formatted.

[1] Decision 1/CMA.4, para. 52.

[2] Decision 3/CMA.5, para. 4.

[3] Decision 3/CMA.5, para. 5.

[4] Decision 3/CMA.5, para. 10.

[5] FCCC/SBSTA/2024/7, para. 98, and FCCC/SBI/2024/13, para. 45.

[6] Available at https://unfccc.int/documents/640155.

[7] Available at https://unfccc.int/documents/642594.

[8] Available at https://unfccc.int/documents/650431.

[9] Available at https://unfccc.int/documents/652861.

[10] Available at https://unfccc.int/documents/658279.

[11] Available at https://unfccc.int/documents/641865.

[12] Available at https://unfccc.int/documents/652998.

discussions and the key findings, opportunities and barriers identified in World Cafés session, breakout discussion sessions and plenary discussions.

7. The informal summary captures and summarizes views shared during the sixth dialogue but does not represent an exhaustive summary of all interventions.

B. Proceedings

8. The sixth dialogue under the JTWP took place in Baku, Azerbaijan, from 10 to 11 September 2026. The sixth dialogue took place in hybrid format, with 107 in-person and 125 virtual participants, totaling 232 participants from Parties, United Nations and other intergovernmental organizations and non-governmental organizations (NGOs).[13] The dialogue was hosted by the Government of Azerbaijan as part of the Climate Week four in 2026. The topic of the sixth dialogue was **holistic approaches to nationally determined just transition pathways for the industry sector: technology, innovation and equitable value chains**, in the context of element c) paragraph 2 of decision 3/CMA.5.[14]

9. In the opening plenary participants were welcomed by remarks delivered by Julia Gardiner, Chair of the SBI, and Carol Franco, Vice-Chair of the SBSTA, followed by welcome remarks delivered by Daniele Violetti, Senior Director of the Programmes Coordination Division of the UNFCCC secretariat, André Novo Viccini, Presidency of the thirtieth session of the Conference of the Parties (COP 30 Presidency) team, and Shams Huseynova, Azerbaijan. Following the welcoming remarks, Damon Jones, United Nations Framework Convention on Climate Change (UNFCCC) secretariat, provided participants with an introduction to the scope and format of the sixth dialogue under the JTWP.

10. Following the welcoming and introductory segment, the format shifted to a world café session to provide the opportunity for focused interventions of the delegates in-person and virtually around three subtopics. Nine world café tables were set up, with three tables for each of the three subtopics, two in-person and one virtual. After approximately 40 minutes of discussion, participants moved to a table on a different subtopic, thus allowing all participants to participate in discussions on each of the three subtopics over the course of the three rounds of the world café session. These sessions were moderated by the facilitators who used the following guiding questions to provide a framework for the discussions:

(a) **Workforce considerations, livelihoods and the role of social dialogue in the context of just transition pathways for the industry sector** focused on the following guiding questions:

(i) What role can labour rights, the union movement, social dialogue, participatory approaches and social protection systems play in ensuring inclusive, context specific and equitable just transitions for the industry sector?

(ii) What are best practices in labour force mapping, education and vocational training, reskilling and upskilling and retooling that prepare workers for industrial transformation and support the creation of decent work and quality jobs, including for workers in the informal economy and in artisanal and small-scale industry? What could be the role of the private sector, including medium, small and micro enterprises?

(iii) What are best practices in designing just transition pathways for workers who can be more vulnerable to exclusion and may find reskilling more complex, such as workers with disabilities and older workers?

(b) **Human rights, gender considerations and social inclusion in the context of just transition pathways for the industry sector that leave no one behind** focused on the following guiding questions:

[13] The agenda, webcast recordings and presentations are available at https://unfccc.int/event/sixth-dialogue-under-the-united-arab-emirates-just-transition-work-programme.

[14] Element c) in paragraph 2 of decision 3/CMA.5 refers to opportunities, challenges and barriers relating to sustainable development and poverty eradication as part of transitions globally to low emissions and climate resilience, taking into account nationally defined development priorities.

(i) How can just transition pathways for the industry sector be designed to respect, promote and fulfil human rights?

(ii) What approaches effectively promote youth participation, gender equality and the empowerment of women, including in decision-making, in the design of just transition pathways?

(iii) How can health considerations, including occupational and safety, public and environmental health considerations, be integrated into just transition pathways for the industry sector?

(c) **Indigenous Peoples' knowledge, traditional knowledge and locally led approaches in the context of just transition pathways for the industry sector** focused on the following guiding questions:

(i) How can Indigenous Peoples' knowledge, traditional knowledge, and local knowledge systems be effectively recognized, protected, and integrated into just transition pathways for the industry sector?

(ii) What are examples of locally led and community-based approaches that can help ensure that industrial transformation contributes to sustainable local development and the preservation of cultural heritage?

(iii) How can the benefits and opportunities of just transition pathways for the industry sector, including equitable access to value chains, be equitably shared with Indigenous peoples and local communities?

11. Following the world café session, the facilitators reported back on the discussions to the plenary, where participants had the opportunity to reflect on those discussions and then engage in an open exchange to react to and supplement the information reported back before closing for the day. The first day was closed by Damon Jones, UNFCCC secretariat, who moderated the open discussion.

12. The second day of the dialogue commenced with an introduction by the UNFCCC secretariat, as the Chairs were unable to join at the start of the day. Before engaging in breakout group discussions, participants had the opportunity to hear three scene-setting presentations, delivered by Cem Gundogan from the European Bank for Reconstruction and Development (EBRD), Stig Svenningsen, member of the Technology Executive Committee (TEC), and Tomasz Pawelec from the United Nations Industrial Development Organization (UNIDO), aimed at framing and inspiring subsequent discussions.

13. The breakout group discussions were divided into three distinct thematic discussions running in parallel. Participants were assigned to one of three breakout discussion rooms. After each round of discussions lasting 45 minutes, facilitators rotated to a different breakout room, allowing all participants to attend each thematic discussion. The three discussion topics were the following:

(a) **Topic 1: International cooperation and climate finance as an enabler for nationally determined just transition pathways for the industry sector** framed by the following guiding questions:

(i) What are the key barriers and structural challenges that countries face in mobilizing and accessing climate finance for nationally determined just transition pathways in the industry sector, including in relation to the distribution of risks, costs and benefits? What lessons can be drawn from country experience?

(ii) What financing approaches, partnerships and delivery models can help overcome these barriers and accelerate nationally determined just transition pathways toward resilient, low-emission and sustainable industry, consistent with pathways to limit global warming to 1.5 °C, while supporting economic diversification?

(b) **Topic 2: Innovation, technology transfer, capacity-building and knowledge sharing** framed by the following guiding questions:

(i) How can innovation, technology development and transfer, and knowledge sharing support nationally determined just transition pathways for the industry sector?

(ii) How could barriers to technology development, deployment and diffusion to support sustainable industrialization, including those associated with intellectual property regimes, be addressed?

(iii) How can capacity-building initiatives strengthen institutional and human capacities to design and implement nationally determined just transition pathways for the industry sector, including by building on technology needs assessments and other nationally identified priorities?

(c) **Topic 3: Enabling environments** framed by the following guiding questions:

(i) What holistic policy, regulatory and governance frameworks can support and incentivize the private sector to design and implement just approaches to industrial decarbonization?

(ii) What holistic policy, regulatory and governance frameworks can attract investment into industrial decarbonization, while supporting sustainable industrialization, poverty eradication and economic diversification?

(iii) What enabling conditions are needed to support a global shift towards low-emission and resilient industry that delivers on inclusive and sustainable outcomes?

14. Following three breakout group discussion rotations, the facilitators reported back on the discussions to the plenary. Cem Gundogan from the EBRD reported back on topic 1, Benjamin Basmaci from the United Nations Development Programme (UNDP) on topic 2 and Marienette Gallon from UNIDO on topic 3. The morning of the second day of the dialogue was concluded with the report-backs before breaking for lunch.

15. The afternoon of the second day of the dialogue continued with two scene-setting presentations providing an initial framing for the two different topics. The presentation on topic 1 was delivered by Camilla Roman from the International Labour Organization (ILO) and the presentation on topic 2 by Damon Jones from the UNFCCC secretariat.

16. The breakout group discussions on the two different topics ran in parallel. Participants were assigned to one of two breakout discussion rooms. After each round of discussions lasting 45 minutes, facilitators rotated to a different breakout room, allowing all participants to attend discussions on each of the two topics. The two discussion topics were the following:

(a) **Topic 1: Holistic approaches to nationally determined just transition pathways that promote equitable value chains** framed by the following guiding questions:

(i) How can equitable value chains that create local value addition and local economic opportunities be incentivized and supported?

(ii) How can international cooperation and partnership support fair value creation?

(b) **Topic 2: Looking ahead: the potential roles of the UAE just transition work programme and the just transition mechanism** framed by the following guiding questions:

(i) What roles could the UAE just transition work programme play in advancing the design and implementation of nationally determined just transition pathways for the industry sector, including following its review[15] and in the context of paragraph 8 of decision 2/CMA.7?

(ii) What could be the role of the just transition mechanism?

[15] Decision 3/CMA.5 paragraph 3 agreed to review the effectiveness and efficiency of the work programme and consider its continuation at the eighth session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (November 2026). Decision 2/CMA.7 paragraph 27 requested the subsidiary bodies to develop terms of reference for the review of the UAE just transition work programme at their sixty-fourth sessions. Decision 2/CMA.7, paragraph 28, also requested the subsidiary bodies to consider, inter alia, ways to improve existing modalities in developing the terms of reference, without prejudice to the outcome of the consideration of the continuation of the work programme.

17. Following the two breakout group discussion rotations, the facilitators reported back on the breakout group discussions to the plenary. Camilla Roman from the ILO reported back on topic 1 and Ana Vukoje from the UNFCCC secretariat on topic 2. Following the report back, participants had the opportunity to reflect on the report back and engage in an open discussion on the two topics.

18. The sixth dialogue concluded with closing remarks by Fatma Tok Lazoğlu, COP 31 Presidency team, and Dharmini Robertson, COP 31 President of Negotiations team, followed by a closing address by Carol Franco, Vice-Chair of the SBSTA.

II. Summary of discussions and key findings

A. Workforce considerations, livelihoods and the role of social dialogue in the context of just transition pathways for the industry sector

19. The world café discussions on this subtopic were facilitated by Camilla Roman from the ILO (Table 1), Deo Gabinete from the NDC Partnership (Table 2) and Bert De Wel from the International Trade Union Confederation (Table 3, virtual).

2. Summary of discussions and key findings

20. Many participants emphasized that labour rights, social dialogue, participatory approaches and social protection are central to inclusive, context-specific and equitable just transition pathways for the industry sector. Many participants highlighted the importance of workers and their organizations playing an active role in shaping industrial policies, identifying impacts and designing transition measures, rather than being consulted after decisions have already been taken. Several participants highlighted the role of social dialogue in anticipating and managing restructuring, building trust and ownership, and supporting durable and politically viable transitions. Some participants highlighted the need to distinguish social dialogue among governments, employers and workers, as defined within the framework of the ILO, from broader consultation with all affected stakeholders, noting that the two are distinct processes that serve different purposes.

21. Many participants highlighted the importance of securing trust and support of workers, noting that climate policies cannot be effectively implemented without it. Several participants observed that workers in fossil fuel-based industries often hold well-paid jobs and may be reluctant to change occupations, and pointed to challenges related to timing, as workers may hesitate to invest in reskilling where new jobs are not yet available. Several participants emphasized that jobs created in new industries are not automatically decent jobs, and that labour rights, fair wages, safe working conditions and collective bargaining should apply regardless of the industry in which workers are employed. Some participants suggested linking such requirements to public incentives, industrial subsidies and climate finance, and highlighted the role of trade unions in negotiating transition agreements covering retraining, severance, early retirement and redeployment. Some participants noted that national climate plans do not always reflect meaningful consultation with workers' organizations.

