

First Session of the Asia-Pacific Information Superhighway Steering Committee, 1-2 November 2017, Dhaka, Bangladesh.

**DRAFT SUBMISSION OF INTERNET SOCIETY (ISOC) Asia Limited
PROJECTS/ACTIVITIES/STUDIES
25 October 2017**

Objective: This form is sent to the representative of each organization in order to prioritise activities and better align broadband connectivity gaps with solutions. All organization submissions will be consolidated as per AP-IS Pillar and subregion to develop an implementation plan for 2018 and will be presented by the Secretariat during the First Session of the Asia-Pacific Information Superhighway (AP-IS) Steering Committee, 1-2 November 2017, Dhaka, Bangladesh. A similar template is sent to ESCAP member countries to identify their planned activities.

Please complete this form and submit to ESCAP (escap-ids@un.org) by **no later than 25 October 2017.**

(a). Background Information

(i). Organization: Internet Society Asia-Pacific (ISOC)
9 Temasek Boulevard. #09-01 Suntec Tower Two. Singapore 038989
Email: apac@isoc.org

(ii). Organization's Focus: To promote the open development, evolution, and use of the Internet for the benefit of all people throughout the world.

(b). Challenges and Opportunities on promoting broadband connectivity:

Within the scope of the AP-IS four pillars

- (1). Connectivity;
- (2). Internet Traffic & Network Management;
- (3). E-resilience; and
- (4). Broadband for all,

ESCAP member countries and partners outlined seven strategic initiatives in the AP-IS Master Plan (http://www.unescap.org/sites/default/files/pre-ods/CICTSTI1_2E_rev1.pdf) to be implemented between 2016-2018 (please refer to attached chart of AP-IS 4 Pillars and AP-IS Strategic Initiatives).

The AP-IS seven strategic initiatives are as follows:

1. Identification, coordination, deployment, expansion and integration of the regional backbone networks at the cross-border intra- and interregional levels, in collaboration with member countries and subregional organizations;
2. Establish a sufficient number of Internet exchange points at the national and subregional levels and set out common principles on Internet traffic exchange to prevent Internet traffic tromboning, decrease transit costs and improve service quality
3. Regional social and economic studies;
4. Enhancing ICT infrastructure resilience in the Asia-Pacific region;
5. Policy and regulations for leveraging existing infrastructure, technology and inclusive broadband initiatives;
6. Capacity-building; and
7. Asia-Pacific information superhighway project funding mechanism based on public-private partnerships

(c). AP-IS 7 Strategic Initiatives Implementation Plan 2016-2018: priority challenges and proposed activities

In order to match your organization’s current and planned activities with country’s/sub-region’s/region’s priorities within the scope of the AP-IS seven strategic initiatives, please complete the matrix below accordingly. Please add a row as deemed necessary.

Activity/Project/Study	Description
<p>Description of the Activity/Project/Study (existing or planned)</p>	<p>(i) Wireless for Communities (W4C) – Existing</p> <p>To help address the gap in last mile Internet connectivity for underserved communities, the Wireless for Communities (W4C) initiative was co-launched by the Internet Society (ISOC) and Digital Empowerment Foundation (DEF) in October 2010. The project involves deploying line-of-sight wireless technology and low-cost Wi-Fi equipment which utilize the unlicensed 2.4 GHz and 5.8 GHz spectrum bands to create community-owned and operated wireless networks. To further localize the initiative, the project was used to strengthen grassroots expertise by training community members in wireless technology, enabling those in the field not only to run and manage these networks but to transfer knowledge to others in the community. This is achieved through a Training of Trainers programme which has employed content developed by the Internet Society and DEF. The project also trains the community on using and accessing content and services and has further components which include helping build rural women micro-entrepreneurs.</p> <p>The W4C programme has expanded tremendously over the last couple of years, with project sites deployed in Nepal and Pakistan as well. Internet Society in conjunction with its partners, is now looking to further scale to broader communities.</p>

On one hand, we have adapted the Train the Trainer materials into an online course which can be delivered via the organization's learning platform Inforum to prepare individuals to undertake the fieldwork associated with deploying community wireless networks. Simultaneously, we are making the same materials available to other communities for strictly capacity building or workforce skills development purposes. More details at www.internetsociety.org and www.wforc.in

(ii) Assistance to establish IXPs - Existing

Internet exchange points (IXPs) are a key part of the Internet ecosystem and represent a vital way to increase the affordability and quality of connectivity locally. IXPs provide a competitive alternative to routing domestically destined traffic abroad. IXP viability can be calculated for interested ISPs by comparing the cost of IP transit to the cost of domestic peering.

