October 2019

Report on the Asia-Pacific Regional Community Networks Summit 2019

Innovating to Connect the Unconnected

Internet Society

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Introduction

The Asia-Pacific Regional Community Networks (CN) Summit 2019 was held in Bangkok, Thailand on 29 August 2019. The CN Summit was jointly organised by the Internet Society and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), and hosted by ESCAP in conjunction with the Third Session of the Asia-Pacific Information Superhighway (AP-IS)[1] Steering Committee at the United Nations Conference Centre. The event brought together about 110 participants that included high-level government officials from Asia and the Pacific, and a multidisciplinary group of regional experts on CN, civil society groups, industry representatives, and academics and researchers.

The Asia-Pacific region is the world's most digitally divided region, with less than 8% of the population connected to affordable and reliable high-speed Internet. As a result, millions of people are excluded from digital opportunities in education, health and financial services. Moreover, trends are showing a slowdown in Internet connectivity growth through the national operators in the region,[2] indicating that the Sustainable Development Goals (SDGs), which anticipate attaining universal connectivity by 2030, are unlikely to be achieved.

CN offer a solution to connect the unconnected. These are "do-it-yourself" networks built by people for people. A number of successful CN have emerged in the Asia-Pacific region as complementary access networks, providing Internet access where commercial networks do not find it economically viable to operate. However, these CN are too few and far between, and they generally face a number of challenges that require policymakers and regulators' consideration so that they can flourish and contribute to the achievement of the SDGs.

The CN Summit provided a forum for multi-stakeholder dialogue on CN. Its objectives were to: (1) update participants on CN technologies, models and best practices; (2) enhance awareness about how CN projects have contributed to achieving the SDGs; (3) and engage in policy discussions on providing the regulatory, financial and technical support needed for CN to meet sustainability and scaling challenges – towards accelerating SDG progress and inclusive access to broadband. The CN Summit was also an opportunity to network with different stakeholders and identify areas for collaboration. The ESCAP Secretariat intends to use the inputs from the CN Summit to develop future policies for achieving broadband for all, under its AP-IS initiative.

The CN Summit began with an inaugural session presided over by Ms. Tiziana Bonapace, Director of the Information and Communications Technology (ICT) and Disaster Risk Reduction Division at ESCAP; Mr. Rajnesh D. Singh, Regional Director for Asia-Pacific at the Internet Society; and Ms. Kalaya Chinatiworn, Executive Director of the International Affairs Division of the Ministry of Digital Economy and Society in Thailand. The speakers emphasised the importance of CN for social and economic development and achieving the SDGs, and reiterated the objectives and expectations from the event.

The CN Summit featured three plenary sessions that focused on the following:

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[1] The AP-IS is an initiative of ESCAP that aims to increase the availability and affordability of broadband Internet across Asia and the Pacific by strengthening the underlying Internet infrastructure in the region. The AP-IS initiative is guided by four pillars: (1) physical infrastructure upgrade and interconnection; (2) Internet traffic management; (3) regional network resilience; and (4) broadband access for all. CN play an important role in addressing the fourth pillar to ensure broadband access for all. For more information see: https://www.unescap.org/events/third-session-asia-pacific-information-superhighway-ap-steering-committee-and-wsis-regional.

[2] GSMA, The Mobile Economy: Asia Pacific 2019, https://www.gsma.com/r/mobileeconomy/asiapacific/.

- Plenary 1: Setting the scene – featuring discussions on CN technology, models and services, and good practices to overcome CN challenges;
- Plenary 2: CN's sustainability and contribution towards achievement of the SDGs; and
- Plenary 3: Policy and regulatory issues around licensing, infrastructure sharing, spectrum allocation and the use of universal access and service funds.

The plenary sessions had a diverse panel of speakers and a moderator, and was conducted in the style of a dialogue with active interactions between the speakers, moderator and participants. The roundtable synthesised the discussions from the plenaries and addressed the future role of CN. The video recording of the CN Summit is available at https://livestream.com/internetsociety/apaccnsummit.

The next sections provide highlights and key messages from each session. The programme with the list of moderators and panellists is provided in the annex.

Session 1: Setting the Scene

The first plenary was moderated by Mr. Duncan Macintosh, Executive Director of APNIC Foundation, and the panel of speakers included two Internet Hall of Fame Inductees – Dr. Kanchana Kanchanasut from Thailand[3] and Mr. Mahabir Pun from Nepal.[4] The other speakers were Mr. John Jack, Deputy Chief Information Officer of the Government of Vanuatu, and Mr. John Garrity, Advisor of Connectivity Capital, which invests in ICT entities in frontier markets.

