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Special Body on Least Developed, Landlocked

Developing and Small Island Developing States

Summary of the *Asia-Pacific Countries with Special Needs Development Report 2023: Strengthening Regional Cooperation for Seamless and Sustainable Connectivity*

Note by the secretariat

Summary

Seamless and sustainable transport, energy and digital connectivity across borders is central to improving the lives of people in countries in special situations. It can therefore be seen as a catalyser of sustainable development. It is also important for accelerating climate action in and for these countries. For instance, improved multimodal transport connectivity can allow for the use of less energy-intensive modes of transport; greater energy connectivity can accelerate the cost-efficient deployment and integration of renewable energy; and improved digital connectivity can assist in gaining access to green and innovative climate adaptation solutions. The long-term benefits of seamless and sustainable connectivity will be especially significant for countries in special situations given the current and future impacts of climate change and the sustainable development dividends gained from having a low-carbon and climate-resilient world.

The present document contains an examination of how regional cooperation on seamless and sustainable connectivity can facilitate a long-term transformation towards a net-zero-carbon future. Recognizing ongoing efforts and existing initiatives and considering the large financing gaps in countries in special situations, the need to seek synergies between transport, energy and digital connectivity initiatives in the region is underscored.

The Economic and Social Commission for Asia and the Pacific may wish to consider the findings, possible solutions and recommendations contained in the present document and provide guidance to the secretariat in that regard. The guidance would shape the secretariat's future analytical work and inform its planning and formulation of technical cooperation and capacity-building assistance for countries in special situations.

The Commission may wish to reflect on the outcomes of the Fifth United Nations Conference on the Least Developed Countries and advise on the regional reviews of the implementation of the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014–2024 and the SIDS Accelerated Modalities of Action (SAMOA) Pathway, scheduled for 2023, ahead of the global reviews, to be held in 2024.

* ESCAP/79/1/Rev.2.

I. Introduction

1. Asia-Pacific countries in special situations are marked by inherent structural weaknesses, such as geographical remoteness from seaports or major sea routes, a lack of economies of scale, and high vulnerability to climate change, disasters and environmental degradation. As a result, they remain heavily underrepresented in the region's economic activities, while constituting more than half of the members and associate members of the Economic and Social Commission for Asia and the Pacific.

2. Seamless and sustainable connectivity can help to address the structural weaknesses of countries in special situations while also strengthening economic development and resilience and promoting climate action. For example, improved multimodal transport connectivity can lower trade costs, enhance the efficiency and competitiveness of doing business and, at the same time, allow the use of less energy-intensive modes of transport. The benefits will be particularly pronounced in landlocked developing countries and small island developing States in Asia and the Pacific, which are disadvantaged due to their isolation and remoteness from international markets and trade routes. Similarly, improved access to affordable digital connectivity can assist countries in special situations, especially those with a small population and relatively poor resource endowments, in harnessing economies of scale while enhancing access to innovative business and climate resilience and adaptation solutions. Economies of scale can also be achieved through greater energy connectivity, which will, in turn, increase energy security, accelerate the cost-efficient deployment and integration of renewable energy and facilitate the green energy transition. The long-term benefits of seamless and sustainable connectivity will be especially significant to countries in special situations given the current and future impacts of climate change and the sustainable development dividends gained from having a low-carbon and climate-resilient world.

3. The coronavirus disease (COVID-19) pandemic and the crisis in Ukraine have further heightened the importance of such connectivity. Additional cross-border controls and disruptions in, for instance, freight transit transport have led to increased delays and costs and significantly affected countries in special situations. Their challenges have been compounded by growing energy security concerns. These crises have also demonstrated the importance of digital connectivity due to its critical role in crisis response, remote working and learning, and the provision of health-care services, especially in countries with large rural populations and those with geographically dispersed populations, such as small island developing States.

4. With persisting connectivity shortages, a lack of institutional readiness to implement connectivity solutions at the country level and multiple connectivity disruptions, several regional cooperation initiatives have been launched to accelerate seamless and sustainable connectivity. These include the Regional Road Map on Power System Connectivity: Promoting Cross-border Electricity Connectivity for Sustainable Development, the Action Plan for Implementing the Asia-Pacific Information Superhighway Initiative, 2022–2026, and the Regional Action Programme for Sustainable Transport Development in Asia and the Pacific (2022–2026). In addition, members and associate members in Asia and the Pacific continue to make efforts to enhance their transport, energy and digital connectivity with an increasing focus on reducing related environmental costs to address climate change.