ISOC provides assistance to local communities across the globe in establishing a neutral IXP. In the last 2 years, we informed and provided assistance to local stakeholders across the Asia-Pacific on Internet traffic exchange. Based on these engagements, we were able to contribute to establish first-ever IXPs in both Pakistan and PNG, also the ISOC local chapter in Kolkata (India) lead a local effort to establish a local IXP to support local traffic exchange in the state of West Bengal. ISOC also runs a global IXPs collaboration portal <https://ixptoolkit.org/>

(iii) Digital Accessibility Toolkit – Work in Progress

One in six people in the Asia-Pacific region lives with disability, and this is likely to increase¹. Persons with Disabilities (PWDs) often face barriers that restrict them from participating in society on an equal basis, including access to and use of information and communication technologies (ICTs). As information and services related to education, health, banking and commerce are moving to online platforms, it is more important than ever to ensure that these online information and services are accessible to PWDs. Digital accessibility is concerned with the extent to which the technology and the content delivered by the technology can be used by PWDs as effectively as it can be used by a person without disability. An accessible Internet ensures the digital inclusion of PWDs, facilitates their online participation, and provides opportunities to contribute to the socio-economic development of a country. Over the past 2 years, ISOC carried out a number of workshops inviting PWDs as core speakers to share their accessibility requirements, identify challenges, and highlight the

¹ ESCAP, "Disability in Asia and the Pacific: The Facts," <http://www.unescap.org/sites/default/files/Disability%20The%20Facts.pdf>.

barriers that limit them from interacting with the Internet. Regulators, policymakers, technical experts and non-governmental organizations were also among the participants.

These workshops served as an eye opener, calling for an urgent need to collaborate among stakeholders, and take appropriate actions to ensure the digital inclusion of PWDs. Based on the workshop inputs, we have started working on a digital accessibility toolkit for policy makers and software developers, describing both challenges and possible actions.

(iv) IXP Mapping Project – Asia-Pacific

One of the AP-IS pillars “Traffic/Network Management” clearly indicates the lack of Internet traffic exchange and management systems domestically as well as at the subregional and regional levels, which impacts the quality of service. The aim is to establish sufficient Internet exchange points within the region, harmonize Internet traffic management practices and principles. Also, there is a need to ensure there are related policy and regulatory frameworks in place to support more open, neutral and non-discriminatory Internet exchange points.

To achieve this aim, first we have to identify the locations where we should help establish the Internet exchange points in the region. While researching this, we found that some attempts were made to list the active Internet exchanges in around the world, but in most cases the information was either a bit dated or inaccurate. It also doesn’t highlight where we should have Internet exchanges based on local market conditions.

ISOC is currently engaged in mapping all the active Internet exchange points in the Asia-Pacific region. The project will also try and identify cities in countries in the region where an Internet exchange point will be useful on the basis of population and user base. This will provide some indication of where there are Internet exchange infrastructure gaps in the region. This is an on-going project, and we will continue to seek updated information, and welcome contributions to the effort.

(v) Routing Security (MANRS)

The Internet is under continuous attack; look at the routing system – not a single day goes by without dozens of incidents. Route hijacking, route leaks, IP address spoofing, and other harmful activities can lead to DDoS attacks, traffic inspection, lost revenue, reputational damage, and more. More than 2 years ago the Internet Society started an initiative called MANRS - Mutually Agreed Norms for Routing Security. This is essentially a commitment by network operators around the globe to clean their part of the street and improve the security of the global routing system. They do this by implementing at least the baseline security efforts defined by MANRS Actions:

- Filtering – Ensure the correctness of your own announcements and of announcements from your customers to adjacent networks with prefix and AS-path granularity
- Anti-spoofing – Enable source address validation for at least single-homed stub customer networks, your own end-users, and infrastructure
- Coordination – Maintain globally accessible up-to-date contact information
- Global Validation – Publish your data, so others can validate routing information on a global scale

We strongly believe that by adopting this initiative every service provider will contribute towards the e-resilience of the country's or region's Internet infrastructure. The core of this initiative is trust and collaboration among the entities and helping each other achieve the collective goal of strong, secure and resilient Internet infrastructure.

