

Asia-Pacific Regional Forum on Connecting to Global Supply Chains through Inter- Regional Land Corridors and Maritime Routes

Background paper¹

Introduction

The Regional Action Programme for Sustainable Transport Development in Asia and the Pacific (2022–2026) positioned maritime and interregional transport connectivity as one of its seven priority areas. Advances in this area are expected to contribute towards the Programme’s overarching objectives to progress towards efficient and resilient transport and logistics networks and mobility for economic growth, environmentally sustainable transport systems and services and safe and inclusive transport and mobility.

To that end, this thematic area focuses on key mechanisms for connecting the region to global supply chains, including regional and multi-stakeholder cooperation, relevant data analysis and normative and technical assistance tools to address: (a) strengthening port-hinterland transport connections and strategically locating multimodal transport and logistics facilities to capitalize on the competitive strength of each mode in interregional transport, with special emphasis on strengthening the capacities of countries with special needs; (b) enhancing efficient multimodal operations; (c) supporting a shift to sustainable and resilient port development; (d) contributing to sustainable shipping and port operations practices, including reducing emissions and pollutants from shipping and port operations and developing green port infrastructure; and (e) connectivity challenges faced by small island developing States.

In this context and bearing in mind the prevailing travel restrictions in Asia and the Pacific, policy discussions on interregional land transport and on maritime connectivity are held as part of a Regional Forum on Connecting to Global Supply Chains through Inter-Regional Land Corridors and Maritime Routes (22-23 June 2022). An emphasis in both thematic segments is put on promoting more resilient and environmentally sustainable connectivity initiatives and best practices.

The present paper provides initial background for the Forum’s deliberations. It starts with describing the overall context of the discussions, i.e. the need to enhance transport connectivity during and after the COVID-19 Pandemic (Section I), and revisits the key aspects of the current work of ESCAP on inter-regional connectivity (Section II) and sustainable maritime connectivity (Section III). The paper then puts forward a set of general considerations and policy recommendations to serve as a basis of the Forum’s conclusions (Section IV). The final conclusions of the Forum will be submitted to the Seventh Session of the Committee on Transport (25-27 November 2022) and pave the way towards the next

¹ First draft, 15.07.2022.

editions of both Fora in support of the implementation of the Regional Action Programme.

I. Connecting to Global Supply Chains in the times of major disruptions and the urgency of the climate change response

Despite the increasing concentration of population, production and consumptions in Asia and the Pacific, the efficiency and resilience of the land and maritime transport corridors linking the region to the rest of the world remain key for ensuring the region's competitive positioning in the global economy. The recent pandemic has provided several key insights on the supply chains connectivity and the role of transport in this respect.

First, the region's response to the disruptions caused by the COVID-19 Pandemic confirmed the priority given by the region to preserving and enhancing transport connectivity and positioned the resilience concerns front and centre in the regional cooperation on transport connectivity.

The data collected by the secretariat during the initial states of the pandemic showed that the regional infrastructure and operational conditions for freight operations remained largely operational. For instance, member countries of the Asian Highway network have maintained all or a significant part of their land borders open for freight. Two thirds of member countries have implemented special trade and transport facilitation measures, helping to ensure smoother movement of essential goods and, in many cases, of general freight. Freight transport has proceeded with limited interruptions along the Trans-Asian Railway network, making rail transport an even more vital link in international trade, especially for the movement of essential goods and medical supplies. Likewise, ports have remained operational for freight, supporting the bulk of global trade and preventing the total dismantling of global supply chains.²

At the same time, the economic and social challenges by Covid-19 caused disruptions in freight transport and, very importantly, in many cases, led to increased delays and costs of international transport operations. The best example of this is the unprecedented rise in the shipping freight rates which reached their historical highs by end-2020 and early in 2021. While the shortage was precipitated by the disruptions resulting from the pandemic, trade imbalances and changing trade patterns, it is also a reflection of a slowdown in and delays across the maritime and global supply chain due to strains caused by the pandemic, such as port labour shortages, port congestions and delays caused by necessary testing or delays by factories in returning containers.³

In this context, the resilience alongside of the efficiency of transport and logistics network gained a greater recognition in Asia and the Pacific. This is illustrated by the fact that the new Regional Action Programme for Sustainable Transport Development (2022-2026), adopted by the Fourth Ministerial Conference on Transport in December 2021, establishes the progress towards efficient and resilient transport and logistics networks and mobility for economic growth as one of its three overarching objectives.

The resilience concerns are particularly strong in case of the countries in special situation, whose connectivity shortages are usually amplified during major disruptions. During the pandemic, the persisting infrastructure shortages, road-centric transport systems, low level of digitalization and limited facilitation of cross-border transport operations further amplified by additional cross-border controls and checks introduced to deal with COVID-19 in landlocked developing States and their main trading and transit partners. Likewise, the economic fallout from the pandemic impacted the small island developing states in the Pacific, where decreased exports of primary goods due to reduced demand from major importing countries and decreased demand of imports due to the economic downturn in Pacific islands countries further weakened the services of shipping companies.

Second, while the momentum for greater consideration of resilience came from the pandemic context, the parallel, linkages and synergies between enhancing connectivity and climate change response have

² ESCAP/CTR/2020/2.

³ United Nations Conference on Trade and Development UNCTAD), "Container Shipping in Times of Covid-19: Why Freight Rates Have Surged, and Implications for Policymakers," Briefing Note No. 84, April 2021.

become quickly apparent and scaled up the consideration of the pressing need to decarbonize the global supply chains.

From the outset of the pandemic, the transport-related response to the outbreak had a very strong environmental component. Dramatic drop of the nitrogen dioxide (NO₂) and carbon dioxide (CO₂) emissions in China and around the world demonstrated how much drastically reducing transport and industrial activity can impact emissions and how the sector is still very much dependent upon the use of fossil fuels.⁴ Moreover, in several instances, the impact of the pandemic was amplified by the concurrent climatic events. The best example is the tropical cyclone Harold that affected Vanuatu, Fiji and Tonga in April 2020 at the time of the total lockdown of Lautoka City including the Lautoka Port for more than two weeks. As Lautoka is a key transshipment port, this affected cargo destined to other Pacific Islands, resulting in one of the island nations not receiving a ship call for a period of almost three months causing shortages in the supply of goods.⁵

To help member States consider their policy options in this area, an analysis of the freight and passenger outlooks for selected Asian sub-regions was carried by the secretariat in 2021-2022 in cooperation with the International Transport Forum.⁶ The analysis showed a tremendous potential for transport decarbonization as part of the pandemic recovery efforts. Under the most ambitious policy scenario, despite the significant rise of freight volumes by 2050, the emissions from the non-urban freight sector are projected decline by 47 to 50 per cent (as compared by 2015 levels) in South and Southwest Asia, Southeast Asia and North and Central Asia. This policy scenario assumes that governments seize decarbonisation opportunities created by the pandemic and that any reductions in demand observed during the pandemic broadly continue, with a more ambitious policy package also being implemented.

