ESCAP/AHWG/2019/2*

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

Distr.: General
11 July 2019

Chinese, English and Russian only

Economic and Social Commission for Asia and the Pacific
Working Group on the Asian Highway

8th meeting
Bangkok, 18 and 19 September 2019
Item 5 of the provisional agenda**
Policies and issues related to the operationalization of the Asian Highway network

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Note by the secretariat

Summary

In view of the broader strategic context of the implementation of the 2030 Agenda for Sustainable Development in Asia and the Pacific, the present document contains details on emerging policies and issues relating to the development and operationalization of the Asian Highway network for the consideration of the Working Group on the Asian Highway, in line with its standing practice.

The Asian Highway network is an infrastructure asset of critical importance to facilitating regional transport connectivity and supporting member States in achieving the Sustainable Development Goals. Accordingly, the Working Group may wish to discuss further actions aimed at upgrading the quality of the network and enhancing its operational connectivity.

The Working Group may also wish to provide further information on perspectives and challenges in developing and operationalizing the Asian Highway network, as well as offer guidance to the secretariat on its future activities in this area.

I. Introduction

1. The Asian Highway network is a major collective achievement of the States members of the Economic and Social Commission for Asia and the Pacific (ESCAP). The formalization of the network through the Intergovernmental Agreement on the Asian Highway Network marked a milestone in regional cooperation aimed at developing major transport routes to support regional economic growth and intraregional and interregional trade. With 30 parties to the Agreement as of June 2019, the network currently spans more than 142,000 km in 32 countries, covering the subregions of East and North-East Asia, North and Central Asia, South-East Asia and South and South-West Asia. The adoption of the Agreement was soon followed by similar efforts on other transport-related issues, with the signing and entry into force

* Reissued for technical reasons on 20 August 2019.

** ESCAP/AHWG/2019/L.1.

of the Intergovernmental Agreement on the Trans-Asian Railway Network, in June 2009, and the Intergovernmental Agreement on Dry Ports, in April 2016.

2. Almost 15 years after its entry into force, on 4 July 2005, the Intergovernmental Agreement on the Asian Highway Network remains a flexible and adaptable tool for promoting international road traffic and a mechanism to help countries to define their national transport policies with a broader regional perspective. As such, the Agreement serves to guide discussions at high-level intergovernmental meetings on issues related to the technical, operational and institutional development of the Asian Highway network and to regional transport connectivity in general. Most recently, discussions during the seventy-fourth session of the Commission, held in Bangkok from 11 to 16 May 2018, and the fifth session of the Committee on Transport, held in Bangkok from 19 to 21 November 2018, served as forums in which to highlight the continued key role of the network in promoting regional integration and acknowledge the progress made by member States in developing and operationalizing the network. Relevant excerpts from the reports of those meetings are contained in the annex to the present document.

3. While initially focused on infrastructure aspects, the development of the Asian Highway routes has always been inextricably linked to issues of operational connectivity. It has also grown to incorporate a wider set of concerns and objectives, as the region's connectivity agenda and development objectives have evolved. The adoption of the 2030 Agenda for Sustainable Development provided extra momentum to further the consideration of the network's role in supporting the region's sustainable growth.

4. Against this background, section II of the present document contains a description of the role of the Asian Highway network as it evolves to address the region's needs and development goals. Section III contains a description of current issues related to the development and operationalization of the network, illustrated by practical examples from the recent assessment of the Eurasian transport corridors along the network. It further contains a description of policies and efforts aimed at enhancing the quality of Asian Highway routes. Section IV contains a description of policies aimed at improving operational connectivity along the network. On the basis of the considerations presented in the preceding sections, section V includes a list of issues for consideration by the Working Group on the Asian Highway.

II. The Asian Highway network and sustainable development in Asia and the Pacific

5. The link between sustainable transport performance and the achievement of the Sustainable Development Goals has now been firmly enshrined in global and regional policy frameworks including, in the case of Asia and the Pacific, the regional road map for implementing the 2030 Agenda for Sustainable Development in Asia and the Pacific and the Regional Action Programme for Sustainable Transport Connectivity in Asia and the Pacific, phase I (2017–2021), which is contained in the Ministerial Declaration on Sustainable Transport Connectivity in Asia and the Pacific.[1]

6. Road transport, in particular, has a fundamental role to play in delivering on the Sustainable Development Goals, given that it supports the bulk of domestic and regional trade and constitutes the main mode of transport for people traveling short and medium distances. Most goods and passengers

[1] E/ESCAP/73/15/Add.1.

are transported along routes that include at least one segment of road transport, as it is crucial to first- and last-mile reach and door-to-door delivery. Road transport accounts for a substantial proportion of all transport in the majority of the countries which are members of the Asian Highway network, including China, Indonesia, the Islamic Republic of Iran, Japan, Kyrgyzstan, Myanmar, the Republic of Korea, the Russian Federation, Tajikistan, Thailand, Turkey and Viet Nam.[2]

7. Therefore, it is not surprising that road transport is also one of the major sources of negative environmental and social externalities generated by the transport sector as a whole. In Asia and the Pacific, the transport sector consumes more than 460 million tons of oil equivalent of energy annually, 87.24 per cent of which is consumed by road transport.[3] In addition, according to the most recent data from the World Health Organization, approximately 813,000 road traffic fatalities occurred in the Asia-Pacific region in 2016, representing an 11 per cent increase compared to 2013. Countries in South-East Asia have the highest average rates of road traffic fatalities in the region.

