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Policy issues for information and communications technology: towards the Asia-Pacific information superhighway

Towards the Asia-Pacific information superhighway

Note by the secretariat

Summary

The Economic and Social Commission for Asia and the Pacific (ESCAP), in resolution 71/10, decided to create the open-ended Working Group on the Asia-Pacific Information Superhighway. The 1st and 2nd meetings of the Working Group were held in 2015 and 2016 respectively. At its 1st meeting, the Working Group agreed that a master plan for the Asia-Pacific information superhighway and regional cooperation framework document would be developed. The Steering Group was formed to carry out that task, and the Master Plan and Regional Cooperation Framework Document were developed and reviewed at the 2nd meeting of the Working Group, in August 2016.

In support of efforts to achieve the Sustainable Development Goals and the goals of the World Summit on the Information Society, the Asia-Pacific information superhighway is a strategic regional connectivity initiative to stimulate the digital economy, narrow the digital divide and support various regional connectivity initiatives, such as trade and transport and socioeconomic applications, while encouraging innovation. The importance has been recognized not only by Governments but also by various stakeholders, such as the private sector, civil society and research institutes across the region.

This document summarizes the main activities undertaken in accordance with resolution 71/10, proposes the way forward and highlights issues for consideration by the Committee on Information and Communications Technology, Science, Technology and Innovation.

* E/ESCAP/CICTSTI(1)/L.1.

I. Introduction

1. Information and communications technology (ICT), in particular broadband technology, has increasingly been seen as an alternative, and in some cases an efficient and effective solution, to overcoming physical barriers, lack of resources and infrastructure and access to information, knowledge and services worldwide. At the same time, ICT plays multiple strategic roles as the meta-infrastructure, growth-industry basis for the expanding digital economy and, most importantly, a critical development enabler that contributes towards achieving the Sustainable Development Goals.

2. ICT is a foundation for promoting sustainable development, while being a growth sector that contributes to economic growth. The Internet, for instance, has transformed the way we live by providing instant connectivity to the remotest areas of the world and transmitting data, information and knowledge in multiple formats and languages over fibre-optic cables, wireless networks or satellites. Being highly versatile, ICT now permeates every facet of our lives by enabling trillions of dollars of financial transactions every day, connecting weather forecasts to agricultural production and disaster management, managing intelligent transport, controlling epidemics, advancing climate change adaptation and promoting new businesses and even industries. With the Internet of things and cloud computing, devices will be connected to each other and transmit data, enabling unparalleled opportunities for vast data collection and analysis, while providing ICT capabilities anywhere in the world.

3. In addition, ICT-enabled financial, transport and trade facilitation infrastructure will be essential to encouraging innovations and developing an inclusive digital economy in the region. Broadband-enabled technologies, such as smart grids, intelligent transport systems, integrated water management systems and single windows, are some of the efficiencies that will drive growth in all sectors of the economy. This emerging infrastructure is built on broadband networks and facilitates the movements of goods, services, people and money across countries, thereby acting as building blocks of the emerging digital economy.

4. The Internet also plays an important role in modernizing government services and enhancing the quality of interactions and accountability between public administrations, citizens and businesses, while improving efficiency, effectiveness and transparency. In May 2016, the Copenhagen Consensus Center published a report of a project in which it conducted a cost-benefit analysis of various development interventions in Bangladesh.[1] The report found that of more than 70 development activities, the most cost-efficient development interventions were ICT-related: e-procurement ($663 in benefits for every $1 spent), followed by digitization of land records ($619 for every $1). Services provided at Union Digital Centers and broadband expansion in Bangladesh were also listed as having had a positive impact. If aggregated at the regional level, the developmental benefits would be substantial. These are only some of the potential benefits of ICT in general and broadband Internet in particular that will make a tangible difference to the lives of people in the region.

[1] See a summary of the project at www.economist.com/news/finance-and-economics/21698302-ambitious-attempt-work-out-best-use-scarce-resources-how-spend-it.

5. Against this background, ICT has emerged as an indispensable development enabler that contributes to and accelerates the achievement of the Sustainable Development Goals. At the same time, the Sustainable Development Goals have direct and indirect ICT-related targets. Target 9.1 (Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all) and means of implementation 9.c (Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020) are some of the direct ICT-related targets.[2]

6. The indirect contributions of ICT to other Sustainable Development Goals targets take various forms, including development-accelerating applications and initiatives. One such application is mobile money, which has been transforming the way financial services are provided to the poor and expanding service coverage not only in middle-income countries, such as the Philippines, but also in other parts of the region. Mobile money and mobile banking constitute an emerging tool to facilitate financial transactions among a much wider segment of the population for a lower cost, not only within the country but also across national boundaries, thereby facilitating financial inclusion.

7. With the rapid expansion of mobile devices and connectivity, as highlighted in the note by the secretariat entitled "Asia-Pacific information superhighway: for inclusive and seamless connectivity"[3] for the seventy-second session of the Commission in May 2016 and in the following sections of the present note, the landscape of ICT for development has dramatically changed since the last session of the Committee on Information and Communications Technology was organized in 2014. The World Economic Forum published a report in 2016 that highlights that: (a) the digital revolution changes the nature of innovation, based on new technologies and business models; (b) companies need to innovate continuously; (c) businesses and Governments have not yet fully capitalized on the digital opportunities; and (d) a new digital economy requires innovations in governance and regulations.[4] Taking these points into account, the Forum's Networked Readiness Index 2016 ranks Singapore as number one worldwide, followed in the ESCAP region by: Japan (10); Hong Kong, China (12); the Republic of Korea (13); New Zealand (17); and Australia (18).

8. The aim of this note is to discuss the progress made in developing affordable and reliable broadband in the region through the Asia-Pacific information superhighway, in particular within the overall objective of achieving the Sustainable Development Goals. It also contains analyses on emerging ICT trends and characteristics of the digital divide in Asia and the Pacific.

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[2] A more detailed description of the ICT-related targets and their linkage to the action lines of the World Summit on the Information Society can be found in the note by the secretariat on the regional review of the implementation of the World Summit on the Information Society action lines (E/ESCAP/CICSTI(1)/4).

[3] E/ESCAP/72/17.

[4] World Economic Forum, *The Global Information Technology Report 2016: Innovating the Digital Economy* (Geneva, 2016). Available from www.weforum.org/reports/the-global-information-technology-report-2016.

II. Progress towards the Asia-Pacific information superhighway

9. In Commission resolution 69/10 in 2013, member States recognized the need to promote the exchange of best practices and experiences related to the development of ICT infrastructure, including in-depth analysis of the policy and regulatory barriers that could impede efforts to synchronize the deployment of ICT infrastructure across the region in a seamless manner.

10. Furthermore, in its resolution 71/10, the Commission decided to establish the open-ended Working Group on the Asia-Pacific Information Superhighway to agree on principles and norms and develop a master plan, covering both the policy and technical aspects of the Asia-Pacific information superhighway, and a regional cooperation framework, and that consideration should be given to amending the Intergovernmental Agreement on the Trans-Asian Railway Network and the Intergovernmental Agreement on the Asian Highway Network. It further requested the secretariat to promote the sharing of good practices and lessons learned in ICT for disaster risk reduction and e-resilience, support the work of the Working Group, undertake research and analysis, build partnerships and collaboration with international and regional organizations and harness cross-sectoral synergies.