CN are built and operated by people in the community, for the community. They start when a group of people want to bring communications to their local village or town. They work together, combine their resources, and learn-by-doing to build, operate and maintain the CN. The panel of speakers reminded us that the first step in building CN is getting the communities interested and committed to running their own networks to serve their needs. Communities may not immediately see the value of these networks and the process of raising awareness on the benefits of CN takes time. In Thailand, for example, Dr. Kanchana engaged student volunteers to demonstrate the benefits of CN to communities in unserved and underserved villages.

There are hundreds of CN around the globe, but they differ in their size, purpose, governance and sustainability models, and technological set up. Thus, the challenges they face and the solutions required to address these challenges vary and are context specific. However, the plenary identified some common hurdles, as well as some innovative approaches and good practices that can be adopted to overcome them.

A major challenge is the unfavourable regulatory environment for CN. They are often unable to navigate the complex legal requirements for registration, licensing and permitting and cover their associated costs. Mr. Mahabir Pun spent a significant portion of his work advocating for regulatory change, which contributed to CN in Nepal being able to obtain a rural Internet service provider license that costs USD 1.00. This is a significant success story.

Although many new technologies are now available at relatively low cost that CN can potentially use to establish connectivity in difficult terrains, regulatory barriers like the high duties, taxes and customs fees for the import of equipment, and the access to and use of spectrum impede CN development. For example, Mr. Mahabir Pun had to lobby hard to obtain permission from the Nepalese government to use TV white space spectrum for testing in remote communities and import the necessary equipment.

Therefore, government's support in easing regulatory requirements and creating enabling regulations and policies to specifically address non-profit and small-scale operators is crucial. In Vanuatu, the government is making use of the universal access and service fund (UASF)[5] to work with communities to extend connectivity to all in the country. Mr. John

[3] Internet Society, Internet Hall of Fame Pioneer: Kanchana Kanchanasut, https://www.internethalloffame.org/inductees/kanchana-kanchanasut.

[4] Internet Society, Internet Hall of Fame Global Connector: Mahabir Pun, https://www.internethalloffame.org/inductees/mahabir-pun.

[5] Different countries use different terms to refer to the UASF. Other terms include: universal access fund (UAF), universal service and access fund (USAF), universal service fund (USF), and universal service obligation fund (USOF). UASF is one of the key financing mechanisms used to connect sparsely populated rural areas, where there is neither the density nor the capital for telecom operators to justify private sector infrastructure investments. Initially, the UASFs' focus has been on providing basic telecommunication services to unserved and underserved areas. But as countries formulate their national broadband strategies, the role of UASFs has shifted to the building of the broadband infrastructure and providing universal broadband access.

Jack shared a successful initiative that started off as a telemedicine project in a community. Through this initiative, the community expanded the network to schools, and to other communities on the island.

Besides regulatory challenges, other common hurdles that speakers identified were related to the technical, economical and human capacity aspects of CN, particularly towards ensuring the sustainability of CN. Many CN have started with grant funding but struggle to transition to a revenue-based model to sustain the network when grant funding ends. Challenges that speakers noted range from ensuring a reliable source of electricity and sufficient bandwidth supply to meet the demands of users in the long term, ensuring availability of capital to operate and maintain the CN, to ensuring that there is a group of people in the community with the skills to run the network, troubleshoot and provide training.

The speakers alluded to a number of innovative solutions to these problems. For example, some CN use renewable energy sources such as solar and wind energy to power the CN. In Thailand, a business model that worked involved seeking sponsorships from corporations to set up the network, but community members need to pay a small fee for the operation and maintenance of the network. By making community members shoulder some of the costs, they developed a strong sense of ownership and responsibility for the sustainability and improvement of the network. In Nepal, Mr. Mahabir Pun established a National Innovation Centre to work with partners to come up with innovative solutions for CN to thrive.

Another key factor for ensuring CN sustainability is by promoting the relevance of the network and providing training to community members on using the network to meet their needs. For example, in the Republic of Korea, training is provided to community members on how to communicate with their family and friends overseas using the Internet. Support is also provided in promoting and selling their local products on e-commerce sites, and in featuring the communities as tourism spots and providing a platform for booking homestays. This allows communities to generate revenue from using the Internet and when community members see the value of the Internet, they would be more willing to sustain the CN.

