The Asia Pacific information superhighway and regional cooperation for better ICT connectivity: The need for IXPs

Shamika Sirimanne
Director
Information and Communications Technology and Disaster Risk Reduction Division
UNESCAP
ICT for Development

- ICT plays a central role for sustainable development:
  - Development enhancing applications (e-education, e-health, business information etc.)
  - Enabling infrastructure (supports innovation, smart grids, intelligent transport systems)
- ICT incorporated in **MDGs and future SDGs** (education, gender, infrastructure),
- However, Asia-Pacific is the most digitally-divided region in World, with only 6% of Asia-Pacific developing population connected to high-speed Internet
- This is in large part driven by cost of broadband. Cost of a monthly subscription to fixed broadband as a % of monthly GNI:
  - less than 1% in ESCAP developed countries
  - Over 18% in ESCAP developing countries (39% in LDCs, 46% in Pacific SIDS). **Official target is 5%**
- Despite rapid progress in mobile broadband penetration, ESCAP developing countries are not catching up: risk of increasing digital divide
Rising need for ICT infrastructure

• Convergence of technologies requires increased connectivity, emergence of “Internet of Things” (IoT), intelligent transport systems (ITS)
• Experts predict exponential growth in demand for broadband capacity (bandwidth), with the increased demand for user-generated online content, video, cloud computing
• Moreover, mobile broadband technology will increasingly require fiber network for traffic aggregation and antenna coordination
• ADB estimated that between 2010-2020, the Asia-Pacific region needs to spend about US$ 800 billion for ICT infrastructure;
• Regional coordination is required to improve ICT connectivity and increase interconnections between national networks:
• Asia-Pacific information superhighway initiative to promote better ICT infrastructure for better connectivity
Asia Pacific information superhighway initiative

• APIS concept defined after conduction of research and analysis that exposed gaps and need for better regional coordination in 4 sub-areas (4 pillars):
  1. Physical infrastructure upgrade and interconnection
  2. Internet traffic management
  3. Building regional network resilience
  4. Promoting broadband access in underserved areas

• ESCAP carried out subregional in-depth studies on broadband infrastructure to explore causes of digital divide. Also reviewed existing connecting infrastructure by creating maps of transmission infrastructure

• Results were presented and discussed with experts in respective subregions, and at the ESCAP ICT Committee

• Resolution 71/10: ESCAP countries called for creation of open-ended Working Group on Asia Pacific information superhighway to move forward with implementation
Theme 2: Improved Internet Traffic Management

• To support user demand, industry recommendations call for countries to be able to deliver broadband capacities at 10 Mbps.

• International internet traffic is affected by **hair-pinning**: data transits through far away 3rd countries (USA, EU), when travelling between 2 neighbouring ESCAP countries or even within single country. Resulting in higher costs and latency

• **Local caching, Internet Exchange Points (IXPs)** part of solution

Insufficient IXPs in Asia Pacific

• The Asia Pacific region lacks a sufficient number of IXPs to promote efficient traffic management and resilience.

• Enhancing regional IXPs will enable better use of expensive international backhaul bandwidth (tier 1 connectivity).

• The Asia Pacific Information Superhighway emphasizes that IXPs should be open access and non-discriminatory, to enable transparent network management promote trust.

Source: http://www.datacentermap.com/ixps.html
Insufficient Interconnectivity Increases Risk

- The 2030 development agenda strongly emphasizes the need for resilient infrastructure to protect development gains and enhance socioeconomic growth.

- The lack of interconnectivity between nation and international networks increases the risk of disconnection from the global internet.

- In order to address this issue, additional physical interconnectivity, as well as IXPs and enhanced cooperation in network management is necessary.

Source: Regional Connectivity Update, 2013, Renesys
Theme 3: Reinforcing infrastructure resilience

- Lack of alternative routes for Internet traffic puts countries at risk when incidents occur on transmission infrastructure.

- On August 14th, cut on the Kengtung-Myawaddy fibre-optic network between Myanmar and Thailand resulted in traffic disruption in Myanmar as this route is heavily used for international transit. Alternative routes (submarine and terrestrial) are required.

- Creation of meshed network with multiple interconnections will reduce risk of severe disruptions.

- This will require regional dialogue to ensure additional links are built in a way that serve both commercial but also regional network resilience purposes.
Summary

• The Asia Pacific Information Superhighway initiative will help member countries overcome the severe digital divide in the Asia Pacific region.

• In addition to physical infrastructure, enhanced traffic management, through tools such as IXPs is vital.

• The region is in great need of enhanced IXPs to promote resilience and reduce connectivity costs.
THANK YOU