8. While the increasing focus on sustainability has led many ESCAP member States to scale up their efforts to promote other modes of transport, such as rail or waterborne transport, the role of road transport is unlikely to decline in the foreseeable future. In fact, the most recent estimates of future freight transport demand suggest that road freight on the Asian continent will increase by 269 per cent between 2015 and 2050.[4]

9. In this context, greater efforts are needed to manage negative externalities in road transport if it is to maintain its momentum and continue to grow in a sustainable manner. Improving the quality of road infrastructure, as opposed to merely expanding it, could become an increasingly significant factor in supporting economic growth and delivering on social inclusion, as well as in mitigating carbon dioxide emissions and other types of pollution generated by road transport.

10. Issues of infrastructure provision and infrastructure operationalization are inextricably linked. As recent studies on transport connectivity in South-East Asia and Central Asia show, while further infrastructure development and upgrades in a general sense would produce substantial gains in capacity, development and upgrades aimed at enhancing the operational efficiency of transport at border crossings and along international transport corridors would produce even greater gains in the overall capacity of the Asian Highway network, often at a lower cost.[5]

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[2] ESCAP calculations based on the country presentations for the Expert Group Meeting on strengthening the capacity of ESCAP member States to harmonize standards on weights, dimensions and emissions of road vehicles, Tbilisi, 23 and 24 January 2019; Asian Development Bank (ADB), "Myanmar transport sector policy note: summary for decision makers" (Manila, 2016); Kang Hang Leung, "Indonesia's summary transport assessment", ADB Papers on Indonesia (Manila, ADB, 2016); and *Review of Developments in Transport in Asia and the Pacific 2017* (United Nations publication, Sales No. E.18.II.F.6).

[3] *Review of Developments in Transport in Asia and the Pacific*.

[4] International Transport Forum, *ITF Transport Outlook 2019* (Paris, Organization for Economic Cooperation and Development (OECD), 2019).

[5] World Bank and others, *The WEB of Transport Corridors in South Asia* (Washington, D.C., 2018); and Olga Petrik, Nicolas Wagner and Jari Kauppila, "Enhancing connectivity and freight in Central Asia", International Transport Forum Policy Papers No. 71 (Paris, OECD, 2019).

11. These considerations have several policy implications for the further development of the Asian Highway network. An emphasis on improving the quality of the infrastructure would intensify the need to harmonize technical requirements applicable to road infrastructure. In addition, the notion of quality infrastructure needs to encompass all aspects of sustainable transport performance, including environmental concerns, time and cost of travel, and road safety. Furthermore, in the development and management of the network, operational connectivity issues such as those related to transport facilitation should continue to receive priority attention and be addressed as an integral part of the network's development plans. Lastly, development along the network needs to take into account and build on the synergies and respective strengths of other modes of transport in order to realize an integrated intermodal transport and logistics system for Asia and the Pacific.

12. The following sections include areas in which action could further enhance the contribution of the Asian Highway network to sustainable development in member countries of the network by improving its quality and addressing the operational bottlenecks along the Asian Highway routes. Where appropriate, concrete examples and illustrations will be given, relying on the secretariat's recent work assessing the status of Eurasian corridors along the network.

III. Upgrading the quality of the Asian Highway network: towards safer, smarter and higher-quality Asian Highway routes

13. Building upon the considerations of infrastructure quality already included in the Agreement, there is scope for further upgrading the traditional and emerging aspects of road infrastructure, increasing the capacity and safety of the Asian Highway routes and enabling the transition towards smart infrastructure.

A. Upgrading Asian Highway routes and minimizing substandard segments

14. Infrastructure quality is incorporated in the Agreement in the form of a system that classifies Asian highways according to their carrying capacities (number of lanes) and pavement types.

15. According to preliminary data provided by the countries for inclusion in the ESCAP Asian Highway database, class II roads make up the largest class of routes in the Asian Highway network at 38 per cent, followed by Primary and class I roads at 35 per cent. However, in some countries in Central, South and South-East Asia, more than 50 per cent of Asian Highway routes are reported to be class III or below, which is considerably worse than the regional average of 27 per cent.

16. The substandard conditions of those segments adversely affect road transport, exacerbating such negative externalities as road accidents, emissions, noise pollution and congestion. For example, according to the Asian Highway database, primary class Asian Highway routes have the best safety record, at 4.09 fatalities per billion vehicle-kilometres, while routes below class III have the worst record, at 129.25 fatalities per billion vehicle-kilometres.[6] Moreover, low-quality roads are less resilient to multi-hazard risk, which can lead to

[6] See ESCAP/CTR/2018/7.

major disruptions during disasters. This is of particular significance given that, according to ESCAP estimates, roughly 42 per cent of roads in the Asia-Pacific region are at risk of disruptive events because they are in areas prone to multi-hazard risk (earthquakes, floods, cyclones and landslides).[7]

17. Continued efforts are needed to upgrade the quality of the Asian Highway routes. In its study report on comprehensive planning of Eurasian transport corridors to strengthen intraregional and interregional transport connectivity, completed in 2017, the secretariat highlighted the need to upgrade the substandard segments of the Asian Highway network and the importance of ensuring that they reach similar levels of infrastructure quality.

18. In that report, the secretariat assessed the quality of road and rail infrastructure along the three major Eurasian transport corridors: (a) the Eurasian northern transport corridor, linking North-East Asia and Northern Europe via Kazakhstan, Mongolia and/or the Russian Federation; (b) the Eurasian central transport corridor, linking East Asia and Southern Europe via Central and West Asia; and (c) the Eurasian southern transport corridor, linking East Asia and South Asia via South-East Asia.

