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Item 4 (c) of the provisional agenda**
Review of the implementation of the 2030 Agenda for Sustainable Development in Asia and the Pacific: environment and development

Opportunities for reaching carbon neutrality in the Asia-Pacific region

Note by the secretariat

Summary

The present document contains an introduction to the main outcomes of the twenty-sixth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change and an assessment of the most updated nationally determined contributions of countries in the Asia-Pacific region. It serves to highlight opportunities in several sectors and emerging initiatives for raising climate ambition in the region, including blue carbon, ecosystems-based climate solutions, energy, sustainable cities, transport, trade and investment, and business. It also serves to highlight areas for further action for consideration by the Economic and Social Commission for Asia and the Pacific.

I. Overview

1. Ahead of the twenty-sixth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change held in Glasgow, Scotland, from 31 October to 13 November 2021, the Secretary-General called for all countries to commit to net zero emissions by 2050, backed up by concrete long-term strategies, and enhanced nationally determined contributions which collectively cut global emissions by 45 per cent by 2030, compared to 2010 levels, as recommended by the Intergovernmental Panel on Climate Change.

2. The countries of the Asia-Pacific region were in the spotlight at the Conference of the Parties: many of the most vulnerable countries to the impacts of climate change are located in this region; eight members of the Group of 20 from this region[1] were responsible for approximately half of global greenhouse gas emissions in 2019; and 5 of the 10 countries with the

* Reissued for technical reasons on 27 April 2022.

** ESCAP/78/L.1/Rev.1.

1 Australia, China, India, Indonesia, Japan, the Republic of Korea, the Russian Federation and Turkey.

greatest responsibility for greenhouse gas emissions since the beginning of the twentieth century are in the Asia-Pacific region.

3. The Conference of the Parties adopted the Glasgow Climate Pact, in which the parties recognized that limiting global warming to 1.5°C requires rapid, deep and sustained reductions in global greenhouse gas emissions, including reducing global carbon dioxide emissions by 45 per cent by 2030 relative to the 2010 level and to net zero around mid-century as well as deep reductions in other greenhouse gases.[2]

4. The parties also recognized the need for critical action in this decade to move to low-emission energy systems and deployment of clean power generation and energy efficiency, and for accelerating efforts towards the phase-down of unabated coal power and phase-out of inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition.[3]

5. The parties further recognized the rising importance of protecting, conserving and restoring ecosystems to deliver crucial services, including acting as sinks and reservoirs of greenhouse gases, while at the same time reducing vulnerability to climate change impacts for indigenous peoples and local communities and supporting their sustainable livelihoods.[4]

6. Furthermore, making financial flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development, including through deployment and transfer of technology, and provision of support to developing countries, and in particular those most vulnerable to impacts of climate change was deemed essential to support effective implementation.

7. The Glasgow Climate Pact also served to highlight the importance of strengthening international and regional cooperation for the development of programmes for enhancing climate action and implementation of the Paris Agreement.

8. Furthermore, the Glasgow work programme on Action for Climate Empowerment[5] serves to operationalize the recommendations of the Glasgow Climate Pact through four action-oriented priority areas: policy coherence; coordinated action; tools and support; and monitoring, evaluation and reporting. It serves to encourage intergovernmental organizations to develop regional programmes and projects for cooperation on climate change.

II. The urgent need to raise ambitions

9. Despite the constraints posed by the coronavirus disease (COVID-19) pandemic the member States in the Asia-Pacific region worked hard to update their nationally determined contributions. From the 49 intended nationally determined contributions submitted by Asia-Pacific member States to date, 47 evolved into nationally determined contributions and 37 member States have submitted updated nationally determined contributions in 2020 and

[2] See FCCC/CP/2021/12/Add.1, decision 1/CP.26, para. 17.

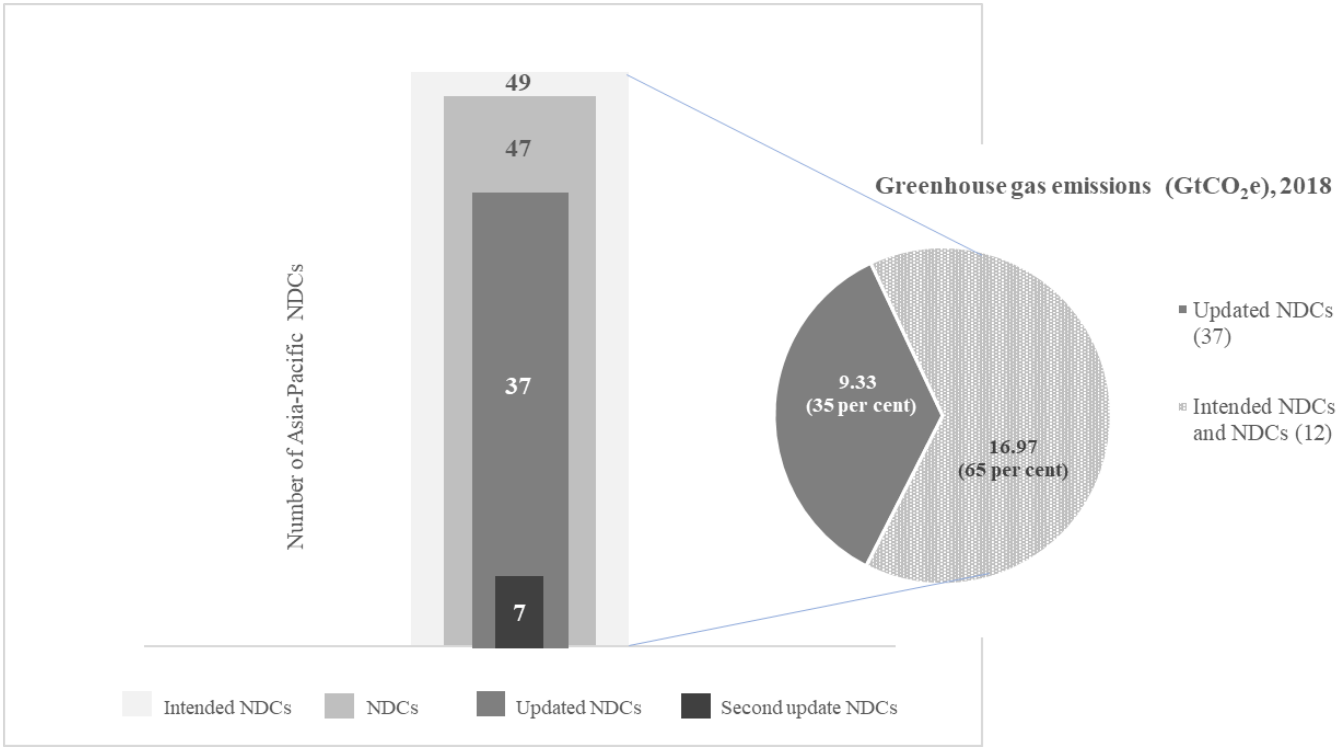
[3] Ibid, para. 20.

