A4AI-Bangldesh Working Group meeting, July 9, 2018

WG2: Core Technology and Service Infrastructure Review

Key Areas: Identify core ingredients (such as wireless spectrum, fiber backhaul and backbone, rendering ICT services more affordable etc.) for increasing fixed or wireless broadband deployment.

Group Member:

Mizanur Rahaman

Zobayer Ahmed

Kamal Hossain

Apurba Krishna Bala

Ahsanul Haq (Uzzal)

Akter Ul Alam

Outcomes of the discussion - Submitted in September 2018

Task 1: Review the Core Technologies and BB infrastructure in Bangladesh (20 minutes)

Your answer to include the following:

- o Status of technologies - 2G, 3G, 4G, LTE,5G
- o Review of transmission medium – microwave, fiber
- o Review of network topology – Rings, meshes, hybrids
- o Review of network protocols – IP, E2E, MPLS
- o Review of current traffic movement – micro-sites, small cells, wifi?
- o Virtualisation of network elements –
- o Review of technology dependency – 2G, 3G, 4G, 5G, etc - Technology locked or agnostic
- o What are the BB infrastructure layers in Bangladesh?
- o The status of unified licensing regime and the challenges in implementing
    - ▪ Wireless – 3G/4G is dominant technology for data but for voice still operator relying on 2G network but coverage gap. 4G Coverage enforcement and 2G discontinue guideline is required
    - ▪ Fiber is main physical medium for bulk capacity transmission, DWDM over fiber is transport IP/MPLS network; Microwave is media of transmission for last mile (remote without road connectivity and island etc.

- Rings/Mesh/Hybrid etc are basic network topology at access layer depending on field situation but DWDM layer directionless Optical ASON will play key role ensure future network resilience
- Virtualisation of network elements yet to start here, but some network function is possible in data centre
- Last leg (3G/LTE/GPON (XGPON), WiFi), Access backhaul (Fiber-IP/MPLS, Microwave – Upto Union/PoP level), Backbone (Fiber – DWDM, upto Upazilla level) transport and IP/MPLS is running over backbone transport
- Broadband definition required to set – since speed requirement is dynamic, suggested to set speed with time bounded; like 2016-2018 > 5 Mbps, 2019-2021> 8 Mbps, 2022-2025> 20Mbps etc
- Unified licensing – for full value chain? Will be very challenging since sector value chain is fragment with too many segments and each segment has too many licenses compared to business opportunity; Can we justify wither they can run profitable business with such small boundary and limited scope/revenue? It is sure some unification is obvious Before starting such discussion, policy and compensation mechanism required to set for those who will be impacted, identify beneficiary and overall benefit for the people
- Business affordability of underline service provider
- How we can service all location upto district level
- Allow Active sharing – review service wise license or provider
- rural area cost is high due to backhaul/infrastructure price
- Countrywide NIX availability upto (division/district)
- Public free regulated Wifi Hotspot.
- Visualize all stakeholder available infrastructure (PGCB, Cellular Operator, Railway Fiber, NTTN, Others).
- Fiber is expansive resource due to deployment and maintenance cost; it is not infinity resource at any particular route unless underline user utilise capacity

Task 2: Discuss and review the ease of infrastructure deployment and efficiency in utilisation (20 minutes)

Your answer to include the following:

- Current RoW situation
- Digging for infra-sharing?
- Do we use GIS mapping-based planning and monitoring?
- Building guidelines in smart cities and urban locales
- Current status of tower infrastructure
- Cost of tower infrastructure – green or otherwise
- Protectionism

- Absence of proper regulation, coordination & monitoring for Current RoW & Infrastructure development; getting difficult of permission and very costly Metro area and Bridge crossing; Bridge Authority is asking for OTC (one time cost) and Yearly fee – require policy and guideline
- Building guideline for smart city and urban is required; Review building code >> Must provision duct for IT or Broadband cabling (in building), entry/exit for fiber/coax cable, consider broadband services similar as other untility like water/electricity etc
- Need to improve the GIS mapping on current and ongoing development infrastructure.
- Yes, some service providers using GIS mapping
- Tower licensing process is underway, letus wait and see how it will benefit client
- Cost of Tower infrastructure in rural area is currently yellow and need to review.

Task 3: Review the current scenario of tower infrastructure deployment (10 minutes)

Your answer to include the following:

- Clearance
- RoW issues
- Fees and other costs
- Standards
- Power supply – green?
  - Tower sharing guideline need to revise to review the pricing model. AT present there is no standard tariff model and controlling by regulator.

Task 4: Review the current scenario of fiber infrastructure deployment (10 minutes)

Your answer to include the following:

- Clearance
- RoW issues
- Standards
- Dig-once scenarios
- GIS mapping and fiber checks
- Do we have utility corridors?
  - At present there is no agreed price model and control from Regulator. So there is different price available for different sharing operator. There should be a justified and regulated price model considering investment for each available infrastructure operator.