22. Many participants highlighted the role of social protection in providing workers with the security to undertake retraining and in cushioning the impacts of restructuring, while noting that social protection cannot substitute for economic transformation. Several participants emphasized the importance of universal social protection systems covering workers in both the formal and the informal economy, while others highlighted the complementary role of targeted, sector- or region-specific measures and active labour market policies. Some participants emphasized that social protection should also support the workers and communities most exposed to transition and climate risks, including through livelihood diversification and resilience-building.

23. Many participants highlighted the importance of addressing the needs of workers in the informal economy, noting that they represent the majority of the workforce in many developing countries, while transition policies and labour force mapping often focus on the formal sector. Participants observed that informal, artisanal and small-scale workers may be

among those most affected by industrial transitions, including through indirect and induced employment. Several participants emphasized formalization as a means of extending contracts, social protection and health coverage to these workers, and cautioned against approaches that treat informal workers as recipients of assistance rather than as workers entitled to decent work. Some participants also highlighted the needs of migrant workers and raised concerns regarding contracting arrangements and false self-employment, which can limit workers' ability to organize and bargain collectively.

24. Many participants stressed the importance of education, training, reskilling and upskilling, and of anticipating change rather than responding only after jobs are lost. Participants highlighted labour market planning, skills intelligence and the mapping of workforce skills against future industry needs at the regional and sectoral level, noting that job dynamics include job creation, changes in existing occupations and job losses, as well as technological change, including artificial intelligence. Several participants emphasized that skills programmes should respond to the needs of industry, workers and communities, including Indigenous Peoples, and should be linked to local industrial capabilities, national priorities and emerging sectors. Some participants highlighted the importance of integrating climate change into education systems, recognizing the existing skills of workers and promoting intergenerational learning, and suggested that young people be engaged as co-designers of training programmes.

25. Several participants highlighted the role of the private sector, including through workplace-based training, apprenticeships, skills partnerships, supplier development and local procurement, and emphasized the central role of micro, small and medium-sized enterprises and cooperatives in local job creation and in absorbing displaced workers. Participants noted that public policy should ensure that such opportunities deliver decent work and inclusive outcomes, and that informal workers and artisanal and small-scale enterprises should have access to training, finance, technology and markets. Some participants noted that decent wages and working conditions are key to attracting and retaining skilled workers.

26. Many participants noted that reskilling programmes designed for the average working-age worker can exclude older workers and workers with disabilities, and highlighted the need to identify groups at risk of exclusion at the outset and to design targeted, context-specific measures. Some participants observed that disability, location, access to transport and digital connectivity can determine whether workers truly benefit from retraining. Participants emphasized flexible and accessible training formats, assistive technologies, recognition of prior learning and tailored employment support, and noted that for some workers income security, social protection, job retention and redeployment may be more appropriate than retraining, so that they do not bear a disproportionate share of transition costs. Several participants noted that older persons and persons with disabilities are often not represented in policy dialogues and underlined the importance of engaging them directly, with some noting that older workers and workers with disabilities face particular barriers to inclusion and that programmes should be built on the experience of older workers, including with technologies that are being phased down, rather than treat it as outdated.

27. Several participants highlighted gender considerations, noting that women remain underrepresented in both traditional and emerging industries and that reskilling programmes may not be accessible to women with care responsibilities. Participants emphasized the need to take women's care work, including in informal and extractive sectors, into account when designing skills and employment programmes.

28. Many participants emphasized that just transitions in the industry sector are closely linked to development and must reflect national circumstances and priorities. Some participants noted that many developing countries, particularly in Africa, have yet to establish the industries to be decarbonized and, while not rejecting decarbonization, emphasized that its sequencing should take development needs into account. Some participants noted that, as the least developed countries (LDCs) have small and nascent industrial bases, they may be able to create green and decent jobs without the large-scale job losses that the phase-out of existing industries can entail in more industrialized economies. They added that the LDCs face structural constraints, such as limited domestic manufacturing capacity, supply-chain dependency and weak vocational and technical training systems, which make it necessary to

link skills development with local industrial capabilities. Other participants stressed that whole-of-economy and whole-of-society just transitions extend beyond the energy sector and workers directly employed by affected industries, and that the international trade, finance and technology environment shape the ability of countries to deliver transitions that protect jobs and livelihoods.

29. A number of participants emphasized that national just transition efforts, including social protection systems, should be supported by international cooperation and means of implementation, noting that they see this in line with the provisions of the Convention and the Paris Agreement, including Article 9, paragraph 1, of the Paris Agreement, and cautioned against treating national and international approaches in isolation, with some highlighting the special circumstances of the LDCs and small island developing States (SIDS). Some participants pointed to existing international cooperation initiatives on jobs, social protection and labour that can support such efforts. A number of participants underlined equity and the principle of common but differentiated responsibilities and respective capabilities as foundational principles of the JTWP. Some participants noted that without international cooperation developing countries could be forced to prioritize development over climate action, and stressed that the current industrial transformation should not leave anyone behind.

30. Some participants cautioned against reproducing a pattern in which developing countries export raw materials, such as critical minerals, and low-cost labour while importing high-value products, leaving the most skilled and best-paid green jobs elsewhere. These participants highlighted the need for support for industrial upgrading, from extraction into processing, manufacturing, recycling and research and development, and for technology transfer that includes technical knowledge, vocational curricula and research partnerships, not only equipment. Some participants added that international cooperation should strengthen national innovation systems, without which reskilling will not be effective, and avoid contributing to brain drain. Some participants suggested that capacity-building and technology transfer obligations under the climate change regime should be reflected in the intellectual property regime, for example through a waiver under the Agreement on Trade-Related Aspects of Intellectual Property Rights. Other participants, while agreeing on the importance of technology transfer, noted that the Paris Agreement already has a dedicated mechanism and cautioned that addressing too many issues at once could dilute the focus on achieving its goals in a just, fair and equitable way.

3. Opportunities, best practices, actionable solutions, challenges and barriers

31. Several participants highlighted the economic opportunities of industrial transformation, noting that renewable energy can lower energy prices, attract new industries and create jobs, including in regions previously dependent on fossil fuels, in some cases faster than workers can be trained to fill them. Some participants noted that mapping the skills of workers affected by closures can help identify businesses to attract to the regions affected by closures, and that need workers with matching skills. Some participants stressed that industrial policies aimed at attracting new industries should be accompanied by measures such as reskilling and upskilling, so that local workers can take up the new jobs and the benefits can be felt in the communities affected by transitions.

32. Participants shared a range of best practices, including tripartite agreements in coal regions under which companies committed to relocating workers and investing in economic diversification in affected regions. Other examples included public authorities working with workers, unions and employers ahead of plant closures to provide retraining, counselling and employment support, just transition councils, sector-specific collective agreements, short-time work schemes and tailored social protection measures. Participants also referred to job banks that facilitate the re-employment of affected workers, including in the environmental restoration of former mining sites, and to the stepwise formalization of informal workers supported by universal health coverage. Several participants highlighted whole-of-government approaches involving the ministries responsible for social protection, finance and industry, and the importance of communicating transition policies in language that affected communities can understand.

33. Best practices shared on education, vocational training, reskilling and upskilling included skills academies and partnerships that develop curricula and credentials for energy-

intensive industries, skills observatories, sectoral training funds and programmes linking industry and universities. Some participants highlighted experience from the phase-out of ozone-depleting substances, in which informal-sector refrigeration mechanics were mapped, trained and equipped through technical and vocational institutions, as a model that could be replicated, for example for electric vehicle maintenance. Other examples included national training institutes certifying rural workers in solar installation, community-based training to maintain off-grid energy systems, and programmes combining vocational training with cooperative organization and market access for waste pickers.

34. Several participants identified country-level needs assessments and participatory socioeconomic impact assessments as actionable tools for identifying which sectors and workers will be affected, building on existing national processes such as nationally determined contributions (NDCs), national adaptation plans (NAPs), long-term low-emission development strategies and technology needs assessments. Some participants linked such assessments to the work on the impacts of the implementation of response measures. Participants highlighted the need for support to strengthen the capacity of developing countries to undertake such assessments and for existing international initiatives on social protection, skills and labour to be scaled up, emphasizing that international cooperation should be co-designed, context-specific and non-prescriptive. Others highlighted the potential of regional industrial policy and of collaboration among domestic stakeholders, international organizations and development agencies in supporting economic diversification in transitioning regions. Some participants suggested that the just transition mechanism could provide demand-driven technical assistance and capacity-building on social dialogue, skills and social protection for the industry sector, and help address job dynamics, with some noting that capacity-building is a prerequisite for implementation and that the cost of finance also needs to be addressed.

35. Despite these opportunities, participants identified a number of persistent challenges and barriers. Many highlighted the mismatch in timing between job losses and job creation, the risk that new jobs may be of lower quality, and the limited coverage of informal workers in transition policies, data and social dialogue. Several participants pointed to the limited institutional and financial capacity of many developing countries to provide social protection and to undertake labour force mapping and assessments, as well as care responsibilities and accessibility barriers that limit access to training for women, older workers and persons with disabilities. Some participants noted shortages of skilled workers in growing sectors, and others noted that climate-related policies could have unintended negative socioeconomic impacts. Many participants emphasized that approaches should be tailored to national circumstances and cautioned against one-size-fits-all solutions.

B. Human rights, gender considerations and social inclusion in the context of just transition pathways for the industry sector that leave no one behind

36. The world café discussions on this subtopic were facilitated by Linnéa Hansen from the Women and Gender Constituency (Table 4), Sumay Malik from children and youth non-governmental organizations (YOUNGO) (Table 5) and Marta Stencel from the Local Governments and Municipal Authorities Constituency (Table 6, virtual).

2. Summary of discussions and key findings

37. Many participants emphasized that just transition pathways for the industry sector should respect, promote and fulfil human rights, and that human rights should be embedded throughout the design, implementation and monitoring of such pathways, both procedurally and substantively, rather than treated only as safeguards against adverse impacts. Many participants noted that human rights and climate action are mutually reinforcing and that rights-based, people-centred approaches can contribute to more socially accepted and durable outcomes. Several participants referred to the operationalization of paragraph 12 of decision 2/CMA.7 and highlighted the importance of strong legal protection for local communities, Indigenous Peoples and informal workers. Some participants underlined that labour rights are human rights and that green industrialization should be centred on social dialogue,

universal social protection and decent working conditions. Many participants agreed that a transition that succeeds technologically and economically but leaves people behind cannot be considered just.

38. Several participants emphasized that a human rights-based approach must be considered alongside the right to development, noting that, for developing countries, realizing human rights through industrial transitions depends on equitable access to the economic opportunities created by the transition, and not only on managing risks and impacts. Some participants recalled that the Paris Agreement is implemented in the context of sustainable development and efforts to eradicate poverty, and highlighted access to energy as closely linked to health and well-being. Some participants emphasized the importance of national contexts and of assessing the unintended consequences of transitions, and noted that there is no one-size-fits-all approach.

39. Many participants emphasized the importance of meaningful participation, noting that it should go beyond consultation and enable affected groups to shape decisions, including on key technological and investment choices and their sequencing, rather than being consulted only once those choices have been made. Participants highlighted transparency, access to information, accountability and effective grievance mechanisms as essential elements of inclusive processes. Several participants highlighted the need to institutionalize participation through permanent mechanisms and governance arrangements that give workers, women, youth, Indigenous Peoples, migrants and local communities a meaningful role in decision-making, and underlined the importance of place-based approaches and of removing barriers to access for groups typically excluded from such processes. Some participants highlighted the importance of discussing how institutional arrangements determine whose voice is heard, at the national, regional and global level, particularly in view of the ongoing negotiations on the operationalization of the just transition mechanism.