[4] Ibid, para. 50.

[5] See FCCC/CP/2021/12/Add.2, decision 18/CP.26.

2021.[6] Among the updated nationally determined contributions, seven have a second update. As shown in figure I, the 37 nationally determined contributions accounted for 9.33 gigatons of carbon dioxide equivalent or 35 per cent of the total Asia-Pacific regional greenhouse gas emissions in 2018, while the remaining 12 nationally determined contributions and intended nationally determined contributions that have not been updated accounted for 16.97 gigatons of carbon dioxide equivalent or 65 per cent.

Figure I
Status of the nationally determined contributions of member States in Asia and the Pacific and share of greenhouse gas emissions



Source: Calculations based on *Is 1.5°C within Reach for the Asia-Pacific Region? Ambition and Potential of NDC Commitments of the Asia-Pacific Countries* (ST/ESCAP/2979).

Note: Commitments are as of January 2022.

Abbreviations: $GtCO_2e$, gigatons of carbon dioxide equivalent; NDCs, nationally determined contributions.

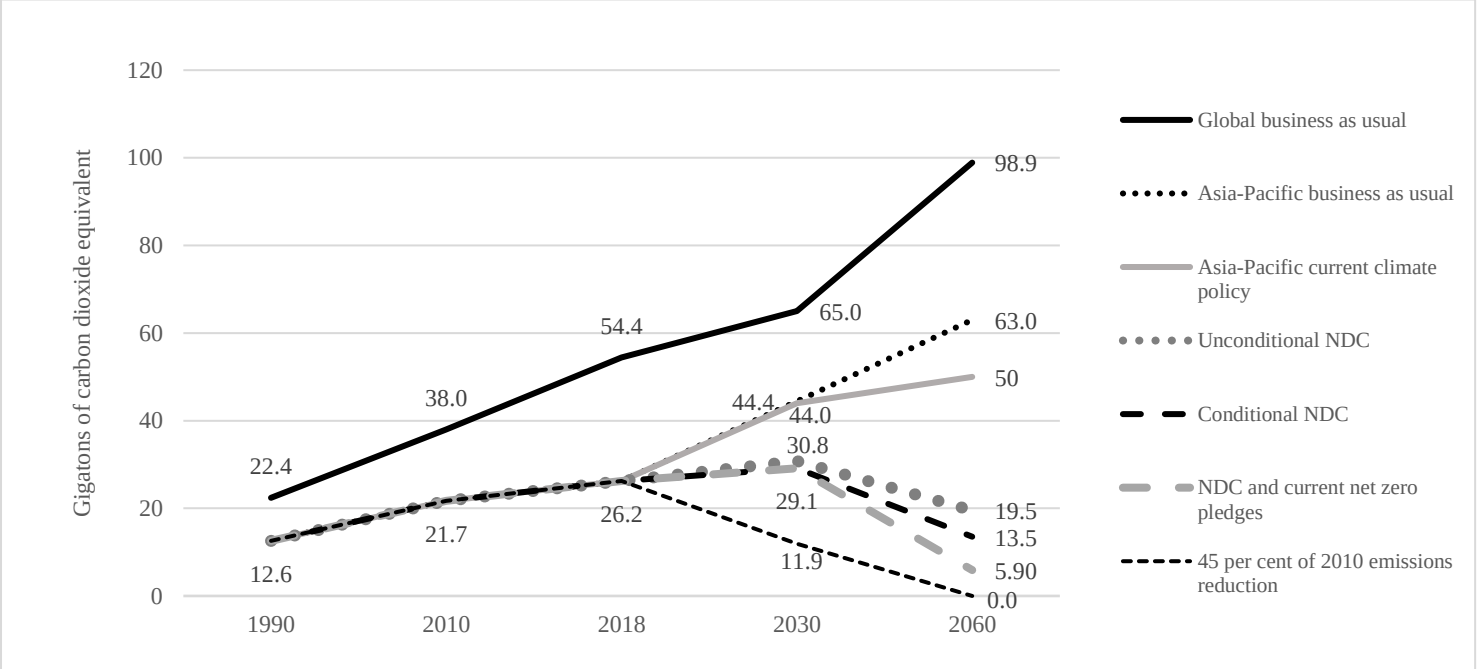
10. A joint study by the Economic and Social Commission for Asia and the Pacific (ESCAP), the United Nations Environment Programme (UNEP) and the United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women) published prior to the twenty-sixth session of the Conference of the Parties[7] showed that the commitments in the region under updated nationally determined contributions, together with the increasing

[6] Armenia, Australia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Fiji, Georgia, Indonesia, Japan, Kyrgyzstan, the Lao People's Democratic Republic, Malaysia, Maldives, Marshall Islands, Myanmar, Mongolia, Nauru, Nepal, New Zealand, Pakistan, Papua New Guinea, the Philippines, the Republic of Korea, the Russian Federation, Samoa, Singapore, Solomon Islands, Sri Lanka, Tajikistan, Thailand, Tonga, Turkey, Uzbekistan, Vanuatu and Viet Nam.

[7] *Is 1.5°C within Reach for the Asia-Pacific Region? Ambition and Potential of NDC Commitments of the Asia-Pacific Countries* (ST/ESCAP/2979).

number of carbon neutrality pledges aligned with the recommendation of the Intergovernmental Panel on Climate Change to reduce greenhouse gas emissions by 45 per cent from 2010 levels to limit global warming to 1.5°C will not deliver sufficient emissions reductions by 2030. Figure II provides greenhouse gas emissions scenarios, including business as usual, emissions reductions based on commitments under nationally determined contributions, carbon neutrality pledges and fulfilment of the requirements of the Intergovernmental Panel on Climate Change.

Figure II
Greenhous gas emissions scenarios for the Asia-Pacific region and the world, 1990–2060



Source: Calculations based on *Is 1.5°C within Reach for the Asia-Pacific Region?* (see figure I).

Note: Scenarios include commitments and pledges as of January 2022. Global business as usual scenario is based on Shared Socioeconomic Pathway (SSP) 4–8.5 model.