5. Considering the large and persistent financing gaps in countries in special situations and the limited time left to achieve the Sustainable Development Goals, synergies must be sought between regional cooperation initiatives, and the urgency of climate change response must be placed at the core of such efforts. For example, digitalization efforts through the Asia-Pacific Information Superhighway initiative can reduce the overall costs of information and communications technology (ICT) infrastructure development through the co-deployment of ICT and transport infrastructure or other best practices. Transport networks and energy corridors can be leveraged to help global, regional and subregional decarbonization efforts, as the energy and transport sectors together account for more than two thirds of total carbon dioxide emissions.

6. At the same time, national-level actions need to be synchronized with and benefit from regional cooperation measures and initiatives. In this regard, there is an urgent need to develop coherent and mutually reinforcing development strategies and policies for national connectivity, in which the three broad sectors – transport, energy and ICT – are integrated. Policy and institutional reforms are needed to streamline the roles and responsibilities of multiple national agencies working on connectivity. Parallel to that, in taking every opportunity for digitizing the construction and operations of connectivity infrastructure and the delivery of associated downstream services, States must pay heed to decarbonizing transport operations and increasing renewable energy generation.

7. *Asia-Pacific Countries with Special Needs Development Report 2023: Strengthening Regional Cooperation for Seamless and Sustainable Connectivity* focuses on the role of transport, energy and digital connectivity as a catalyser of sustainable development in countries in special situations. It provides examples of how regional cooperation on seamless and sustainable connectivity can facilitate a long-term transformation towards a net-zero-carbon future. This is especially important given that the halfway mark in the implementation of the 2030 Agenda for Sustainable Development has been reached.

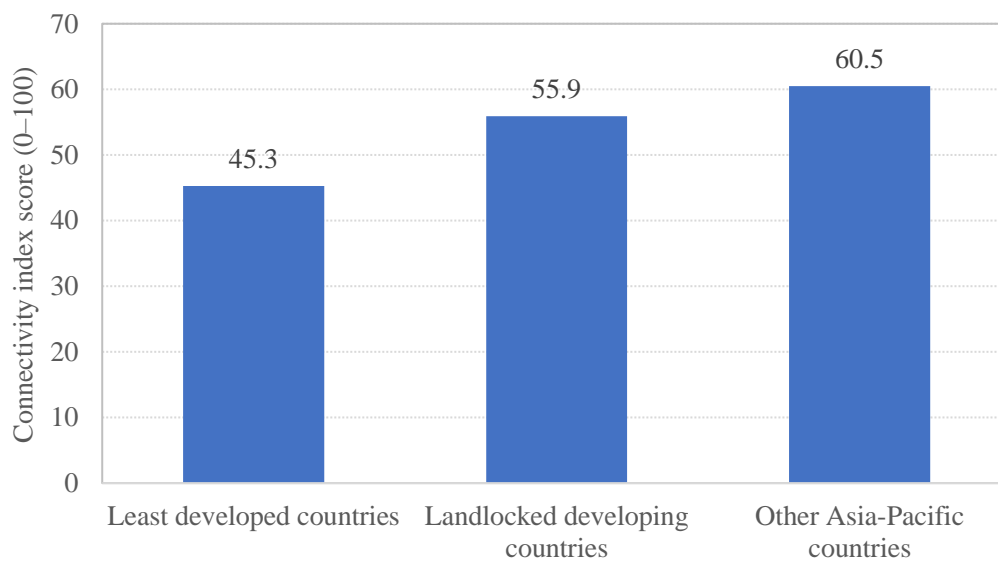
II. Promoting seamless and sustainable connectivity: challenges, opportunities and policy priorities

A. Transport connectivity

8. Seamless transport connectivity in the region cannot be achieved without bridging long-standing connectivity gaps to and within countries in special situations. These countries have the lowest levels of transport connectivity across the region, and some of them are among the least connected countries in the world. For example, a connectivity index developed by the International Transport Forum exposes the persisting connectivity gaps between least developed and landlocked developing countries and the rest of the region (see figure I).¹ The same situation prevails for small island developing States, three of which are also least developed countries, in maritime connectivity compared to other countries in the region (see figure II).