11. Accordingly, the 1st meeting of the Working Group was held in Incheon, Republic of Korea, on 1 and 2 September 2015.[5] At that meeting, which was attended by 19 member countries and representatives from the private sector, civil society and think tanks, the Working Group decided to:[6]

(a) Draft a master plan encompassing the long-term vision, targeted goals, specific activities and milestones with regard to the four pillars of the Asia-Pacific information superhighway;

(b) Draft a regional cooperation framework for the Asia-Pacific information superhighway that covers the four pillars;

(c) Agree upon aspects relating to its own structure and operations.

III. Activities implemented by and in relation to the Working Group and Steering Group on the Asia-Pacific Information Superhighway

12. Subsequently, upon the decision at the meeting of the Working Group, the Steering Group on Asia-Pacific Information Superhighway was established.[7] With members consisting of multi-stakeholder representatives with policy and technical expertise, the primary objective of the Steering Group was to draft the master plan for the Asia-Pacific Information Superhighway and the regional cooperation framework document, incorporating the above requirements.

13. The Steering Group's discussions on the master plan and regional cooperation framework document started in June 2016 online under the

[5] See www.unescap.org/events/first-meeting-working-group-asia-pacific-information-superhighway.

[6] See www.unescap.org/sites/default/files/Outcome%20Document%20Sept%202015.pdf.

[7] See www.unescap.org/sites/default/files/Ap-IS%20SG%20ToR.pdf.

chairmanship of the National Information Society Agency of the Republic of Korea. The outcome documents were presented to the 2nd meeting of the Working Group, held in China on 29 and 30 August 2016.[8] The meeting endorsed both the Master Plan for the Asia-Pacific Information Superhighway and the Asia-Pacific Information Superhighway Regional Cooperation Framework Document[9] and discussed recommendations to be presented to the first session of the Committee on Information and Communications Technology, Science, Technology and Innovation.

14. In support of expanding partnerships and collaboration with various stakeholders, an Asia-Pacific information superhighway private-sector consultative meeting was organized with the participation of the region's leading telecommunications operators, think tanks, research institutes and financial institutions, such as the International Finance Corporation.[10] The meeting was instrumental in gaining insights and discussing the challenges and opportunities that the private sector faces so as to ensure that their views were reflected in the Asia-Pacific information superhighway design.

15. Furthermore, the secretariat coordinated with the International Telecommunication Union and the Asia-Pacific Telecommunity to organize the 19th Meeting of the Regional Inter-agency Working Group on Information and Communications Technologies on 15 December 2015.[11] As the only regional platform for agency coordination in the area of ICT and as a follow-up to the deliberations of the fourth session of the Committee on Disaster Risk Reduction,[12] the meeting focused on the emerging topic of ICT for disaster risk reduction and how agencies could cooperate, synergize efforts and produce better development outcomes.

16. One of the initiatives presented during that inter-agency meeting was the Asia-Pacific Gateway on disaster risk reduction and ICT on how agencies can systematically share information and initiatives online.[13] Since then, in order to conform to the United Nations ICT policy, the Gateway has been updated and upgraded with additional features of online communities. It aims to provide policymakers and relevant stakeholders with a one-stop portal containing a spectrum of resources and tools to promote ICT for development and disaster risk reduction in Asia and the Pacific, while providing a space for discussions and dialogues among policy- and decision makers as well as partners for the advancement of the Asia-Pacific information superhighway.

[8] See www.unescap.org/events/second-session-working-group-asia-pacific-information-superhighway.

[9] E/ESCAP/CICTSTI(1)/2 and E/ESCAP/CICTSTI(1)/3.

[10] See www.unescap.org/events/asia-pacific-information-superhighway-ap-private-sector-consultative-meeting.

[11] See www.unescap.org/events/19th-meeting-regional-interagency-working-group-iwg-information-and-communication.

[12] See www.unescap.org/events/committee-disaster-risk-reduction-fourth-session.

[13] See http://drrgateway.net/.

IV. Deepening understanding of the four pillars of the Asia-Pacific information superhighway

17. As a pillar of regional connectivity, the Asia-Pacific information superhighway initiative aims to be a catalyst to develop seamless regional broadband networks which improve affordability, reliance, resilience and coverage and thereby address the causes of digital divides, develop the Internet ecosystem, support the implementation of the Sustainable Development Goals and stimulate the digital economy in Asia and the Pacific. As described in the note by the secretariat[3] for the seventy-second session of the Commission in May 2016, the Asia-Pacific information superhighway is designed around four pillars: (a) strengthening the regional broadband infrastructure; (b) establishing regional Internet traffic and network management systems and policies; (c) enhancing ICT infrastructure resilience; and (d) providing inclusive access to broadband Internet.

18. Around the four pillars of the Asia-Pacific information superhighway, the secretariat, in partnership with the region's leading think tanks and research institutes, undertook research and analyses to deepen understanding of emerging trends and policy, regulatory and technological gaps, opportunities and requirements. Some of the reports were already featured in the note by the secretariat for the seventy-second session of the Commission,[3] while the findings of the other research and analyses are available on the ESCAP website.[14]

V. The state of information and communications technology: salient features of the digital divide in Asia and the Pacific

19. Despite the significant progress made by some advanced economies in the region, the nature and scope of the digital divide have changed. Unaddressed, this disparity between advanced and developing economies will lead to exacerbated gaps in ICT access and capabilities and which will subsequently impact development opportunities, as a result of the very nature of ICT as the meta-infrastructure and a development enabler. For these reasons, the growing digital divide and the need for availability, affordability, reliability and coverage of broadband access in the ESCAP region should be considered a matter of urgent priority.

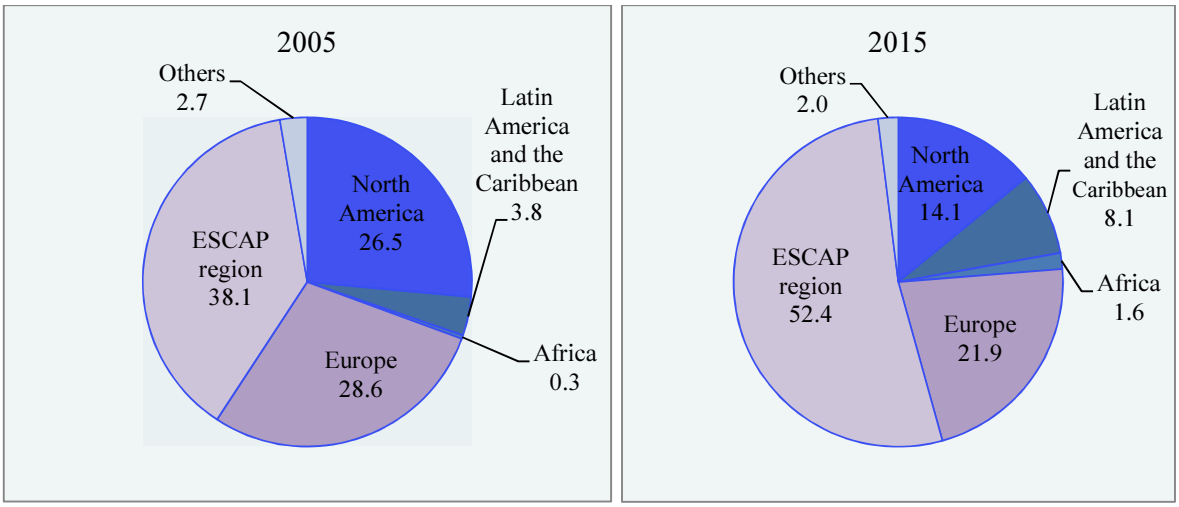
20. The secretariat recently updated the analyses on the salient features and characteristics of the region's digital divide, using the 2015 data set made available by the International Telecommunication Union, as summarized below.