40. Many participants underlined that the impacts and benefits of industrial transitions are unevenly distributed, noting that women, youth, children, older persons, persons with disabilities, Indigenous Peoples, local communities, migrants, informal and undocumented workers and communities whose livelihoods depend directly on natural resources often bear the greatest impacts while receiving the fewest benefits. Participants emphasized the need for intersectional approaches and for transition measures that do not deepen existing inequalities or create new vulnerabilities. Some participants highlighted the principles of equality, non-discrimination and intergenerational justice, and the importance of considering colonial contexts and histories of displacement.

41. Some participants highlighted that armed conflict, displacement and violations of human rights, including the rights of children, severely undermine the conditions for meaningful participation, noting the loss of civilian lives and the destruction of homes, schools and essential services, and suggested that these barriers should be explicitly recognized under the JTWP. They emphasized that industrial transition and post-conflict reconstruction should enable the safe, accessible and sustained participation of women, young people, displaced persons and communities in vulnerable situations, and that protecting civilian life, upholding human rights and ensuring accountability are fundamental to meaningful participation. Some participants also highlighted the rights of internally displaced persons, and referred to research linking investment on or near Indigenous lands to increased conflict, an effect that stronger legal protections can reduce.

42. Many participants emphasized the importance of gender equality and the empowerment of women, highlighting that women face structural barriers in access to training, employment, finance, land, technology, markets and decision-making. Participants emphasized that women should be recognized as decision makers and leaders, and not only as beneficiaries, and noted that new green industrial investments offer an opportunity to address the historical underrepresentation of women in mining and heavy industry. Other participants referred to support for small and medium-sized enterprises and start-ups that include women and other underrepresented groups, and to new industries that create opportunities both for displaced workers and for groups underrepresented in the current workforce, including women, Indigenous Peoples and the long-term unemployed. Several participants highlighted the need to recognize the unpaid care and energy-related tasks, such as collecting biomass, that fall disproportionately on women, particularly in rural areas, and

noted that limited access to finance and secure land tenure can prevent women from benefiting from clean energy technologies in certain contexts. Some participants noted that industrial development can affect women differently, including through impacts on land, water, livelihoods and exposure to violence.

43. Several participants emphasized that youth should be recognized as agents of transitions, noting that young people also face structural barriers in access to training, employment, finance, land, technology, markets and decision-making, and highlighted youth employment guarantees, apprenticeships, vocational training and pathways into emerging green sectors. Some participants stressed that youth considerations should be built into industrial transition planning from the outset, so that young people, including in rural and informal communities, can shape priorities, policies and investments. Others highlighted the need to support young people who are not in education, employment or training, and to protect young workers in informal, subcontracted and non-regular employment, including through paid reskilling. Some participants noted that conflict linked to resource extraction can force Indigenous youth to migrate, affecting their connection to their lands, languages and cultures.

44. Several participants emphasized the rights of Indigenous Peoples, including those in voluntary isolation and initial contact, and stressed that the recognition of these rights should guide industrial policies, investments and value chains. Many participants highlighted the principle of free, prior and informed consent, with some describing it as non-negotiable, and emphasized that affected communities should participate from the earliest stages of project design, including through equitable partnerships, shared governance and risk assessments for projects in Indigenous territories. Some participants emphasized that, for Indigenous Peoples in voluntary isolation and initial contact, the right to remain in isolation and the principles of no contact and the protection of their territories should apply, and that consent cannot be sought or substituted by other forms of engagement in such contexts. Some participants stressed that Indigenous Peoples and local communities share common concerns, including displacement linked to the extraction of critical minerals.

45. Several participants emphasized that human rights considerations should apply across industrial value chains, from extraction to end use, including in territories indirectly affected by industrial policies, resource demand and financing decisions. Participants referred to human rights due diligence, traceability, disclosure, access to remedy and corporate accountability, and some referred to legislation requiring companies to identify, prevent and mitigate adverse human rights and environmental impacts in their value chains. Some participants suggested that financial institutions should conduct human rights due diligence, that the ability of States to regulate in the public interest should be safeguarded, including in relation to investment frameworks, and that environmental and human rights defenders and civic space should be protected.

46. Many participants emphasized that health and occupational safety should be treated as core outcomes of just transition pathways, and that health considerations should extend beyond the workplace to surrounding communities and across the entire value chain, including air and water pollution, hazardous waste and cumulative exposure. Participants highlighted the interlinkages between human, animal and ecosystem health and noted that industrial transformation should avoid shifting pollution and occupational hazards between communities or workforces. Some participants stressed that new and green industries should avoid repeating the health and safety failures of older industries, and that workers, given their first-hand knowledge of workplace hazards, should take part in designing health and safety policies. Some participants suggested addressing the health and environmental legacies of emission-intensive industries from a restorative justice perspective, and others highlighted the health effects of agrochemicals in rural areas, household air pollution linked to the lack of clean cooking, new health risks resulting from climate change, gaps in health systems and the importance of mental health. Some participants also highlighted the need to avoid technology dumping and to manage electronic waste sustainably. Other participants noted that, for Indigenous Peoples in voluntary isolation, protecting health requires preventing contact. The human rights implications of artificial intelligence and data centres were also raised, with participants noting both opportunities and risks.

3. Opportunities, best practices, actionable solutions, challenges and barriers

47. In relation to the design of just transition pathways for the industry sector that respect, promote and fulfil human rights, some participants noted that the transformation of industry towards low-emission production is not only an opportunity to reduce emissions but also an opportunity to advance human rights and to improve inclusion, participation and access to economic opportunities, and that human-centred pathways are more likely to be socially accepted, economically successful and sustainable over the long term. Some participants considered that transitions in the industry sector should be used to improve working conditions and living conditions rather than to perpetuate existing inequalities. Others noted that lessons from the green transition on human rights, decent work and skills can also be applied to the digital transition.

48. In relation to youth participation, gender equality and the empowerment of women, several participants emphasized the opportunities that green industrialization can create for equitable access to decent jobs and inclusive skills pathways, in particular for women, young people and small and medium-sized enterprises. Some participants saw just transition pathways for the industry sector as an opportunity to increase the participation of women in science, technology, engineering and mathematics fields, clean technology and manufacturing, while ensuring that care work is valued. Some participants noted that the knowledge of women in rural communities, including in the context of local production systems, natural resources and climate resilience, should be recognized as an asset for sustainable industrial and value chain transformation.

49. In relation to health, some participants noted that moving towards cleaner industrial production offers health co-benefits for workers and for communities living close to industrial sites. Others noted that enhancing energy access can contribute to public health, education, water and sanitation and gender equality, and that the shift to a low-emission industry sector can also mean safer working conditions, healthier communities and reduced environmental risks.

50. Participants shared examples of good practice in participation and inclusion, including citizens' climate commissions involving children and youth, national climate commissions in which youth, workers representatives and businesses participate in formal decision-making, and legislation establishing just transition programmes for coal regions through multi-stakeholder consultations or councils. Other examples included community-wide regional transition planning that uses creative approaches to engage young people, such as school sessions and art competitions on industrial heritage. Participants also referred to youth guarantee schemes that support school-to-work transitions and the development of skills for the green and digital transition, and to skills programmes for young people.

51. Examples relating to health and the environment included requirements for mine owners to rehabilitate sites so that they are safe for surrounding communities, energy access and clean cooking policies that have reduced household air pollution and pressure on nature and biomass, and planned legislation requiring data centres to provide their own energy supply and to meet requirements on water use and demand management, so as to avoid higher energy prices for surrounding communities.

52. Participants identified a number of actionable solutions, including operationalizing paragraph 12 of decision 2/CMA.7, embedding human rights in policy design and across value chains, including in the critical minerals sector, and ensuring accountability, access to information and transparency. Other solutions identified by participants included institutionalizing participation, placing social protection, including income support, at the centre of industrial transitions, strengthening youth employment guarantees, making just transition pathways measurable and financeable, strengthening implementation and accountability, embedding health, environmental and occupational safeguards in new investments from the outset and integrating occupational safety and health into green skills programmes. Participants also highlighted equity, health and socioeconomic impact assessments, informed by the best available science, as planning tools. Some participants suggested that the just transition mechanism could support the consolidation of good practice on gender-inclusive industrial policy design.

53. Despite these opportunities, participants identified a number of persistent challenges and barriers. Many highlighted insufficient inclusivity in transition planning, particularly for older persons, youth, women and persons with disabilities, and the limited representation of affected communities in decision-making. Some participants expressed concern that, in some regions, domestic laws and the protections these afford are being weakened as investment in natural resources extraction, including fossil fuels and critical minerals, increases, including in the context of Indigenous Peoples' rights. Other participants highlighted challenges such as armed conflict and displacement, weak institutional and health systems, the prioritization of profit over rights and the unequal distribution of harms and benefits. Some participants also noted that finance remains a major challenge for implementing inclusive, rights-based just transition pathways for the industry sector.

C. Indigenous Peoples' knowledge, traditional knowledge and locally led approaches in the context of just transition pathways for the industry sector

54. The world café discussions on this subtopic were facilitated by Andi Sanusi from the United Nations Environment Programme (Table 7), Alexandra Stephenson from the Green Climate Fund (Table 8) and Kudakwashe Manjonjo from the constituency of environmental non-governmental organizations (ENGO) (Table 9, virtual).

2. Summary of discussions and key findings

55. Many participants emphasized the value of Indigenous Peoples' knowledge, traditional knowledge and local knowledge systems, proven in areas such as land restoration, fire management, water conservation, biodiversity monitoring and agricultural practices, and considered that this knowledge should inform industrial transition planning, including decisions on where industrial activity takes place and on the selection and design of technologies. Some participants noted that such knowledge can also be a source of innovation. Some participants highlighted the importance of first identifying the knowledge and practices that communities already use and that have proven effective, and of systematically involving the communities that hold them in planning for industrialization.

56. Several participants noted that Indigenous knowledge is not merely a collection of information, but encompasses worldviews, governance systems, relationships with the natural world and the intergenerational transmission of knowledge, and emphasized that recognition should not mean simply integrating Indigenous knowledge into existing industrial models, but enabling it to shape whether, where and how industrial transformation takes place. Some participants highlighted the importance of place-based approaches that reflect communities' histories and relationships with land, noting that Indigenous Peoples manage a significant share of the world's land.

57. Several participants emphasized that Indigenous knowledge systems cannot be protected without protecting the lands and territories in which they are generated and transmitted, and highlighted secure land tenure as a means of protecting knowledge. A number of participants noted that new industrial infrastructure, mining sites, renewable energy deployment and transport corridors may affect lands traditionally used by Indigenous Peoples and local communities, and that transition planning in the industry sector should not only consider how the benefits from new value chains are distributed, but also assess the impacts of such projects on the land, resources and livelihoods of these communities. Some participants noted that industry ranges from small-scale to heavy industry, and asked how heavy industry on or near Indigenous territories can be reconciled with Indigenous rights and knowledge. Some participants noted that cultural heritage, including sacred sites, is often not adequately covered by environmental and social impact assessments, and stressed the need to avoid repeating past patterns of industrialization in which Indigenous Peoples lost their lands without sharing in the benefits. Some participants noted that cultural heritage and local belief systems are not necessarily in conflict with local development, and that taking them into account in policy and project planning, and respecting them can help ensure that implementation is not opposed from the start.

58. Several participants emphasized that Indigenous knowledge should not be treated as freely available information, and that its access, use and sharing should be determined by Indigenous Peoples themselves, including through free, prior and informed consent and community protocols, consistent with their rights to maintain, control, protect and develop their cultural heritage and traditional knowledge. Some participants raised concerns that existing intellectual property regimes do not adequately protect traditional knowledge, and highlighted risks of misappropriation, including through the patenting of biological materials and plant variety protection regimes that may affect farmer-managed seed systems. Some participants highlighted the need for support for communities to document their knowledge on their own terms while retaining ownership, and for adequate finance, capacity-building and dedicated national standards for Indigenous-led research, and for knowledge co-production that avoids extractive models.