The demand for carbon reduction in the global logistics chain is increasing at all levels, from the international community to policy makers, consumers and end users. There are also examples now of the regional initiatives on the COVID-19 recovery policies in transport, such as the COVID-19 Recovery Guidelines for Resilient and Sustainable International Road Freight Transport Connectivity in the Association of Southeast Asian Nations (ASEAN), which have positioned resilience and decarbonization as one of the three priorities of their COVID-19 response and recovery policies.⁷

In the shipping industry, it is expected that carbon-based manufacturing and supply chains will gradually decline as carbon neutrality (Net Zero) becomes the global standard for the economy and industry.⁸ Although not all of the companies involved in the global supply chain are part of the carbon neutral (net zero) policy yet, at least global shipping companies are required to participate in the decarbonization policy to reach the goal of reducing the total annual GHG emissions from international shipping by at least 50 per cent by 2050 based on the 2008 emission levels.⁹ The global shipping industry launched the "Getting to Zero Coalition" to cut emissions by at least 50 per cent by 2050 and make the transition to full decarbonization possible. At the same time, many developing countries are still experiencing the implementation difficulties due to lack of investment resources, technological gap, and lack of suitable domestic legal system.

Thirdly, the pandemic experience reaffirmed the close interlinkages of all the pieces of the international and regional transport system supporting the global supply chains, making the case for seamless transport connectivity even stronger.

Even during normal times, it is the integrated transport and logistics system of "land-sea-land" that supports the fragmented value-adding processes of international supply chains, by enabling the

⁴ ESCAP, "The Impact and Policy Responses for COVID-19 in Asia and the Pacific", March 2020.

⁵ <https://www.unescap.org/sites/default/d8files/knowledge-products/ShippingPolicyBrief-16Oct2020-FINAL.pdf>

⁶ This work was carried out as part of the implementation of the United Nations Development Account projects on "Transport and trade connectivity in the age of pandemics: Contactless, seamless and collaborative UN solutions" and on "Promoting a shift towards sustainable freight transport in the Asia-Pacific region".

⁷ <https://asean.org/wp-content/uploads/asean-covid-19-guidelines.pdf>

⁸ "Net-Zero Challenge: The supply chain opportunity", World Economic Forum, January 2021.

⁹ Fourth IMO GHG Study 2020. IMO, July 2020.

continuous movement of goods across borders. This renders the connectivity between transport modes and nodes of utmost importance, underlining, in particular, the key role of intermodal transport between ports and hinterland in the efficiency of global value chains.

During the disruptions, the linkages between different parts of the transport and logistics come under even greater stress and may become severe bottlenecks in the operationalization of the global supply chains. For instance, in several cases during the pandemic, the countries' efforts to keep their port open for international maritime trade were undermined by restrictions and disruptions in the port's hinterland connections.

On the other hand, the transport systems which incorporated several modes of transport and rail, in particular, showed a greater resilience during the border closures and restrictions which mostly affected road transport. As signalled in other publications, the growth of traffic in international freight transport along the corridors of the Trans-Asian Railway network in recent years and even during the pandemic has underscored the great benefits of international rail transport, including a higher resilience to pandemics and similar disruptions.¹⁰ As well established by now, the pandemic has also led to the emergence of new opportunities, such as the development of contactless technologies, the promotion of digitalization, and further progress in raising the efficiency of the border crossing systems, which enable seamless transport connectivity across the borders and modes of transport.¹¹

Against this overall context and lessons learned, the following sections will elaborate on the current issues in the interregional transport connectivity with a focus on Asia-Europe links and transport corridors and in the sustainable maritime connectivity with the view to propose the basis for policy considerations and recommendations in both areas.

II. Advancing Transport Connectivity Between Asia and Europe and the Role of Inter-Regional Transport Corridors

Strong trade and, accordingly, transport ties between Asia and Europe have a long-standing tradition. Considerable progress has been reached in terms of growth of volumes of inter-regional trade between Asia and Europe in the past decade, resulting also in considerable increase in transportation between Asia and Europe by land. According to the data published by the European Commission, the Asian region accounted for 35 percent of the EU's exports (€618bn) and 45 percent of the EU's imports (€774bn)¹² in 2018. As freight transport movement is based on trade flows, the relatedly high level of trade between Asia and Europe also implies a high level of freight transport demand between these two regions.

Since its outbreak in 2020, while the pandemic has heavily impacted transport connectivity across the globe, including along the various corridors between Asia and Europe, there has also been an increase in rail freight transport volumes. Notably, it was recorded that between January and February, at the beginning of the COVID-19 pandemic crisis, there was a 12 percent increase in transport volumes compared with the similar period of 2019. These facts demonstrate that demand in land transport connectivity between Asia and Europe remains strong as growing inter-regional trade between the two regions continues to be a major trend leading to the need of increased capacity for goods transportation, including moving goods by land.

There are, however, still opportunities to further strengthen cooperation between the two regions, specifically on transport connectivity and there is a significant potential for transport connectivity between Asia and Europe to grow and improve, once the barriers to seamless, sustainable and resilient

¹⁰ ESCAP, "Policy responses to COVID-19: transport connectivity in Asia and the Pacific", 22 April 2020.

¹¹ ESCAP, ADB: Regional Cooperation for Trade and Transport Connectivity in the Age of Pandemics in Asia and the Pacific, 2020, https://www.unescap.org/sites/default/d8files/knowledge-products/Trade_Transport%20Connectivity_ForWeb.pdf

¹² https://eeas.europa.eu/sites/eeas/files/joint_communication_-_connecting_europe_and_asia_-_building_blocks_for_an_eu_strategy_2018-09-19.pdf

transport connectivity between Asia and Europe are reduced or removed. This requires addressing a number of traditional and new challenges in the Asia-Europe transport links.

A. Key challenges in the Asia-Europe transport connectivity

Enhancing Asia-Europe connectivity entails addressing multiple challenges, as highlighted by the ESCAP secretariat in the document on “Strengthening of transport connectivity between Asia and Europe” prepared in 2016 for the Third Ministerial Conference on Transport.¹³

These challenges include:

1. Remaining infrastructure gaps

Mismatched intercountry connections prevent effective physical connectivity along land-based corridors. Physical obstacles at border crossing points include ill-designed facilities, such as narrow access roads and the lack of dedicated transit lanes. The absence of modern equipment, such as X-ray machines for the non-intrusive inspection of cargo, can also contribute to delayed shipments and discourage operators from making greater use of land transport.