A. More than half of global fixed broadband subscriptions

21. For the first time, over 52 per cent of the global fixed broadband subscribers come from ESCAP member countries, followed by Europe (21.9 per cent) and North America (14.1 per cent), according to the latest data from the International Telecommunication Union. This shows a dramatic increase from 2005, when ESCAP subscriptions constituted 38.1 per cent of the global total fixed broadband subscriptions, followed by Europe (28.6 per cent) and North America (26.5 per cent) (see figure I).

[14] See the relevant documents on ICT for e-resilience, transport and sustainable development at www.unescap.org/resources.

Figure I
Global fixed broadband subscriptions in 2005 and 2015
(Percentage)



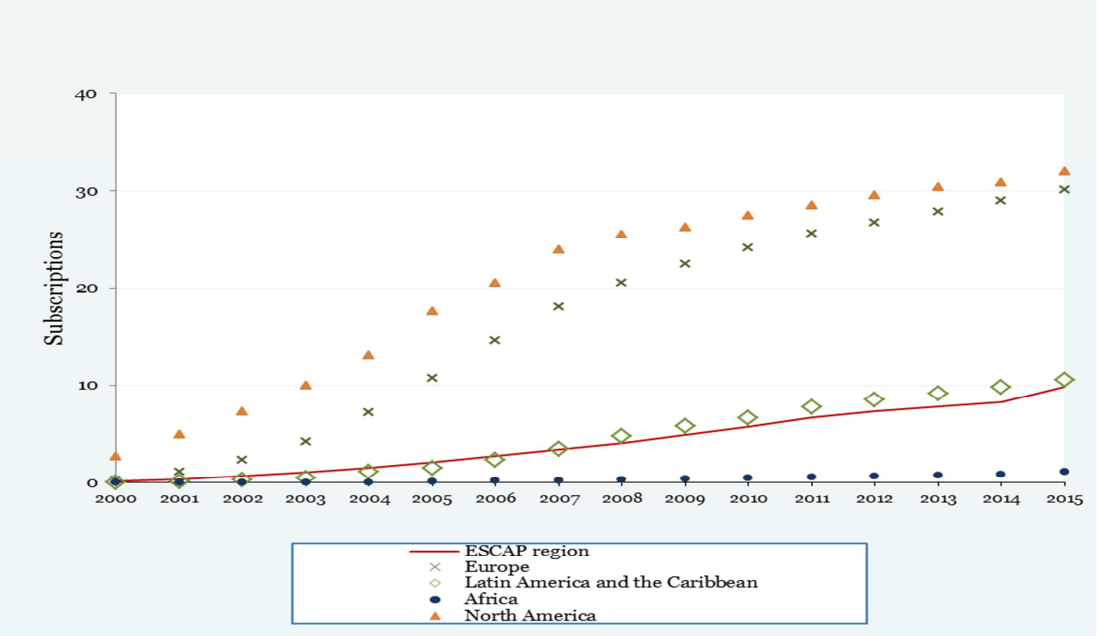
Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

B. Lagging behind in fixed broadband penetration

22. However, when weighted by population, the number of fixed broadband subscriptions per 100 inhabitants in the ESCAP region is lower than Latin America and the Caribbean region, and far lower than Europe and North America which scored more than 25 subscriptions per 100 inhabitants, the world average being 11.2 in 2015 (see figure II).

23. Hence, despite the increase in the total number of fixed broadband subscriptions, there is relatively slow growth in Asia and the Pacific.

Figure II
Fixed broadband subscriptions (average), 2000-2015
(Per 100 inhabitants)



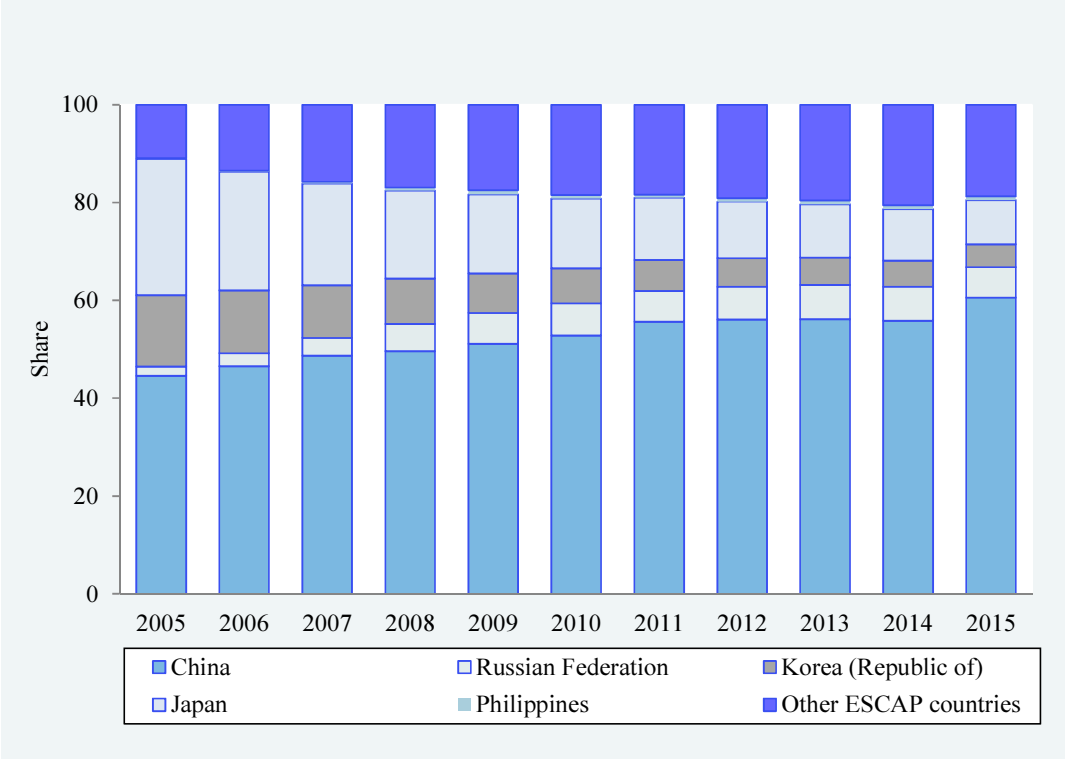
Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

C. Fixed broadband subscriptions: 75 per cent in East and North-East Asia, driven by China[15]

24. When analysed by ESCAP subregion, it becomes clear that the total number of fixed broadband subscriptions in 2015 derives predominantly from East and North-East Asia (75 per cent), followed by South and South-West Asia (10 per cent), North and Central Asia (8 per cent), South-East Asia (6 per cent) and the Pacific (1 per cent). In 2014, East and North-East Asia recorded 69 per cent, followed by South-East Asia (11 per cent), South and South-West Asia (10 per cent), North and Central Asia (8 per cent) and the Pacific (2 per cent), illustrating an intensified concentration in East and North-East Asia. When the total number of fixed broadband subscriptions is further disaggregated by country, it becomes clear that the strong performance in North and Central Asia is driven by China. In fact, in the ESCAP region more than half of the broadband subscriptions were in China in 2015. The growth of broadband subscriptions in China has increased steadily over the past decade (see figure III).