(vi) Asia-Pacific Issue Papers

Asia-Pacific is a diverse region, with economies in various phases of socio-economic and Internet development. To highlight good practices, ongoing challenges and topical concerns in Asia-Pacific, the Internet Society has produced a series of issue papers to provide guidance to decision-makers and stakeholders in and beyond the region. These are brief documents that contain both key findings and information on the state of play, opportunities as well as questions to ponder on as we move to advance discussions and development in the following areas:

- Gender
- Digital Access
- Online Privacy
- Policies for the Digital Economy
- Local Content
- Internet of Things
- Social Media
- Climate Change
- Internet Safety
- Community Empowerment

- Financial Inclusion
- Rural Connectivity
- Frugal Innovation and Entrepreneurship
- Enabling E-services
- Disaster Risk Reduction

(vii) Spectrum Approaches for Community Networks

The Internet currently reaches three (3) billion users, meaning that over half of the world's population remains offline. This connectivity "gap" is especially acute in rural, and remote areas, due to the following challenges: lack of affordable access to backbones, barriers to entry (licensing, taxes, spectrum allocation practices), low population density, high deployment costs, low economic capacities of some populations, limited availability of locally relevant content, and issues with technical skills. One way to help close the gap is through community-based connectivity projects, particularly through community networks - network infrastructure built, managed, and used by local communities.

ISOC has recently released a policy brief that provides an overview of community networks as a bottom-up, cost-effective and sustainable approach to connecting the last mile. It outlines key challenges, and provides guiding principles and recommendations to help policymakers, commercial operators and community network providers work together to optimise spectrum use in a way that enables marginalised and low-resource communities to benefit from the Internet.

The study may be accessed at: <https://www.internetsociety.org/policybriefs/spectrum/>

(viii) Ensuring Sustainable Connectivity in Small Island Developing States

Small Island Developing States (SIDS) are a distinct group of developing countries characterized by vulnerabilities resulting from their small populations, limited export base, higher exposure to global economic disruptions, and frequent natural disasters. Many SIDS face challenges in Internet connectivity due to their remoteness and the high cost of crossing open sea, combined with small populations, low population density and consequent low economies of scale which often lead to higher connectivity costs.

In this report, ISOC aims to shed light on the key connectivity issues for these nations and to help share knowledge on potential strategies to address them for national and regional policy makers, as well as decision-makers in international

	<p>development assistance agencies. Research for this report was based on a global desk review of all the SIDS countries and indepth case studies of six SIDS, including two—Tonga and Vanuatu—in the Asia-Pacific.</p> <p>The report may be accessed at: https://www.internetsociety.org/resources/doc/2017/sidsreport/</p> <p>(ix) Internet Crossing Borders: Boosting the Internet in Landlocked Developing Countries</p> <p>There are 44 landlocked countries in the world, of which 32 are classified as middle- or low-income by the United Nations. These 32 comprise the Landlocked Developing Countries (LLDCs), that can be grouped into seven distinct regions, each with unique challenges. The key factor that sets LLDCs apart from other countries is access to the sea and the consequent trade obstacles that presents in respect to transport and transaction costs.</p> <p>This upcoming ISOC report focuses on how the Internet can help the specific condition of being landlocked, specifically by presenting concrete approaches to: (a) Facilitate trade through ICTs; (b) Boost Cross-Border Connectivity; (c) Develop Internet Exchange Points; (d) Build Skills and Digital Business; (e) Enable Supportive Governance and Cooperation. The report includes two countries in Asia-Pacific as case studies: Bhutan and Laos.</p> <p>The executive summary of the report can be accessed here: https://www.internetsociety.org/resources/doc/2017/lldcreport</p>
<p>Link of the activity/project/study to the AP-IS Strategic Initiatives (1-7)</p>	<ul style="list-style-type: none"> (i) Strategic Initiative 5 & 6 (ii) Strategic Initiative 2 (iii) Strategic Initiative 5 & 6 (iv) Strategic Initiative 2 (v) Strategic Initiative 1 (vi) Strategic initiative 3, 4, 5 & 6 (vii) Strategic Initiative 3,5, & 6 (viii) Strategic Initiative 1, 2, 3, 4 & 5 (ix) Strategic Initiative 1, 2, 4, 5 & 6
<p>Link of the activity/project/study to the AP-IS Pillars (1-4)</p>	<ul style="list-style-type: none"> (i) Pillar 1 or 4 (ii) Pillar 2