11. The pathways compatible with limiting global warming to 1.5°C will require rapid and far-reaching transitions at the national level in energy, land, urban (including transport and construction) and industrial systems for all parties to the Agreement. Asia-Pacific countries have an opportunity to review and align the commitments in their nationally determined contributions for the next update in 2025 to reduce the current two- to threefold deviations from the recommended 2030 level of greenhouse gas emissions.

12. Henceforth, member States in the Asia-Pacific region can take the opportunity while developing their long-term low-emission development strategies and road maps, to include more ambitious commitments:

(a) First, quantification of national greenhouse gas emissions benchmarks by 2030 based on the recommendation of the Intergovernmental Panel on Climate Change to reduce emissions to 45 per cent of the 2010 level, and for the period 2022–2030;

(b) Second, assessment of gaps between those benchmarks and the current commitments to nationally determined contributions to greenhouse gas reductions and the development of national trajectories of greenhouse gas emissions reductions from 2022 to 2030 in compliance with the recommendation of the Intergovernmental Panel on Climate Change;

(c) Third, development of milestones for the 2025 updates of the nationally determined contributions to meet benchmarks, including carbon intensive sectoral greenhouse gas emissions reductions and quantification of the contribution of nature-based carbon sinks and opportunities to enhance their sequestration capacity;

(d) Fourth, promotion of climate-friendly consumption and production choices by increasing the efficacy of financial and other incentives, and strengthening engagement with public programmes.

13. Such a step-by-step approach would support the next nationally determined contribution update cycle and provide an opportunity to develop more ambitious commitments, including in critical carbon intensive sectors, to align with the recommendation of the Intergovernmental Panel on Climate Change by 2030.

14. The Glasgow Climate Pact served to urge the operating entities of the Financial Mechanism, multilateral development banks and other financial institutions to further scale up investments in climate action,[8] and such an approach would also position Asia-Pacific countries to attract financing and benefit from bilateral and international low-carbon investments.

III. Strengthening national enabling frameworks

15. To support the implementation of the current commitments under nationally determined contributions and the critical review in the next update, national climate action in the region must be strengthened through a mutually reinforcing enabling framework of climate action ambition factors and enabling factors, including gender mainstreaming.

16. The climate action ambition factors include relevant climate action commitments, such as carbon neutrality pledges, plans to peak carbon emissions and decarbonize carbon-intensive sectors, and set up carbon pricing and fossil fuel subsidy reforms.

17. The enabling factors include the following:

(a) The mainstreaming of provisions for climate action into laws, trade policy and trade agreements, development plans and green growth/blue economy road maps and low-emission development strategies;

(b) Horizontal and vertical coordination mechanisms, including interministerial collaboration mechanisms and engagement with local government, and mechanisms for engagement of stakeholders (including across borders);

(c) Climate finance readiness through budget allocations to various sectoral ministries for the implementation of sectoral commitments to nationally determined contributions and road maps for greenhouse gas emissions reductions, including financial gaps and opportunities to leverage private sector and innovative financing mechanisms alongside progress

[8] See FCCC/CP/2021/12/Add.1, decision 1/CP.26, para. 28.

tracking and measurement frameworks, local government budget allocations for climate action and mechanisms for the engagement of central and development banks and the private sector;

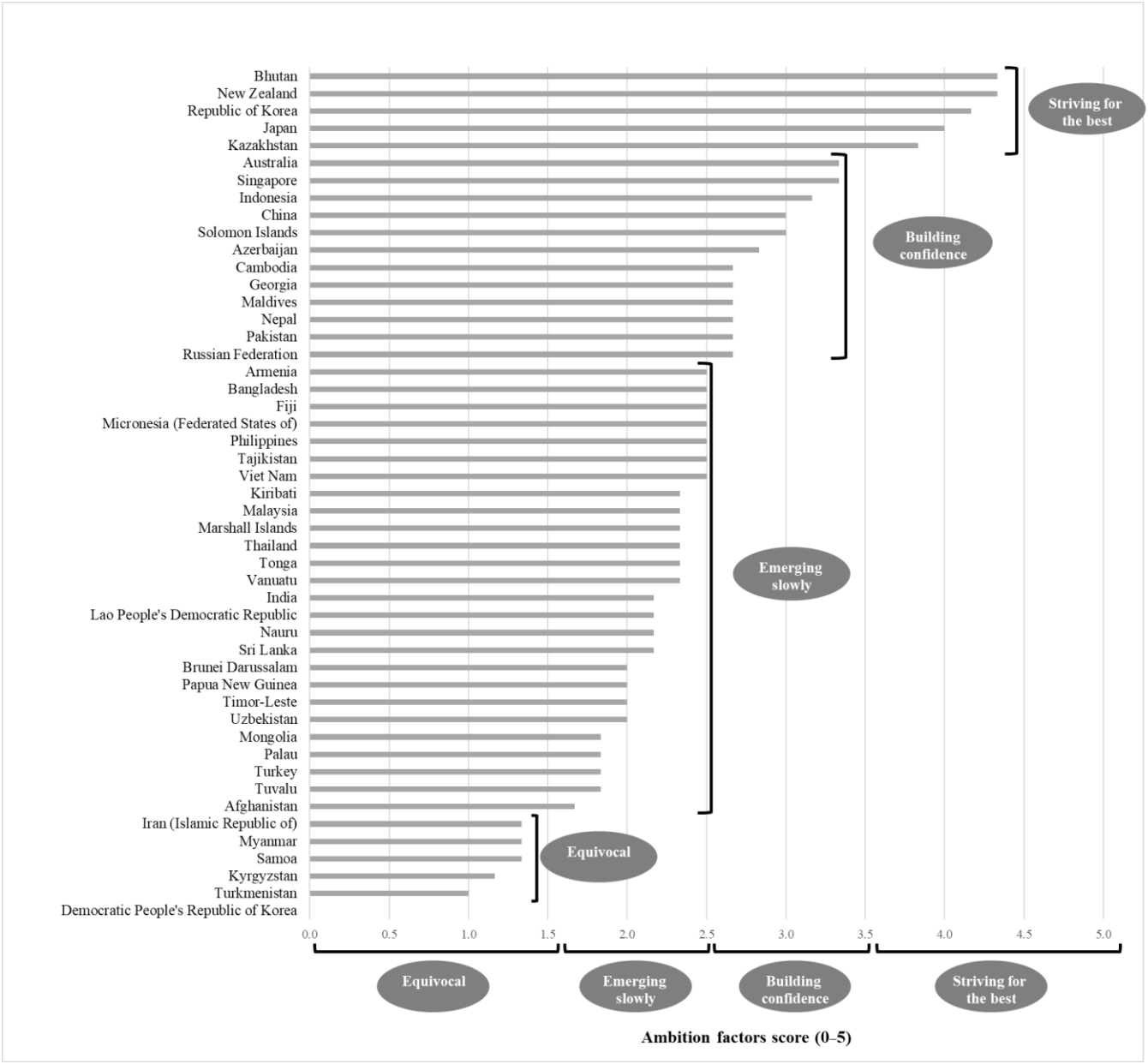
(d) Increasing transparency through monitoring, reporting and verification systems and enhancing transparency instruments at the national, local and enterprise levels;

(e) Within each enabling factor, prioritization and integration of gender equality and human rights-based approaches in climate action to enhance adaptive capacities while safeguarding the most vulnerable for more inclusive climate action outcomes.