[15] The East and North-East Asia subregion includes: China; Democratic People's Republic of Korea; Hong Kong, China; Japan; Macao, China; Mongolia; Republic of Korea; and Russian Federation.

Figure III
Share of total fixed broadband subscriptions of the top five and other ESCAP countries, 2005-2015
(Percentage)

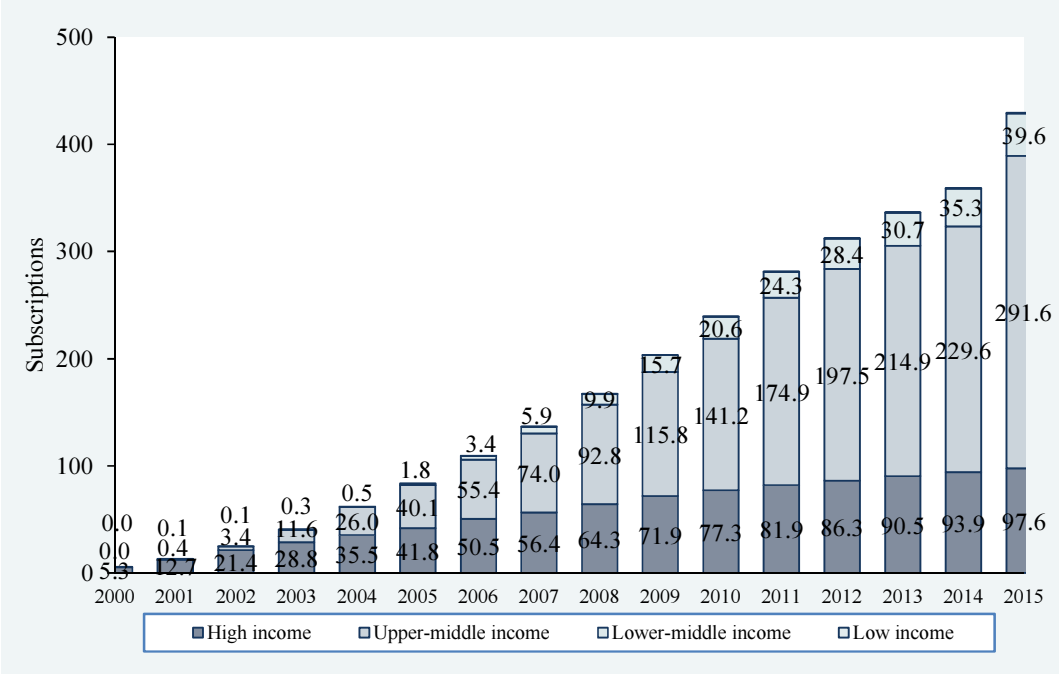


Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

Note: Owing to missing data, the number of subscribers for the Philippines in 2010 is the average between 2009 and 2011.

25. The increase in fixed broadband subscriptions follows different patterns among countries of different income levels. The upper-middle-income economies have the highest number of subscriptions since 2004, driven by the growth in China, and are the fastest growing group of countries in the region. The high-income economies demonstrate stable but slower growth, while lower-middle-income economies demonstrate accelerated growth since 2009. The most worrying development is a lack of progress in the total number of fixed broadband subscriptions among low-income economies, further accentuating the digital divide between countries (see figure IV).

Figure IV
Fixed broadband subscriptions in ESCAP economies by income level, 2000-2015
(Millions)



Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx.

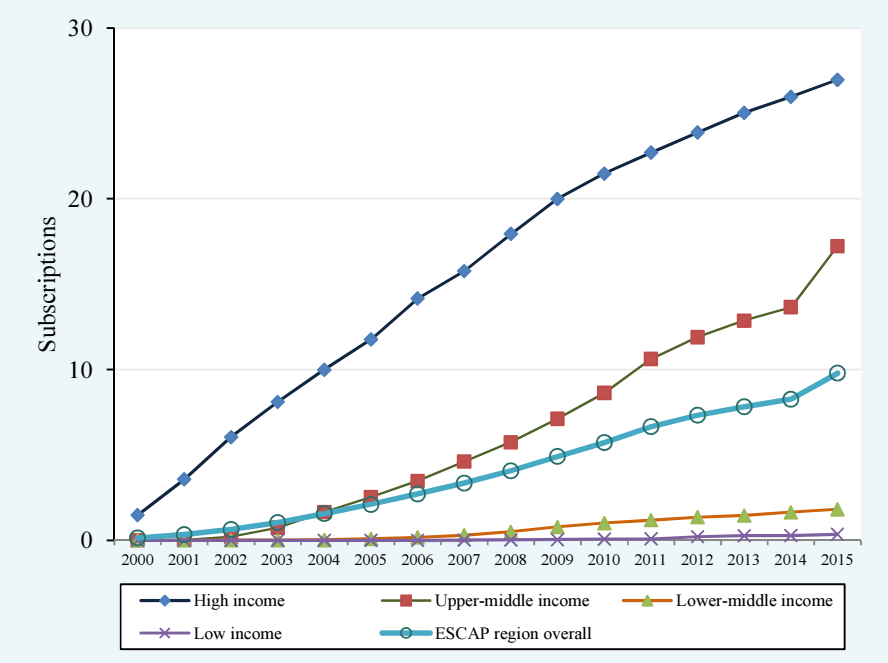
Note: The low-income economies do not show on the bar graph owing to extremely low values (0.6 million and less).

26. The total number of fixed broadband subscriptions is an important indicator, if the market size and commercial opportunities are considered. If a country enjoys fixed broadband penetration of 50 per cent, the market remains small if the total number of broadband subscriptions is just 10,000; however, from the social and digital inclusion perspectives, the number of broadband subscriptions per 100 inhabitants is a far more important indicator in relation to a given society.

D. High-income countries more digitally inclusive

27. ESCAP high-income economies have shown steady growth over the past years with the growth rate matched only by the upper-middle-income economies. However, unless other income groups accelerate broadband expansion through targeted policy interventions, the gap between them and high-income countries is unlikely to narrow according to current growth patterns (see figure V).

Figure V
Fixed-broadband subscriptions (average) in ESCAP economies by income level, 2000-2015
(Per 100 inhabitants)