19. The secretariat concluded that substantive efforts were required to reach an appropriate level of quality along the road transport routes analysed. Conditions along the Eurasian northern transport corridor were found to be good in China and Kazakhstan and in the western part of the Russian Federation, but some sections of the road in the far eastern part of the Russian Federation and Mongolia were assessed as class III or below class III. There was much room for improvement in the overall road quality along the Eurasian central transport corridor, in particular in Kyrgyzstan, Pakistan, Turkmenistan and Uzbekistan, where mountainous terrain and harsh climate conditions with snowy winters rendered some road sections dangerous to navigate and subject to temporary closures. With regard to the Eurasian southern transport corridor, roads were found to be of high quality in China, Malaysia, Thailand and Viet Nam, while most road sections in north-western Myanmar and north-eastern India were again found to be mixed or below class III. Sections in Cambodia, India, the Lao People's Democratic Republic and Myanmar consisted predominately of class III roads; roads in the Lao People's Democratic Republic lacked safety structures; and the capacity of bridges in that country and in Myanmar were inadequate relative to traffic demands and therefore posed a safety risk.

20. Sizable investments were needed to develop and upgrade road infrastructure quality to meet the capacity requirements of domestic and international transport. Investments were also required to upgrade the infrastructure and technical facilities at border crossing points and to advance digitalization through the use of information and communications technology.[8]

[7] ESCAP calculations based on data from the Asia-Pacific Disaster Risk Atlas website; *Review of Developments in Transport in Asia and the Pacific*; the Global Risk Data Platform website; and United Nations Office for Disaster Risk Reduction, *Global Assessment Report on Disaster Risk Reduction 2015: Making Development Sustainable – The Future of Disaster Risk Management* (Geneva, 2015).

[8] ESCAP, *Study Report 2017: Comprehensive Planning of Eurasian Transport Corridors to Strengthen the Intra- and Inter-regional Transport Connectivity* (Bangkok, 2017).

B. Implementing Asian Highway design standards for road safety

21. The standard of quality of the Asian Highway routes needs to be constantly improved to address the growing range of policy concerns and development goals in the region.

22. At its 7th meeting, held in Bangkok in December 2017, the Working Group adopted annex II bis to the Agreement, entitled "Asian Highway Design Standards for Road Safety", thereby incorporating standards for road safety facilities into the Agreement.[9] The adoption of the annex was a much-needed step towards strengthening the Agreement's role in helping countries to promote higher quality standards and expand on the concept of infrastructure quality along the Asian Highway network.

23. Annex II bis is based on the recognition that road engineering and design influence the likelihood and severity of crashes, as evidenced by the national statistics and data on road safety casualties along the Asian Highway network cited in section II of the present document, as well as on the acknowledgement that the Agreement serves as an institutional platform for the coordinated development of road safety infrastructure facilities to meet harmonized standards.

24. The entry into force of annex II bis would constitute a major step in the development of the Asian Highway network, triggering an interactive process through which member countries could amend the annex to accommodate road safety facilities along the Asian highways and enhance the safety of transport along the network.

C. Facilitating the deployment of intelligent transport systems along the Asian Highway network

25. In the further expansion of the quality parameters of the Asian Highway network, one promising area consists of new infrastructure requirements that are conducive to a greater use of intelligent transport systems, which would support a move towards smart Asian highways.

26. Intelligent transport systems, which can be defined as an agglomeration of diverse technologies that enhance the sustainability of transport systems in a safer, smarter and greener way, have already demonstrated their potential to reduce road crashes, traffic congestion and negative environmental externalities in the Asia-Pacific region.

27. At present, the level of deployment of intelligent transport systems varies throughout the Asian Highway network. According to a recent survey conducted in the network member countries,[10] commonly used intelligent transport systems include advanced traffic management systems,[11] advanced

[9] Further information on the status of annex II bis can be found in document ESCAP/AHWG/2019/1.

[10] A survey of Asian Highway member countries was conducted in 2016, with 21 countries responding.

[11] Advanced traffic management systems represent a top-down approach to improving traffic through traffic management centres where real-time traffic data are collected, processed and distributed using diverse information dissemination devices. Traffic signal monitoring and control systems, vehicle speed enforcement violation systems, electronic toll collection systems and weigh-in-motion systems were the most popular among surveyed countries.

traveller information systems[12] and advanced public transport systems. Under each application, a variety of services offers diverse safety, accessibility and mobility benefits to road users and operators. Of these systems, advanced traffic management systems are the most frequently deployed among network member countries, followed by advanced traveller information systems and advanced public transport systems.

28. Recently, some Asian Highway network countries have been making the transition towards the use of more automated technologies in transport systems, taking advantage of such advances as artificial intelligence, the Internet of things and big data analytics. Even relatively less developed countries in the region are striving to leapfrog the technology gap by absorbing these innovations. Network member countries are currently discussing the possible future adoption of the following intelligent transport technologies: advanced traffic management centres, [13] cooperative intelligent transport systems, connected vehicles[14] and autonomous vehicles (see table).[15]

[12] Advanced traveller information systems update travellers with pre-trip and en route traffic information through various distributors of processed information. They are aimed at improving the efficiency and reliability of public transport services and the safety and convenience of the user experience by employing diverse information technologies and traffic management strategies. In most of the countries surveyed, these systems provide basic traffic information using devices and variable message signs. (*Review of Developments in Transport in Asia and the Pacific*).