18. The joint regional ESCAP, UNEP and UN-Women study on the ambition and potential of commitments to nationally determined contributions in 49 Asia-Pacific countries contained a review of the status of those factors (figure III), and the review highlighted two important facts.

19. First, climate ambition was not confined to high-income countries. For example, countries such as Bhutan and Kazakhstan were among those striving for the best alongside countries such as the Republic of Korea, Japan and New Zealand. Second, most countries of the region were categorized as "emerging slowly" and countries such as Brunei Darussalam, Thailand and Turkey, for example, were expected to have more robust ambition.

Figure III
Combined index of ambition factors, selected Asia-Pacific countries



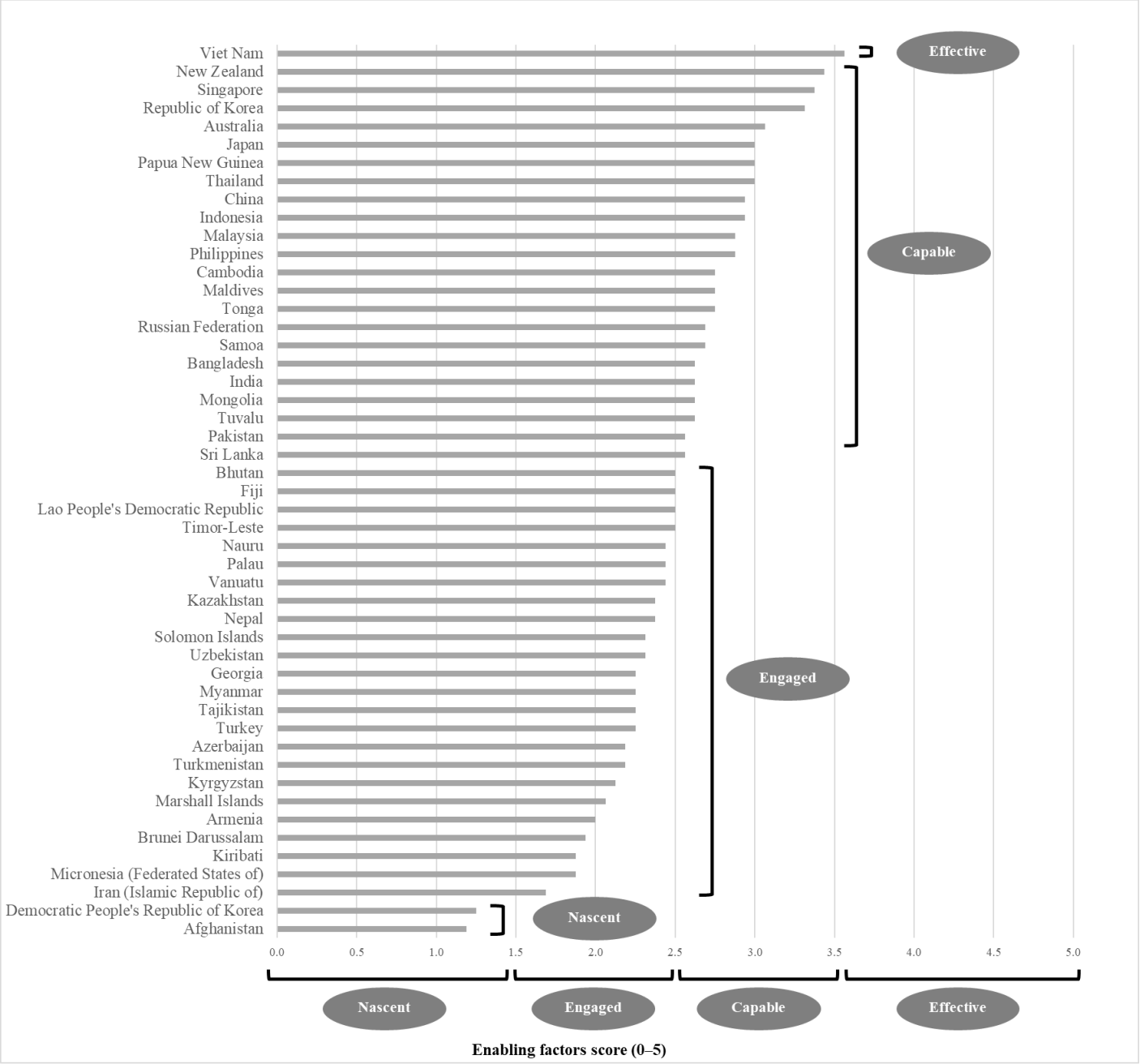
Source: Calculations based on *Is 1.5°C within Reach for the Asia-Pacific Region?* (see figure I).

20. The findings of the study show that well-developed enabling frameworks clearly support raising climate ambition. Most countries in the region at all levels of income have an abundance of enabling conditions to help to drive up their climate ambition. Enabling conditions create opportunities for Governments to gain the confidence to introduce high-ambition targets and measures, including through gender mainstreaming.

21. As shown in figure IV, for example, Viet Nam is ranked as “effective”, Thailand, Indonesia and Malaysia are ranked as “capable”, meaning their targets and measures could be more ambitious and their planned greenhouse gas emissions reductions are still modest.

22. In addition, the study served to highlight the importance of establishing a good monitoring, reporting and verification system, as a pillar of the enhanced transparency framework of the Paris Agreement. At the enterprise level, it is a prerequisite for gaining the trust of climate funds and multilateral financial institutions.