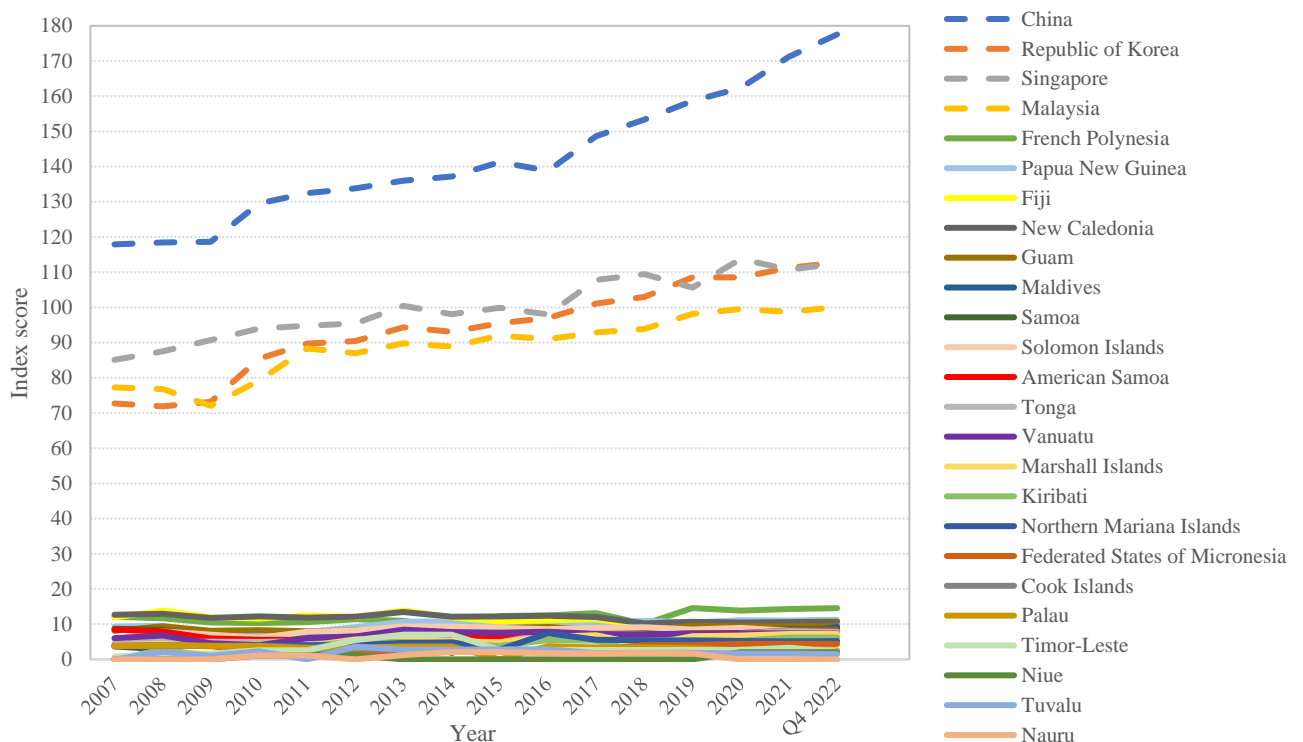
¹ International Transport Forum, “Enhancing connectivity and freight in Central Asia”, International Transport Forum Policy Papers, No. 71 (Paris, Organisation for Economic Co-operation and Development (OECD) Publishing, 2019), pp. 44–65.

Figure I
Transport connectivity levels in least developed countries, landlocked developing countries and other countries in Asia and the Pacific, 2021
 (Group average score on a global connectivity index, 0–100)



Source: Economic and Social Commission for Asia and the Pacific, based on International Transport Forum calculations using the most recent data available.

Figure II
Maritime connectivity levels in selected members and associate members in Asia and the Pacific
 (Measured by the Liner Shipping Connectivity Index)



Source: Review of Maritime Transport 2021 (United Nations publication, 2021).

Note: Solid lines are for small island developing States, as well as the Cook Islands and French Polynesia, and broken lines are for other selected States in the region.

9. Transport connectivity is critical to reducing dependency on exporting primary goods and to developing higher value-added manufacturing for many of the region's least developed and landlocked developing countries. Improved transit conditions and direct access to port facilities can make their domestic industries more viable and their exports more competitive. However, the lack of seamless and efficient transit transport connectivity largely explains their modest participation in cross-regional or subregional trade beyond one or two large markets or countries along their borders.

10. Systemic factors limiting the improvement of transport connectivity in most countries in special situations include an unbalanced modal split in transport operations, with road transport taking a dominant position in domestic and international freight transport operations; a persistent shortage of quality infrastructure manifesting in missing links and poor quality roads and rail transport infrastructure; operational and procedural connectivity gaps resulting from a lack of harmonization, facilitation and digitization of international transport procedures; and a largely unrealized transit potential. A lack of cooperation on interoperability and regular transport links and corridors between subregions is another barrier to seamless connectivity.