[13] Traffic management centres are equipped with advanced traffic management systems. They employ real-time detection, traffic monitoring, adaptive traffic signal and control management, and wireless communications in order to maximize the capacity of roadway networks, minimize the impact of incidents on users and proactively manage traffic flows. Recently, these centres have been adopting open platforms, open application programming interface technology and advanced security technologies to warrant their upgrade to advanced traffic management centres. The incorporation of open application programming interface technology also facilitates better monitoring of traffic operations and the detection of vehicles, bicycles and pedestrians using pilot-phase detection technology. (United States of America, Department of Transportation, *Transportation Management Center Data Capture for Performance and Mobility Measures Reference Manual* (Washington, D.C., 2013); and Advantech B+B SmartWorx, "Implementing an advanced traffic management system with network structure upgrade", 13 March 2018).

[14] The concept of cooperative intelligent transport systems and connected vehicles is based on vehicle-to-everything technologies, including vehicle-to-infrastructure and vehicle-to-vehicle, which conduct the wireless data exchange between vehicles and various objects, including road infrastructure and other vehicles. Enabled by various forms of hardware, software and firmware, these technologies are used to mitigate congestion, reduce fuel consumption and emissions, and increase reliability, mobility and road safety by communicating with infrastructure, vehicles and other objects in response to road conditions. (Chad Morley, "7 connected car trends fuelling the future", 7 May 2018; and European Commission, *Study on the Deployment of C-ITS in Europe: Final Report – Framework Contract on Impact Assessment and Evaluation Studies in the Field of Transport* (Brussels, 2016)).

[15] In principle, autonomous vehicles, also called self-driving or driverless vehicles, are motorized vehicles that can travel without human intervention. They use satellite positioning systems and diverse sensors to detect the surrounding environment and to find appropriate paths while taking into account obstacles and traffic signage by using wireless networks, digital maps, automated controls in vehicles and real-time information gathered from smart infrastructure and the control centre. (*Review of Developments in Transport in Asia and the Pacific*; and ESCAP, *Policy Framework for the Use and Deployment of Intelligent Transport Systems in Asia and the Pacific: Study Report* (Bangkok, 2017)).

Cases of emerging information transport systems technologies

Category	*Cases*
Advanced traffic management centres	• Seoul Transport Operation and Information Service, Republic of Korea • Expressway Monitoring Advisory System, Singapore
Cooperative intelligent transport systems and connected vehicles	• National vehicle-to-everything standards were released in 2014, China • Roughly 3.7 million devices using the electronic toll collection 2.0 system (previously the Intelligent Transport Systems Spot Project) were distributed in 2018, Japan • Fifth-generation-connected vehicle-to-everything system was tested on major roads of Seoul in 2019, Republic of Korea
Autonomous vehicles	• New city project is planned exclusively for autonomous vehicles in Xiongan, a model district designated for developing autonomous driving technology, China • Verification tests on autonomous taxis and aims to commercialize autonomous taxis by the 2020 Olympic and Paralympic Games in Tokyo, Japan • K-City, one of the world largest sites for autonomous vehicle testing (360,000 square metres), was built in 2017, Republic of Korea

29. While the cycle of development of intelligent transport systems is getting shorter, some countries still face several implementation challenges that hinder the wider deployment of the systems along the Asian Highway network. For example, a wide gap exists in the development of related policies and technologies among the network member countries. In response to the emerging intelligent transport technologies, countries are pursuing different approaches with regard to regulation, policy and technology developments. In general, intelligent transport systems need to be better harmonized and standardized, especially among neighbouring members. In addition, inadequate regulations in some network member countries might hinder the integration of current and future technologies, sustainable plans and the development and operation of intelligent transport systems.[16]

30. Meanwhile, new opportunities for intelligent transport systems are arising in Asian Highway network member countries from the growing demand for emerging technologies by young people and smartphone users; new activities related to intelligent transport systems at the subregional level; increased integrated planning for connectivity, traffic management and road safety; steady infrastructure investments; and regional best practices and lessons learned from China, Japan, the Republic of Korea and Singapore.

[16] The challenges described here are drawn from six country reports from national experts in intelligent transport systems from Azerbaijan, China, the Russian Federation, Tajikistan, Turkey and Viet Nam, as well as fact-finding missions to China, Malaysia, the Republic of Korea, Singapore and Viet Nam. For additional information, see ESCAP, *Guidelines for the Regulatory Frameworks of Intelligent Transport Systems in Asia and the Pacific* (Bangkok, 2019).

31. In this context, a strategy of promoting the use of intelligent transport systems and their long-distance freight applications should become an integral part of the regional approach to planning and maintaining road transport infrastructure. Discussions on the development of the Asian Highway network could serve as a suitable opportunity to consider a coordinated approach to the development of new requirements related to intelligent transport systems for road infrastructure at the regional level.

32. Taking these circumstances into consideration and building on its previous work on the use of intelligent transport systems along the Asian Highway network, the secretariat is launching a project to assist countries in reaching a common understanding and increasing awareness of the use of highly or fully automated vehicles along the network. The project is aimed at strengthening regional cooperation by developing a set of guidelines on the topic. The guidelines will seek to address infrastructure and border crossing requirements, with an emphasis on the role of road infrastructure and intelligent transport systems in providing road users with information on the status of road and traffic conditions and in optimizing road traffic.

IV. Enhancing operational connectivity along the Asian Highway network

33. Upgrading the quality of road infrastructure along the Asian Highway routes needs to go hand in hand with enhancing operational connectivity along the network.