Despite anecdotal evidence showing that CN have improved outcomes in different sectors, such as in health and education, speakers pointed out that policymakers are looking for a more comprehensive monitoring and evaluation system to drive evidence-backed decisions on specific aspects that should be prioritised using the limited resources available for the maximum returns on investment. For example, in education, which level of education should policymakers prioritise, what type of skills should be emphasised, and how best to deliver training on these skills.

Session 2: CN and the SDGs

The second plenary was moderated by Ms. Duangthip Chomprang, Director of the Office of International Cooperation at the International Institute for Trade and Development. The panel of speakers included Mr. Heon-Jun Kim, Senior Program Management Expert of the United Nations Project Office on Governance; Mr. Babu Ram Aryal, Founding Member of the Internet Society Nepal Chapter; Dr. Sarbani Banerjee Belur, Senior Research Scientist of the Garm Marg Rural Broadband Project in India; and Mr. Waqas Hassan, Assistant Director of International Liaison at the Pakistan Telecommunication Authority.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 SDGs, which are an urgent call for action by all countries in a global partnership. SDG 9 includes a target to significantly increase access to ICT, and strive to provide universal and affordable access to the Internet in least developed countries by 2020.

However, national statistics used to measure progress, such as broadband subscriptions and the number of Internet users, mask the disparities and connectivity gaps within countries.

CN are increasingly being proposed as one of the solutions to connect the unconnected, and provide affordable Internet access to unserved and underserved communities. At the same time, these CN have shown to contribute to achieving the SDGs in a variety of ways by improving access to public services, reducing disaster risks, and empowering women and girls.

Dr. Sarbani Banerjee Belur shared her experience of implementing the Garm Marg Rural Broadband Project that has connected 25 remote villages in India. Initially the focus was on the technological aspects of getting the villages connected, but once connection was established, the focus shifted to its usage to access e-government and financial services, and develop an online repository of local culture and knowledge.

Mr. Babu Ram Aryal spoke about his experience of establishing CN in Nepal to restore connectivity after the devastating Gorkha Earthquake in 2015.[6] Once connectivity was established, training was provided to communities on the operation and use of these networks, which were used to enhance the recovery process and prepare for future disasters. The initiative also focused on helping marginalised communities such as persons with disabilities get online.

Mr. Waqas Hassan contributed his experience in piloting CN in Pakistan, in partnership with a local Internet service provider to provide connectivity in a rural village, and also in a girls' high school in that village.[7] At the school, a fully-equipped computer lab with network facilities that was locked up and unused was discovered. It was unused because no one knew how to set up and use the equipment in the lab. But once Internet connection was established, teachers and students made full use of the Internet by accessing information, developing their digital literacy and finding innovative ways to use the Internet. This led to the offering of a series of online supplementary education sessions by teachers in Islamabad to 40 sixth-grade girls at the school over a three-month period. To evaluate the impact of this online supplementary education initiative, baseline and endline assessments were carried out, and results showed evidence of improvements in students' grades after the three-month online sessions. Additionally, records and interviews with teachers and students showed increased attendance and greater interest to learn in school.

These initiatives provide evidence that CN play an important role in achieving the SDGs. Besides, contributing to social and economic development, and fostering innovation in communities, CN also give communities a voice in decision-making for adoption of the SDGs, and provide opportunities for communities to participate in local and national governance processes. This in turn foster a sense of agency and empowerment among the communities.

One of the issues that is less often discussed in CN's contribution to achieving the SDGs is the importance of building trust in the Internet and online services. In Pakistan, it took significant time and effort to convince the school and educational authorities to establish connectivity due to their lack of trust in the Internet. Communities need to have confidence that their data is secure, and the networks and services they use are reliable.

Another issue is related to the unequal access of women and men to the Internet and to devices, and until this inequality is addressed, the SDGs will not be achieved. It is vital that gender perspectives are integrated in CN development, including the adoption of inclusive approaches that take into consideration the needs of marginalised groups, including women, children and youth, older people, persons with disabilities and indigenous people.

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[6] Nicoletta Metri, Connecting Nepal's Earthquake Affected Communities with a Sustainable Model, Internet Society, 18 January 2018, https://www.internetsociety.org/blog/2018/01/connecting-nepals-earthquake-affected-communities-self-sustainable-model/.

[7] Internet Society, A Pilot Community Network in Pakistan: Online Supplementary Education and its Impact, 14 September 2018, https://www.internetsociety.org/resources/doc/2018/a-pilot-community-network-in-pakistan-online-supplementary-education-and-its-impact/.