11. In the region's small island developing States, physical remoteness, small population size, a narrow economic base, high vulnerability to external shocks and reliance on imports of most goods have frequently resulted in high transport costs, low trade volumes with a large import-export imbalance, the use of small and multipurpose vessels, widely varying quality of port facilities and natural monopolies in most port services. The limited supply of transport services offered in these States also contributes to higher transport costs than distances would justify.

12. The COVID-19 pandemic, the crisis in Ukraine and the climate change crisis have compounded challenges in countries in special situations. During the pandemic, uncoordinated policy responses increased costs and delays in freight transport connectivity. In early 2021, shipping costs rose dramatically for freight volumes between Asia and Europe, while the prices of rail freight services remained unchanged. This affected small island developing States in particular. Shipping times also increased, causing major disruptions to trade between Asia, Europe and the Middle East.

13. The crisis in Ukraine has further affected trade and transport, especially in landlocked developing countries in North and Central Asia. Restrictions on the use of land and airspace shifted the transport of goods between Asia and Europe to alternative routes, such as the trans-Caspian international transport route, known as the "Middle Corridor", which is a land and sea freight route between Europe and China. The use of alternative routes could unlock the potential of landlocked developing countries to boost their commodity exports, such as oil, metals, fertilizers and agricultural products.

14. Climate change is a significant challenge to transport connectivity in countries in special situations, underscoring the urgent need to move to a low-carbon future. Maritime connectivity in small island developing States has come under intense threat due to frequent adverse climatic events, as climate-induced disasters cause damage to port infrastructure, increase maintenance costs, impede port operations and create more dangerous working conditions. Coastal erosion caused by sea level rise and increased sedimentation levels in harbours negatively affect shipping channels. Cyclones, which are occurring more frequently, have put ports at great risk. The region's least developed and landlocked developing countries, where the quality of land transport infrastructure is still suboptimal, are also highly vulnerable to climate change,

as it affects vital transport networks. For instance, consistent exposure to rising temperatures leads to the gradual deterioration of paved road surfaces, bridge joints and rail tracks, while flash floods and landslides can cause sudden destruction that affects all modes of transport.

15. Integrating climate resilience into transport infrastructure planning and asset creation is an urgent task. In many least developed countries and small island developing States in the region, the integration process has been hampered by capacity constraints, resource gaps and inadequate access to technology. A study by the Economic and Social Commission for Asia and the Pacific on developing climate-resilient transport infrastructure highlights the need for a multi-step approach, including the assessment of sectoral climate vulnerabilities, the identification of priority transport assets at high risk, investments for improving resilience and technical cooperation at the regional level.²

16. Improvements to transport connectivity in countries in special situations must go hand in hand with addressing climate risks and impacts. While a sharp rise in greenhouse gas emissions has been projected under a business-as-usual scenario, implementing ambitious decarbonization policies could lead to tremendous changes in the transport sector.³

17. The three crises have created opportunities for developing a more sustainable freight sector and strengthening cooperation with countries in special situations and among Asia-Pacific subregions. Examples of such opportunities include the development of alternative connections and economic corridors to increase the resilience of existing transport and trade links; a boost to exports due to changes in the structure of traded goods; the development of alternative international transport corridors, particularly for North and Central Asian landlocked developing countries; new transport and trade links based on the needs of countries in special situations as opposed to historical ties; and the promotion of multimodal solutions.

18. In the wake of the pandemic, many least developed and landlocked developing countries have adopted measures to digitize transport operations, including to simplify customs procedures and cargo clearance processes to gain access to emergency medical and other essential supplies quickly. The continued process and further unlocking of facilitation and digitization advances could expedite the creation of seamless and sustainable transport connectivity in these countries. However, small island developing States have continued to lag behind due to the low share of digitized information and operation systems. Improvements in cross-border procedures, greater interoperability and digitization have enormous potential to reduce transport costs further and increase trade volumes in countries in special situations.

² Olga Chepelianskaia and Madhurima Sarkar-Swaisgood, “A climate resilient transport sector in the Kazakhstan Action Plan and Policy Recommendations Framework”, Information and Communications Technology and Disaster Risk Reduction Division, Economic and Social Commission for Asia and the Pacific (ESCAP) Working Paper Series (Bangkok, ESCAP, 2022).

³ International Transport Forum, “ITF South and Southwest Asia transport outlook”, International Transport Forum Policy Papers, No. 104 (Paris, OECD Publishing, 2022); and International Transport Forum, “ITF North and Central Asia transport outlook”, International Transport Forum Policy Papers, No. 105 (Paris, OECD Publishing, 2022).