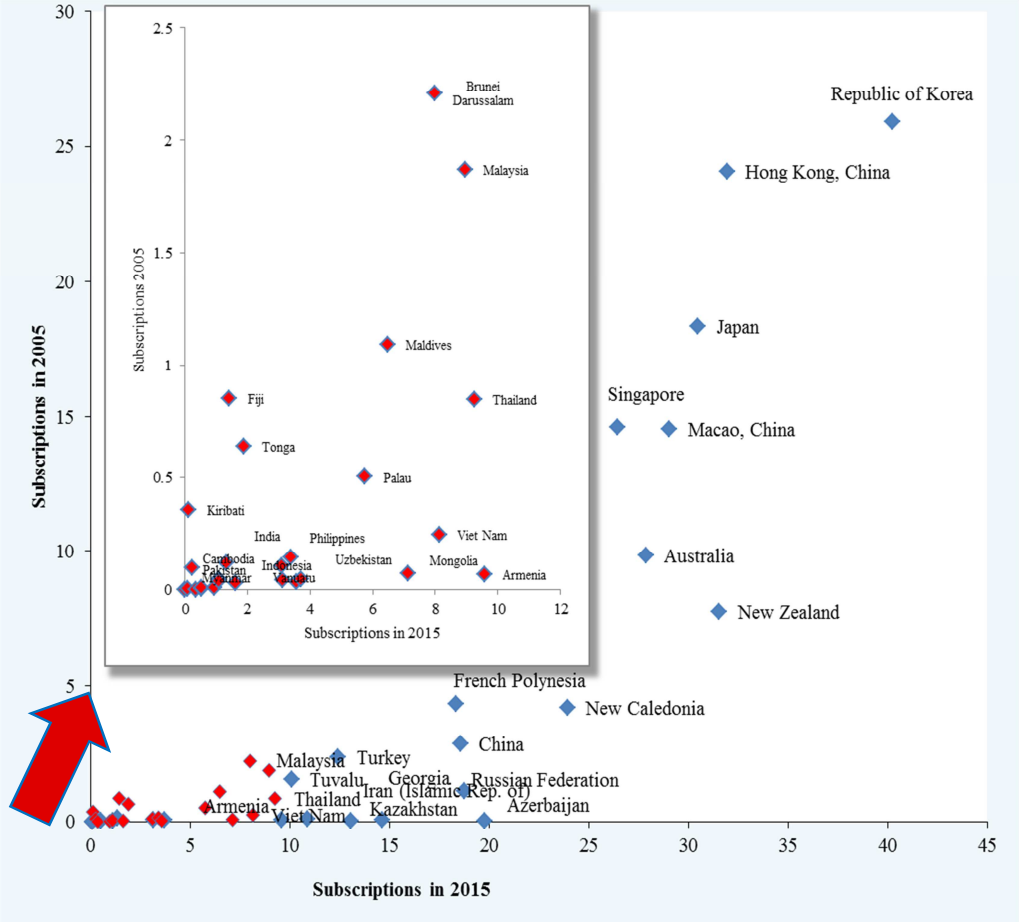


Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

E. Fixed broadband growth spreading to the emerging countries, albeit slowly

28. At the country level, fixed broadband connectivity performance varies among ESCAP member countries over time. Figure VI compares fixed broadband subscriptions per 100 inhabitants between 2005 and 2015. The inset graph is a close-up of the lower left corner of the main graph. A first group of countries – the Republic of Korea; Hong Kong, China; Japan; Singapore; Australia; New Zealand; and Macao, China – performed well in 2005 and continued to improve significantly in 2015. A second group of countries is catching up fast and has shown significant improvement over time, including the Philippines, Azerbaijan, the Russian Federation, French Polynesia, Kazakhstan and Georgia, among others. The last group of countries is progressing the slowest in both years. The second group may have a lot to offer in terms of effective policy and regulatory measures and investment strategies which led to their rapid expansion of fixed broadband.

Figure VI
Fixed broadband subscriptions (average), 2005 and 2015
(Per 100 inhabitants)



Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

F. Online services to support socioeconomic development and create demand for ICT infrastructure

29. The availability of online content and services, especially from Governments, is expected to support the achievement of Sustainable Development Goals and fuel demand for ICT infrastructure, which then would allow more services and applications to be launched, creating a virtuous cycle. Some ESCAP countries are performing well in terms of online services provided by Governments. Data from the *United Nations E-Government Survey 2014* suggest, however, that ESCAP member countries demonstrate diverse growth patterns between development of online services and that of infrastructure.[16]

[16] *United Nations E-Government Survey 2014: E-Government for the Future We Want* (United Nations publication, Sales No. 14.II.H.1). Available from https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2014.

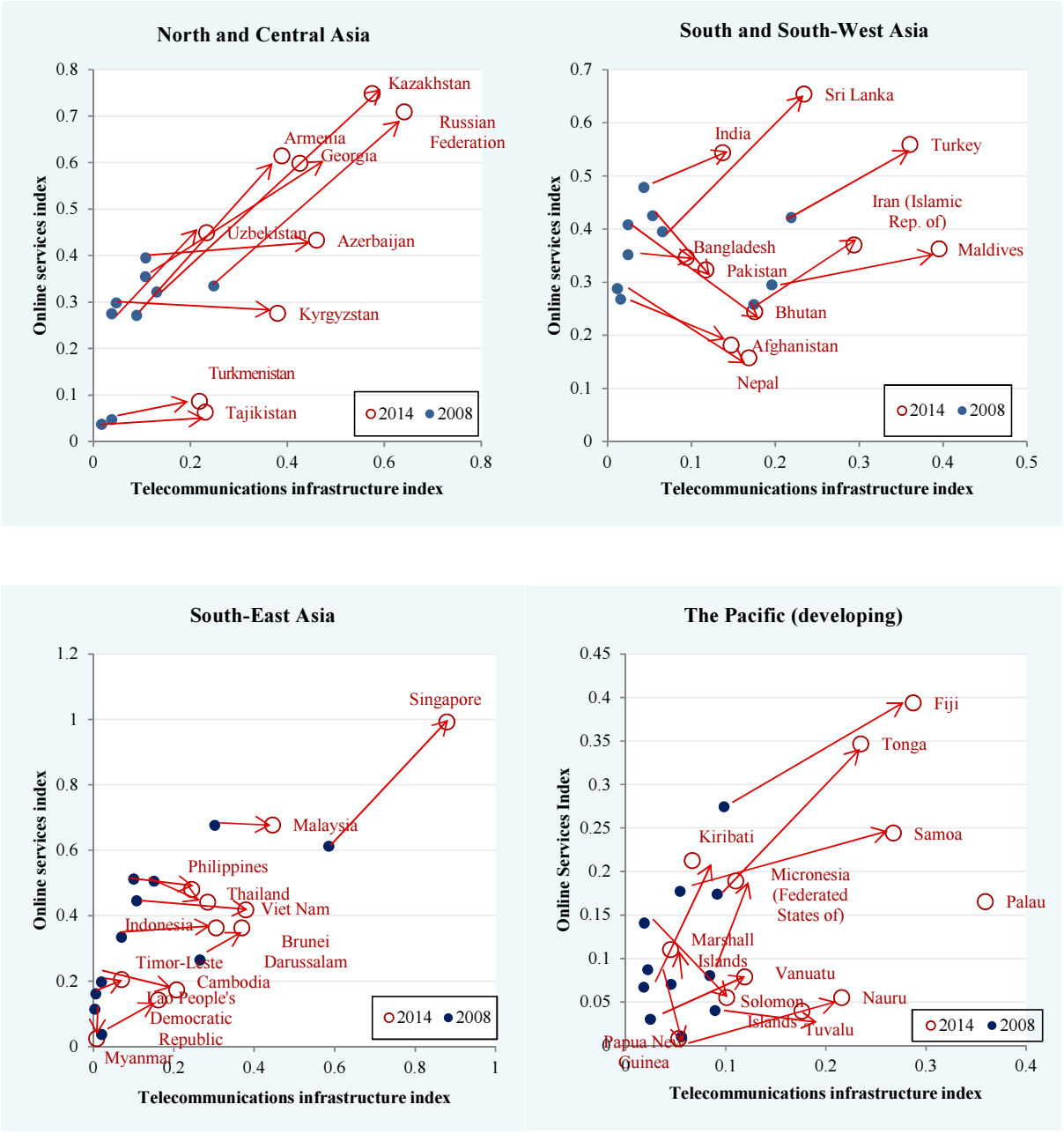
30. Disaggregating ESCAP members by subregions with available data (see figure VII), it is clear that Kazakhstan (North and Central Asia) has shown the most progress in terms of advancing both online services and ICT infrastructure between 2008 and 2014. Other ESCAP countries that have performed well on both axes include the Russian Federation, Armenia, Georgia and Uzbekistan.