- Dig-once policy yet to developed, but key roads infrastructure expansion activities on going last few year but lagging coordination to save or relocate or safe path for existing infrastructure. Or build an infrastructure/utility duct and shift services
- If cost model confirm that some area investment does not justify those cases delta (gap) can be subsidise or some other mechanism should be developed
- Public GIS mapping or fiber important? They are looking for uninterrupted service? That has to facilated with policy for that client can get benefit

Task 5: What does the broadband value chain in Bangladesh look like (15 minutes)

- Whole sale to retail (Undersea cables; national long distance; domestic transmission; fiber to tower; connectivity to enterprises; SMEs; UDICs; homes
- Which is the dominant technology in the above? – VSAT, Fiber, DSL; Wireless broadband; Wifi; AWS; etc Can we map?
- What is the data speed like? And, what is the capacity need like?
  - There are multiple stakeholder for common area interest with multiple technology. Need to involve multiple stakeholder (Wired, Wireless, rare cases Satellite) to figure out affordable broadband based on business viability specially for area like rural, remote rural, forest etc. Mainly Undersea cables >> ITC & BSCCL; national long distance/domestic transmission, fiber to tower >> NTTN; connectivity to enterprises/SMEs/homes >> ISP/BWA/Telco
  - There is a gap in complete value chain goverance model, so many stakeholder are competing each other; might not helping each to invest long-term. Regulatory body need to involve them based on long term interest.

Task 6: Review the status of spectrum holding by operators (5 minutes)

- What are the desired reforms in spectrum?
  - To ensure the affordability internet for all with optimistic price active sharing and carrier aggregation is highly desired to make broadband available by low cost service provider like (Telco, ISP, BWA etc).
  - Flexible right to use spectrum.
  - Cellular operator need to have force to avail more Carrier bandwidth. Regulatory body can increase the minimum purchase bandwidth limit.

Task 7: Prepare the summary of your report and recap your discussions among yourselves (10 minutes)

Ans:

1. Price sensitivity at metro/rural area is high, backhaul cost model required to develop considering relevant investment of all stakeholder
2. Review building code amended broadband infrastructure facility inside build and enforce it is like a utility
3. Infrastructure development activities monitoring and aggregation; remove barriers
4. Aggregate Govt. initiatives for internal Ministries and agencies – Data centre based services
5. B to B TAX is unchanged in current budget where B to C is reduced. Suggest to reduce the B to B tax same like B to C tax
6. E2E value model Governance gap – need to pinpoint and solve

WG3: Strategy development to achieve broadband development through specific activity plan

A clear vision and guiding strategy to support the development and coordination of affordable broadband plans for citizen-centric across Bangladesh

Task 1: What is the vision statement of Bangladesh's BB development (20 minutes)

Your answer to include the following:

- o What is the mission statement?
- o What are the strategic objectives?

Task 2: What are the connectivity options for broadband in Bangladesh? (20 minutes)

Your answer to include the following:

- o Connectivity goals
- o Should there be a national connectivity program? How would it be geographically planned? An idea for a national digital grid? Convergence of various acts and policies?
- o Could we recognise spectrum as a people's resource? And, how do you harness the same? Allocation; utilisation; harmonisation; refarming; use of NGNs
- o What are the envisaged benefits of Bangla communication satellite? Optimisation of satellite technologies? And, how would the satellite ecosystem look like in Bangladesh?
- o Goals for including the excluded areas? How do we review the scope of SoF
- o How do we address QoS issues in Bangladesh; And public safety issues?
- o How do we incentivise clean energy technologies in telecom

Task 3: What are the futuristic options for Bangladesh's BB development? (20 minutes)

Your answer to include the following:

- o Skills; job market; enterprise opportunities
- o Global hub and other opportunities for the nation
- o Expansion of IoT ecosystem and other 5G dependent applications
- o Improving efficiencies of production industries through BB
- o Smart cities applications through BB

Task 4: How would you achieve simplification of rules, innovation and R&D in BB-related tools, applications, etc (10 minutes)

Your answer to include the following:

- o Incentives to local manufacturing
- o Start-up initiatives in Bangladesh
- o Innovation and sand-box initiatives
- o Application to solve human problems; incentivisation
- o Building capacity of various layers – individuals, SMEs, Industries,

Task 5: How would you achieve online safety, privacy, data protection and emergency response (10 minutes)

Your answer to include the following:

- o What are the plans?
- o Security standards
- o Awareness creation
- o Incident management and emergency response
- o Privacy and data protection for citizens
- o Curbing cyber crime and online violation
- o Basic rights of citizens

Task 6: Prepare the summary of your report and recap your discussions among yourselves (10 minutes)

WG1: Regulatory framework and policy formulation of broadband internet

Key Areas: Importance of regulatory and institutional framework in order to measure need assessment and to reap the benefits of ICTs in Bangladesh

Task 1: Come up with certain clear strategic direction for broadband (20 minutes)

Your answer to address the following:

- o Unambiguous definition
- o Stock of current and the potential capacity – bandwidth capacity
- o Stock of current and futuristic coverage plan
- o Stock of current and futuristic availability
- o The current status of reliability - QoS
- o The current status of affordability – cost of access

Task 2: Come up certain supply-side operational directions for Broadband development (20 minutes)

Your answer to address the following:

- o Current status of infrastructure
- o BB Implementation models at present
- o Executional hurdles and ease of doing business in BB development
- o Data plans and competition issues in BB business
- o Efficiency in roll-out of BB
- o Technological options for BB

Task 3: Come up with certain demand-side operation directions for Broadband development (20 minutes)

Your answer to address the following:

- o Current status of access – rural, semi-urban and urban; gender; income status
- o Current status of affordability – rural, semi-urban and urban; gender; income status
- o Awareness
- o Relevant services
- o Content
- o Online safety

Task 4: Come-up with certain implementational directions for Broadband development (20 minutes)

- o Governance model
- o Private-led government grant
- o Fully private with government light-touch
- o Private-led but government funded
- o PPP
- o Fully government-led and owned

Task 5: Prepare the summary of your report and recap your discussions among yourselves (10 minutes)