59. Many participants emphasized the importance of meaningful participation of Indigenous Peoples and local communities throughout the design, implementation and monitoring of just transition pathways for the industry sector, noting that consultations should be substantive and not merely procedural and should move towards co-planning and shared decision-making. Some participants noted that representation in decision-making bodies does not in itself guarantee influence over decisions. Other participants highlighted that social legitimacy is as important as economic viability for the success of industrial projects. Some participants welcomed the reference to free, prior and informed consent in decision 2/CMA.7 and suggested building on it, drawing also on relevant ILO conventions. Many participants underlined that free, prior and informed consent should be considered as a minimum standard, and highlighted that the ability of communities to withhold consent is an essential aspect of this safeguard. Some participants noted that taking part in consent processes requires considerable capacity, resources and investment from the communities concerned, and that initiatives owned, planned and implemented by Indigenous Peoples themselves have tended to be more successful. Other participants emphasized the importance of national circumstances and legal frameworks, noting that there is no uniform approach to Indigenous Peoples across countries and that the concept of free, prior and informed consent may be understood and applied differently in different contexts. Some participants also noted that some groups are not recognized as Indigenous Peoples in national contexts and that terminology varies across regions, and stressed that the voices of local communities protecting local resources also belong in these discussions.

60. Some participants emphasized that the central issue should be governance rather than benefit sharing alone, and that Indigenous Peoples should have decision-making power over whether and how industrial activities take place on their lands and territories and how the resulting value is created and distributed, rather than being positioned only as recipients of benefits. Participants noted that benefits should be defined by communities themselves and may include ownership, equity, technology transfer, infrastructure, capacity-building and access to markets, and that benefit-sharing arrangements should be designed from the outset of projects rather than negotiated afterwards. Some participants observed that views among Indigenous Peoples on what constitutes a benefit may differ, with some prioritizing the preservation of territories and traditional livelihoods and others seeking greater economic development, and highlighted the role of Indigenous institutions and customary governance systems in balancing these views through holistic and deliberative processes. Some participants emphasized that compensation for harm should not be considered benefit sharing, that benefit sharing arrangements cannot be used to justify rights violations, and that no benefit can override a community's assessment that the impacts of a project are unacceptable. Other participants cautioned against benefit-sharing arrangements that create dependence on a single company or revenue stream.

61. Many participants highlighted the importance of local value creation and equitable access to value chains, emphasizing that Indigenous Peoples and local communities should participate not only as workers or suppliers but should also be given the opportunity to participate as producers, entrepreneurs and owners of enterprises and assets. Participants noted that local value addition should be an explicit objective of industrial policy in the context of just transition pathways for the industry sector, supported by sustainable procurement, supplier development, support for micro, small and medium-sized enterprises and access to finance. Other participants suggested that the benefits of transitions should

reach those most exposed to climate risks, including smallholder farmers, fishers and informal workers. Some participants cautioned that moving from the export of raw materials into domestic processing should not simply shift pollution and environmental burdens onto the communities where processing takes place, and that mineral beneficiation and processing should be accompanied by clean power, resource efficiency, pollution control, cumulative impact assessments and adequately resourced environmental and social safeguards. Some participants noted that industrial activities can provide livelihoods for Indigenous peoples and local communities but may also cause environmental harm and cultural loss.

3. Opportunities, best practices, actionable solutions, challenges and barriers

62. Several participants identified opportunities to integrate Indigenous Peoples' knowledge, traditional knowledge and local knowledge systems into the planning and implementation of just transition pathways for the industry sector, including through recognition in legal frameworks and by using existing platforms and processes, such as the Local Communities and Indigenous Peoples Platform, as entry points to knowledge and expertise that have already been documented. Some participants noted that Indigenous knowledge should not only be referred to in climate plans and reports but can also inform community-led green enterprises, ecosystem restoration, sustainable agriculture, renewable energy projects and climate-resilient livelihoods. Some participants pointed to traditional practices that have restored degraded land and improved productivity and resilience, such as agroforestry parklands, zaï pits, stone bunds and farmer-managed natural regeneration, as a model for connecting industrial and agricultural transformation to priorities identified by communities themselves, and suggested linking these practices to predictable finance. Some participants saw opportunities in digital tools, including artificial intelligence, for disseminating Indigenous knowledge more widely, provided that the knowledge holders consent to its use and that ownership remains with them.

63. Several participants identified opportunities for locally led and community-based approaches to connect industrial transformation with sustainable local development and the preservation of cultural heritage. Approaches highlighted by some participants included community area planning that determines where economic activity may take place; community-owned renewable energy initiatives and energy communities, supported by enabling legal frameworks, certification, technical assistance and net billing arrangements; and Indigenous-owned enterprises, cooperatives and community enterprises, as well as solidarity and reciprocity economies, which retain value locally and create livelihoods aligned with local priorities, cultures and relationships with territory.

64. Many participants highlighted opportunities for Indigenous Peoples and local communities to share equitably in the benefits of industrial transformation, including by becoming partners in and part-owners of renewable energy and other projects on their lands. Participants shared examples of legal frameworks that support the sharing of benefits, including legislation requiring participation and benefit sharing in critical minerals projects on Indigenous territories, national laws delivering benefits through royalties, employment, livelihood programmes and capacity-building, and laws making corporate social responsibility mandatory. Some participants saw further opportunities in processing minerals in the country where they are extracted and in circular economy approaches, such as scrap metal supply chains that were highlighted as a potential approach for creating local employment. Examples cited included a country in which a ban on the export of unprocessed minerals has led to a substantial increase in export value, expanded fiscal space and generated employment in intermediate processing, while it was acknowledged that favourable commodity prices contributed to these gains and that domestic manufacturing of finished products, such as batteries, has yet to materialize.

65. Participants referred to a number of initiatives that illustrate how these opportunities are being realized in practice. Some participants described programmes under which remote Indigenous communities not connected to electricity grids are replacing diesel generators with microgrids combining solar power and battery storage, thereby reducing emissions and their vulnerability to disruptions in fuel supply. Others highlighted locally led adaptation initiatives in which the majority of funds support investments selected directly by local communities, observing that such initiatives have been implemented through a variety of

national institutional arrangements. Further examples included initiatives in which Indigenous communities apply minimum-impact management techniques to native fruit-bearing forests, preserving forest cover rather than clearing it for plantations, with public support for research, processing, storage, logistics and market access for community-owned producers. Some participants further cited government scholarship programmes enabling students from industrial areas to pursue studies in fields such as clean fuels. Some participants referred to just transition agreements and territorial just transition plans developed jointly with local authorities, workers, businesses and communities, and observed that major green industrial projects in areas traditionally used by Indigenous Peoples have prompted discussions on how industrial decarbonization, land-use planning and Indigenous rights can be considered together.

66. Participants identified a number of actionable solutions, including strengthening legal frameworks for land tenure and benefit sharing, ensuring that consultation is meaningful and substantive rather than a procedural exercise, connecting scholarships and training to the specific industries concerned, and mobilizing finance for Indigenous-led and locally led initiatives. Some participants saw a potential role for the just transition mechanism, once operationalized, in supporting fair benefit-sharing arrangements, emphasizing that how benefits are shared matters as much as the benefits themselves. Some participants emphasized that international partnerships should support fair value creation and technology and knowledge transfer, while other participants highlighted that just transitions should be mindful of what communities are transitioning from and to, recognizing that some transitions may entail a sense of community loss.

67. Despite these opportunities, participants identified a number of persistent challenges and barriers. Several participants highlighted growing pressure on Indigenous lands and territories from extractive and land-intensive industries, including those linked to critical minerals, and cautioned against consultation processes that are often tokenistic, rushed or reduced to a procedural step. Several participants underscored that existing intellectual property regimes do not adequately protect traditional knowledge. Some participants cautioned that new industrial development should not displace the knowledge, practices and economies already present in communities or extract value from them. Some participants pointed to low-value-added exports, import dependence and weak domestic productive capacity as structural challenges, in particular for the LDCs, constraining their ability to capture the benefits of industrial transformation. Many participants emphasized that approaches should reflect national circumstances and local contexts and cautioned against one-size-fits-all solutions.

D. International cooperation and climate finance as an enabler for nationally determined just transition pathways for the industry sector

68. The session on this topic was facilitated by Cem Gundogan from the EBRD.

2. Summary of discussions and key findings

69. Many participants emphasized that the central challenge in mobilizing and accessing climate finance for just transition pathways in the industry sector is not simply the volume of finance available but a mismatch between the type of finance on offer and what such pathways require. Several participants highlighted that industrial transformation is highly capital intensive, involving high upfront costs, uncertain operating costs, technological and market risks and uncertain demand for low-emission products. Several participants noted that much of what transition pathways in the industry sector depend on, including enabling infrastructure and investments in resilience, generates primarily public and social returns and therefore does not fit conventional financing models that assess projects on the basis of financial returns.

70. Many participants emphasized that the high cost of capital constrains investment in developing country Parties, with some describing it as the single greatest obstacle to mobilizing finance for just transitions in the industry sector. Some participants observed that even sound, well-prepared projects struggle to attract financing, as the returns available do

not compensate lenders for the risks they associate with the countries and sectors concerned, perceptions that reflect structural factors rather than the quality of the projects themselves. Some participants raised concerns regarding the distribution of risks, costs and benefits, questioning whether those bearing the costs of the transition are also those capturing its benefits and noting that benefits may not automatically reach affected workers and communities. Some participants noted that perceived risk increasingly exceeds actual risk and that prevailing assessments of sovereign creditworthiness overstate the climate vulnerability of developing country Parties while underestimating their long-term development potential, thereby raising the cost of borrowing precisely where investment needs are greatest.

71. Many participants underscored that limited fiscal space and debt burdens constrain the public investment that industrial transformation requires, including in countries not classified as low-income, and that additional borrowing for the transition competes with other development priorities. Some participants observed that international support can be absorbed by debt servicing and by fees for foreign technology and patents rather than used to build local capacity, and that a transition financed by diverting scarce public revenue from social protection, health and education towards debt servicing cannot be considered just. Many participants emphasized the need for grant-based, highly concessional and non-debt-creating finance, in particular for enabling infrastructure, project preparation and early-stage industrial transformation, where private capital cannot yet be mobilized.

72. Some participants recalled the obligations of developed country Parties under Article 9, paragraph 1, of the Paris Agreement to provide financial resources, with some emphasizing that such finance should be predictable, adequate, accessible and non-debt-creating and that blended finance priced near market rates cannot substitute for its provision, and that climate finance represents the fulfilment of historical obligations rather than charity. Some participants expressed concern at trends in the climate finance landscape, pointing to declining contributions to the multilateral climate funds, proposals to broaden their contributor base and the absence of follow-up on the delivery of existing obligations. Other participants emphasized that fiscal constraints affect all countries and stressed the importance of deploying available public finance in the way that maximizes investment, using different instruments according to the maturity and risk profile of projects and designing public support to crowd in, rather than substitute for, private capital, which will ultimately need to finance a substantial share of industrial transformation, and noted that long-term, predictable policy frameworks provide the certainty needed for both public and private investment.

73. Several participants described the complexity, time and uncertainty involved in accessing climate finance, noting that countries must navigate multiple funds, banks and bilateral providers, each with its own eligibility criteria, application processes and reporting requirements, and that securing funding from a single fund can take years. Several participants noted that limited institutional and technical capacity to prepare bankable projects, undertake feasibility studies and meet accreditation requirements prevents finance from reaching smaller economies. Some participants noted that the existing financial architecture favours project scale, financial returns and administrative capacity over just transition needs. Some participants observed that nationally determined priorities do not always correspond to the requirements of financial institutions for funding at scale, with the result that developing country Parties often reshape their priorities to fit the financing instruments available. Some participants observed that projects that are entirely sound in the context of a small economy can fall below the thresholds at which international funds and investors are configured to operate and that eligibility for concessional finance determined largely by income per capita does not reflect structural vulnerability, as small and climate-exposed economies may be classified as middle-income while carrying debt accumulated through repeated post-disaster reconstruction.