31. In the case of South and South-West Asia, Sri Lanka, Turkey, India and the Islamic Republic of Iran progressed well in both telecommunications infrastructure and online services between 2008 and 2014. Other countries progressed well predominantly on telecommunications infrastructure.

32. In the case of South-East Asia, Singapore stands out as progressing extremely well for both online services and telecommunications infrastructure. As for Pacific developing countries (Australia and New Zealand having progressed well on both axes), Fiji, Tonga, Kiribati, Marshall Islands and the Federated States of Micronesia progressed well between 2008 and 2014 in developing online services and telecommunications infrastructure.

Figure VII

Online services content versus telecommunications infrastructure in four ESCAP subregions, 2008 and 2014



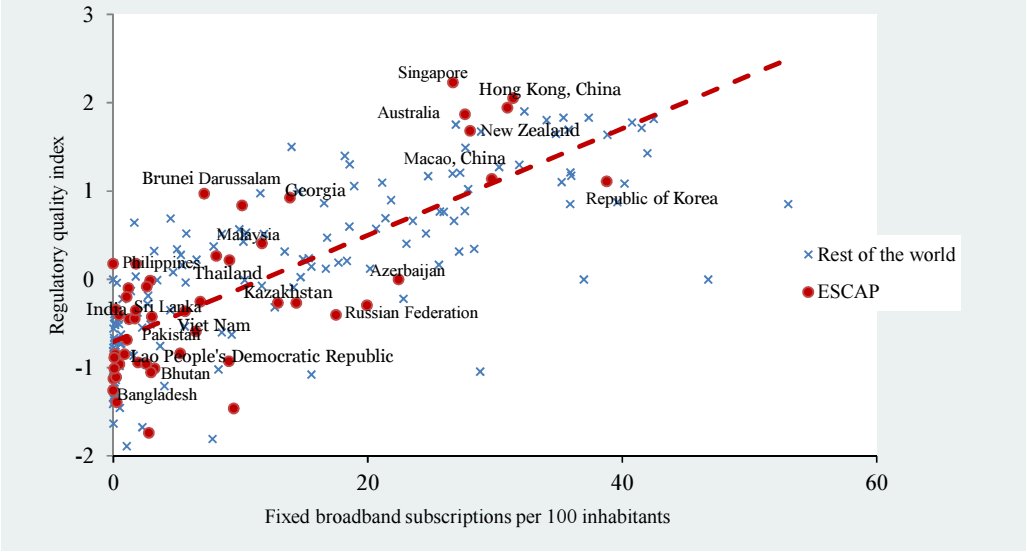
Source: Produced by ESCAP, based on *United Nations E-Government Survey 2014: E-Government for the Future We Want* (United Nations publication, Sales No. 14.II.H.1). Available from https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2014 (accessed April 2016).

Note: East and North-East Asia subregion not included as only limited data available.

G. Strong correlation between quality of regulation and fixed broadband adoption

33. One common denominator that could explain this slow progress in some countries is the perception of the quality of regulations. Perception of poorer regulations in promoting business development is strongly associated with lower ICT connectivity (lower fixed-broadband penetration), and vice versa, in ESCAP countries, as in most other countries in the rest of the world (see figure VIII).

Figure VIII
Perception of quality of regulation and fixed broadband connectivity, 2014



Source: Produced by ESCAP based on: (a) International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016 (available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx; accessed July 2016); and (b) World Bank, World Development Indicators, World DataBank (available from http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators; accessed April 2016).

Note: Estimates for regulatory quality ranges between -2 (poor regulatory quality) and +2 (very good regulatory quality).

H. High pricing a major deterrent for fixed broadband adoption

34. Affordability of access is one of the key factors driving adoption of fixed broadband by consumers and businesses in Central and South Asia and the Caucasus. According to a recent study,[17] in 2 of the 10 countries surveyed – Afghanistan and Tajikistan – the cost of fixed broadband represents more

[17] Asian Development Bank, Economic and Social Commission for Asia and the Pacific and Internet Society, *Unleashing the Potential of the Internet in Central Asia, South Asia, the Caucasus and Beyond* (2015). Available from www.unescap.org/resources/unleashing-potential-internet-central-asia-south-asia-caucasus-and-beyond.

than a quarter of personal income in terms of purchasing power parity (see table 1). This high price therefore means that the vast majority of the population does not have access to affordable broadband. In three additional countries – Turkmenistan, Uzbekistan and Pakistan – the study indicated that the price of fixed broadband access is expensive, as defined by the Broadband Commission (more than 5 per cent of personal income in terms of purchasing power parity).

Table 1
Affordability of fixed broadband services in Central and South Asia

Country	*Monthly subscription (United States dollars)*	*Cost (percentage of gross national income per capita)*	*Cost (percentage of gross national income per capita in terms of purchasing power parity)*	*Evaluation*
Afghanistan	69.00	123.6	42.2	Unaffordable
Armenia	8.77	2.8	1.2	Affordable
Azerbaijan	9.50	1.5	0.7	Affordable
Georgia	8.95[a]	2.9	1.4	Affordable
Kazakhstan	20.60[b]	2.1	1.1	Affordable
Kyrgyzstan	5.83	5.6	2.2	Moderate
Pakistan	29.40[c]	25.0	6.9	Expensive
Tajikistan	58.44	64.9	26.4	Unaffordable
Turkmenistan[d]	171.40[e]	25.6	14.2	Expensive
Uzbekistan	37.50	21.5	7.7	Expensive

Source: Asian Development Bank, Economic and Social Commission for Asia and the Pacific and Internet Society, *Unleashing the Potential of the Internet in Central Asia, South Asia, the Caucasus and Beyond* (2015). Available from www.unescap.org/resources/unleashing-potential-internet-central-asia-south-asia-caucasus-and-beyond.

[a] 2 megabits per second; no cap.

[b] 4 megabits per second; no cap.

[c] 4 megabits per second; no cap.

[d] Turkmenistan has a monthly subscription plan for $38 per megabit per second, but it is capped at 400 megabits monthly, and charges excess fees of $0.03 per megabit.

[e] 512 kilobits per second; no cap.

35. All the countries with unaffordable or expensive broadband access in table 1 are listed among the 20 countries in which adoption of fixed broadband is less than 2 per cent.

36. In South-East Asia, ESCAP conducted a study on broadband networks, gaps and opportunities among member States of the Association of

Southeast Asian Nations (ASEAN) in 2015.[18] Lack of diversity in ICT connectivity reduces competition and increases the cost of access to global networks, including via submarine cables. The above-mentioned study found varying costs of Internet transit connectivity, indicating how expensive or affordable broadband access is in each ASEAN country (see table 2).