The examples provided by the speakers also demonstrated the importance of a multi-stakeholder approach in CN development because CN require the support of communities, government, the technical community and civil society to flourish and sustain themselves. Additionally, CN need to be part of the social and economic development plan for communities.

Session 3: CN Policies and Regulations

The third plenary was moderated by Mr. Parvez Iftikhar, an ICT Consultant. The panel of speakers included Dr. Rekha Jain, Professor and Executive Chair of IIMA Idea Telecom Centre of Excellence at the Indian Institute of Management Ahmedabad; Mr. Veari Iru, Manager of Projects at the National Informational Communicational Technology Authority in Papua New Guinea; Ms. Renuka Rajaratnam, Public Policy Manager at Access Partnership; and Dr. Carlos Rey-Moreno, Policy and Regulation Coordinator at Association for Progressive Communications.

CN face a myriad of challenges: lack of affordable access to backbone infrastructure, barriers to entry (e.g., business and/or service licensing, regulatory fees and taxes, spectrum access), high deployment costs, and limited funding, including difficulty in obtaining UASF funding, among others. Speakers from the previous plenary shared examples of working with policymakers and regulators to enable communities to connect via community-built networks, demonstrating that governments can unleash the potential of CN and allow unserved and underserved areas to realise the transformative benefits of having access to affordable connectivity.

However, Dr. Rekha Jain pointed out that existing institutional structures of government systems are often not geared towards enabling CN. For instance, in India, the Advisory Board of the Universal Service Obligation Fund is predominantly made up of telecommunications stakeholders and does not include representatives from CN, rural development, health and other stakeholders – reiterating the importance of a multi-stakeholder approach in developing CN. Due to the way that many UASFs are governed, this has limited the funding of the telecommunications infrastructure to licensed entities, which are often incumbents and big telecom players, and poses a challenge to the use of the UASFs for alternative access models such as CN.

Representing the regulator in Papua New Guinea, Mr. Veari Iru agreed that regulations are generally not supportive of CN. But in Papua New Guinea, the legislation provides the regulator with the power to issue “mandatory instruments” such as new licenses and new guidelines, which gives the regulator some leeway to issue licenses to non-traditional entities, including CN, allowing these entities to develop initiatives and receive UASF funding to improve Internet access in the country. In Papua New Guinea, the regulator has been approached by civil society to develop CN, and in response, a CN pilot project in collaboration with the Internet Society is being discussed.

Speakers cautioned us about seeing CN only as a universal access solution, which can lead to thinking that the goal of CN is simply to provide access. CN provide more than access, and are focused on developing skills, promoting opportunities and empowering rural and remote communities to improve their lives and achieve their own social and economic development goals.

Generally, there was a call for more flexible policies and easing of regulatory requirements towards promoting multi-stakeholder dialogue and decision-making, and public-private-civil society collaborations, including with non-profit and small-scale entities, in providing universal broadband access so that unserved and underserved areas can reap its benefits for local development. CN should also be given broader access to funding, through the UASFs and/or through other funding mechanisms, for example for small- and medium-sized enterprises. Additionally, there was a call for tax and

fee exemptions or reductions for CN, as such taxes and fees are difficult for small non-profit CN operators to afford and can delay or prevent their development.

Policies and regulations also play an important role in the type of technologies that communities can use to obtain connectivity. Currently, most CN use Wi-Fi because there are no other choices. Some initiatives have received experimental licenses for TV white space, but has not gained traction because of a lack of regulatory support. TV white space and other alternative technologies have the potential to bring connectivity to the unconnected at lower costs (compared to reliance on fibre networks), but current regulations do not allow CN to take advantage of them. In addition to technologies for connectivity, speakers emphasised the need to consider communities' access to affordable devices and to relevant online content and services.

In order to prompt changes to policies and regulations that promote CN development, speakers stressed that the first step would be to broaden the dialogue to involve not only regulators and telecom operators, but also small network operators, cooperatives and entrepreneurs, and stakeholders in other sectors, such as agriculture and finance. The digital ecosystem has allowed new players to enter markets. For example, in the finance and banking sector, mobile network operators, and e-commerce and Internet companies are providing financial services alongside banks and microfinance institutions. Policymakers and regulators need to be open to reform in light of these changes and enable innovation, investment and spectrum allocation for both the small and big players as equally viable players of the digital economy.