Figure IV
Index of enabling factors, selected Asia-Pacific countries

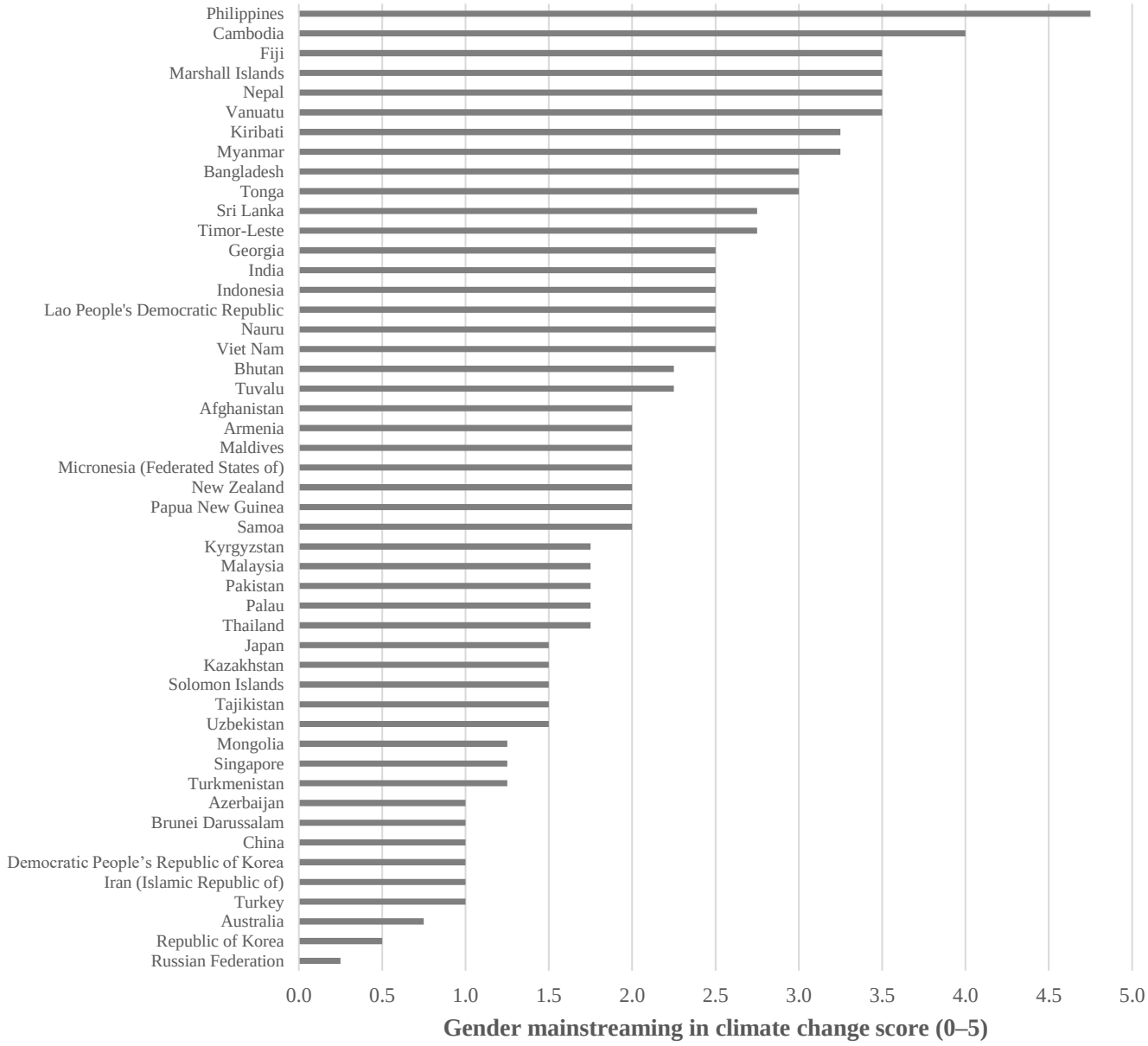


Source: Calculations based on *Is 1.5°C within Reach for the Asia-Pacific Region?* (see figure I).

23. The increased recognition of the links between gender equality and climate action has resulted in more gender-responsive nationally determined contributions in the region (see the 2021 synthesis report on nationally determined contributions under the Paris Agreement). The study served to highlight that gender mainstreaming is crucial to strengthen enabling frameworks and support raising climate ambition. As shown in figure V and

based on the most recent updates, the Philippines, Cambodia and Vanuatu, in particular, stand out for their progress, while there is significant potential for improvement in countries such as the Russian Federation, the Republic of Korea, Australia and China given their leadership positions globally.

Figure V
Comparison of Asia-Pacific countries according to gender mainstreaming progress



Source: Calculations based on *Is 1.5°C within Reach for the Asia-Pacific Region?* (see figure I).

IV. Opportunities for climate action

A. Ecosystems-based climate solutions

24. In adopting the Glasgow Climate Pact, the parties reconfirmed the importance of protecting, conserving and restoring ecosystems to deliver crucial services, including acting as sinks and reservoirs of greenhouse gases, reducing vulnerability to climate change impacts and supporting sustainable livelihoods, including for indigenous peoples and local communities. [9] According to estimates by the United Nations, these solutions have the potential to remove up to 12 gigatons of carbon dioxide equivalent per year and to boost climate resilience in multiple sectors and regions while adding an additional $2.3 trillion in productive growth to the global economy.[10] In the Asia-Pacific region, all three functions of ecosystems-based climate solutions are important for the reduction of greenhouse gas emissions by enhancing carbon sinks and strengthening resilience within and across forestry, agriculture, oceans and food systems through biodiversity conservation, as well as protection of wetlands and mangroves, and leveraging supply chains and technology.

25. So-called blue carbon, or ocean-based climate action can deliver up to a fifth of the annual greenhouse gas emissions cuts needed by 2050 to limit global warming to 1.5°C.[11] In the Glasgow Climate Pact, the parties recognized the importance of the integrity of the ocean ecosystems for climate and invited the secretariat of the United Nations Framework Convention on Climate Change to develop programmes for ocean-climate action.[12] Eighty per cent of the global carbon cycle is circulated through the ocean and 50 per cent of the carbon sequestered in sediments is found in coastal areas. When degraded or destroyed, these ecosystems become sources of greenhouse gases as they emit the carbon they have stored for centuries into the atmosphere and oceans. Experts estimate that as much as 1.02 billion tons of carbon dioxide are released annually from degraded coastal ecosystems, which is equivalent to 19 per cent of emissions from tropical deforestation globally. This represents a double burden; ocean warming and endangered marine ecosystems threaten the capacity of oceans to absorb heat and regulate atmospheric carbon dioxide concentrations while the degradation or destruction of these ecosystems increases carbon emissions. Where there are significant coastal wetlands (mangroves, seagrasses and tidal salt marshes) in the Asia-Pacific region, Governments can recognize the climate value provided by these ecosystems and the potentially significant contribution they make to the achievement of goals for both mitigation and adaptation in nationally determined contributions. A starting point for any Government to include the climate value of coastal wetlands within their nationally determined contributions is to develop more ambitious commitments under nationally determined contributions through a “blue carbon readiness assessment” and enhanced blue carbon actions. Investment in forms of “green infrastructure”, such as living coastlines (mangrove forests, dunes and reef systems), are often more

[9] See FCCC/CP/2021/12/Add.1, decision 1/CP.26, para. 50.