Table 2
Cost of Internet transit connectivity in ASEAN countries
(United States dollars; per month; per megabit per second)

Country	*Cost*
Cambodia	100
Indonesia	60/70 - >100
Lao People's Democratic Republic	100
Malaysia	25-30[a]
Myanmar	>100
Philippines	80
Singapore	<10[a]
Thailand	80
Viet Nam	70

Source: ESCAP and National Information Society Agency of the Republic of Korea, "A pre-feasibility study on the Asia-Pacific information superhighway in the ASEAN sub-region: conceptualization, international traffic and quality analysis, network topology design and implementation model" (2016). Available from www.unescap.org/resources/pre-feasibility-study-asia-pacific-information-superhighway-asean-sub-region.

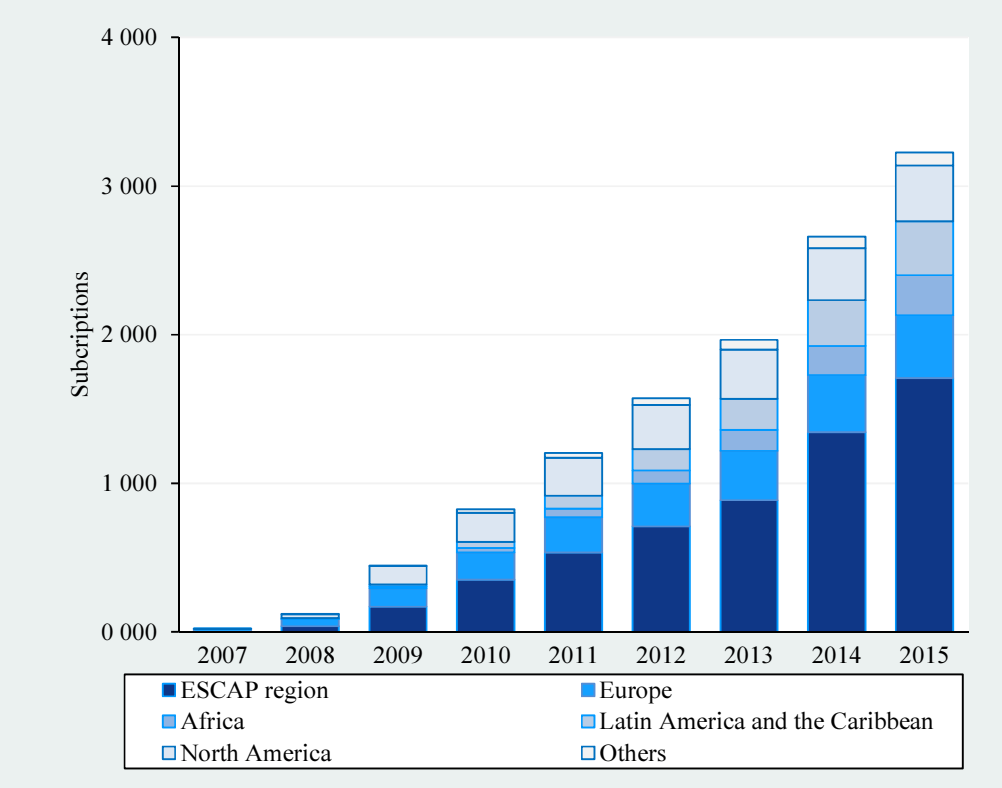
[a] When bought in volume.

I. ESCAP region leading mobile broadband expansion

37. Another important indicator of ICT connectivity is mobile broadband adoption. Mobile broadband penetration in the ESCAP region has led growth with the majority of mobile broadband subscriptions worldwide, followed by Europe and North America (see figure IX).

[18] Economic and Social Commission for Asia and the Pacific and National Information Society Agency of the Republic of Korea, "A pre-feasibility study on the Asia-Pacific information superhighway in the ASEAN sub-region: conceptualization, international traffic and quality analysis, network topology design and implementation model" (2016). Available from www.unescap.org/resources/pre-feasibility-study-asia-pacific-information-superhighway-asean-sub-region.

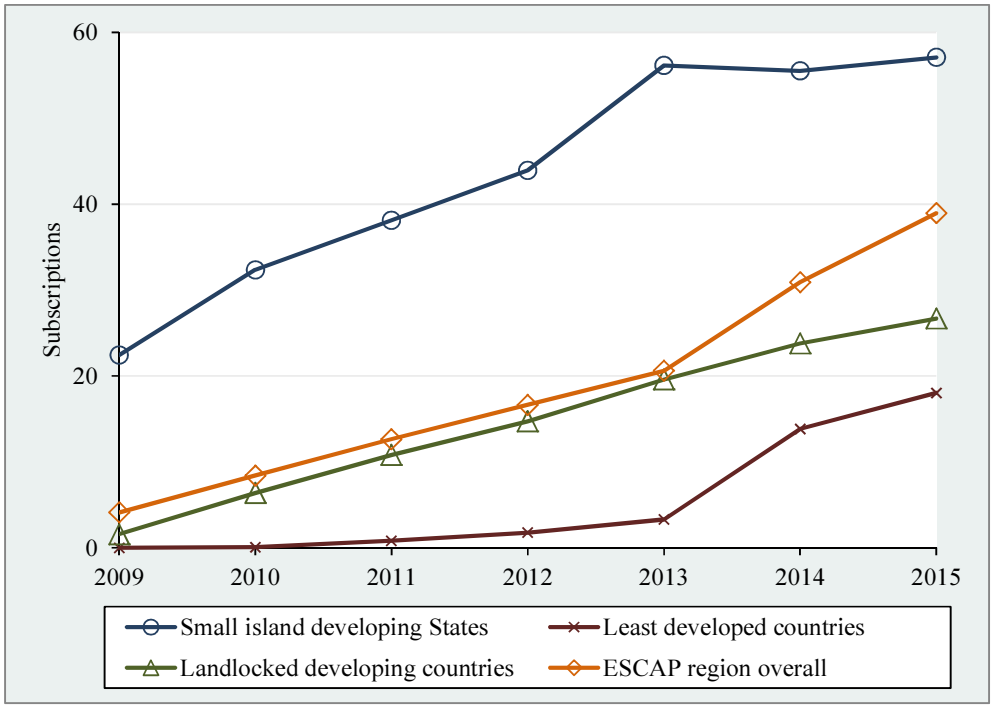
Figure IX
Total worldwide active mobile broadband subscriptions, by major region, 2007-2015
(Millions)



Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

38. China is the largest market for active mobile broadband subscriptions in ESCAP countries, with around 785 million subscriptions, followed by Japan (160 million) and India (120 million). Expansion of mobile broadband subscriptions in ESCAP countries has shown similar patterns of growth, even when disaggregated by economic group (least developed countries, landlocked developing countries and small island developing States – see figure X), suggesting that the predicaments associated with landlocked or small island countries might not affect the expansion of mobile broadband access, but rather other factors such as income level and quality of regulations. Mobile broadband subscriptions at the global level are almost four times higher in advanced economies than in developing economies.