Moving forward to promote CN development, speakers highlighted the need for a critical review of the licensing framework as most countries only allow national licensees and there are many requirements associated with these licenses in terms of fees, expectations and compliance, which are disabling small operators. In addition, there needs to be a rethink of how spectrum is used and assigned, in favour of its efficient use towards servicing communities and developing rural areas. Governments could consider setting aside spectrum for CN at a reduced cost, and consider innovative licensing solutions, such as social-purpose licensing, license exemptions, and unlicensed or license-free use.

Session 4: Future Prospects

The final session of the CN Summit was a roundtable moderated by Mr. Naveed Haq, Regional Development Manager of the Internet Society. The panel of speakers included Ms. Atsuko Okuda, Chief of ICT and Disaster Risk Reduction Division at ESCAP; Mr. Kondo Masanori, Deputy Secretary General of Asia-Pacific Telecommunity; Mr. Jigme Tenzing, Director of the Department of IT and Telecom at the Ministry of Information and Communications in Bhutan; and Mr. Osama Manzar, Founder of the Digital Empowerment Foundation.

The roundtable synthesised discussions in the three plenaries and addressed the way forward. ESCAP stressed the importance of such multi-stakeholder platform to share views and connect with each other. Moving forward, ESCAP is interested in receiving proposals that are able to transform the ideas discussed into concrete actions that we can take together to achieve broadband for all and the SDGs.

Mr. Osama Manzar summarised some of the key challenges faced by CN today. First, CN have yet to be considered as serious players in the last mile access space. Second, CN remain the domain of "techies" instead of as a solution for sustainable development. Third, there remains a lack of bottom-up movement for CN, and related to this is the continued challenge of finding human resources at the community level to establish and operate the CN.

Besides challenges related to licensing and spectrum management discussed in the previous session, the lack of government support for infrastructure sharing was raised here. Governments should promote infrastructure sharing and access to rights of way policies that allow smaller networks to share infrastructure and build out infrastructure in a more cost-effective manner. We can learn from Bhutan's experience of co-deploying fibre-optic cables with the power network, as well as from Bangladesh's co-deployment of fibre-optic networks along railway lines, opening up opportunities for CN.

CN can also learn from other community-based initiatives such as successes as well as failures of telecentres and community radio networks in the region, particularly in planning and engaging with communities to address needs, developing relevant content, establishing community ownership and sustaining the initiatives. Additionally, there is a need to address issues of privacy and security in CN, given rising incidences of security breaches, as well as misinformation and fake news on social media.

Guidelines to conduct feasibility studies prior to the deployment of CN, studies to evaluate the impact of CN in different countries and assessments of how communities are making use of the connectivity, as well as studies to explore ways to engage communities in productive use of the Internet for social and economic development were proposed at the roundtable.

Key Takeaways and Call for Action

The CN Summit sparked candid conversations about participants' hopes and fears, but overall, most agree that CN is an alternative and complementary last mile access model that contribute not only to universal broadband access, but also to achievement of the SDGs. This was shown in an online poll at the end of each plenary.

At the end of Plenary 1, participants were asked whether they agree that CN are workable last-mile complementary access solution to connect the unconnected – 71% agree, 21% somewhat agree, while 8% don't agree. In Plenary 2 on CN and the SDGs, there were no disagreements on the statement that CN can offer more than just connectivity; acting as community sustainable development networks empowering communities. In Plenary 3, 55% agree, 39% somewhat agree and 6% disagree that there are opportunities for innovative licensing, spectrum and public funding approaches to bridge last-mile connectivity gaps via solutions like CN.

The time is now to act in breaking barriers for CN to thrive and grow, enabling CN to contribute to the well-being of marginalised communities and rural development, and ensuring that no one gets left behind.

Five Key Takeaways from the CN Summit on Deploying, Sustaining and Scaling Community Networks

1. **The first step in building CN is getting the communities interested and committed to running their own networks to serve their needs.** Communities may not immediately see the value of these networks and the process of raising awareness on the benefits of CN takes time. Once community members see the value of the Internet, they would be more willing to sustain the CN.

2. **CN development requires a multi-stakeholder approach.** For CN to thrive and grow, they require community commitment, technical expertise, financial investments, and government support in providing a favourable policy and regulatory environment. The first step towards regulatory reform is to broaden the dialogue to involve not only regulators and telecom operators, but also small network operators, cooperatives and entrepreneurs, and stakeholders in other sectors such as agriculture and finance that are part of the digital ecosystem.