34. The facilitation of international road transport is a prominent feature of regional transport cooperation under the auspices of ESCAP. In the Regional Strategic Framework for the Facilitation of International Road Transport,[17] adopted by ESCAP member countries in 2012, six fundamental issues were identified, including the following: (a) road transport permits and traffic rights; (b) visas for professional drivers and crews of road vehicles; (c) temporary importation of road vehicles; (d) insurance of vehicles; (e) vehicle weights and dimensions; and (f) vehicle registration and inspection certificates. In addition, the above-mentioned Regional Action Programme for Sustainable Transport Connectivity in Asia and the Pacific, phase I (2017–2021), included a thematic area on regional transport operational connectivity, in particular harmonizing legal requirements and technical and operational standards, promoting the use of new technologies and implementing transport facilitation tools.

35. Against this background, the secretariat continues to support the countries in further enhancing operational connectivity along the Asian Highways network through such initiatives as promoting multilateral agreements on road transport rights along the network, helping member States to harmonize standards for weights, dimensions and emissions of road vehicles, encouraging the use of new technologies in international transit and promoting best practices and model approaches to transport facilitation.

A. Promoting multilateral agreements on road transport rights along the Asian Highway network

36. As recalled in the Regional Strategic Framework for the Facilitation of International Road Transport, road transport permits and traffic rights remain one of the main obstacles to seamless international road traffic along the Asian Highway network. In recent years, the secretariat has supported two major

[17] Commission resolution 68/4, annex, appendix II.

initiatives that have sought to open segments of the network to international road transport: the Intergovernmental Agreement on International Road Transport along the Asian Highway Network and the Agreement of the Shanghai Cooperation Organization Member States on the Facilitation of International Road Transport.

37. The Governments of China, Mongolia and the Russian Federation signed the Intergovernmental Agreement on International Road Transport along the Asian Highway Network in Moscow on 8 December 2016, during the third session of the Ministerial Conference on Transport. In doing so, each country agreed to grant the other two countries traffic rights for international road transport on the sections of Asian Highway routes AH3 and AH4 that connect their respective territories. Through the Agreement, the three ESCAP member States have operationalized the following Asian Highway routes: AH3 from Ulan-Ude in the Russian Federation to Tianjin port in China, via Ulaanbaatar and Beijing, providing, inter alia, access to the sea for landlocked Mongolia; and AH4 from Novosibirsk in the Russian Federation to Honqiraf at the Chinese border with Pakistan, via Urumqi and Kashi in China. This constitutes the first intergovernmental agreement concluded within the framework of the China-Mongolia-Russian Federation economic corridor.

38. At its seventy-third session, held in Bangkok from 15 to 19 May 2017, the Commission recognized the Intergovernmental Agreement on International Road Transport along the Asian Highway Network as an important initiative to operationalize the network and adopted resolution 73/4, in which it encouraged all parties to the Intergovernmental Agreement on the Asian Highway Network to consider accession to the Intergovernmental Agreement on International Road Transport along the Asian Highway Network and requested the Executive Secretary to continue to support its implementation. At its seventy-fourth session, held in Bangkok from 11 to 16 May 2018, the Commission further underscored the important role of the Intergovernmental Agreement on International Road Transport along the Asian High Network in operationalizing the network and noted the call for all network member countries to consider becoming parties.

39. Following the entry into force of the Agreement on International Road Transport on 21 September 2018, the secretariat, acting on the mandate provided in resolution 73/4, held two expert meetings for the parties to the Agreement, in Ulaanbaatar on 28 November 2018 and in Incheon, Republic of Korea, on 5 and 6 June 2019, with a view to facilitating the smooth launch of the Agreement's implementation and the establishment of the Joint Committee established to supervise the implementation of the Agreement in accordance with article 12 and annex 3 of the Agreement.

40. As the 2019 chair of that Joint Committee, the Government of China organized the first meeting in Manzhouli, China, on 3 and 4 July 2019. The Joint Committee agreed on the 200-permit quota for each of the three countries for 2019 and took a decision to distribute permits in the agreed quantity. The exchange of permits under the Agreement opened the door to international road transport on the segments of the AH3 and AH4 routes linking the territories of China, Mongolia and the Russian Federation.

41. The Agreement of the Shanghai Cooperation Organization Member States on the Facilitation of International Road Transport, which entered into force in January 2017, is another example of a legal instrument that serves to operationalize road transport infrastructure in the region through the provision of traffic rights for international road transport. This Agreement promotes transport connectivity among member countries of the Shanghai Cooperation

Organization. Since agreement negotiations were initiated in 2004, the secretariat has provided support in the form of technical and financial assistance, relevant research and the drafting of the Agreement and its annexes. India and Pakistan acceded to the Agreement in 2017, bringing the number of parties to the Agreement to eight (China, India, Kazakhstan, Kyrgyzstan, Pakistan, Russian Federation, Tajikistan and Uzbekistan).

42. The first meeting of the Joint Committee established to coordinate the implementation of the Agreement of the Shanghai Cooperation Organization Member States on the Facilitation of International Road Transport was held in Xiamen, China, on 13 and 14 December 2018. The Joint Committee agreed on the initial quota of road transport permits for 2019 at 200 permits per party and took other decisions pertinent to the implementation of the Agreement.

B. Towards harmonized standards for weights, dimensions and emissions of road vehicles along the Asian Highway network

43. The standards for weights, dimensions and emissions of road vehicles along the Asian Highway network represent another area where significant improvement to operational connectivity could be attained.