19. By promoting transport connectivity, national authorities could review their strategies to strengthen international transport corridor development. They could emphasize corridor management competency, particularly institutional, technical and digital competency, to enhance seamless data interchange and electronic interoperability along transport corridors. A coordinated tariff policy could be introduced to improve efficiency at border crossings. Countries could also strengthen coordination between national agencies to forge greater linkages among multimodal transport solutions.

B. Energy connectivity

20. Energy connectivity can enable sustainable development and assist States in addressing the impact of climate change. Greater connectivity can support economic growth, widen access to modern energy resources and increase the use of renewable energy through cross-border energy trade. Renewable energy resources in the region, such as solar power, wind power and hydropower, have become the most cost-effective options for generating electricity in the region. Greater international energy connectivity could also reduce the costs of energy transition by diversifying countries' energy resource portfolios and balancing out differing peak demand rates between countries.

21. Despite these clear potential benefits, Asia-Pacific countries in special situations face several constraints to developing electric power systems and forging greater energy connectivity. Key challenges are the complex and multifaceted sociotechnical systems of electric power systems; the technical and economic challenges associated with geographical locations; deficiencies in national power grid management; a lack of proper planning and coordination between different agencies; and complex regulatory and other administrative bottlenecks that limit private sector investment.

22. Several initiatives to improve power connectivity are already under way to address these challenges and exploit the region's energy potential. Most of the region's least developed and landlocked developing countries are part of power system connectivity initiatives. Yet, overall progress has been modest, as most initiatives do not move from the study stage to implementation.

23. The harmonization of operational procedures is key to alleviating political, economic and national security concerns when linking power systems across an international border. One way to harmonize operational procedures is to adopt grid codes and technical standards that are compatible across borders and directly support the integration of variable renewable energy resources.

24. The harmonization of planning procedures offers another challenge to linking power systems across international borders and adapting to a new mix of power generation and transmission capacity. Countries follow different approaches to transform their energy systems, depending on their institutional and political contexts. One efficient approach would be to use integrated, model-based software that provides optimal means of assessing the total costs of energy systems. This could create the basis for long-term, synergistic and multilateral collaboration.

25. To exploit the benefits of energy connectivity, it is necessary to evolve from using inflexible bilateral power purchase agreements to establishing trading that is responsive to a grid's operating conditions. Flexible trading can only occur when a harmonized regulatory framework is in place at the subregional level. This, however, requires cooperation among national regulators.

26. There is also considerable scope for facilitating investment in cross-border power infrastructure and grids by harmonizing financial procedures. Indeed, the level of renewable energy investments required to achieve net-zero emissions by 2050 is only possible if investments in electric power transmission and distribution are increased.

27. In countries in special situations, most grids are financed by publicly funded entities, which often precludes State investments outside of grid infrastructure. Overcoming obstacles to increasing the power supply can be alleviated by encouraging private sector participation in electric power networks, as has been done in Australia, India and the Philippines. Despite these investments, much work remains in advancing financial models that reflect the time-varying, grid-balancing, multilateral and potentially bidirectional nature of cross-border trading in electric power.

28. There is also a significant opportunity to improve institutional capacity to harmonize operating, planning, regulatory and financial procedures. Yet, sociotechnical harmonization and reform require a considerable level of professional competence at the individual level. Participation in international professional societies such as the Institute of Electrical and Electronics Engineers, Inc., and the International Council on Large Electric Systems could help to build that capacity.

29. The small island developing States in Asia and the Pacific might not be able to pursue cross-border power trade through grid interconnections. Collaboration and regulatory harmonization are nevertheless still important to increase transparency and lower the costs of investment by allowing joint supply chains to service these States.

30. At the national level, regulators need to ensure that regional power system connectivity benefits consumers. To fulfil that role, they must be authorized to act and to have sufficient technical, financial and human resources to be able to collaborate internationally, and there must be a clearly defined national versus regional regulatory development process in place.