[10] United Nations Framework Convention on Climate Change, *Yearbook of Global Climate Action 2021: Marrakech Partnership for Global Climate Action* (Bonn, 2021).

[11] Ove Hoegh-Guldberg and others, *The Ocean as a Solution to Climate Change: Five Opportunities for Action* (Washington, D.C., World Resources Institute, 2019).

[12] See FCCC/CP/2021/12/Add.1, decision 1/CP.26, paras. 58, 60 and 61.

cost-effective than high-tech approaches such as hydrogen economy.[13] In order to safeguard marine ecosystems and sustainable ocean development, ESCAP collaborated with other United Nations agencies to develop a Regional Decade Programme to support the implementation of the United Nations Decade of Ocean Science for Sustainable Development in the Asia-Pacific region. The Ocean Decade, which will engage a variety of key stakeholders, including Governments, civil society, youth, the private sector, academia and the scientific community, presents an opportunity to build capacities, share experiences, transfer technology and enhance data collection and availability, which may further support the integration of ecosystems-based solutions, including incorporating blue carbon into climate action in the region.

26. Food systems are a major cause for climate change, accounting for 21 to 37 per cent of all greenhouse gas emissions through agriculture and land use, storage, transport, packaging, processing, retail and consumption.[14] It has been estimated that three quarters of these emissions are generated either during on-farm production or during manufacturing, transport, processing and waste disposal. The remainder is generated through land use change.[15] At the same time, food systems are also severely impacted by climate change, through increasing temperatures, changing precipitation patterns and greater frequency or intensity of extreme weather events such as heatwaves, droughts and floods.

27. Even if fossil fuel emissions were immediately halted, current trends in global food systems would cause global warming to exceed the limit of 1.5°C and would threaten to exceed the limit of 2°C.[16] Yet, there are significant opportunities for reducing these emissions as highlighted in the Intergovernmental Panel on Climate Change special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. Agricultural systems that are based on agroecological principles are more climate resilient and sequester greater amounts of carbon. The pilot projects of the Commission for integrated straw residue management have yielded significant carbon emissions reductions, improved soil quality and yields, as well as increased farmer incomes.[17]

[13] Stephen Crooks and others, “Integrating blue carbon into sustainable and resilient coastal development”, in *A Blue Carbon Primer: The State of Coastal Wetland Carbon Science, Practice and Policy*, Lisamarie Windham-Myers, Stephen Crooks and Tiffany G. Troxler, eds. (Boca Raton, Florida, CRC Press, 2019), pp. 267–279.

[14] Alisher Mirzabaev and others, “Climate change and food systems” in *Science and Innovations for Food Systems Transformation and Summit Actions*, Joachim von Braun and others, eds. (Bonn, Scientific Group of the United Nations Food Systems Summit, 2021).

[15] Cynthia Rosenzweig and others, “Finding and fixing food system emissions: the double helix of science and policy”, *Environmental Research Letters*, vol. 16, No. 6 (June 2021).

[16] Michael A. Clark and others, “Global food system emissions could preclude achieving the 1.5° and 2°C climate change targets”, *Science*, vol. 370, No. 6517 (November 2020), pp. 705–708.

[17] Pilot projects in China and Viet Nam launched in July 2019 by the ESCAP Centre for Sustainable Agricultural Mechanization.

28. It is important to bear in mind food security implications when implementing climate mitigation efforts due to indirect impacts on prices and supplies of key agricultural commodities.[18] Methodological frameworks and approaches to accelerate investments in carbon neutral agrifood systems have been developed by the Food and Agriculture Organization of the United Nations (FAO)[19] and provide useful tools for Asia-Pacific countries when reviewing greenhouse gas emissions from food systems. Global partnerships, including the United Nations Decade on Ecosystem Restoration, are advancing the collection, evaluation and monitoring of sustainable land management, and they are building tools for soil carbon monitoring and galvanizing local action, such as the "4 per 1000" campaign.[20] Moreover, the Association of Southeast Asian Nations (ASEAN) Regional Guidelines for Promoting Climate Smart Agriculture Practices were developed through an intergovernmental multi-stakeholder effort and address both food security and climate adaptation and mitigation efforts.

B. Sectoral decarbonization pathways

29. Pathways towards deep decarbonization are appearing across different sectors. New initiatives and increasing carbon neutrality pledges are closing the gap between commitment and action across the sectors that drive development in the region, including energy, sustainable cities, transport, trade and investment, and business.

30. With China, Japan and the Republic of Korea moving away from foreign investments in coal, the region is getting closer to phasing out coal from the energy sector. However, a critical review of transition pathways in the Asia-Pacific region is needed. Though such countries as India, the Republic of Korea and the Russian Federation have initiated coal net retirements, countries including China, Bangladesh, Indonesia, Japan and Viet Nam have invested in increasing national capacities.[21] Looking forward, the sharp reduction in the cost of solar and wind power as well as storage technologies, in particular solar photovoltaics, together with policies against air pollution are expected to lead to an increasing push to phase out coal for power generation. Combined with increasing the share of renewable energy in the energy mix and enhancing energy efficiency, Governments in the region should support increasing subregional and regional power system connectivity to enable the integration of higher shares of renewable energy. Sustainable Development Goal 7 road maps offer an opportunity for countries to reconsider nationally determined contributions in light of their commitments to the Paris Agreement and the Sustainable Development Goals. However, countries and subnational regions that are dependent on coal will need support to implement a just transition that recognizes the needs of workers and communities, supported by long-term low-emission development strategies. The development of policy recommendations and road maps that identify steps, opportunities and challenges can support national coal phase-out processes.

[18] Tomoko Hasegawa and others, "Risk of increased food insecurity under stringent global climate change mitigation policy", *Nature Climate Change*, vol. 8 (August 2018), pp. 699–703.