44. At present, countries along the Asian Highway network implement six different length limits on rigid trucks, ranging from 9.1 m to 12.2 m. For articulated vehicles, the maximum allowable length ranges from 16 m to 25 m, depending on the country. In addition, the maximum allowable gross weight ranges from 21 tons to 44 tons for rigid vehicles and from 36 tons to 61.5 tons for articulated vehicles. Furthermore, width standards for road vehicles in ESCAP countries are not harmonized. Most countries allow a maximum width of 2.5 to 2.55 m, while other countries allow a maximum 2.6 m to 3 m.

45. A number of challenges in international road transport arise from differences in national standards for the design and construction of road infrastructure and permissible vehicle weights and dimensions. Overloaded and oversized foreign vehicles can cause serious damage to roads, bridges and other transport infrastructure, due to their potential incompatibility with the road network design within the host countries, including tunnel height and width and road curve radii. This can have a serious impact on road safety. Divergence in national vehicle weight standards also creates inefficiencies along the logistics chain. For example, transport operators are obliged to load their vehicles in a suboptimal manner when transporting goods through a country with lower weight limits. This may place a financial burden on carriers and lead to delays in cargo delivery and lower efficiency.

46. Road transport emission standards among countries along the Asian Highway network also diverge. Some countries enforce Euro 6 minimum standards; some enforce Euro 2 minimum standards; and still others enforce their own national standards which may not be compatible with Euro standards.[18]

47. In the above-mentioned study on comprehensive planning of Eurasian transport corridors to strengthen the intraregional and interregional transport connectivity, the divergence in standards for weights, dimensions and emissions was identified as a source of significant inefficiencies along the considered transport routes. The following hypothetical scenario serves to

[18] Additional information is available at https://ec.europa.eu/growth/sectors/automotive/environment-protection/emissions_en.

illustrate the issue. In this scenario, country A has set the maximum permissible weight at 33 tons for a rigid vehicle and at 40 tons for an articulated vehicle. These limits are significantly lower than in neighbouring countries B and C, where the maximum permissible weight standards are 34 tons for a rigid vehicle and 44 tons for an articulated vehicle. On one hand, vehicles from country A will be at a disadvantage when carrying goods abroad, because they will be obliged to carry less cargo than vehicles from country B or C. Carriers from country A will either have to accept the resulting losses or attempt to make up the difference by performing more journeys, with consequences related to cost, time and the environment. On the other hand, carriers from neighbouring countries B and C face the challenge of either reducing the load weight of their vehicles when entering or in transit through country A or being fined by the control authorities. This scenario would place an unnecessary financial burden on carriers and lead to delays in cargo delivery, lower efficiency and negative environmental impacts.

48. Recognizing these issues, the secretariat is carrying out a study aimed at developing recommendations to facilitate the harmonization of national and subregional standards for weights, dimensions and emissions of vehicles to make cross-border and transit road freight transport more seamless and efficient for countries along the Asian Highway network and beyond.

49. The draft recommendations will be presented at the regional meeting on strengthening the capacity of ESCAP member States to harmonize standards for weights, dimensions and emissions of road vehicles for facilitation of transport along the Asian Highway network to be held on 19 September 2019. The recommendations could be used to enhance the capacity of policymakers in the region to harmonize standards.

C. Using new technologies for efficient cross-border and transit transport along the Asian Highway network

50. New technologies offer enormous opportunities for facilitating international transport in the region. Recently, countries in South Asia have taken tangible steps in using new technologies to facilitate transit transport. An electronic cargo-tracking system based on the secretariat's Secure Cross-Border Transport Model was introduced in India and Nepal in April 2019. The system, which obviates the requirement that third country imports from Nepal be cleared by Indian customs authorities, has been introduced at the Indian ports of Visakhapatnam and Kolkata. Trials conducted previously along the India-Bhutan transit transport route with technical assistance from the secretariat validated the technical and economic feasibility of using this cargo-tracking technology in transit facilitation.

51. Electronic cargo-tracking systems are increasingly being used in transit transport facilitation. Many subregional transport agreements, such as the Bangladesh-Bhutan-India-Nepal Motor Vehicles Agreement, have provisions for the electronic tracking of vehicles. In addition, the secretariat is responding to requests for support from many countries by organizing pilot programmes for the application of these systems.[19]

[19] Refer to paragraphs 7 and 14 of the conclusions and recommendations of the workshop on strengthening transport connectivity among Cambodia, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam, available at www.unescap.org/sites/default/files/Workshop%20conclusions%20Yangon%20Oct%202018.pdf.

52. In East Africa, where national electronic cargo-tracking systems could not provide seamless transit facilitation, countries set up a regional electronic cargo-tracking system to further improve the predictability and security of cargo.[20] The implementation of the system has yielded numerous benefits, such as reducing transit time from 11 days to 4, drastically reducing the diversion of goods in transit and improving real-time response from customs authorities.

53. Given the potential of electronic vehicle-tracking systems to facilitate transit transport, it may be desirable to standardize and harmonize parameters for the key components of a system at the regional or subregional level. Otherwise, the various vehicle-tracking systems may lack interoperability and be incapable of the desired transit transport facilitation.

54. The regional electronic tracking of goods and vehicles makes real-time enforcement possible, reducing customs authorities' perception of in-transit risks and enabling guarantee requirements to be lowered as a result. Electronic tracking systems coupled with electronic transit transport systems can, therefore, provide secure transit while reducing guarantee-associated costs.[21] They could support the establishment of flexible guarantees as compared to some existing transit systems that require rigid guarantees. To enhance knowledge of these systems among government officials, the secretariat developed a guide on establishing an automated customs transit transport system and further intends to furnish policy and capacity-building support at the request of the member countries.[22]

55. In an effort to fully harness the benefits of paperless technologies for international freight transport by road, countries could explore setting up a digital freight platform to expedite regulatory formalities under a road transport agreement to ensure its effective implementation.[23]

56. The proposed digital freight platform could have three modules: one module related to transport issues such as the online generation and verification of transport permits; a second module for the completion of immigration formalities, including through a database and/or the verification of crew; and a third module for customs authorities to process the initiation and completion of transit formalities, including guarantee management, tracking of vehicles, temporary admission of vehicles and marking vehicle entry and exit. All processes would be initiated and completed electronically. Other authorities could be given access to the platform as needed.