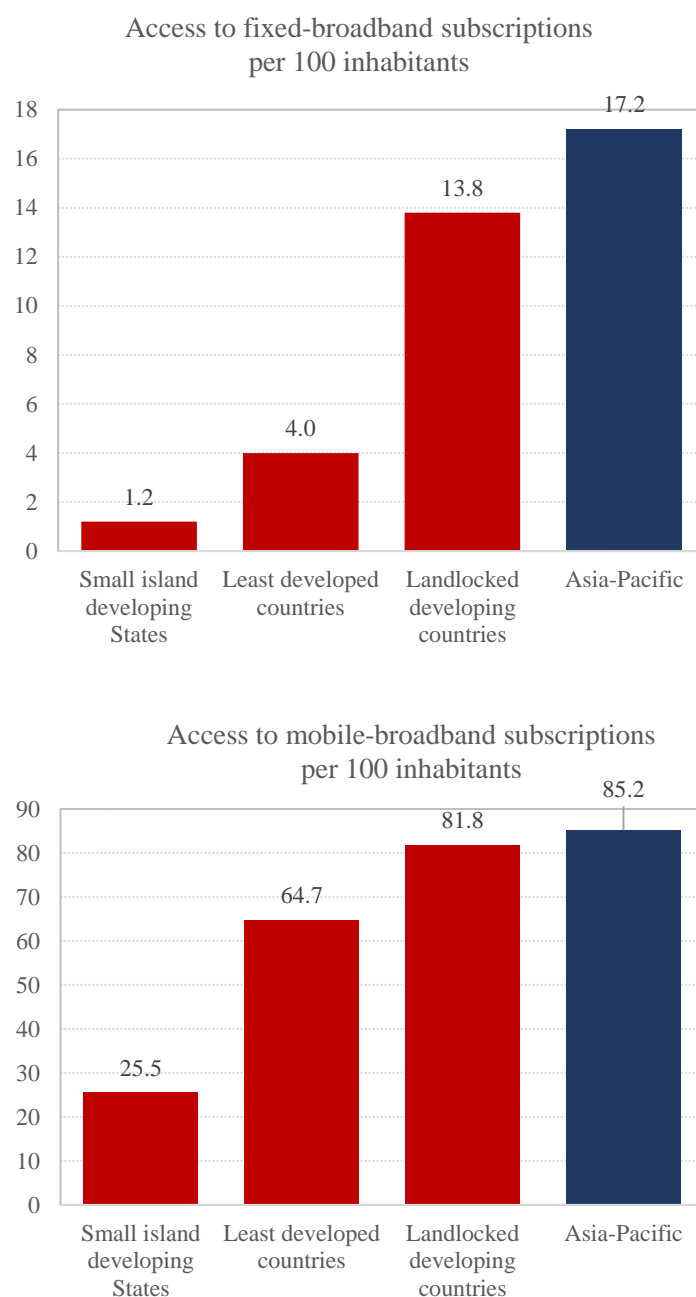
31. In further promoting energy connectivity, national-level actions are necessary to reduce energy costs and diversify energy sources. In that regard, integrated national measures are needed to exploit the opportunities in renewable energy resources by removing regulatory barriers and encouraging greater private sector participation. National-level action is also required to improve access to regional and subregional energy sources, reducing the need for additional domestic electricity generation capacity and facilitating the transition to clean energy in importing countries. National and regional efforts are also critical to increase investment in human and institutional capacity-building to harmonize operational, planning, regulatory and financial procedures. Collaboration between national regulators is required to make these harmonization efforts successful.

C. Information and communications technology connectivity

32. Access to the Internet is key to achieving the Sustainable Development Goals and a better future for all. Yet, the Asia-Pacific region offers a mixed picture regarding access to fixed- and mobile-broadband Internet (see figure III), which shows that access rates in countries in special situations are below the regional average, with small island developing States lagging the furthest behind. This digital divide has constrained countries in special situations from fully exploiting the new socioeconomic opportunities offered by the latest innovative digital technologies.

33. The geographical features of countries in special situations pose significant challenges in promoting digital connectivity. In least developed countries, dispersed rural communities across a large geographical area hinder costlier ICT infrastructure deployment. This contributes to the large gap in the use of mobile services between urban and rural areas. In landlocked developing countries where population densities are low and the terrain is mountainous, laying fibre-optic cables can be economically unviable, while, in small island developing States, broadband access remains especially low, expensive and unreliable due to geographically remote and dispersed populations, a lack of resources and high susceptibility to natural disasters.

Figure III
Access to fixed- and mobile-broadband subscriptions per 100 inhabitants in Asia and the Pacific, 2021
 (Population-weighted group average)



Source: International Telecommunication Union, World Telecommunication/ICT Indicators database, 26th ed. Available at www.itu.int/pub/D-IND-WTID.OL-2022 (accessed on 20 October 2022).

Notes: Data are for 2021 or the latest year available. Red bars indicate countries in special situations in Asia and the Pacific, while blue bars indicate the average for the region.