Inadequate interfaces between different transport modes lead to an underutilization of land transport infrastructure networks for international trade, discourage industries from locating away from coastal areas and hamper the development of hinterland areas

Tackling infrastructure challenges inevitably demands considerable investments in transport infrastructure assets, and the financial capacity of developing countries in terms of such investments often remains insufficient.

2. Inconsistency of rules and regulations in different regions

Non-physical barriers such as those emerging from restrictive and non-harmonized rules and regulations continue to significantly hinder the efficiency of land inter-regional transport. Thus, in still too many cases, the fact that foreign trucks cannot operate on the national road network of another country forces cargo to be trans-shipped onto domestic vehicles at the border, resulting in higher costs, long delays and a lack of security for the transported goods.

The lack of standardization in transport documents also hampers inter-regional land transport connectivity. The adoption of standardized documents would greatly facilitate the exchange of data and the submission of pre-arrival customs declarations, which would allow authorities to plan their inspection duties before the physical arrival of cargo at a border, as is already common practice in air and maritime transports. To avoid forming new barriers, these standards must be compatible across modes so as to support the emergence of intermodal solutions. A wider application of paperless documents by customs authorities could also improve transport efficiency and enable operators to take full advantage of modern information and communications technology.

3. Different technical standards and operating procedures

Different technical standards that coexist as well as incompatible or suboptimal operating procedures that prevent the emergence of a truly common transport system with efficient operational capability are also remaining a significant group of challenges to inter-regional transport connectivity between Asia and Europe.

In the area of technical standards, there are no common norms in the road sector even throughout the Asia-Pacific region with regard to vehicle weights and dimensions, and existing registration and inspection certificates are not always mutually recognized. This often results in inefficient practices, such as trucks being weighed several times during the same journey in an effort to discourage overloading.

¹³ Document ESCAP/MCT(3)/5.

Yet, when it comes to technical standards, rail transport may be the one transport mode presenting the greatest disparity. Even when track gauge continuity exists between the rail networks of two neighbouring countries, differences in braking and signalling systems, axle load parameters and power supply often still prevent efficient interoperability.

Through comparison of various declarations, studies and projects related to inter-regional land transport connectivity, these root problems and challenges were described in detail in ESCAP's study report on the progress in enhancing transport connectivity between Asia and Europe, published in December 2020¹⁴

4. New challenges

a) *The impact of the Covid-19 pandemic*

Transport connectivity policy responses to COVID-19 that have been implemented can be broadly categorized into five main types concerning, 1) infrastructure; 2) border crossing procedures; 3) transport means; 4) transport crew; 5) cargo, and 6) recovery measures.

Many of the policy responses, such as border closures, controls and restrictions of international freight transport movements, were implemented in a rather uncoordinated manner within a relatively short period of time, at the beginning of the outbreak in both Asia and Europe before moving to an increasing policy convergence and a more united regional response. The uncoordinated responses in Asia and the Pacific could be due to insufficient cooperation mechanisms to ensure that transport connectivity, including cross-border trade and transport, can continue safely and efficiently in times of pandemic or other emergencies

These immediate impacts resulting from these restrictions, some of which are not yet lifted, led to the understanding of the need for of the transport and logistics sector as a whole. Such transformations could be increases in logistics costs and digitalization and e-commerce, leading to greater investments in technology, such as the Internet of Things (IoT), cloud computing, automation, and data analytics, as well as robotics, drones, and autonomous vehicles. The reconfiguration of global value chains may lead to shorten or diversify networks and placing additional warehousing capacity or dry ports near demand centers to shorten the time to get goods to market.¹⁵ Obviously, the post-pandemic recovery pathway for transport connectivity, if carefully planned and designed, apart from transport efficiency, should also prioritize the increased resilience and sustainability of transport connections in the cases of other potential disruptions.

b) *The impact of the Ukraine crisis*

There is not yet a solid analysis available, but the preliminary considerations expect that the disruption to supply chains and connectivity will come from various sources, including difficulties affecting land-based routes; If prolonged, the Ukraine crisis may result in higher transport prices, more delays and disruptions across the Eurasian space and beyond, due to the wide-ranging implications of the fuel price increase, land transport constraints, impact on the ongoing global port congestions and other factors.

During the Covid-19 Pandemic, the rise in sea freight rates gave another momentum to Asia-Europe rail transport, but the Ukraine crisis is causing disruptions not only in the Asia-Europe rail logistics network but also in the maritime transport routes.

Over the short run, this crisis would lead to lot of uncertainties on range of issues related to the functioning of the regional supply chains. Overall freight rates would increase the production and other costs, contributing to inflation and hindering growth in many countries of the region.

¹⁴ Link to the text of the study report: <https://www.unescap.org/kp/2020/connecting-transport-infrastructure-networks-asia-and-europe-support-interregional>

¹⁵ https://www.ifc.org/wps/wcm/connect/2d6ec419-41df-46c9-8b7b-96384cd36ab3/IFC-Covid19-Logistics-final_web.pdf?MOD=AJPERES&CVID=naqOED5

Over medium and long run, if the crisis persists longer, relevant stakeholders would look for alternative routes for inter-regional land transportation between Asia and Europe which may result in significant re-shaping of transport routes connecting the two regions by land.

B. ESCAP work on inter-regional transport connectivity

ESCAP work on inter-regional transport connectivity has traditionally been focusing on strengthening transport connectivity between Asia and Europe and it has gradually expanded to cover the issues of international transport corridors and key aspects of their sustainability.

1. Strengthening transport connectivity between Asia and Europe

Transport connectivity between Asia and Europe was one of the thematic areas of the Regional Action Programme for sustainable transport connectivity in Asia and the Pacific, phase I (2017-2021).

Against this background, in late 2018 the ESCAP secretariat conducted a study on the initiatives on Euro-Asian transport connectivity. The study report provided an overview of the existing initiatives on transport connectivity between Asia and Europe, a summary of their recommendations and a number of suggestions to move forward towards the implementation of these recommendations at inter-regional level in order to achieve greater level of coordination between the countries of both Asia and Europe.

In 2020, the ESCAP secretariat published the updated study report on the progress in enhancing transport connectivity between Asia and Europe reflecting the latest trends in inter-regional transportation, including the impact of COVID-19.¹⁶

The secretariat organized, in late November 2020 a virtual regional meeting on sustainable transport connectivity between Asia and Europe with a view to: (a) present and further discuss the study report on progress in enhancing transport connectivity between Asia and Europe (b) facilitate exchange of stakeholders' opinions and sharing relevant experiences, and (c) discuss priorities and directions of further activities on enhancing transport connectivity between Asia and Europe¹⁷.