57. The digital freight platform could provide a range of services, including the following: (a) overstay of vehicles in foreign countries (a principal concern for control agencies); (b) real-time alerts on route deviation for responsible agencies to take action; (c) reconciliation of entry and exit vehicles; (d) prompt

[20] World Customs Organization, "Kenya, Rwanda and Uganda officially launch regional electronic cargo tracking system", 27 February 2017.

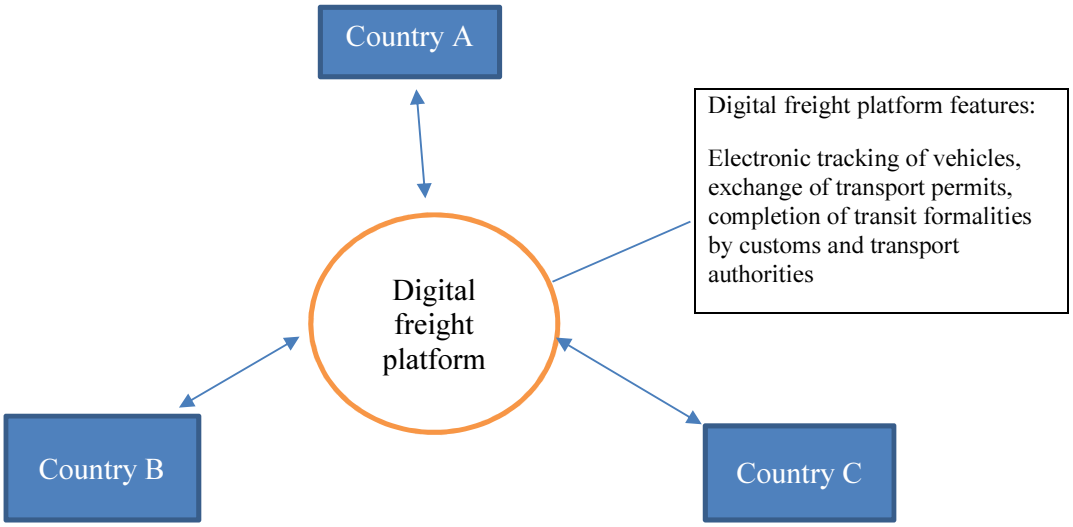
[21] This system is being implemented among States members of the Association of Southeast Asian Nations (ASEAN). The ASEAN Customs Transit System is based on the European Union's new computerized transit system.

[22] ESCAP, "Guide on establishing an automated customs transit transport system" (Bangkok, 2016).

[23] The completion of regulatory formalities primarily involve three agencies: transport authorities (issuing and checking road permits and transit issues), immigration authorities (carrying out checks on driver and crew identification documents) and customs authorities (dealing with transit, temporary admission, cargo and vehicle manifest, and vehicle entry and exit endorsement).

completion of transit-related formalities, including automatic discharge of guarantees; (e) sharing of information among control agencies, such as customs, police and transport; (f) entry and exit points, rest and recreation points and repair and refuelling stations; and (g) various fees and charges payable by the transport operators for completion of various formalities. The platform concept is illustrated in the figure.

Concept for a digital freight platform to process regulatory formalities in international road transport



58. Access to the platform could be granted on the basis of user authentication and the role of the agency concerned. In addition, the platform could be interconnected with the single window and customs information systems of each of the countries to avoid duplication.

59. The digital freight platform could be managed by an independent agency, with oversight carried out by a steering committee comprising representatives of member countries. Detailed arrangements could be provided in the corresponding transport agreement. In addition, a digital freight platform would provide opportunities for national regulatory authorities to explore the simplification and harmonization of formalities for cross-border and transit transport.

60. The platform could be considered on a pilot basis and ESCAP could support the countries participating in the pilot programme to establish the digital freight platform.

D. Promoting best practices and model approaches to transport facilitation

61. To support countries in implementing the modalities and attaining the targets included in or deriving from the Regional Strategic Framework for the Facilitation of International Road Transport, the secretariat maintains the following eight mutually complementary transport facilitation models to address the operational challenges of regional transport connectivity:

(a) The Secure Cross-Border Transport Model, which demonstrates the use of new technologies in transport facilitation;

(b) The Efficient Cross-Border Transport Models, which address developments in trucking industry practices that allow tractors and trailers to be swapped to deal with non-physical barriers;

(c) The Model on Integrated Controls at Border Crossings, which serves to streamline the flow of information from various agencies at the border to avoid duplication;

(d) The Time/Cost–Distance Methodology, which is a diagnostic tool and a method of monitoring the performance of transport corridors;

(e) The Model Bilateral Agreement on International Road Transport, which contains proposals on harmonizing the provisions of existing bilateral agreements that ESCAP member States could emulate in future negotiations on new bilateral agreements or amendments to existing agreements;

(f) The Model Subregional Agreement on Transport Facilitation, which contains a proposed structure and a brief description of the main elements and specific substantive issues that would be covered by a subregional agreement;

(g) The Model Multilateral Permit for International Road Transport, which can be used as an individual tool in implementing existing agreements or included in future agreements on international road transport;

(h) The Standard Model of Logistics Information Systems, which contains a comprehensive list of relevant technical standards, common technical standards for the establishment of logistics information systems that would enhance operational connectivity across the ESCAP region and practical guidance in the overall architecture of logistics information systems.