34. In countries in special situations, mobile broadband is typically three times as expensive as the regional average, and fixed-broadband data remain particularly expensive. The low affordability of broadband Internet is partly caused by underdeveloped digital infrastructure, while another key challenge is the fact that limited competition in telecommunications markets leads to fewer digital innovations and less adoption. However, access to broadband services is more affordable in several landlocked developing countries in North and Central Asia, partly due to publicly funded programmes such as “Digital Kazakhstan”, a digital infrastructure programme that is focused on connecting people living in rural areas.

35. The lack of viable private investment policies and frameworks in countries in special situations has resulted in the market dominance of State enterprises, which keeps the cost of digital services high and inhibits the long-term development of ICT connectivity. Low digital literacy levels pose another challenge in expanding ICT connectivity, particularly in remote areas and among vulnerable groups.

36. To close these gaps and advance affordable and resilient ICT connectivity, the geographical diversity of Internet traffic routes, with a combination of multiple modalities, including fixed, mobile and space-based connectivity, are key to reducing the risk of disastrous disruptions to Internet networks. The geographical diversity of Internet traffic routes is vital to reducing the risk of a disaster disrupting the network, while having multiple modalities can ensure continued services in case one or more systems fail.

37. Several options are available to countries in special situations to enhance Internet-resilient connectivity. For example, scientific monitoring and reliable telecommunications submarine cables carry Internet traffic and monitor climate and natural disasters using sensors in the cables’ repeaters. They can be used to create a sustained global network of submarine cables to support climate and ocean observation, sea level monitoring, and tsunami and earthquake early warning systems. Several countries and territories in special situations, notably Vanuatu and New Caledonia, are currently considering adopting this type of submarine cable.

38. Low Earth orbital satellite technologies offer another option to create more affordable and resilient Internet connectivity. Several global technology companies provide such satellite services, which have wider coverage, lower latency and lower installation costs than stationary satellites. Importantly, such systems have a proven record of providing reliable post-disaster Internet connectivity.

39. There are opportunities to maximize synergies between transport, energy and ICT connectivity. One key area is the co-deployment of fibre-optic cables and critical infrastructure. Installing cables along highways or roads allows telecommunications operators to expand the backbone network and gives transport operators direct access to the high-speed broadband they require to manage their systems. For instance, the co-deployment of fibre-optic cables and critical infrastructure in Myanmar has reduced the cost of broadband infrastructure by more than half compared to separate telecommunications and transport infrastructure. The installation of fibre-optic cables along power lines provides another opportunity to reduce costs and improve maintenance. In 2003, for instance, Bhutan Telecom Limited and Bhutan Power Corporation co-deployed the first fibre-optic cable systems in the country over power transmission lines and, since then, have connected all districts in the country with optical ground cables.

40. To promote digital connectivity, national action is required to finance innovative investments and find effective ways of delivering infrastructure projects on time. Potential pathways include co-deploying fibre-optic cables along roads and highways to reduce costs, leveraging innovative public-private partnerships for co-financing large ICT infrastructure projects, adopting scientific monitoring and reliable telecommunications fibre-optic cables to enhance climate and natural disaster resilience, and improving the redundancy of Internet connectivity through low Earth orbit satellite technologies. Furthermore, Governments and other stakeholders need to collaborate and strengthen efficient and cost-effective Internet network management through the establishment of Internet exchange points.

41. National-level action on ICT policies and frameworks is critical to promote national broadband plans and build digital capacity and literacy in digital technologies and applications. Broadband diffusion and digital technological innovations carry enormous opportunities, but those opportunities cannot be harvested when peoples' digital skills do not match the pace of the diffusion. The safe management and use of resilient digital data infrastructure are essential preconditions for a safe and inclusive digital society.

III. Areas for regional cooperation

42. National-level action and regional cooperation frameworks need to go hand in hand to build seamless and sustainable connectivity. Recommendations emanating from regional cooperation frameworks and agreements need to be followed by action at the national level to be effective. At the same time, most national-level action for promoting transport, energy and ICT connectivity cannot be implemented without robust and effective regional cooperation measures and support from the international community.

43. To strengthen regional cooperation for seamless and sustainable connectivity, various intergovernmental regional cooperation measures, initiatives and frameworks need to be implemented expeditiously to resolve operational difficulties and improve the quality of connectivity. Several areas for regional cooperation are discussed in *Asia-Pacific Countries with Special Needs Development Report 2023: Strengthening Regional Cooperation for Seamless and Sustainable Connectivity* and can be categorized into the four broad areas listed below.