The meeting concurred with secretariat's proposal, based on the results of the study, to continue organizing periodical inter-regional fora on sustainable transport connectivity between Asia and Europe and, in terms of practical arrangements, recommended that inter-regional fora could be organized and held annually under a dedicated theme topic related to Euro-Asian sustainable transport connectivity in a manner utilizing synergies with existing ESCAP's and interested partners' platforms and cooperation mechanisms.

In October 2021, the secretariat organized a Forum on Sustainable Transport connectivity between Asia and Europe. The Forum recommended that building up sustainable inter-regional transport connectivity, particularly between Asia and Europe, should remain a focused thematic area of work of the ESCAP secretariat.

The Forum also formulated the relevant priorities for the region that should be addressed, including

- the necessity of continued efforts to promote foremost technical and institutional solutions for strengthening sustainable transport connectivity within the Asia-Pacific region and beyond, as it directly impacts the region's ability to connect globally
- the significance of successfully functioning international transport corridors for the development of sustainable trade and transport linkages;
- the importance of continued inter-regional dialogue and enhanced cooperation among the member States, relevant international organizations and transport industry stakeholders from different regions, particularly Asia and Europe, utilizing the United Nations platform.

¹⁶ Link to the text of the study report: <https://www.unescap.org/kp/2020/connecting-transport-infrastructure-networks-asia-and-europe-support-interregional>

¹⁷ Link to the meeting webpage: <https://www.unescap.org/events/virtual-regional-meeting-sustainable-transport-connectivity-between-asia-and-europe>

Furthermore, in the context of increasing volumes of railway container transportation between Asia and Europe, it will be of great relevance to analyze the comparative sustainability aspects of rail and maritime involved in inter-regional freight transportation, and further noted the necessity of region-wide optimal standardization and harmonization of operational and procedural systems and hardware on railway networks in the Asia-Pacific region.

2. Supporting development of transport corridors in enhancing inter-regional transport connectivity

Most initiatives related to inter-regional transport linkages between Asia and Europe are connected with development and operation of transport corridors.

The objective of an efficiently functioning transport corridor, including inter-regional transport corridor, can be briefly defined as development of well designed, maintained, interconnected and interoperable highways, railways, inland waterways, seaports, river ports, airports and dry ports with capacities appropriate to expected traffic volumes, which allow for the smooth flow of vehicles and cargoes between and among countries of the corridor.

There exist a number of practices in various regions on the establishment of coordination mechanisms and/or institutional arrangements through which these issues can be addressed. In some cases, formal corridor agreements have been developed while in others, a comprehensive set of bilateral, multilateral, sub-regional and international agreements as well as technical assistance measures have been set in place which when taken together provide the conditions necessary for smooth operationalization of a particular transport corridor.

ESCAP's study report on "Developing Coordination and Institutional Arrangements for the Management of Selected Intermodal Transport Corridors in the ESCAP Region"¹⁸ published in December 2019 has examined the available practices of transport corridor management, including existing formal corridor management agreements, and also compared coordination and management arrangements for several transport corridors in the region, with an aim to further design and propose options for institutional arrangements on management of one or several of these transport corridors, subject to guidance from member States to the secretariat.

Supporting transport corridor management mechanisms and the implementation of the relevant multilateral transport agreements remains an important priority of ESCAP's work on transport and is included in the Regional Action Programme for Sustainable Transport

Box 1.

An example of a recent development of a transport corridor coordination mechanism in the ESCAP region

ESCAP together with the Economic Cooperation Organization (ECO) and with financial support of the Islamic Development Bank implemented a project on commercialization of railway corridor among Kazakhstan, Turkmenistan, and Islamic Republic of Iran from 2019-2021. The KTI railway corridor is a North-South railway corridor that passes along Kazakhstan, Turkmenistan, and Islamic Republic of Iran (KTI) along east of the Caspian Sea was completed in the end of 2014. The KTI railway corridor consist of approximately 940 km of which 142 km section in Kazakhstan, *700 km section across Turkmenistan*, and 100 km section in Islamic Republic of Iran

Under the project the railway administrations of the three countries in November 2021, signed an MOU on the implementation of KTI rail freight corridor. The MOU establishes a Permanent Working Group (PWG) as corridor management mechanism to increase the collaboration among the stakeholders to attract freight to the corridor by addressing physical and non-physical barriers as well as developing a marketing strategy for the rail corridor.

The signing of MOU though an important milestone yet is a beginning of long-term task for attaining the full potential of the corridor and would require regular meetings of the permanent working group, setting up of the priorities and related action by railways and other stakeholders, and monitoring corridor performance through key indicators.

Development in Asia and the Pacific (2022-26).

3. Identifying transport corridor success factors and need for data collection

The above-mentioned study report identified several critical factors contributing to the “success” of a transport corridor, including an intermodal transport corridor. Since any transport corridor consists of a set of links and nodes, any inefficiencies on any links or at any nodes affects the overall efficiency of the whole corridor.

In order to rectify these inefficiencies, there is a need, for those in a position to address them, to know what they are, the nature and extent of their impact, and their location on the corridor. This implies that, regardless of the corridor’s institutional arrangements, information should be available on at least the following parameters:

- Assessment of existing and potential traffic volumes;
- Inventories of road, railway, waterway, modal and intermodal transfer points, and border crossing point infrastructure including signaling and electrification;
- Border crossing and modal and intermodal transfer times;
- Transit times on various sections;
- Description of instruments used in international transport including an assessment of the effectiveness of their implementation;
- Descriptions of instruments and procedures used at border crossing points including an assessment of the effectiveness of their implementation;
- Inventories of projects proposed for consideration of financial institutions or the private sector (including public-private partnerships);
- Inventories of projects under construction and their expected completion dates;
- Identification and assessment of technical assistance requirements.

The Working Group on Dry 4th Meeting of the Working Group on Dry Ports in June 2021, considered the need for an online tool for collecting data on intermodal transport corridors, utilizing the proposed framework of success factors identified by the secretariat, and requested ESCAP to explore possibility of development of such an online tool that could include the set of initial data collected from ESCAP member States with a possibility of further updates.

4. Raising awareness of the environmental aspects of transport corridor development

Development of transport corridors inevitably raises concerns over their potential impact on environment and, in light of the 2030 Agenda for Sustainable Development, addressing those concerns becomes an imperative for operation and upgrade of the existing transport corridors, as well as for the development of new transport corridors and routes.