74. Several participants underscored that finance received at the national level does not necessarily reach those implementing just transition pathways on the ground, including subnational governments, micro, small and medium-sized enterprises and community-led initiatives. Some participants observed that existing financial architectures are centred on States, large financial institutions and international intermediaries and that finance reported as supporting national climate action is rarely tracked far enough to determine whether it

reaches Indigenous Peoples or supports Indigenous-led initiatives. These participants further noted that Indigenous Peoples are commonly engaged as safeguard stakeholders or as beneficiaries of externally designed programmes, rather than as decision-makers, implementing partners or owners of initiatives, and that national policies and strategies may refer to Indigenous Peoples without establishing dedicated budgets, institutional responsibilities or delivery mechanisms. These participants also emphasized that the same obstacles confront Indigenous Peoples in developed country Parties, and that their access to finance should not depend on the classification of the State in which they live.

75. Several participants noted that available finance does not adequately cover the social costs of the transition in the industry sector, observing that financing for aspects that are essential to just transitions, such as worker retraining, social protection, occupational health and safety and community support, is more difficult to secure on commercial terms than, for example, financing for cleaner technologies. Many participants emphasized that finance for just transition pathways in the industry sector should support broader development objectives, including employment creation, poverty eradication, local value addition, adaptation and resilience, while some participants cautioned that financing frameworks focused exclusively on emission outcomes may fail to address the socioeconomic dimensions at the heart of just transitions. Some participants emphasized that meaningful participation and attention to structural inequalities underpin the social licence on which the implementation of transition measures depends, and that their absence can significantly delay transitions. Some participants observed that road maps and plans developed in a truly participatory manner, engaging not only government, industry and workers but also municipal governments, women, farmers and civil society groups, can unlock finance and give investors confidence in a region.

3. Opportunities, best practices, actionable solutions, challenges and barriers

76. Participants identified a range of financing approaches and delivery models through which international cooperation and climate finance could better enable nationally determined just transition pathways in the industry sector. Several participants pointed to blended approaches, with grants or other risk-bearing public support deployed at the early stages of technology development and private capital increasingly mobilized as projects mature, supported by guarantees, concessional instruments and project development support, while noting that such instruments can mobilize private capital only where commercially viable opportunities exist. Some participants emphasized that public support should steer investment towards transformational outcomes, including deep emission reductions, decent work, local value creation and economic diversification, and that social, environmental and climate performance criteria can help ensure that public resources accelerate structural change rather than prolonging carbon-intensive lock-in. These participants further emphasized that de-risking should be accompanied by mechanisms ensuring benefits such as employment, skills development, opportunities for local suppliers, energy access and resilience, and that consideration should be given to which investments are suited to private or debt finance and which require public finance. Some participants highlighted long-term contracts guaranteeing a carbon price for industrial decarbonization projects as a means of creating markets for green industrial products, and suggested that market creation could extend to just industrial products, for which no market currently covers the premium. Some participants emphasized connecting industrial transformation with economic diversification strategies, in particular where economies depend heavily on a single sector or commodity.

77. Several participants saw value in country platforms and investment platforms that connect projects with investors, improve project preparation and target strategic industrial sectors, emphasizing that platforms should be locally led and applicable to all countries, including those with smaller economies or building green industries for the first time, and that pooled and regional facilities can aggregate small projects to an investable scale. Examples shared included national programmes combining concessional, blended and private finance, with auctions in which public resources reduce risk in order to mobilize private capital, a national taxonomy and budget classification system that connects priorities with the financing instruments capable of supporting them, a national coalition initiative that uses capacity-building as a catalyst, mobilizes diaspora and local expertise, supports the formalization of the informal sector and strengthens credit readiness, and efforts to quantify

the costs of inaction alongside the costs of action and to structure projects according to the differing risk appetites of investors. Examples at the subnational level included a municipal clean energy fund which supports renewable energy, energy efficiency and job training for disadvantaged communities while being financed through a surcharge on large retailers, a municipal green bond funding local sustainable transport systems and a municipal action plan committing financial support for advanced green manufacturing.

78. Several participants emphasized the need for stronger project preparation support, simplified procedures and more direct access modalities. Some participants underscored the urgency of reforming access to the multilateral climate funds, including through accreditation recognized across funds, simplified application processes and faster delivery of grant-based resources, together with simplified accreditation of national implementing entities, expanded direct budget support where project-based financing proves administratively burdensome, dedicated capacity-building and technology support for the LDCs and investment pipelines designed to create opportunities for local enterprises, communities and micro, small and medium-sized enterprises. Some participants emphasized that financial institutions should be prepared to assume risk in a manner similar to past large-scale reconstruction efforts and that SIDS require priority access to finance in view of their geographic situation. Some participants recommended establishing direct, fit-for-purpose funding arrangements for Indigenous Peoples, including simplified procedures, grant sizes and time frames suited to Indigenous institutions, readiness support and participation in fund governance. These participants emphasized that finance should be accessible to Indigenous organizations, rather than exclusively through States and large intermediaries, and that nationally determined pathways should contain identifiable budget lines for priorities defined by Indigenous Peoples.

79. Several participants emphasized cooperation among governments, the private sector, financial institutions, international organizations and other non-Party stakeholders, with some participants noting that a majority of the countries requesting support under existing cooperation initiatives have included just transition in their plans and pointing to partnerships helping to mobilize funding for pipelines of industrial decarbonization projects in developing country Parties. Some participants suggested moving from the financing of individual projects towards the building of industrial ecosystems that connect investment, technology, skills, infrastructure, suppliers and market development, thereby enabling domestic value creation, and pointed to sectoral partnerships in which governments work with industry to bring key technologies to commercial scale and reduce their cost, including in hard-to-abate sectors such as cement, with fuller recognition of the co-benefits of the transition, including for adaptation and health, in attracting investment. Some participants underlined the importance of South-South and triangular cooperation, undertaken on a voluntary basis and free of coercive measures, together with partnerships that support fair value creation, technology transfer and access to markets on fair terms. Several participants emphasized that finance should be accompanied by technology transfer, capacity-building and technical assistance, and that technology transfer should extend beyond equipment to encompass knowledge, maintenance capabilities and skills, with cooperation shaped by national priorities. Some participants suggested measures aimed at alleviating debt burdens, including debt-for-climate swaps and debt cancellation, in order to release resources for domestic priorities, as well as highly concessional capital grants for local enterprises. Some participants saw a role for public procurement and tax incentives in mobilizing private investment, together with regulatory mechanisms requiring companies to demonstrate alignment with decarbonization criteria and to contribute to the infrastructure costs associated with industrial development.

80. Despite these opportunities, participants identified a number of persistent challenges and barriers. Some participants cautioned that financing structures continue to favour the extraction of raw materials over processing and manufacturing in the countries where resources originate, that measures taken to promote domestic value addition are sometimes labelled resource nationalism, a narrative that deters investors, and that competition for bilateral investment arrangements can result in the lowering of environmental and social standards. Some participants drew attention to the cross-border implications of carbon pricing, observing that under some schemes, revenue raised in developed country Parties derives from developing country Parties, suggesting a deeper discussion on redirecting such

revenue towards green development, and noting that the unintended consequences for developing country Parties of measures implemented in other jurisdictions should be addressed. Other participants disagreed with such framing and highlighted the role of the carbon pricing instruments in advancing climate, environmental and sustainability objectives. Some participants observed that even programmes combining concessional, blended and private finance can leave projects that are prepared and ready for investment unable to find resources, that the distributional and justice dimensions of finance remain among the most difficult to address and that multilateral development banks remain cautious about financing enabling infrastructure, despite its importance for green industrialization, as they see neither near-term revenue nor an established business model. Many participants emphasized that finance for developing country Parties must be substantially scaled up, with increased financial flows required to support both industrial transformation and broader development objectives.

E. Innovation, technology transfer, capacity-building and knowledge sharing

81. The session on this topic was facilitated by Benjamin Basmaci from the United Nations Development Programme.

2. Summary of discussions and key findings

82. Many participants emphasized that technology transfer should be understood as extending well beyond the delivery of equipment, with participants highlighting the need to encompass know-how, skills, training, maintenance and local adaptation, together with the institutional, regulatory and research capacity that enables technologies to be deployed, operated and further developed domestically. Many participants underscored that technology development and transfer should strengthen domestic capabilities and endogenous innovation rather than deepen dependence on imported technologies, with developing country Parties becoming producers of environmentally sound technologies in their own right. Several participants cautioned that technology transferred solely as an imported product or service yields deployment without technological capability, emphasizing that success should be measured by the capacity gained to sustain long-term industrialization and transform economies rather than by the number of technologies transferred.

83. Many participants emphasized that innovation, technology development and transfer should be guided by nationally identified priorities and national circumstances, and several participants highlighted technology needs assessments as country-owned foundations on which international support should build. Some participants noted that technology choices cannot simply be replicated across contexts and should be adapted to local conditions, building on existing national endowments and capacities, and that such local innovation can create jobs, build skills and reduce import dependence. A number of participants emphasized that technology should be viewed not only as a means of decarbonization but also as an instrument of economic diversification, skills development, inclusion and resilience, and that transition pathways are determined by each Party in the light of its national circumstances and development priorities. Some participants emphasized that for SIDS the acquisition of technology is also a matter of energy sovereignty and resilience, as it reduces dependence on imported fossil fuels.

84. Many participants underscored the value of South-South and triangular cooperation and of peer learning among countries facing similar industrial transitions, alongside North-South cooperation. Several participants highlighted partnerships among governments, universities, research institutions and industry as channels for knowledge exchange and local adaptation, and several participants pointed to regional cooperation, including regional innovation systems, technology hubs and centres of excellence, as a means of pooling resources, overcoming the constraints of small markets and building manufacturing capacity locally rather than merely assembling imported components. Some participants highlighted the role of industrial clusters and of subnational governments in convening stakeholders, building workforce capacity and reducing the costs of innovation, as well as opportunities arising from digitalization and artificial intelligence. Some participants also emphasized that

knowledge-sharing should be reciprocal, and that developing country Parties should be recognized as providers of technology, knowledge and locally developed solutions.

85. Many participants identified intellectual property and licensing arrangements as a significant barrier to technology development, deployment and diffusion. Participants noted that licensing terms shape whether countries can manufacture or only assemble, that transfer often depends on the goodwill or commercial interest of technology holders and that foreign investment does not always bring with it the know-how and training that could allow local firms and engineers to master imported technologies. Some participants emphasized that intellectual property is only one element of a wider ecosystem of barriers encompassing finance, skills, infrastructure, standards, regulatory capacity and research capability, and that incentives for innovation should be maintained. Some participants noted that global innovation and manufacturing capability in green technologies remains concentrated in a small number of countries and firms, cautioning that technology and green standards can be used to entrench competitive advantage at the expense of the fair participation of developing country Parties in international markets.

86. Some participants recalled the commitment of developed country Parties under Article 4, paragraph 5, of the Convention to promote, facilitate and finance the transfer of environmentally sound technologies, emphasizing that it constitutes an obligation rather than a matter of choice. Several participants stressed that technology, finance and capacity-building are interdependent means of implementation that should not be addressed in isolation, noting that transfer should be accompanied by grant-based and concessional finance and that technical assistance which concludes with studies and road maps cannot deliver transformation unless financing for implementation follows, including through a more effective link between the Technology Mechanism and the Financial Mechanism, with some participants emphasizing the need for their strengthening and adequate resourcing. Some participants pointed to sanctions, embargoes and export control regimes as barriers to technology transfer, while recalling obligations under Article 3, paragraph 5, of the Convention. Some participants referred to measures such as carbon border adjustment mechanisms, characterizing them as barriers that result in financial flows from developing to developed countries. Other participants disagreed with such framing, highlighting that the measures in question give effect to the obligation of developed country Parties to take the lead in reducing emissions while also preventing carbon leakage, and noted that they are implemented with a view to minimizing potential adverse impacts, including through capacity-building, technical assistance and targeted support to help third countries adjust to and benefit from the requirements concerned. These participants also reiterated their willingness to discuss the cross-border impacts of climate policies within agreed processes in a balanced, non-confrontational and non-punitive manner.

