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

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# 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



*Source*: A Report on "A Pre-Feasibility Study on Conceptualization, International Traffic & Quality Analysis, Network Topology Design and Implementation Model for the Asian Pacific Information Superhighway in the ASEAN Sub-region", ESCAP

# 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.
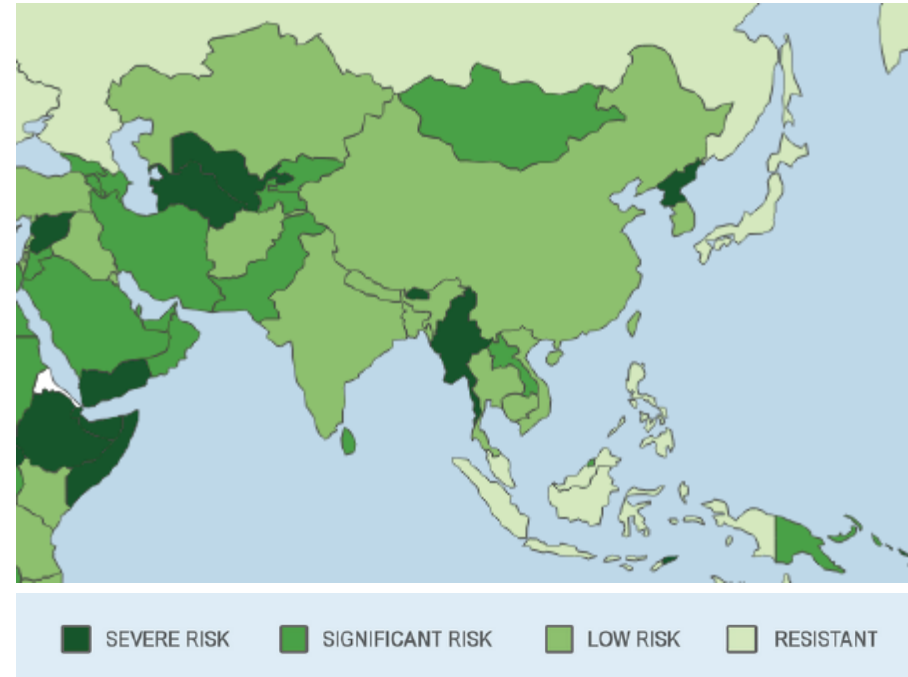


Source: Regional Connectivity Update, 2013, Renesys

# 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