Environmental impact studies became significant components of any transportation project development. In general, environmental assessment is a process to find out the possible impact on the environment due to the effects of proposed initiatives before they are being implemented. Construction of new roads or railways may increase capacities of transportation routes along transport corridors, but at the same time may have an effect on the environment. In this connection, it is necessary to consider alternatives for route locations and select options ensuring that natural, cultural and social negative environmental impacts are minimized.¹⁹

¹⁹ Adopted from: Iqbal Ahmed, “Environmental impact assessment for transportation corridors using GIS”, Toronto 2005.

In the operations of the international transport corridors, multimodal transport solutions offer many benefits to transport users and service providers but also to the community in general. Multimodality enables transport modes to be used in the most productive manner, efficiently combining optimal travel time, reliability and costs at different segments of transport routes. Developing multimodality also provides additional opportunities for the shift to sustainable and more environmentally friendly freight operations and for expanding the scope of the economic and social benefits of transport connectivity.

It is highly desirable that the countries of the ESCAP Region, follow the approach of developing “green” transport corridors providing for environmentally friendly transport solutions and more integrated multimodal supply chains. Against this background, promotion of integrated multimodal transport solution remains a high priority in the region in the context of both increasing efficiency of transport and advancing towards “greener” solutions for transport corridors.

III. Sustainable maritime connectivity in Asia and the Pacific

The Asia-Pacific region is not only a center of global manufacturing, but also has a status as a global consumer market with a large population and increasing income. Asian countries have a trade structure in which raw materials are mainly imported, processed, and exported, so not only bulk cargoes such as iron ore, coal, and crude oil, but also container cargoes, which are finished products, account for a high proportion.

These features are reflected in the Asia and the Pacific’s position in the maritime sector, as over 80% of global trade was transported by sea transport over the past several decades, and will, most likely, be transported by sea in the future.²⁰ Table 1 shows that Asia's share of world trade is 59% in the total discharged goods in 2020, and that the volumes of imports (discharged goods) is larger than that of the exports (loaded cargo).

Table 1: International maritime trade 2019–2020, by type of cargo, country group and region

	Year	Goods loaded				Goods discharged			
		Total	Crude oil	Other tanker trade ^a	Dry cargo	Total	Crude oil	Other tanker trade ^a	Dry cargo
Millions of tons									
World	2019	11 070.5	1 860.3	1 302.6	7 907.6	11 055.1	2 022.8	1 320.5	7 711.8
	2020	10 648.3	1 716.0	1 202.3	7 730.0	10 631.1	1 863.6	1 222.0	7 545.5
Developed economies	2019	4 503.2	453.6	477.1	3 572.6	3 778.3	902.0	463.3	2 412.9
	2020	4 317.4	425.9	430.3	3 461.2	3 245.2	732.5	370.2	2 142.5
Developing economies	2019	6 567.3	1 406.7	825.5	4 335.1	7 276.8	1 120.7	857.2	5 298.9
	2020	6 330.9	1 290.1	772.0	4 268.8	7 385.9	1 131.2	851.7	5 403.0
Africa	2019	814.1	302.8	91.6	419.6	533.7	35.3	113.4	385.0
	2020	735.5	236.1	83.4	415.9	510.1	30.6	107.9	371.5
Latin America and the Caribbean	2019	1 406.6	221.9	81.3	1 103.3	621.4	45.0	143.7	432.6
	2020	1 369.2	200.5	75.6	1 093.1	590.1	39.6	130.0	420.5
Asia	2019	4 331.4	880.1	644.6	2 806.6	6 108.0	1 039.6	595.6	4 472.7
	2020	4 212.2	851.8	605.8	2 754.5	6 272.4	1 060.2	609.6	4 602.6
Oceania	2019	14.5	1.7	7.8	5.0	14.9	0.8	5.4	8.6
	2020	14.6	1.8	7.8	5.1	15.4	0.7	5.5	9.1

Source: “Review of Maritime Transport 2021”, UNCTAD, 2021.

²⁰ “Review of Maritime Transport 2021”, UNCTAD, 2021.

The Asia-Pacific region also has a dominant position in major shipping activities, such as shipbuilding, ship owning and ship scrapping industries, as also flagged in the theme report²¹ of the 76th ESCAP commission session

Global maritime container transport is largely divided into three major sea routes: Trans-Pacific, Asia-Europe, and Transatlantic routes, with the Asia-centered routes showing the overwhelming volumes.

Table 2: Containerized trade on major East-West trade routes, 2014–2021((million TEU)

	Eastbound	Westbound	Total Trans-Pacific	Eastbound	Westbound	Total Asia-Europe	Eastbound	Westbound	Total Transatlantic
	East Asia–North America	North America–East Asia		Northern Europe and Mediterranean to East Asia	East Asia to Northern Europe and Mediterranean		North America to Northern Europe and Mediterranean	Northern Europe and Mediterranean to North America	
2014	16.1	7.0	23.2	6.3	15.5	21.8	2.8	3.9	6.7
2015	17.4	6.9	24.2	6.4	15.0	21.3	2.7	4.1	6.8
2016	18.1	7.3	25.4	6.8	15.3	22.1	2.7	4.2	6.9
2017	19.3	7.3	26.6	7.1	16.4	23.4	2.9	4.6	7.5
2018	20.7	7.4	28.0	7.0	17.3	24.3	3.1	4.9	8.0
2019	19.9	6.8	26.7	7.2	17.5	24.8	2.9	4.9	7.8
2020	20.6	6.9	27.5	7.2	16.9	24.1	2.8	4.8	7.6
2021	24.1	7.1	31.2	7.8	18.5	26.3	2.8	5.2	8.0

Source: *Ibid*

Export cargo from Asia is three times higher than import cargo on East Asia-North America routes and more than twice that on Northern Europe and Mediterranean routes, which shows that Asia has become a global manufacturing base in addition to the export-oriented trade structure of Asia. The fact that the Asia-Pacific region is the center of global maritime trade is also evident in container port throughput. In 2020, the Asia-Pacific region accounts for 66.9% of the total, showing that it accounts for two-thirds of the world's container throughput.

The importance of the maritime transport in the global supply chains makes maritime connectivity a central consideration in the developing countries in Asia and the Pacific, composed of a great number of coastal countries but also the small island developing States. Same as in inter-regional connectivity, there are both traditional and new challenges to further progress in enhancing Asia-Pacific maritime connectivity.