Figure X
Average mobile broadband subscriptions in the ESCAP region overall and by country group
(Per 100 inhabitants)

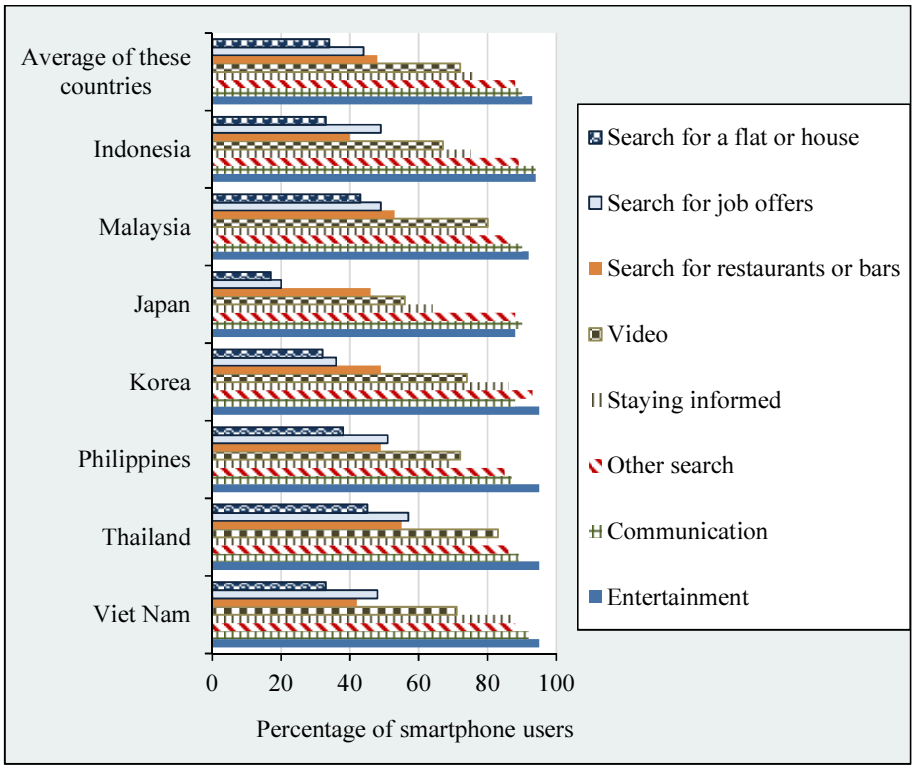


Source: Produced by ESCAP based on International Telecommunication Union, World Telecommunication/ICT Indicators database 2016, 20th Edition/June 2016. Available from www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed July 2016).

39. Mobile broadband is being used primarily for entertainment purposes. A review of operator websites in emerging Asian markets, according to a 2015 report by the Groupe Spécial Mobile Association (see figure XI), has revealed that mobile applications that focus on agriculture, education and employment are less common.[19] Raising awareness of the availability of productive and educational services (e.g. m-agriculture, m-education) is therefore critical to help users understand and reap the benefits of mobile Internet services.

[19] GSMA Intelligence, *Analysis: Mobile Internet Usage Challenges in Asia - Awareness, Literacy and Local Content* (London, 2015). Available from: www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/07/150709-asia-local-content-final.pdf.

Figure XI
Smartphone activity in selected ESCAP countries in 2015



Source: Adapted from Groupe Spécial Mobile Association (2015), www.gsma.com/mobilefordevelopment/programme/connected-society/mobile-internet-usage-challenges-in-asia-awareness-literacy-and-local-content/ (accessed April 2016).

40. In summary, in this section the trends of ICT connectivity in Asia and the Pacific have been discussed. Fixed broadband trends show that the broadband divide is indeed widening between countries, although mobile broadband has shown steady growth across income groups. Given that mobile broadband alone will not be sufficient for development of the future digital economy and digital society, more attention should be paid to how fixed broadband networks could be developed and regional connectivity enhanced so as to fully benefit from ICT. The quality of regulations and affordable pricing were found to influence broadband adoption rates in the region.

41. In this context, the Asia-Pacific information superhighway is a critical regional initiative that is designed to ensure that fixed and mobile broadband development addresses the above-mentioned gaps and to support efforts towards inclusive and sustainable development in Asia and the Pacific.

VI. Conclusion

42. These findings illustrate a granular landscape of ICT development and the nature of the digital divide in Asia and the Pacific. While mobile broadband has been spreading rapidly across the region, it is not necessarily being used for socioeconomic development. The phenomenal growth in fixed broadband expansion is largely driven by China, and the growth patterns across the region are diverse: low-income countries are making the slowest growth, while some countries are focusing predominantly on

telecommunications access over services. Affordability and regulatory quality continue to be formidable challenges, especially among countries that suffer from slow growth in broadband expansion.

43. Considering the above trends, the Asia-Pacific information superhighway needs first and foremost to address the fundamental challenge of providing affordable and inclusive broadband access across the region. As the Internet and the underlying broadband networks are by default cross-border and interconnected in nature, any improvement in affordability, coverage, reliability and resilience requires cooperation among countries, as described in the note by the secretariat for the seventy-second session of the Commission[20] and other technical material provided by the secretariat. The Master Plan for the Asia-Pacific Information Superhighway and the Asia-Pacific Information Superhighway Regional Cooperation Framework Document lay out processes, mechanisms and activities aimed at achieving the vision of seamless regional broadband connectivity and achievement of the Sustainable Development Goals and the goals of the World Summit on the Information Society.

VII. Issues for consideration by the Committee

44. Unaddressed, the growing and emerging digital divide would constrain development opportunities and widen development gaps in the coming years, since ICT is the meta-infrastructure, growth-industry basis for the digital economy and a critical development enabler. In recognition of this challenge, the Commission, through its resolution 71/10, established the open-ended Working Group on the Asia-Pacific Information Superhighway and requested the secretariat to report to it at its seventy-third session on the implementation of the resolution.

45. In this regard, the Committee may wish to consider agreeing on the following:

(a) The Committee may wish to consider continuing to support the Asia-Pacific information superhighway beyond the seventy-third session of the Commission, in recognition of the critical importance of addressing the widening digital divide and developing regional broadband infrastructure and access;

(b) The Committee may wish to consider endorsing the outcomes of the 1st and 2nd meetings of the open-ended Working Group, as summarized in the present note;

(c) The Committee may wish to consider endorsing the Master Plan for the Asia-Pacific Information Superhighway and the Asia-Pacific Information Superhighway Regional Cooperation Framework Document;[21]

(d) Following the successful deliberations and development of the Master Plan and Regional Cooperation Framework Document, the open-ended Working Group will transform into an advisory board, as referenced in the Regional Cooperation Framework Document, as a body to oversee implementation and provide advice and guidance to the secretariat and implementing partners;

[20] E/ESCAP/72/17.

[21] E/ESCAP/CICTSTI(1)/2 and E/ESCAP/CICTSTI(1)/3.

(e) The secretariat will continue to expand partnerships and collaboration with various international and regional organizations in the implementation of the Master Plan, guided by the Regional Cooperation Framework Document, the advisory board and the ESCAP member countries;

(f) The secretariat will continue to promote inter-agency collaboration at the regional level and ensure a harmonized approach and synergy among agencies, while deepening research and analyses on policy and technical aspects of the Asia-Pacific information superhighway;

(g) The secretariat, member States and partners will ensure that connectivity gains are achieved through the Asia-Pacific information superhighway and are linked to efforts towards achieving the Sustainable Development Goals and the goals of the World Summit on the Information Society;

(h) Member States, partners and subregional organizations will actively encourage the engagement and participation of various stakeholders, such as the private sector, academia and think tanks, and participate in the implementation of the Master Plan and the work of the advisory board;

(i) The recommendations of this Committee session will be presented to the Commission at its seventy-third session for deliberation and decision and subsequently the Asia-Pacific information superhighway will be launched based on the endorsed Master Plan and Regional Cooperation Framework Document.