A. Prioritizing transport corridor development that also promotes decarbonization and resilience

44. The wider developmental impacts of multimodal transport corridors have been gaining greater attention in recent years and are now imperative in infrastructure development, upgrading and operation. Among the various modes of transport, rail transport has great potential in this regard, especially for the region's least developed and landlocked developing countries that lie along the non-traditional transport corridor between China and Europe. Multimodal transport corridors that include rail transport can provide competitive long-distance connections if delays at borders are reduced and technical and digital cross-border interoperability is ensured. They can also contribute to the decarbonization of regional supply chains, given the lower emissions generated by the use of rail transport.

45. In small island developing States, pledges such as the Clydebank Declaration for Green Shipping Corridors, which is aimed at establishing green shipping corridors and was launched during the twenty-sixth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, could boost maritime connectivity, as they can facilitate resilient and sustainable port development. Green shipping corridors are shipping routes on which vessels use low-emission and zero-emission fuels and employ the latest technology in order to cut greenhouse gas emissions to zero by 2050.

B. Facilitating access to and the use of new technologies and information and communications technology smart solutions for climate and disaster monitoring and recovery

46. Using new technologies, geospatial data and smart solutions can strengthen the resilience of countries in special situations, as they can enhance countries' capacities for climate and disaster monitoring and recovery. Promising options for these countries include adopting scientific monitoring and reliable telecommunications fibre-optic cables; improving Internet redundancy through low Earth orbit satellite technologies, especially during and after natural disasters; and promoting affordable, efficient and quality Internet connectivity through Internet exchange points. Funding and technical assistance that enable access to these new technologies is of paramount importance. Similarly, port digitalization can enable resilient and sustainable maritime connectivity for small island developing States.

C. Harmonizing operational, planning, regulatory and financial procedures to enhance energy and transport connectivity

47. There is an urgent need to strengthen regional cooperation to ensure the interoperability of connectivity projects. Infrastructure and technical procedures along international transport corridors need to be harmonized to reduce costs and promote the seamless cross-border movement of goods, transport vehicles and people. In that regard, there is an urgent need to introduce electronic interoperability – where the use of compatible digital and electronic exchange solutions and the seamless flow of electronic information among different information systems are ensured – in international transport operations, which requires strong regional and international cooperation.

48. To advance energy connectivity, it is necessary to develop a common vision for the regional or subregional power grid and an institutional mechanism to implement cross-border multilateral trading arrangements. Furthermore, energy connectivity efforts for countries in special situations must move from the study stage to the implementation stage by creating credible development plans and road maps that would ensure the development of harmonized regulations and procedures.

D. Benefiting from synergies across transport, energy and information and communications technology connectivity through co-deployment and management

49. Connectivity must be placed within the larger context of cross-cutting issues common to transport, energy and ICT connectivity. Advances in the transport and ICT sectors, for example, have profound implications for the energy sector, including the ICT-enabled integration of more variable renewable energy and demand-side resources and an increasing demand for electricity resulting from the electrification of transport. The key to unlocking

the potential of each of these sectors is a more integrated approach to transport, energy and ICT planning.

50. Within the region, the potential benefits of the convergence of electric power and ICT infrastructure are especially relevant in small island developing States in the context of developing local renewable energy resources. Realizing high rates of variable renewable energy penetration requires ICT-enabled real-time measurement, operation and control systems. The integration of distributed energy resources is enabling decentralized and highly connected power systems with extensive data exchange and digital solutions.

51. Innovations in transport also have great potential to accelerate power system connectivity. Transport access is a prerequisite for an expanded electric power system, as the setting of new electric power transmission and distribution lines is often directly tied to road networks. The electrification of transport is the single largest driver of electric power demand growth. Adopting electric vehicles and micro-mobility solutions would lead to a surge in demand for home energy. The expansion of transport and energy infrastructures in the future is likely to move in lockstep. However, the coordinated design, planning and operation of transport and electric power system networks remain a largely untapped opportunity.

IV. Issues for consideration by the Commission

52. A more detailed examination of the challenges, opportunities and recommendations mentioned above is provided in *Asia-Pacific Countries with Special Needs Development Report 2023: Strengthening Regional Cooperation for Seamless and Sustainable Connectivity*, which will be released and made available on the Commission's website prior to the seventy-ninth session of the Commission.

53. The Commission may wish to deliberate on the policy priorities and cooperation needs highlighted in the present document and provide the secretariat with guidance on which of these should be explored to a greater extent. The guidance would shape the future analytical work of the secretariat and inform its planning and formulation of technical cooperation and capacity-building assistance for least developed countries, landlocked developing countries and small island developing States.