87. Many participants emphasized that capacity-building should move beyond one-off training and workshops towards sustained institutional and human capabilities. Some participants noted that the most binding constraint on implementation often lies with institutions, in their ability to coordinate across sectors, to translate technology needs assessments into investable programmes and bankable projects and to negotiate with technical and financial partners. Several participants stressed that capacity-building should precede and accompany technology deployment rather than follow it, that it requires dedicated financing and approaches tailored to regional and national needs and that local capacity for operation and maintenance must outlast project support, without which transferred technologies risk becoming stranded assets. Several participants underlined the importance of gender-responsive, inclusive and participatory approaches, with particular attention to women, youth and other groups in vulnerable situations, with a view to ensuring that the benefits of the transition are equitably shared.

88. Several participants emphasized that Indigenous Peoples have distinct needs, knowledge systems and governance institutions, which may not always be captured in national assessments and which should be reflected in national technology planning, financing and implementation. Participants highlighted the knowledge systems and technologies of Indigenous Peoples as sources of innovation, underscoring that access to this knowledge rests with Indigenous Peoples, in line with the principle of free, prior and informed. Some participants noted that new technologies can generate additional demand for

minerals, land, water and energy, and cautioned that the resulting impacts should not simply be shifted upstream in supply chains, where they often fall on the territories and rights of Indigenous Peoples. They emphasized in this regard the value of assessing technologies for their full material and territorial footprint and of ensuring supply chain traceability to the point of extraction. Several participants cautioned against technology dumping, stressing that technology transfer must not become a pathway for obsolete, inefficient or environmentally harmful technologies to enter markets where environmental standards are less stringent, and that support should focus on environmentally sound technologies.

3. Opportunities, best practices, actionable solutions, challenges and barriers

89. Participants identified a range of opportunities and actionable solutions for addressing barriers to the development, deployment and diffusion of the technologies needed for sustainable industrialization and for just transition pathways in the industry sector. Some participants proposed making fuller use of the flexibilities available under international intellectual property rules, together with climate technology patent pools, the regulation and incentivization of licensing, publicly financed buyouts of key patents, the treatment of publicly funded innovations as global public goods and waivers for technologies regarded as essential. Several participants pointed to technology partnerships, licensing cooperation, joint ventures and joint research and development as the routes through which proven technologies are accessed in practice, emphasizing that such routes should be made more accessible and more equitable, including by inviting technology holders to invest in joint manufacturing in the countries concerned. Other participants emphasized that approaches should maintain incentives for innovation and should combine research cooperation, technology partnerships, capacity-building, project preparation and finance into comprehensive packages. Some participants suggested attaching knowledge-sharing obligations to entities benefiting from public support for innovation, including through funds financed from emissions trading revenue, and commitments by technology-holding companies in publicly de-risked ventures to share know-how and support local supplier upgrading, with such conditions resting on the companies concerned rather than on developing country Parties.

90. Participants shared a range of national approaches and practices, including legislation linking tax incentives for new industries to investment in research and development and in workforce development, national networks of prototyping and technology transfer centres connecting universities, research centres and the private sector, programmes supporting the digital transformation of small enterprises by combining finance, technological solutions and training, and coordination across the ministries responsible for climate, labour, industry, energy, education and finance, supported by common methodologies, data systems and social dialogue. Further examples shared included a requirement for developers participating in a national carbon markets to source locally a share of the products they distribute, pairing them with local producers supported by the government, so that skills are transferred and local production expands over time.

91. On capacity-building, participants emphasized investment in education and technical training for engineers, technicians, planners and regulators, updated curricula and partnerships between industry and academia. Several participants highlighted gender-responsive approaches, including gender-based analysis of technology cooperation and reskilling programmes directed at young women and other groups in vulnerable situations. Some participants recommended including Indigenous Peoples as a distinct component of national technology needs assessments, supporting innovation led by Indigenous Peoples, and building the long-term capacity of Indigenous Peoples' institutions to maintain technical teams, assess proposed technologies, develop projects and access finance. Examples shared also included the embedding of partnership with Indigenous Peoples in domestic regulatory and legal frameworks and reflecting the importance of Indigenous Peoples involvement in international cooperation. Some participants emphasized support extending across the full technology life cycle, from feasibility and procurement to installation, training, operation and management. Some participants saw a role for the just transition mechanism in providing demand-driven technical assistance at the national and subnational levels and helping countries to identify barriers, connecting them with relevant institutions.

92. Participants also shared a number of regional and local practices. Some participants pointed to regional technology development and value addition hubs, continental trade frameworks for scaling regional value chains and addressing regulatory fragmentation, and centres of excellence connecting global innovation to local needs through research hubs, fellowships and incubation programmes. Some participants described industrial clusters that bring stakeholders together locally to reduce the costs of innovation and create economies of scale, and noted that the falling cost of clean energy, now below that of fossil fuels in some markets for the first time, and the electrification of industrial processes, are creating tipping points for acceleration. Examples at the subnational level included regions pooling academic and business resources to accelerate renewable energy, hydrogen and circular economy sectors, cities facilitating applied research and demonstration projects on municipal infrastructure, declining industrial zones transformed into green business hubs and special economic zones for green technology manufacturing that create employment in disadvantaged areas. Further examples included technical assistance enabling solar-powered processing of agricultural products and the development of climate-resilient crop varieties, as well as pilot applications in hard-to-abate industrial settings, such as the utilization of carbon dioxide in desalination plants and of industrial waste heat for carbon removal.

93. Despite these opportunities, participants identified a number of persistent challenges and barriers. Some participants noted that the cost of developing technology places it beyond the reach of smaller economies, which depend on partnerships to gain access to innovation and relevant technology solutions. Some participants pointed to shortages of researchers, weak links between enterprises and research and innovation ecosystems, limited digital connectivity and electricity access, and investment that continues to be directed to conventional rather than low-emission industrial systems. Some participants observed that support remains difficult to obtain for developing technologies domestically, and at times even for deploying technologies that already exist, and that assistance delivered as one-off projects does not build lasting capability.

F. Enabling environments

94. The session on this topic was facilitated by Marienette Gallon from UNIDO.

2. Summary of discussions and key findings

95. Many participants emphasized that industrial decarbonization is a long-term transformation requiring policy coherence, predictability and long-term certainty. Some participants highlighted that private sector investments depend on clear and durable policy directions, coherent regulatory frameworks and the alignment of climate objectives with sectoral policies for industry, energy, infrastructure, labour markets and education, including through economy-wide NDCs and sectoral road maps. Some participants noted that no single policy instrument is sufficient for effective industrial transformation and that strategies should be devised holistically rather than through individual incentives, combining instruments such as carbon pricing, standards and regulation, innovation support, public procurement, circular economy policies and skills, and social and regional policies within a whole-of-government approach. Some participants highlighted the value of clear long-term signals for the phase-out of high-emission technologies, cautioning against policy reversals that undermine investor confidence and against new carbon-intensive lock-in. Other participants emphasized that holistic frameworks should not be prescriptive and should remain technology neutral and nationally determined, able to span technologies such as carbon capture, utilization and storage, renewable energy and hydrogen. Some participants highlighted that technology neutrality cannot mean outcome neutrality, with such technologies unable to substitute for deep, rapid and sustained emission reductions consistent with pursuing efforts to limit the global temperature rise to 1.5 degrees C.

96. Several participants emphasized that attracting investment requires not only reducing risk but also creating demand for low-emission products, including through environmental and social standards, green public procurement, product requirements and consumer awareness, enabling first movers to compete with established carbon-intensive production. Several participants pointed to instruments such as tax incentives, guarantees, concessional

and blended finance and schemes assisting low- and middle-income households with the upfront costs of clean technologies. Several participants cautioned, however, that debt and fiscal constraints can preclude the use of such instruments in developing country Parties, observing that these incentives can shift costs onto economies with limited fiscal space and that the scale of industrial policy support is ultimately limited by what countries can afford.

97. Many participants emphasized whole-of-government and whole-of-society approaches, noting that responsibility for the frameworks concerned is distributed across several ministries, requiring coordination among them, and that governance arrangements should extend to subnational and local authorities. Several participants highlighted the role of cities and regions in green procurement, in the development of the local workforce and in convening social dialogue and stakeholder engagement at the local level, as well as multilevel coordination bodies and place-based just transition agreements. Many participants underscored that workers, communities, Indigenous Peoples and civil society should be involved from the planning stage rather than after decisions have been taken, with social dialogue repeatedly identified as essential. Some participants emphasized that investors and affected stakeholders should be engaged together rather than in separate conversations, cautioning that separate engagement can result in unmanaged impacts on territories and communities, which can ultimately place the investments themselves at risk.

98. Several participants emphasized that public support to the private sector should be conditional, with incentives, subsidies and financing tied to decent work, fair wages, gender equity, binding labour and environmental standards, the development of local suppliers and respect for the rights of Indigenous Peoples, including free, prior and informed consent, and with commitments written into agreements, independently verified and carrying consequences for non-compliance. Some participants emphasized the use of mandatory human rights and environmental due diligence across operations and value chains, together with transparency and traceability, observing that projects proceeding without consent face delays, reputational and financial risks and litigation, and that free, prior and informed consent constitutes the social licence to operate. Some other participants cautioned against regulatory instruments developed in one jurisdiction and applied extraterritorially to private sector actors elsewhere, including due diligence and sustainability disclosure requirements imposing reporting and liability obligations across entire value chains, noting that such instruments can raise costs and legal uncertainty for firms in developing country Parties seeking to enter those value chains. Some participants emphasized approaches that reduce material and energy demand and pursue circularity, which can also limit extractive pressures on the lands and territories of Indigenous Peoples.

99. Some participants emphasized that enabling environments have both a domestic and an international dimension and highlighted that the burden of creating them cannot rest entirely with developing country Parties. Several participants underscored that binding constraints on investment, including the cost of capital, access to technology, fiscal space and the terms of access to global markets, are structural and international, and that a domestic enabling environment should not be treated as a precondition for international support. Some participants emphasized that equity and the principle of common but differentiated responsibilities and respective capabilities are themselves enabling conditions enshrined in the Paris Agreement, to be operationalized at the implementation stage rather than set aside as abstractions, and that a genuinely inclusive shift towards low-emission industry requires technology transfer and capacity-building as deliverables rather than aspirations.

100. Some participants raised concerns regarding the international trade environment, noting that certain approaches such as carbon border adjustment mechanisms, which they framed as unilateral trade measures, could penalize the capital-intensive and hard-to-abate sectors into which developing country Parties most need to attract investment, and emphasized the need for a stable, non-discriminatory trading environment. Other participants disagreed with such framing and highlighted the role of such approaches in advancing climate, environmental and sustainability objectives. Some participants noted that revenue from carbon pricing applied to the exports of developing country Parties can often strengthen the competitiveness of industries in the collecting countries and pointed to international cooperation as an avenue for directing such revenue towards green industrialization in developing country Parties. Some participants expressed a preference for cooperative and

multilateral approaches over measures that they characterized as unilateral, emphasizing that international frameworks should be developed through inclusive, Party-driven processes. Some participants suggested protecting good-faith transition measures from trade disputes and reconsidering investor-State dispute settlement, noting that the latter can constrain the policy space of Parties to regulate in the public interest.