[19] Nuno Santos and others, "The shortest path: accelerating investment towards Carbon-neutral agrifood systems" (Rome, FAO, 2021).

[20] The campaign engages government and other stakeholders to focus on climate mitigation and food security through improving soil carbon.

[21] *Coal Phase Out and Energy Transition Pathways for Asia and the Pacific* (ST/ESCAP/2936).

31. Urbanization continues to be rapid in the Asia-Pacific region, and by 2050 the rate of urbanization is projected to exceed 60 per cent and the urban population is expected to reach 3 billion. Urbanization processes in the region generally follow carbon intensive development pathways. Globally, cities account for 60–80 per cent of global urban energy consumption and approximately 75 per cent of energy-related greenhouse gas emissions.[22] Many climate pollutants are also major contributors to poor urban air quality in the region, necessitating a holistic approach to the planning and implementation of climate and clean air actions.

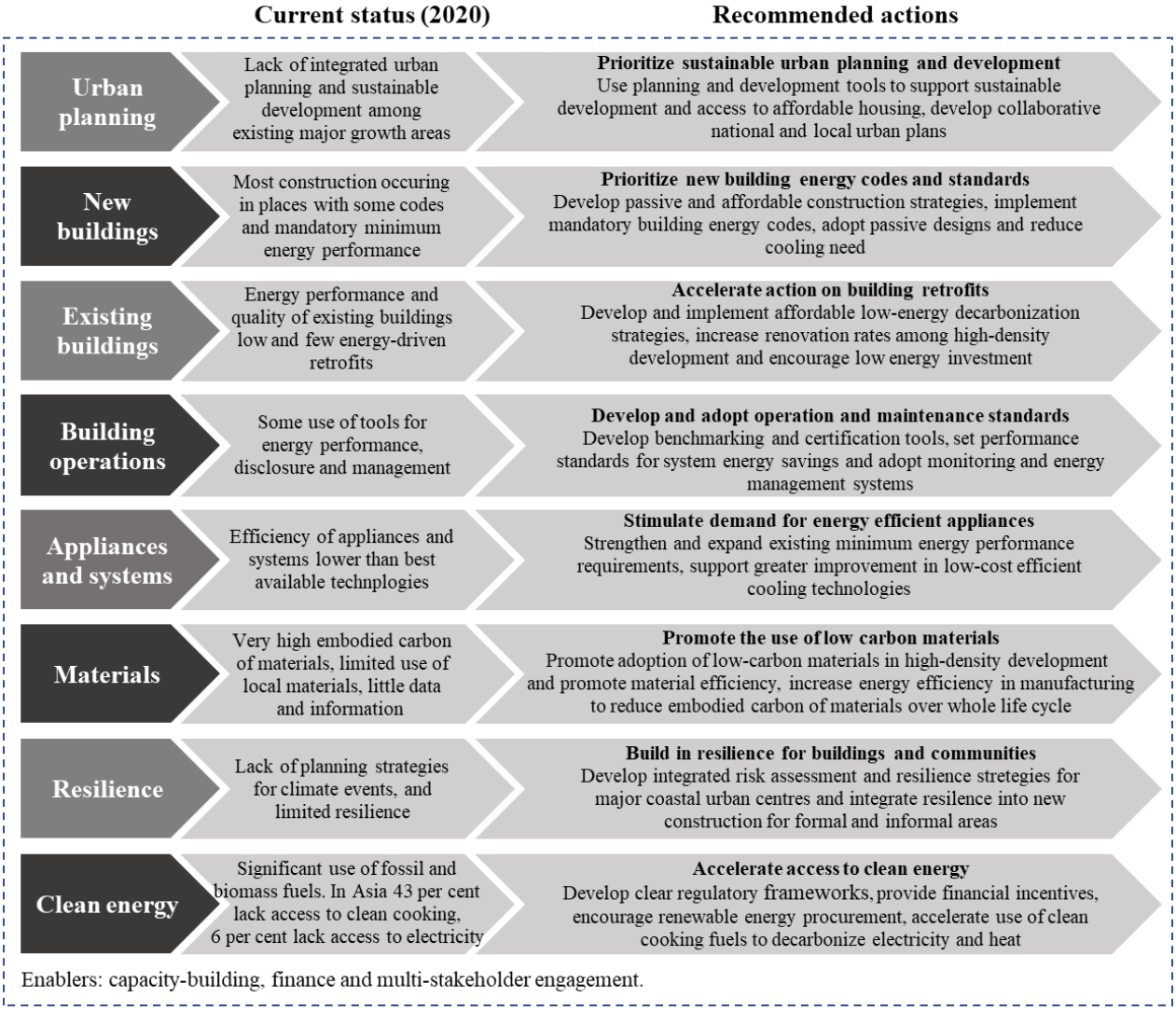
32. Transitions to low-carbon urban development are essential to achieve carbon neutrality. To address climate change, it is critical to address energy consumptions in buildings and construction. Energy consumption in buildings accounted for 27 per cent of total final energy consumption in ASEAN, China and India and 24 per cent total process and energy-related carbon dioxide emissions, or 3.2 gigatons of carbon dioxide equivalent.[23] The production of construction materials such as cement and steel also account for approximately 11 per cent of greenhouse gas emissions globally.[24] A regional 2050 road map to efficient, resilient and zero-emissions buildings has been developed by the Global Alliance for Buildings and Construction, the International Energy Agency and UNEP, and it contains a summary of key intervention areas (see figure VI).

[22] *World Urbanization Prospects: The 2018 Revision* (United Nations publication, 2019).

[23] International Energy Agency, *World Energy Outlook 2019* (Paris, 2019).

[24] International Energy Agency, *2019 Global Status Report for Buildings and Construction: Towards a Zero-Emissions, Efficient and Resilient Buildings and Construction Sector* (UNEP, 2019).

Figure VI
Key interventions of the regional 2050 road map for buildings and construction



Source: Global Alliance for Buildings and Construction, International Energy Agency and United Nations Environment Programme, *Global ABC Roadmap for Buildings and Construction 2020–2050* (United Nations publication, 2020).

33. As the trend of urbanization continues and the urban populations of the region remain vulnerable to the impacts of climate change, better integration of national and local climate actions and accelerated low-carbon and resilient urban solutions are necessary. Building capacities for urban and territorial planning and resilience strategies, deploying smart city solutions and enhancing urban finance are key thematic pillars to ensure sustainable cities.