A. Traditional and new challenges in the sustainable maritime connectivity

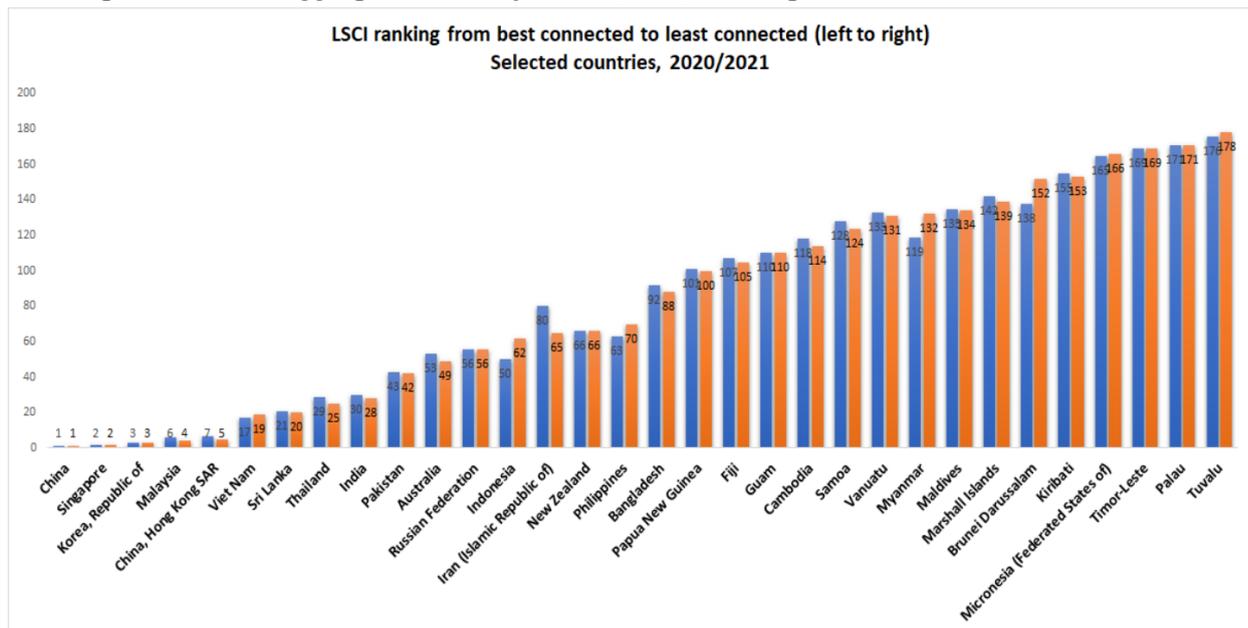
1. Bridging the maritime connectivity gap for a more inclusive growth

The economic power of ESCAP member countries varies greatly depending on population, territory, and industrial structure, and as many land-lock countries and small island developing States are scattered depending on their geographic location, it is difficult to implement economic development strategies through regional connectivity and integration. This concentration and difference in economic power and trade volume between countries have an effect on investment capabilities and technology development in the port and logistics sectors of member countries. In particular, the Pacific Islands have difficulties in securing financial resources for investment in port facilities or developing integrated transport infrastructure, which limits efficient connectivity with the global supply chain. For shipping and logistics services in the Pacific region, economic cooperation with other countries is restricted due to geographical and economic constraints, resulting in a vicious cycle of stagnating economic development.

²¹ CHANGING SAILS: ACCELERATING REGIONAL ACTIONS FOR SUSTAINABLE OCEANS IN ASIA AND THE PACIFIC, ESCAP, 2020.

Over the last years, the maritime connectivity of the Asia-Pacific region has steadily increased due to the continuous economic growth and investment in port infrastructure. But while port development and shipping services, supported by a dynamic private sector, continue gaining efficiency in Asia, Small Developing States in the Pacific still show limited infrastructure investment and low and unstable level of shipping service. For example, according to UNCTAD, the liner shipping connectivity index in the Asia-Pacific varies greatly among countries and sub-regions. East Asian countries have an average of 100, which is very high, while the overall average of the Asia-Pacific region is 30, while Pacific countries have an average of less than 10.²² The figure below shows the liner shipping connectivity index of major countries in the Asia-Pacific region by country. It can be seen that while China and East Asian countries are ranked at the top, most of the Pacific SIDS are at the bottom.

Figure 1: Liner Shipping Connectivity Index (LSCI) Ranking of the Asia Pacific Countries



Source: UNCTAD 2021, based on maritime transport data on UNCTADstat.

The low level of the maritime connectivity of the Pacific countries is due to their small population and economic size, limitations in natural resources, industrial structure centered on tourism and fisheries, and separation from the global economy. The combination of interrelated geographic, economic, demographic and institutional factors come together in a self-reinforcing feedback loop to undermine the ability of small island developing States to close the connectivity gap. The lack of ship services that are safe, affordable and reliable limits access of the population to markets and other social opportunities. This, in turn, results in low incomes for islanders and inability to pay for shipping services, leading to a further deterioration in the quality of shipping. For this reason, in the Pacific island countries the existing shipping services do not manage to get out of a vicious cycle of low and imbalanced trade volume, unstable service, low profitability, and low connectivity, and there are very limited measures to break the vicious cycle.

The development strategies of large ports that handle 20 million TEUs and small ports that handle hundred thousand of TEUs have to be different. This means that port facilities such as piers, loading and unloading equipment, storage yard and warehouse, etc. are required to develop a suitable port for the respective country. In the case of the Pacific countries, most ports are suitable for multipurpose terminals rather than container dedicated terminals.

Recently, awareness of the importance of the establishment of the mid- to long-term port development master plan at the national level and the integration plan with the entire national transport infrastructure

²² ESCAP based on UNCTAD Liner Shipping Connectivity data, 2019.

has been greatly raised, but some countries still have difficulties in establishing integrated transport policies. This is because the authority and responsibility for the development of transport infrastructure are often divided by modes of transport, and the interests related to port development between the relevant ministries and the central and local governments related to port development are not efficiently coordinated.

2. Ensuring resilience and environmental sustainability of the maritime and port services

As previously mentioned, the Asia-Pacific region has witnessed a high rate of port development over the recent past, leading to several economic and social benefits such as employment opportunity, industrial growth and infrastructure development.²³ However, despite this high level of growth, port development in the region continues to face numerous sustainability challenges that manifest in increased greenhouse gas (GHG) emissions, air pollution and other environmental side-effects of port development. The challenges arise due to multiple reasons, including suboptimal port development policies and implementation plans, which are not matched to environmental realities and user demand, as well as insufficient coordination with national and regional integrated transport plans.

The COVID-19 pandemic has underscored the importance of ports: keeping ports open and functional was one of the key measures that several nations and Governments implemented to ensure flow of essential goods to their populations, including to help effectively deal with the crisis. Similarly, the pandemic flagged the issue of port resilience, underlining the need to ensure that ports can carry on their essential functions amid major disruptions shipping and the global supply chains.