101. Several participants emphasized that industrial decarbonization should constitute a pathway to sustainable industrialization and economic diversification rather than an additional constraint on development. Some participants observed that in many developing country Parties, in particular in Africa, the industrial base is still being built, and that the timelines attached to decarbonization expectations should be calibrated accordingly, as a deliberate question of sequencing, consistent with the principle of common but differentiated responsibilities and respective capabilities and with Article 4, paragraph 7, of the Paris Agreement. Some participants cautioned that decarbonization can generate transboundary movements of decommissioned plants, electronic waste and hazardous legacy waste towards developing country Parties under the designation of technology transfer or asset repurposing, and pointed to the Basel Convention and the Bamako Convention as existing frameworks for addressing such movements. These participants further noted that the health costs of managing such waste are borne largely by workers in the informal economy, often women and youth.

3. Opportunities, best practices, actionable solutions, challenges and barriers

102. Participants identified a range of opportunities and actionable solutions for creating enabling environments that support just approaches to industrial decarbonization. Some participants outlined what they considered to be the broad conditions supporting a global shift towards low-emission and resilient industries, including clear direction and management of structural change, clean energy and enabling infrastructure, investment and innovation, people-centred transition planning, and markets and value chains, while emphasizing that industrial transformation should be understood as the transformation of an entire industrial ecosystem rather than the replacement of individual technologies. Several participants highlighted sectoral and subsectoral road maps as instruments for translating NDCs and long-term low-emission development strategies (LT-LEDS) into concrete expectations for industry, developed jointly with the sectors concerned and aligned with national and local priorities. Examples shared included announced end dates for the sale of conventional vehicles as a clear long-term market signal, climate legislation embedding a statutory duty to consult the private sector in the development of implementation strategies, national green project preparation facilities and domestic carbon pricing designed to retain revenue nationally.

103. Participants shared experiences of multi-level and inclusive governance, including dedicated national just transition authorities and commissions, place-based just transition agreements serving as coordination tools in coal regions and joint planning by national and local governments, trade unions and communities in response to industrial closures. Several participants emphasized the convening role of cities and regions, which can play an important role by deploying green and ethical procurement, coordinating the development of local workforce skills and hosting local social dialogue. Some participants shared examples of trade union engagement in national planning, including structured worker input to a national circular economy strategy and union involvement in public housing programmes securing apprenticeships for retrofitting, noting the importance of including workers from the outset and that such models could be adapted for developing country Parties.

104. Participants highlighted experiences in creating markets and building domestic capability. These included procurement requirements reserving shares for products using low-carbon materials, consumer education to build demand for recycled and sustainable products, schemes encouraging electrification and large-scale solar deployment by firms, incentives linked to local employment and transparent measurement, reporting and verification and carbon accounting systems to build confidence and prevent greenwashing, with industry participating in the generation of climate information. Several participants emphasized that enabling environments should not only attract capital but also retain and create productive value, build domestic capability and enable participation in emerging

markets, with the quality and distribution of investment mattering as much as its volume. Some highlighted the importance of partnership working in both directions, with governments providing policy direction, standards and enabling infrastructure and the private sector bringing investment, technology, products and services, and emphasized planning for the full cycle of deployed technologies, including the removal of non-compliant equipment from the market. Several participants emphasized tailored support for micro, small and medium-sized enterprises and the informal sector, including access to finance, technology, markets and formalization support.

105. Several participants identified opportunities in making respect for human rights and Indigenous Peoples rights an integral part of enabling frameworks, including by operationalizing paragraph 12(i) of decision 2/CMA.7 through industrial policy, permitting, procurement, public finance and corporate accountability frameworks. Some participants recommended standalone corporate policies on free, prior and informed consent, clear limits where industrial activity is incompatible with rights, including no-go zones protecting Indigenous Peoples in voluntary isolation and initial contact, and attention from the outset to closure, decommissioning, remediation, ecosystem restoration and long-term monitoring. Some participants emphasized public finance supporting community and Indigenous ownership of enterprises and the development of local suppliers, noting that many economic activities of Indigenous Peoples already support decarbonization. Several participants saw a role for the just transition mechanism in helping to secure enabling conditions domestically and internationally, including by turning country-driven requests into practical support such as legal expertise on trade and investment barriers, resources for inclusive local planning and assistance in negotiating and enforcing community benefits.

106. Despite these opportunities, participants identified a number of persistent challenges and barriers. Several participants observed that even where meaningful policy measures exist, weak internal coherence, limited long-term certainty and gaps in enabling infrastructure and finance leave the private sector unable to invest at scale, with projects in hard-to-abate sectors at times lacking an investment case without industrial policy support that fiscal constraints limit the capacity of governments to provide. Some participants noted that weak or fragmented regulation, limited capacity, debt burdens and currency volatility can constrain the ability of governments in the LDCs to negotiate equitable investment terms. Some participants noted that fiscal and institutional realities, in particular in small economies, require de-risking instruments scaled appropriately and capacity support sequenced alongside, rather than after, access to finance and technology.

G. Holistic approaches to nationally determined just transition pathways that promote equitable value chains

107. The session on this subtopic was facilitated by Camilla Roman from the ILO.

2. Summary of discussions and key findings

108. Many participants regarded equitable value chains as central to just transition pathways for the industry sector. Several participants emphasized that an equitable value chain is not only one that produces low-emission goods but also one in which all the countries and communities concerned capture a fair share of the value created. Many participants observed that developing country Parties remain concentrated in low-value segments of global value chains, and underscored that equitable value chains should enabling developing country Parties to move up value chains rather than remaining confined to the extraction and export of raw materials. Several participants noted that such considerations apply across sectors, including critical minerals, renewable energy, manufacturing, sustainable fuels and agro-processing.

109. Several participants emphasized that local value addition requires deliberate strategy, noting that resource endowment alone does not guarantee it and that not every mineral or stage of a value chain is viable to pursue domestically in every context. Several participants recalled that just transition pathways are nationally determined with no one-size-fits-all approaches, and that in the specific context of value chains, what counts as local value

addition is for each Party to determine. Some participants highlighted legal frameworks mandating local content and beneficiation, infrastructure that makes local processing viable, financial incentives that de-risk investment and governance that shares benefits equitably as essential aspects of equitable value chains. Other participants cautioned that local value addition cannot be expected to emerge if investments have been structured around existing supply chains, and that where skills, infrastructure, technology access and productive capacity are not developed early, countries risk becoming locked into the lower-value segments of the new economy.

110. Many participants emphasized that equitable value chains should deliver decent work and tangible benefits for workers, local communities, women, youth, persons with disabilities and the informal sector, with several participants viewing the workforce dimension, including reskilling and apprenticeships, as central. Some participants emphasized that respect for human rights and the rights of Indigenous Peoples constitutes a baseline for equitable value chains rather than a barrier to their development, and that, where value chains affect the lands and territories of Indigenous Peoples, free, prior and informed consent and benefit-sharing should apply at every stage. They further emphasized that industrial transformation should strengthen the enterprises, collective and traditional economies and community ownership of Indigenous Peoples, with finance reaching communities directly and with support for increasing the value added of their own products and for accessing international markets. Some participants raised concerns regarding investor-State dispute settlement, which they considered to prioritize foreign corporate interests over national development priorities, human rights and the rights of Indigenous Peoples. Some participants cautioned that regions supplying the minerals on which the global transition depends can remain impoverished despite their resource wealth and that equitable value chains should enable their resources and labour to power their own industrial transformation, and that, as industry decarbonizes, communities dependent on fossil fuels should be included in transition planning and social protection.

111. Many participants saw international cooperation, particularly the provision of finance, technology and capacity-building, as vital to fair value creation. Several participants emphasized that partnerships should move beyond resource access towards building capabilities and value locally, be demand-driven and based on national priorities, and avoid relocating individual production steps or creating new dependencies. Some participants suggested that value chain partnerships should include explicit provisions tying offtake arrangements for future output to local value addition and to the transfer of technology and skills, rather than providing market access alone. Several participants highlighted regional partnerships linking countries with complementary endowments as a means for smaller economies to achieve scale. Some participants recalled the obligations of developed country Parties under Article 4, paragraph 5, of the Convention and Articles 9, paragraph 1, and 10 of the Paris Agreement, emphasizing that equitable value chains cannot be built on cooperation alone and that such obligations should be met at scale and on a predictable and grant basis. Some participants expressed concern at trends towards the securitization and fragmentation of global value chains, emphasizing that diversification should not lead to exclusion and that value chains should remain open, rules-based and inclusive.

112. Views differed on the role of standards and regulations in value chain development. Some participants considered that international standards and methodologies, where transparent, science-based and appropriately developed, can build larger markets for low-emission products and strengthen incentives for investment. Some other participants cautioned that sustainability, due diligence, certification and traceability requirements designed in one jurisdiction and applied to suppliers in another can raise the cost of entry, restrict market access and substitute externally defined standards for nationally determined pathways, and that international coordination should avoid locking countries out of markets without the support needed to strengthen their standards and practices. Some participants viewed export restrictions and beneficiation requirements as legitimate tools for domestic value addition, noting that processing minerals where they are mined can reduce environmental externalities and increase investment in producing communities.

113. Some participants considered that, under the JTWP, value chains should be addressed in relation to climate policies and measures rather than as an economic and trade issue per

se. Several participants saw the just transition mechanism as a potential avenue for advancing equitable value chains, including by facilitating partnerships that promote demand for just industrial products, supporting country-owned requests and connecting community-led, youth-led and developing country projects with grant-based and concessional finance. Many participants underscored the importance of affordable and predictable finance in enabling developing country Parties to move towards higher-value segments of global value chains.

3. Opportunities, best practices, actionable solutions, challenges and barriers

114. Participants identified a range of opportunities and actionable solutions for incentivizing equitable value chains that create local value addition and local economic opportunities. Several participants emphasized deliberate strategies grounded in long-term national development plans, economic feasibility, market outlook and rigorous cost-benefit analysis. Some participants pointed to measures such as value chain mapping to establish where processing, technology and profits are concentrated, and where local suppliers can participate, supplier development programmes combining concessional credit guarantees, technical assistance and workforce training, and the use of domestic procurement of goods and services as a complementary means of retaining value. Some participants emphasized investment in geological surveys, resource mapping, data systems and market intelligence, without which governments cannot enforce local content and beneficiation requirements or negotiate equitable contracts. Some participants emphasized that upgrading levers, whether industrial, economic, social or environmental, should be tailored to context rather than applied as a uniform sequence, pointing to integrated planning across mining, energy and industrial policy and to carefully designed conditionalities on access where a country holds a strong resource position.

115. Participants referred to a number of initiatives illustrating how such approaches are being pursued in practice. Examples shared included the use of mineral resources as underlying guarantees to leverage financing and accelerate job creation, the localization of the manufacture of industrial components alongside the development of domestic renewable energy manufacturing, a national green transformation programme pairing guidance on changing skills requirements with reskilling support, and the creation of demand for new green products together with locally led decarbonization efforts involving communities, companies and local governments. Further examples included the design of renewable energy investments to provide training locally and carry out installation domestically, arrangements encouraging principal industrial suppliers to subcontract to small and medium-sized enterprises, and the integration of the circular economy into national climate and development planning as a source of fair value creation. Examples at the subnational level included procurement mandates for zero-emission construction that shifted a substantial share of the local market while improving working conditions, gender-responsive procurement criteria that brought women from disadvantaged communities into the green workforce, and the engagement of informal transport operators, supported in forming cooperatives, in the transition to low-emission public transport.

116. Several participants emphasized investment in skills and inclusive participation as conditions for capturing higher-value activities. Examples shared included scaled-up training in science, technology, engineering and entrepreneurship for youth, centres of excellence for battery and mineral research, green innovation hubs in transition-affected regions providing technical assistance, business incubation, skills training, access to finance and connections to markets, and the mapping of current and future green skills needs to underpin paid reskilling, apprenticeships and work-based learning. Some participants underscored that participation in value chains should be accessible to smaller actors, including informal operators, women, youth and Indigenous Peoples, so that the economic benefits of transitions are spread broadly rather than concentrated among large firms, and some participants highlighted the formalization of the informal sector and the participation of women in mining as components of equitable value chain development.