34. The shift to sustainable transport has been slow but the uptake of electric vehicles is growing. Under current policies, it is estimated that passenger transport volume can grow 2.6 times and freight transport 2.9 times by 2050 from 2015 levels with a corresponding increase in carbon emissions by 16 per cent. However, ambitious decarbonization policies could reduce carbon emissions by almost 70 per cent.[25]

[25] Organisation for Economic Co-operation and Development, *ITF Transport Outlook 2021* (Paris, 2021).

35. Decarbonizing regional supply chains entails a combination of approaches that range from reducing carbon emissions through mode-specific policies to promoting the shift to more sustainable modes of transport, such as rail and waterborne transport, and achieving the optimal integration of transport modes in delivering intermodal transport and logistics solutions.

36. Since much of the growth in carbon emissions is expected in Asia, the importance of having proactive decarbonization policies can hardly be overemphasized. The member States of ESCAP have implemented variety of initiatives to decarbonize transport. Many of these measures pertain to road transport as it contributes disproportionately to carbon emissions.

37. At present, electric vehicles represent less than 5 per cent of the global vehicle fleet, and the transport sector is still very reliant on fossil fuels. A rapid uptake of electric vehicles is required to reduce vehicle emissions at the scale needed to meet climate goals. In this regard, several countries in the Asia-Pacific region are paving the way through proactive policies to transition to electric vehicles. Moreover, as part of efforts to achieve low-carbon mobility, smart transport systems, which mix technologies with transport systems, have attracted a lot of interest. Given that smart transport systems can contribute towards optimizing traffic conditions in an effective way, these systems can directly and indirectly mitigate greenhouse gas emissions.[26]

38. Many cities in Asia are planning and implementing extensive investments in mass transit networks. The transition within urban planning encourages transit-oriented urban design and supports urban growth that prioritizes compact urban spaces and mixed land use in combination with public transport infrastructure and walkability. While this transition is under way, the ADB estimates that $600 billion will be needed annually to pay for the development of transport infrastructure in cities in Asia from 2016–2030.[27]

39. The Climate-smart Trade and Investment Index[28] developed by ESCAP and carbon-border adjustment mechanisms show that Asia-Pacific economies have significant room to make their trade and investment more climate-smart. A growing number of countries include climate and environment-related provisions in trade agreements and require energy efficiency labelling and standards on imports. Digitalization of existing trade processes also helps to reduce carbon dioxide emissions per transaction and should be accelerated, including through the Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific.[29] Modelling of carbon pricing and carbon-border adjustment mechanisms shows significant trade and economic ramifications for the region, but the lowest hanging fruit is the removal of inefficient fossil fuel subsidies.

40. Recognizing that sustainable development requires actions by Government, businesses and society, the ESCAP Sustainable Business Network is crafting an Asia-Pacific green deal declaration to advocate business action and innovation in the transition to low carbon, sustainable and climate resilient pathways. Entrepreneurs, small and medium-sized enterprises and

[26] Asian Development Bank (ADB), *Sustaining Transit Investment in Asia's Cities: A Beneficiary-Funding and Land Value Capture Perspective* (Manila, 2019).

[27] Ibid.

[28] See chapter 2 of *Asia-Pacific Trade and Investment Report 2021: Accelerating Climate-smart Trade and Investment for Sustainable Development* (United Nations publication, 2021).

[29] Commission resolution 72/4, annex.

large industries in the region are encouraged to sign up to and adopt the green deal declaration, which would enable countries to meet their commitments for sustainable development.

41. The Seoul Initiative Network on Green Growth, which was established as a mechanism to support the implementation of the outcomes of the fifth Ministerial Conference on Environment and Development (Seoul, March 2005), promotes low-carbon, environmentally sustainable and inclusive development. The Seoul Initiative Network provides policy consultation forums and technical assistance through pilot projects that have actively supported capacity development and knowledge-sharing for policymakers to develop viable green growth road maps and strategies that contribute to greenhouse gas emissions reductions and low-carbon technology transfer, and promote the dissemination of knowledge and good practices on climate change.

V. Supporting ambition with the power of finance

42. Ambitious climate action requires a significant financing commitment from both the public and private sectors. To fill the financing gap, national financing strategies must align with climate outcomes, and traditional and innovative financing instruments must be leveraged alongside concessional and official development assistance financing.

43. A recent ESCAP analysis suggests that Asia-Pacific countries would need to spend an additional 3.2 per cent of gross domestic product per year on average to deliver a policy package that comprises investments to enhance energy access and efficiency, ensure climate-resilient infrastructure and preserve biodiversity. Implementing this green development package, together with abolishing fuel subsidies and introducing a carbon tax, would help to reduce carbon emissions in the region by approximately 30 per cent in the long run. Air quality is also estimated to improve notably.[30]

44. Innovative financing mechanisms that attract private capital, such as green bonds, blue bonds and sustainability bonds, have the ability to leverage significant capital towards climate adaptation and mitigation projects. Regulators can further incentivize the bond market through the provision of tax incentives. In addition to debt instruments, debt-for-climate adaptation swaps can mobilize financing towards climate initiatives and conservation, while tackling issues of debt distress in highly indebted countries.

45. In addition, putting a price on carbon and applying carbon pricing instruments can create liquidity to drive down emissions. Mandatory climate-related financial disclosure will also help investors to direct capital towards low-carbon solutions that help manage risks associated with climate-related problems.

46. Alongside the need for financing, there is a need to carefully consider several aspects of the enabling environment and institutional development needs. Moreover, financing climate action through ecosystem restoration and sustainable agricultural practices can be most effectively deployed when clear targets for landscape restoration are set.

[30] *Economic and Social Survey of Asia and the Pacific 2021: Towards Post-COVID-19 Resilient Economies* (United Nations publication, 2021).

47. However, for such transition to happen in an orderly manner, Governments and the private sector would need to be united in their approach to low-carbon development pathways.

VI. Issues for consideration by the Commission

48. Without concerted action, carbon neutrality is not within the reach of the Asia-Pacific region by 2050. All stakeholders need to collaborate and build a strong case for decisive climate action. Since it was founded 75 years ago, ESCAP has supported the formation of strategic alliances that have lifted millions out of poverty and guided the region towards a better standard of living. The time is right for an alliance of Governments, the private sector and financial institutions to help to turn the full power of ingenuity and dynamism in the region towards the low-emission development pathways that the future depends on.

49. Establishing a regional climate action alliance among government, business and civil society stakeholders would further stimulate integrated mitigation and adaptation initiatives that will support low-emission development pathways aligned with the target to limit global warming to 1.5°C.

50. The Commission may wish to review the findings and recommendations contained in the present document and provide the secretariat with further guidance.