This challenge is particularly daunting for the Asia-Pacific region, given its current and rising exposure to natural disasters compounded by effects of climate change. As flagged in the theme report of the 76th ESCAP Commission session, Asia-Pacific represents a critical mass in decarbonization of the shipping sector and, thus, in the implementation of the global goal, set out by the International Maritime Organization, to reduce the total annual GHG emissions from international shipping by at least 50 per cent by 2050 based on the 2008 emission levels.

Currently, there is a divide in the Asia-Pacific region between the countries with high ambitions in decarbonizing shipping and other countries, which are experiencing difficulties in implementing this commitment, due to lack of investment resources, technological gap, insufficient institutional and legal framework and lack of human capacity.

This divide is difficult to bridge by further regulations but could be addressed by disseminating information on the best and innovative initiatives and practices in decarbonizing shipping. One example of such initiatives, which is supported by ESCAP, is the Clydebank declaration on the Green Shipping Corridors, adopted at COP26, which aims to establish zero-emission maritime routes between two or more ports.

Box 2: Green Shipping Corridor

Background: At COP26, 24 nations signed on to the **Clydebank Declaration**, pledging to act collectively to demonstrate by 2025 the viability of multiple green shipping corridors

Concept: The green shipping corridor means facilitating early and rapid adoption of fuels and technologies that, on a lifecycle basis, deliver low and zero emissions across the marine sector, placing the sector on a path to full decarbonization.

Signatories: Australia, Belgium, Canada, Chile, Costa Rica, Denmark, Fiji, Finland, France, Germany, Ireland, Italy, Japan, Republic of the Marshall Islands, Morocco, Netherlands, New Zealand, Norway, Palau, Singapore, Spain, Sweden, The United Kingdom of Great Britain and Northern Ireland, The United States of America (ESCAP member States are underlined.)

²³ Ports in the Asia Pacific region have grown to account for most of the world's top 20 container ports, driven by the region's continued economic and trade growth (Review of Maritime Transport, UNCTAD, 2021)

Contribution: To support the establishment of the Green Shipping Corridor, signatories must contribute to decarbonization and net zero by ensuring that fully decarbonized fuels or propulsion technologies do not add additional GHGs to the global system through their lifecycle, including production, transport or consumption.

ESCAP's role: ESCAP intends to support a gradual rollout of the Green Shipping Corridors in Asia-Pacific by promoting decarbonized fuels and propulsion technologies at the level of the life cycle of ships on major Asian routes in conjunction with the IMO initiative to achieve low and net zero greenhouse emission.

The Green Shipping Corridor refers to maritime routes that demonstrates low-emission and zero-emission lifecycle fuels and technologies with the ambition to achieve zero greenhouse gas emissions across on all aspects of the corridor in support of sector-wide decarbonization no later than 2050. The first agreement on this has been reached by ports of Los Angeles and Shanghai (of two ESCAP member states). If more ESCAP member States joined this or similar initiatives, there would be an immediate impact on the decarbonization of the shipping sector.

3. Addressing the lack of skilled professionals and gender issues

Some countries in the regional are struggling with a shortage of experts and skilled workers in the maritime sector. There are not many opportunities for education and training in related fields, while the skills and expertise are increasingly important due to automation and digitalization. For example, the terminal operation sector is a field that has a high possibility of replacing human resources through automation and computerization, leading to the necessity of replacement education and training.

While the port sector has, undoubtedly, entered the information age and hyper-connected era, many ports in the region still lack the opportunity to improve workers' IT-related work capabilities. In addition, it takes a long time to secure consensus among stakeholders on relocation of personnel and education and training, triggered by terminal automation and informatization. The demand for on-line business processing has increased due to the pandemic, but the development and training of information systems and business process reengineering are lagging behind.

While some countries face difficulties due to the shortage of skilled workers in specialized and high-tech fields, in some countries, the aging or shortage of the workforce is becoming a social issue. Some countries rely on elderly and overseas manpower due to lack of workforce such as seafarers and truck drivers, and are seeking breakthroughs through informatization and automation, but the lack of essential manpower is still an issue.

The gender issues are prominent in the maritime sector. The shipping and port sectors are still male-oriented, and the proportion of female workers is relatively low. In addition, it is often difficult for women to return to the field when careers are cut off due to childbirth or child-rearing, and sometimes they have difficulty in getting promotions or taking key positions. Women's workforce is considered to be relatively weak in job security because unemployment and wage cuts are higher than men's during a disaster such as COVID-19 or an economic downturn. In some ports, female workers are used to operate automated facilities and information devices, but gender equality and women's empowerment remain important issues in the maritime and port sector.

4. Providing reliable data and statistics on the maritime transport

Effective decision-making relies on reliable statistics and data, but in some member countries, relevant statistics are insufficient, hindering accurate analysis of the current status and future prospects. For example, in UNCTAD's country port traffic statistics, there are no statistics for 13 of the ESCAP member states, especially SIDS countries. The absence of such basic statistics hinders the establishment of a port development plan based on the demand for port traffic volume by country. In some countries, insufficient statistics collection and management systems are combined with the manual procedures, making it difficult to manage data quickly and accurately.

Currently, there are many countries in which ports and logistics sector are being informatized, but there are still difficulties in full scale use, and paper-based business practices are still in place. There is an increasing number of countries that are promoting collaboration with related departments and sharing electronic information through one-stop centers, but this trend is limited to large ports and needs to be gradually expanded to small and medium-sized ports is urgent. National logistics data and statistics should be systematically collected and managed, but the data is often managed for each area, and the overall utilization is low due to the lack of integration between sectors and data. Some countries are passive in sharing information due to the reliability of data, and the need for professional statistics education and system construction is acknowledged, but the actual investment required is insufficient.

5. ESCAP’s work on promoting sustainable maritime connectivity

ESCAP's sustainable transport development focuses on alleviating or improving the various challenges discussed above, and as the issues are complexly intertwined, the direction of work is complex rather than unilinear and designed to create synergy effects. The "Regional Action Program for Sustainable Transport Development in Asia and the Pacific (2022-2026)", approved at the 4th Ministerial Conference on Transport in December last year, provides a strategic approach to address various current issues in the transport sector and contain a future vision for achieving sustainable development goals. The various issues in the maritime sector discussed above and economic, social and environmental implementing strategies for them are also included in the RAP, and the table below shows them schematically.

To promote sustainable maritime connectivity, RAP has established two following activities;

- Support a systematic regional dialogue on sustainable and resilient maritime connectivity, including the promotion of the development of low- and zero-emissions green shipping for Asia and the Pacific in close partnership with global and regional actors and the shipping industry and,
- Assist small island developing States in meeting transport challenges and strengthening resilience to future shocks, which will achieve the performance indicators shown in Table 3.