117. Some participants proposed that public support to technology-holding partners be tied to independently verified transfer of know-how and supplier upgrading, with consequences for non-delivery, and that eligibility for support be governed by respect for labour standards, environmental protections and free, prior and informed consent. Some participants

emphasized pairing flexibilities in international intellectual property rules with enforceable know-how transfer, regional research cooperation and joint manufacturing. Several participants highlighted support for producer countries in developing and implementing value addition strategies and in strengthening regulatory and enforcement capacity, together with their full participation in shaping the trade agreements, traceability mechanisms and standards-based markets that will shape their industrial development.

118. Despite these opportunities, participants identified a number of persistent challenges and barriers. Some participants cautioned that competition to attract investment can produce a race to the bottom in the name of bankability and de-risking, often at the expense of the communities and economies that depend on natural resources. Some participants noted that small and fragile markets, geographic dispersion and high import dependence can result in value leakage from emerging green and blue economic sectors and that development finance should be assessed by whether it builds local capability, reduces dependency and expands access rather than solely by the investment it mobilizes. Some participants observed that the emerging green economy is large enough for broad participation, cautioning against the perception that only a few can benefit from it.

H. Looking ahead: the potential roles of the UAE just transition work programme and the just transition mechanism

119. The session on this subtopic was facilitated by Ana Vukoje from the UNFCCC secretariat.

2. Summary of discussions and key findings

120. One participant expressed concern regarding the framing of the guiding questions, requesting that this be placed on record, and noting that, in their view, questions prejudged the review of the JTWP, which is still under way, and inappropriately invoked paragraph 8 of decision 2/CMA.7, which in their view is neither part of the mandate of the review nor an input to it. The same participant considered that the dialogue and the process on the just transition mechanism should remain distinct while informing each other where appropriate. Other participants saw a clear link between the global stocktake and both the JTWP and the just transition mechanism, clarifying that drawing on the outcomes of the first global stocktake would be without prejudice to the distinct mandates of the two processes, with the JTWP continuing to operate under its own mandate, and noting that the global stocktake contains findings of direct relevance to the structural barriers facing industry in developing country Parties. Some participants cautioned against selective reference to its elements, emphasizing that integration should be balanced and comprehensive, given that the outcome addresses international cooperation, technology and capacity-building as a whole.

121. Many participants recalled the mandate of the JTWP to discuss pathways to achieving the goals of the Paris Agreement outlined in Article 2, paragraph 1, in the context of Article 2, paragraph 2, and credited the JTWP with building a shared and common understanding of just transitions on which Parties now draw in their own policies and plans. Many participants emphasized that, in its future work, the JTWP should progress from dialogue towards implementation. Participants identified many potential roles for the next phase of the JTWP, including agenda-setting, experience-sharing, practical and technical exchange, peer learning and support for translating just transition concepts into domestic policies and measures, together with the mainstreaming of paragraph 12(i) of decision 2/CMA.7, gender equality and human rights across its future work and the more systematic feeding of its outcomes into the just transition mechanism and other relevant processes. Many participants underscored that the JTWP should remain non-prescriptive and nationally determined, maintaining its “no one-size-fits-all” approach.

122. With respect to the industry sector, several participants suggested that the JTWP continue to facilitate the exchange of good practices on industrial decarbonization and competitiveness, sustainable and green industrialization, skills and workforce needs, social dialogue, regional development and value chain strategies. Some participants saw a role for the JTWP in systematically examining the interaction between the phase-in of low-emission

industries and the phase-out of high-emission activities. Some participants highlighted the potential of the next phase to deliver more practical, implementation-oriented outputs, including on integrating just transition considerations into NDCs, NAPs and LT-LEDS, and to support the translation of global stocktake outcomes into socially inclusive and nationally determined industrial transition pathways while generating insights for the second global stocktake. Some participants emphasized that the JTWP should recognize international barriers to just transitions, together with finance gaps and technology restrictions affecting industry. On the review, some participants saw an opportunity to make the JTWP more useful, in particular for countries facing structural constraints, with one participant cautioning that continuation should be contingent on concrete benefits for developing country Parties.

123. Participants rooted the discussion of the just transition mechanism in its purpose as contained in paragraph 25 of decision 2/CMA.7, namely to enhance international cooperation, technical assistance, capacity-building and knowledge-sharing and enable equitable and inclusive just transitions. Some participants noted that each element of that purpose applies to just transitions for the industry sector, and some emphasized that the purpose extends beyond the national dimension to international cooperation and the provision of means of implementation. Many participants emphasized that the just transition mechanism should be facilitative, demand-driven and request-based, with simple and fair access procedures, and accessible to all developing country Parties without imposed priorities. Some participants considered that it should be rooted in NDCs, where country priorities are best captured, while others underscored the need for it to be able to reach the subnational and community levels. Many participants envisaged a practical, flexible and action-oriented mechanism, acting as a catalyst and trusted intermediary turning national priorities into implementable initiatives and partnerships. Some participants emphasized that the test of the just transition mechanism is whether it converts international solidarity into practical support, including accessible and affordable finance, transferable and locally adaptable technology and capacity-building that enables implementation, so that the transition delivers prosperity.

124. Many participants identified potential functions for the just transition mechanism, including policy guidance translating the key messages of the JTWP into implementation-relevant outputs, demand-driven technical assistance and capacity-building, the development and dissemination of knowledge products and implementation tools, and the operationalization of paragraph 12(i), with the rights, knowledge systems and participation of Indigenous Peoples integrated across its functions and support. Many participants pointed to a potential coordination role within and outside the UNFCCC process, observing that the mapping exercise reveals a wealth of relevant initiatives without any institution connecting them. Many participants saw a role for the just transition mechanism in relation to means of implementation, including through sending signals to the Financial Mechanism and the broader financial architecture and facilitating the provision of means of implementation to developing country Parties as they advance on their nationally determined just transition pathways. Many participants emphasized that the just transition mechanism must complement rather than duplicate existing institutions and initiatives, filling genuine gaps and strengthening the efficiency of existing instruments, and processes, with some participants considering that the mapping exercise should be completed before the content and functions of the just transition mechanism are determined.

125. Specifically in the context of industry, some participants suggested that the just transition mechanism could articulate the social dimension of industrial transition projects and thereby improve access to existing sources of finance, identify gaps in support for industrial just transition pathways, share lessons from initiatives outside the UNFCCC more systematically, offer non-prescriptive guidance on industrial transitions in practice, including on value capture from critical minerals, convene dedicated technical exchanges on specific industries, help countries formulate requests, identify the institutions able to respond and follow up on delivery, and support partnerships between producer and consumer countries that create demand for just industrial products. Some participants emphasized that the participation of a broad range of stakeholders should be institutionalized, including in relation to the industry sector, and suggested that the just transition mechanism facilitate the structured engagement of trade unions, employers, industry associations, local authorities and Indigenous Peoples.

126. Many participants reflected on the relationship between the JTWP and the just transition mechanism, with views ranging from complementarity and mutual reinforcement to different scenarios for how the relationship could be structured, including the question of whether the current architecture of the JTWP could accommodate the broader scope of the just transition mechanism or whether new arrangements would be required. Several participants saw the JTWP as the Party-driven space that generates knowledge, identifies challenges and develops policy approaches, and the just transition mechanism as the operational arm translating those findings into practical tools and support, with some participants stressing that the two mandates should remain distinct so that neither is diluted, with some participants underscoring the importance of preserving and building on the language agreed on the just transition mechanism in decision 2/CMA.7. Proposals on the design of the just transition mechanism included a two-tier structure, conceived by some as a political and a technical tier and by others as a normative tier providing principles, safeguards and guidance alongside an operational tier delivering finance, technical assistance and implementation support, a constituted body with balanced representation, a clearly defined set of activities to be delivered over time, and operationalization in a timely manner so that institutional design does not delay support to workers, communities and economies in transition. Many participants saw a coordination role for the just transition mechanism, both within and beyond the UNFCCC process, with some participants emphasizing that the just transition mechanism should function as an agile, multilevel platform rather than a centralized structure, delivering non-debt financing, capacity-building and technology transfer directly to the subnational level and facilitating access to and matchmaking with technical assistance. Some participants proposed regional delivery models, peer learning platforms, South-South cooperation and regional technology development and value addition hubs. Several participants cautioned against parallel structures, duplicative reporting and additional procedural burdens.

3. Opportunities, best practices, actionable solutions, challenges and barriers

127. Participants identified a range of opportunities for the JTWP and the just transition mechanism to advance just transition pathways in the industry sector. For the JTWP, suggestions included compiling a body of experience on integrating industrial transition planning into NDCs, linking industrial emission reductions with employment and skills policies and incorporating social dialogue and stakeholder participation into industrial transition planning. Some participants proposed that the JTWP should systematize knowledge through sector-specific guidance, building on the agreed key messages, and clarifying how just transition applies across different sectors and national circumstances, encompassing sustainable industrialization, agriculture, natural resources, informal economies and emerging green sectors. Further suggestions included institutionalizing social dialogue by according trade unions and employers' organizations a formal role in shaping knowledge products, serving as a standing space for regional dialogue and cooperation on critical minerals and industrial value chains, evaluating progress in the implementation of agreed key messages and sustaining political momentum through ministerial roundtables. Some participants highlighted that the review should focus on strengthening the dialogue functions of the JTWP, including through stronger expert input, regional balance and clear linkages to the just transition mechanism, rather than the addition of an operational mandate.

128. For the just transition mechanism, some participants suggested a role in facilitating exchanges among countries that have developed territorial industrial transition plans, just transition agreements, green industrial strategies or industrial cluster approaches, and in connecting countries with existing institutions and sources of expertise on industrial transition planning, labour market assessment, stakeholder engagement and skills strategies. Some participants proposed a country-owned request process under which the just transition mechanism would help countries formulate requests, identify the institutions able to respond, agree on timetables and follow up on delivery, with annual reporting tracking the support delivered and the barriers remaining and in time feeding into the second global stocktake. Some participants suggested that the just transition mechanism convene a cross-sectoral platform bringing together ministries beyond those responsible for the environment, Indigenous Peoples' organizations and other relevant actors, and that its technical assistance

extend to integrating just transition considerations into the work of the operating entities of the Financial Mechanism.

129. Several participants emphasized that the just transition mechanism should reach beyond the national level, suggesting direct access for subnational entities, the matching of technical assistance and capacity-building to needs at the national, regional and local levels, and peer-to-peer exchanges and communities of practice drawing on subnational experience of industrial transformation. Some participants emphasized that the just transition mechanism should address the full range of labour market impacts of the transition, including job losses, job creation and job substitution, together with reskilling, upskilling and retooling, with particular attention to workers in the informal economy. Some participants underscored building on South-South, regional and peer cooperation, including regional delivery models and regional technology and value addition hubs. Some participants reiterated that the completion of the mapping exercise constitutes the first step, with its findings informing consideration of where the just transition mechanism can add the greatest value.

130. Despite these opportunities, participants identified a number of challenges. Some participants noted that the value added of the just transition mechanism remains to be clarified, pending the completion of the mapping of existing instruments within and beyond the UNFCCC process, and cautioned against structures that would duplicate existing arrangements or fall short in terms of cost-efficiency. Some participants observed that the institutional landscape is difficult to navigate and that the relationship between the JTWP and the just transition mechanism remains to be resolved, with many participants highlighting the need for a clear and complementary relationship between the two. Some participants cautioned that the current resource and budgetary constraints will require creativity and strong collective will to deliver a mechanism that is able to have an impact on the ground.