62. A series of national and multi-country workshops were organized at the request of the ESCAP members and associate members to support them in implementing these Models and enhancing the knowledge and skills of officials involved in cross-border and transit transport. In particular, the secretariat organized workshops on strengthening operational transport connectivity among countries in South-East Asia, namely Cambodia, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam. During these workshops, the countries agreed on the pilot application of a secure cross-border transport model along select transit routes. They expressed interest in trucking industry practices with regard to swapping tractors and trailers and requested the secretariat to draft a suitable legal instrument for their consideration.

63. The study on comprehensive planning of Eurasian transport corridors to strengthen the intraregional and interregional transport connectivity included an assessment of the operational connectivity status of the three Eurasian transport corridors. The study identified serious operational challenges affecting seamless international road transport along the corridors, including challenges linked to complex border crossing procedures and conflicting customs, immigration and transport authority requirements.[24]

[24] ESCAP, *Study Report 2017: Comprehensive Planning of Eurasian Transport Corridors*, page 89 (see footnote 8).

V. Issues for consideration by the Working Group on the Asian Highway

64. Taking into consideration the information provided in the present document, the Working Group may wish to provide the secretariat with further guidance on its policies and approaches relating to the following:

(a) Further development and implementation of infrastructure quality standards for Asian Highway routes and, in particular, activities related to the following:

(i) Monitoring continued national efforts to upgrade the quality of the Asian Highway routes;

(ii) Supporting countries in ratifying and implementing annex II bis entitled “Asian Highway Design Standards for Road Safety”;

(iii) Helping countries to evaluate the enabling conditions for a greater use of intelligent transport systems along the Asian Highway network;

(b) Operationalizing the Asian Highway network under the existing regional framework for the facilitation of international road transport, including through the following efforts:

(i) Encouraging countries to continue addressing the issue of road transport rights along the Asian Highway network;

(ii) Helping to promote harmonized standards for weights, dimensions and emissions of road vehicles along the Asian Highway network;

(iii) Promoting the use of new technologies for efficient cross-border and transit transport operations;

(iv) Assisting countries in implementing best practices and model approaches to transport facilitation.

Annex

Excerpts from reports of legislative meetings related to the Asian Highway network

Legislative meetings	*Decisions and recommendations*
Economic and Social Commission for Asia and the Pacific, seventy-fourth session, Bangkok, 11–16 May 2018	The Commission recognized that the development of integrated and intermodal transport, seamless connectivity and urban transport were essential for advancing the 2030 Agenda and achieving the Sustainable Development Goals. Well-connected and integrated transport and enhanced urban mobility could improve accessibility for vulnerable groups, promote trade and investment, provide increased employment opportunities and, ultimately, reduce inequalities in the Asian and Pacific region.[1] The Commission noted that member States were increasingly integrating their national transport infrastructure development plans into subregional and regional connectivity initiatives, in particular in providing landlocked countries and remote hinterland areas with access to international maritime ports.[2] The Commission recognized that the Intergovernmental Agreement on the Asian Highway Network, the Intergovernmental Agreement on the Trans-Asian Railway Network and the Intergovernmental Agreement on Dry Ports provided normative architecture for transport development in the region. It underscored that the Intergovernmental Agreement on International Road Transport along the Asian Highway Network that had been concluded between the Governments of China, Mongolia and the Russian Federation would play an important role in operationalizing the Asian Highway network and noted the call for all Asian Highway member countries to consider becoming parties.[3]

[1] ESCAP/74/44, para. 45.

[2] Ibid., para. 47.

[3] Ibid., para. 51.

Legislative meetings	*Decisions and recommendations*
Committee on Transport, fifth session, Bangkok, 19–21 November 2018	So far as road transport was concerned, the Committee recognized that the region still had considerable work to do towards harmonizing rules pertaining to vehicles' weights, dimensions and emissions. It also noted that excessive restrictions on road traffic rights continued to inflate transport costs and create delays at borders. Regarding the latter, the Committee voiced concern that excessive delays at borders not only diminished the efficiency of road transport operations but also negatively impacted transport safety and the environmental performance of the sector. In that connection, the Committee recognized the potential of the road transport facilitation tools developed by the secretariat and the ongoing ESCAP project on the harmonization of standards for weights, dimensions and emissions of road vehicles to address those issues and to contribute to much-optimized road operation along the Asian Highway network as well as Eurasian transport corridors.[4] The Committee was also apprised of numerous initiatives taken by member States to enhance sustainable operational transport connectivity, including through (a) the development and implementation of transport facilitation agreements at the bilateral and subregional levels, (b) the accession to international conventions related to transport facilitation, (c) the establishment of national transport and logistics bodies, and (d) the development of national integrated transport policies and master plans on transport and logistics.[5] At the current early stage in the realization of the 2030 Agenda, the Committee shared the view that the effective integration of the Asian Highway and Trans-Asian Railway networks, with connections to inland waterways, seaports, river ports, airports and dry ports, could offer seamless transport solutions to the region's vibrant industry. In that regard, the Committee recognized that waterborne transportation could make valuable contributions to the socioeconomic development of the region and trigger new forms of cooperation.[6]

[4] ESCAP/CTR/2018/8, para. 18.

[5] Ibid., para. 19.

[6] Ibid., para. 22.