Table 3: Indicators of achievement on maritime and interregional transport connectivity

Towards efficient and resilient transport and logistics networks and mobility for economic growth	Towards environmentally sustainable transport systems and services	Towards safe and inclusive transport and mobility
<ul style="list-style-type: none"> ▪ Systematic and regular exchange of best practices and experiences on the issues and priorities for sustainable maritime connectivity in Asia and the Pacific ▪ Regular interregional multi-stakeholder forum for sustainable transport connectivity between Europe and Asia 	<ul style="list-style-type: none"> ▪ Knowledge products and policy tools offering best practices on sustainable, resilient and green port operational practices and maritime transport in Asia and the Pacific ▪ Elaboration of updated policy guidelines for integrated port-hinterland transport connectivity 	<ul style="list-style-type: none"> ▪ Advisory services and capacity-building programmes on facilitating access of small island developing States to global and regional supply chains ▪ Knowledge products and policy recommendations on enhancing the safety of port and maritime operations ▪ Development of recommendations on the storage of dangerous goods in port areas

Source: ESCAP, Regional Action Programme for Sustainable Transport Development in Asia and the Pacific (2022–2026).

Several projects are underway to contribute to achieving the sustainable maritime connectivity as well as decarbonization and digitization included in the RAP. During the new RAP period (2022-2026), research, capacity building, technical support, and education and training continue to strengthen maritime connectivity. In order to promote sustainable maritime connectivity, cooperation and partnerships between countries are absolutely necessary due to the nature of the

shipping industry, which services all ports included in the specific route, and cooperation with all stakeholders including international organizations and regional agencies, especially the private sector, is essential.

Table 4: Summary of the ongoing ESCAP maritime connectivity projects

Project	RAP linkage	Objective	Geographical coverage	Period
Study to improve the safety of dangerous goods in ports in the era of maritime energy transition	Maritime and interregional transport connectivity Low carbon mobility and logistics	Development of technical guidelines and policy recommendations for the safe management of dangerous cargo in ports	ASEAN	2022-2023
Facilitating sustainable and resilient port development to support sustainable maritime connectivity in Asia and the Pacific (Phase 3)	Maritime and interregional transport connectivity Low carbon mobility and logistics Inclusive transport and mobility	Improve decision making on national strategies for sustainable and resilient maritime connectivity and port development in participating member States	ESCAP region (focused on the Pacific region)	2022-2023
Sustainable maritime and port connectivity for resilient and efficient supply chains in the aftermath of COVID-19 (Phase I)	Maritime and interregional transport connectivity Inclusive transport and mobility	Enhance the quality of national policies on sustainable maritime and port connectivity in the ASEAN and the Pacific and related cross-border and transboundary cooperation, contributing to greater resilience of the Asia-Pacific position in global supply chains in the context of COVID-19.	ASEAN, Small Island Developing States (SIDS) in the Pacific	2021-2022
Improving the safety of navigation and the sustainability of shipping through the introduction of innovative autonomous shipping technologies in the Asia-Pacific region	Maritime and interregional transport connectivity Low carbon mobility and logistics Digitalization of transport	Support the introduction of innovative autonomous shipping technologies which have important potential benefits of economic, social and environmental nature and which carry specific implications for the Asia-Pacific region.	South-East Asia and South Asia	2022-2024

IV. Conclusions

During the Forum, the participants will be invited to put forward a set of initial policy conclusions, which can be submitted to the Seventh Session of the Committee on Transport (25-27 November 2022) and pave the way towards the next editions of both Fora in support of the implementation of the Regional Action Programme for Sustainable Transport Development in Asia and the Pacific (2022–2026).

In the area of inter-regional connectivity, the participants may wish to recommend to:

- Further strengthen transport cooperation between Asia and Europe through priority transport corridors at the service of people and respective economies, partnerships can be established for connectivity based on commonly agreed rules and standards enabling a better governance of flows of goods, people, capital and services, and EU's financial resources can be leveraged and strengthened international partnerships to address the sizeable investment gaps.
- Continue provision of support to inter-regional dialogue on land transport connectivity to facilitate exchange of relevant information and updates between ESCAP member States and countries from different regions
- Continue support to developing coordinating and management arrangements for transport corridors, including inter-regional transport corridors; assist in development of regulatory frameworks for transport corridors, including multimodal transport corridors
- Promote application of practical solutions that can help in increasing resilience of transport corridors and other transport linkages to external shocks, (by using, for example, seamless digital solutions; exploring the ways of simplification of regulations that could help in functioning of transport routes/corridors in case of external disruptions)
- Promote planning of possibilities of using, where possible, multiple routes for goods transportation and promote multimodal transport solutions
- Explore and scale up the use of “green” technologies for land transport routes and corridors with a view to elaborate practical recommendations for member States.

As far as the sustainable maritime connectivity, the participants may consider the following conclusions:

- Recognize that the diversity and characteristics of each country and sub-region in the Asia-Pacific mean that the logic for port development and improvement of maritime connectivity cannot be uniform and that a strategy that considers regional characteristics is essential.
- Reaffirm that since the maritime connectivity of individual countries or ports is determined by numerous factors such as trade scale, population, geographical location, competition with neighboring ports, port facilities and productivity, improvement of maritime connectivity is achieved by more comprehensive and a long-term strategy rather than a single and short-term solution.
- Acknowledge that, in the Pacific, where ports are natural monopolies, due to their small hinterland, there is little competition between ports or between shipping companies, there are limits to the use of the traditional economic and market approaches and

recognize that a sustainable and resilient maritime connectivity in the Pacific region can be implemented through a multi-dimensional regional cooperation that includes all existing participants, namely, Member States, international organizations, donor countries, regional communities and the private sector.

- Call for an increase in the amount of data collection so that more information is available about the countries, and thus more informed decisions can be made. This is related to the increased implementation of a hub-and-spoke system, investment in infrastructure and investment in smart port developments and decarbonized action programme. For all these investments, it is important not to overinvest and take into consideration the nature of the countries. Research and capacity building is needed to identify the sustainable operations in the port and come up with an initial plan of improvement of the port operation. Capacity building programmes for sustainable port operational training would be a first step to as they may require less time and investments compared with the other recommendations and can be done on the short term.
- Affirm that green shipping in the Asia-Pacific region is a priority in the times of the urgency of the climate change challenges and recognize that in the Asia-Pacific region, where investment resources are relatively limited and technological gap, a strategic approach is needed to develop the maritime transport while meeting global standards and regulations. In this respect, call on the regional dialogue to continue proving a platform to discuss actual implementation advances and plans of the member states and other stakeholders;
- Conclude that a regional dialogue is therefore required to continuously evaluate, monitor and to support or launch new initiatives which help advance in the area of “interregional and maritime connectivity” in line with the Regional Action Programme (2022-2026).