3. **CN are a solution for sustainable rural development and contribute to achieving the SDGs.** CN are not tech gigs to simply connect the communities. CN initiatives are focused on developing skills, promoting opportunities and empowering rural and remote communities to improve their lives and achieve their own social and economic development goals through the use of broadband technologies. CN need to move out of the techies' domain and be conceptualised as a solution for sustainable development.

4. **Policymakers and regulators need to ease regulatory requirements and increase financing options for non-profit and small-scale operators.** They include tax and fee exemptions or reductions for CN, setting aside spectrum for CN at a reduced cost, and allowing CN to apply for UASF funding.

5. **Integrate inclusive approaches in CN development** that take into consideration the needs of marginalised groups, including women, children and youth, older people, persons with disabilities and indigenous people. Until their unequal access to the Internet and to devices is addressed, the SDGs will not be achieved.

As a next step, we will be inviting interested Member States and delegates to join a multi-stakeholder working group and come up with concrete actions to connect the unconnected through CN.

Thank you to everyone who joined us at the Asia-Pacific Regional CN Summit 2019. Thank you to all the participants, speakers and moderators for bringing your expertise – you helped make the event a tremendous success. For those who missed the event, the video recording of the CN Summit is available at https://livestream.com/internetsociety/apaccnsummit.

We hope you will stay in touch to learn about future opportunities to connect with the Internet Society.

Annex: Programme

9:30 - 10:00	**Registration**
10:00 - 10:30	Inaugural Session Speakers: Ms. Tiziana Bonapace, Director, ICT and Disaster Risk Reduction Division, UNESCAP Mr. Rajnesh Singh, Regional Director for Asia-Pacific, Internet Society Ms. Kalaya Chinatiworn, Executive Director of International Affairs Division, Ministry of Digital Economy and Society, Thailand
10:30 – 11.00	**Break**
11:00 - 12:00	**Plenary 1: Setting the scene – Innovating to connect the unconnected** The session will feature discussions on CN technology, models, content (services) and best practice in the Asia-Pacific region. Moderator: Mr. Duncan Macintosh, Executive Director, APNIC Foundation Speakers: Mr. Mahabir Pun, Founder, Nepal Wireless Networking Project Dr. Kanchana Kanchanasut, Founder, TakNet Project Mr. John Jack, Deputy Chief Information Officer, Government of Vanuatu Mr. John Garrity, Advisor, Connectivity Capital
12:00 - 13:00	**Plenary 2: Community networks and the SDGs** The session will deliberate how CNs can play a role in supporting socio-economic development and the UN SDGs. Moderator: Ms. Duangthip Chomprang, Director, Office of International Cooperation, International Institute for Trade and Development Speakers: Mr. Heon-Jun Kim, Senior Program Management Expert, UN Project Office on Governance Mr. Babu Ram Aryal, Founding Member, Internet Society Nepal Dr. Sarbani Banerjee Belur, Senior Research Scientist, Garm Marg Rural Broadband Project, India Mr. Waqas Hassan, Assistant Director, International Liaison, Pakistan Telecommunication Authority
13.00 – 14.00	**Lunch**

14:00 - 15:00	**Plenary 3: Policy and regulatory support** The session will discuss CN policy and regulatory support around licensing, infrastructure sharing, spectrum allocation, the use of universal service funds and creating an enabling regulatory environment. Moderator: Mr. Parvez Iftikhar, ICT Consultant Dr. Rekha Jain, Professor and Executive Chair, IIMA Idea Telecom Centre of Excellence, Indian Institute of Management Ahmedabad Mr. Veari Iru, Manager Projects, National Informational Communicational Technology Authority, Papua New Guinea Ms. Renuka Rajaratnam, Public Policy Manager, Access Partnership Dr. Carlos Rey-Moreno, Policy and Regulation Coordinator, Association for Progressive Communications
15:00 – 15:30	**Break**
15:30 – 16:30	**Roundtable: Future prospects for alternative last mile access in the Asia-Pacific** This session will capture the overall thematic discussions of the summit and be a high-level discussion on the future of alternative and complementary last mile access networks in the Asia-Pacific and the role they can play in achieving "Broadband for All". Moderator: Mr. Naveed Haq, Regional Development Manager, Internet Society Ms. Atsuko Okuda, Chief, ICT and Disaster Risk Reduction Division, UNESCAP Mr. Kondo Masanori, Deputy Secretary General, Asia-Pacific Telecommunity Mr. Jigme Tenzing, Director, Department of IT and Telecom, Ministry of Information and Communications, Bhutan Mr. Osama Manzar, Founder, Digital Empowerment Foundation

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