	<ul style="list-style-type: none"> (iii) Pillar 4 (iv) Pillar 2 (v) Pillar 3 (vi) Pillar 4 (vii) Pillar 1 or 4 (viii) Pillar 1 or 4 (ix) Pillar 1 or 4
<p>Beneficiary Organizations/Countries of the Activity/Project/Study</p>	<ul style="list-style-type: none"> (i) Local communities in rural and underserved locations in South Asia, and our partners: Digital Empowerment Foundation (India), Nepal Wireless Networking Project (Nepal), COMSATS Internet Services (Pakistan) and Pakistan Telecommunication Authority (ii) Global including Asia-Pacific (iii) Asia-Pacific (iv) Asia-Pacific (v) Global with focus on Asia Pacific (vi) Asia-Pacific (vii) Global (viii) Small Island Developing States (ix) Landlocked Developing Countries
<p>Outcome of the Activity/Project/Study for Beneficiaries</p>	<ul style="list-style-type: none"> (i) The project has provided high speed broadband connectivity to rural / underserved communities in more than 100 locations across India, Nepal and Pakistan. In addition to basic connectivity, in India, the project promoted Internet-based social enterprises and entrepreneurship among women as change agents for social and economic empowerment. Activities included boosting traditional skills among women in cluster-based environments, enabling them to reach markets and ensure improved livelihoods for their households and better sustainability for their produce/services. For the purpose, selected women are given a six-month training in digital literacy and their objective is for them to be able to own and run their individual micro-enterprises. In Nepal, the project enabled rural innovation labs for village children providing them an open space to build their sense of confidence and to innovate with technology and tools provided. In Pakistan, the project is providing supplementary education to school girls in a virtual classroom environment, providing free extra academic help to school students, so as to help improve their

academic experience as well as introduce them to the online learning environment.

- (ii) Our efforts in Pakistan with the local community led to the establishment of the first IXP in the country. Following a city-based IXPs approach, an IXP in Islamabad is operational for the past 10 months and work is in progress to establish another IXP in Karachi. Similarly, we worked closely with APNIC and NICTA to explore possibilities to establish a neutral IXP in Papua New Guinea; the IXP was launched in May 2017.
- (iii) The digital accessibility workshops have helped to bring stakeholders attention to embrace an inclusive Internet for all. Our work enabled several policy and regulatory measures in Pakistan such as partnering with Ministry of IT to include a policy section on Digital Accessibility in the upcoming Digital Pakistan Policy. In Sri Lanka, the Ministry of Telecommunication and Digital Infrastructure has taken up the task to make Government websites accessible for PWDs. The (in progress) digital accessibility toolkit is expected to help stakeholders implement strategies to remove digital accessibility barriers for PWDs.
- (iv) IXP Mapping project will help identify all cities in countries in the region where we should focus on developing Internet exchange points and also review the policies and framework of existing Internet exchanges in the Asia-Pacific region.
- (v) ISOC strongly believes that by adopting this initiative every service provider will contribute towards the e-resilience of the country's or region's Internet infrastructure. The core of this initiative is trust and collaboration among the entities and helping each other achieve the collective goal of strong, secure and resilient Internet infrastructure.
- (vi) A set of recommendations for stakeholders, particularly policymakers on topical areas of concern in Internet development in Asia-Pacific.
- (vii) A set of recommendations for government, the private sector and community network operators on spectrum management for community networks.

	<p>(viii) A set of recommendations and guiding principles for policymakers, telecom operators, ISPs, local technical community, and other stakeholders on improving the resilience and sustainability of connectivity in small island developing states.</p> <p>(ix) A set of recommendations and guiding principles for policymakers, telecom operators, ISPs, local technical community, and other stakeholders on bolstering connectivity in landlocked developing countries.</p>
<p>Timeframe of the activity/project/study</p>	<p>(i) 2010 – ongoing (ii) 2015 – 2017 (iii) 2015 – Dec 2017 (iv) Aug 2017 – ongoing (v) Jan 2014 – ongoing (vi) 2016-2017 (vii) 2017 (viii) 2017 (ix) 2017</p>
<p>(iv). Any other suggestions/issues:</p> <p>(i) ISOC would be happy to facilitate online seminars and tutorials for member countries on topical issues around the Internet. This could be technical topics or policy topics and best practise guidelines, and would be happy to discuss specific requirements of member countries.</p> <p>(ii) ISOC would also be happy to offer country level assistance based on our areas of expertise, and we would welcome requests from member countries to further explore how we may be able to assist.</p> <p>(iii) ISOC has a range of policy briefs and documents, as well as online training courses. We would be happy to further discuss with member states how they could make use of these.</p>	

