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| **SOUTH ASIAN TELECOMMUNICATIONS REGULATOR’S COUNCIL** **(SATRC)** |  |
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**SATRC REPORT ON**

**REGULATORY APPROACHES TO ENHANCE BROADBAND EXPERIENCES**

**Prepared by**

**SATRC Working Group on Policy, Regulation and Services**

Adopted by

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# Background

This report is being drafted as a part of implementing SATRC Action plan (Phase VI) which was adopted by the 17th Meeting of the SATRC (STARC-17) held in October 2016 in Dhaka, Bangladesh. The Work items of WG PRS during the implementation of SATRC Action Plan Phase VI (2017-2018) are as follows:

* Policy and regulatory aspects of infrastructure sharing
* ICT regulatory framework for M2M communications and IoT for the SATRC countries
* Enhanced consumer protection in digital economy (taking into account the issues of Cybersecurity, Big Data and Data sovereignty)
* Regulatory approaches to enhance broadband experiences
* Regulatory framework for Mobile Virtual Network Operators (MVNO)

It was decided during the above-mentioned meeting that Bangladesh would lead the study on “Regulatory approaches to enhance broadband experiences “

# 2. Objectives/ Purposes

The purpose of this work items is to provide a guideline to SATRC members to take into account the issues identified and take necessary steps to enhance broadband experiences for digital economy.

# 3. Methodology

During the first meeting of the Working Group on Policy, Regulation and Services held in Dhaka, Bangladesh from 18 to 19 April, 2017, it was agreed that the lead expert will carry out the study based on Questionnaire, Desk Research and Consultation & peer review by experts.

The lead experts nominated from member countries developed the questionnaires based on five work items. The questionnaires were circulated to all the nominated experts and used to review and analyse the current practices or regulatory framework on the broadband expansion.

Different types of broadband related reports published by ITU, APT, CTO etc. were studied as desk research. Besides, the broadband policy/strategy of SATRC member countries were gone through for this study.

The work item “Regulatory approaches to enhance broadband experiences “was discussed thoroughly during the Meetings of the experts as well as workshop conducted by Asia Pacific Telecommunity (APT) for the Working Group.

# 4. Current Status and Findings

Table 1: Data of SATRC member countries

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Member Countries** | **Year Policy Was Adopted**  | **Policy Duration** | **Definition of Broadband/Speed** | **Broadband Penetration** | **Internet Penetration** |
| Afghanistan | N/A | - | 2 Mbps | 15% | 25% |
| Bangladesh | 2009 | 2015 | 5 Mbps | 39.54% | 55.73% |
| Bhutan | 2008 | - | 512 Kbps | 63% | 87% |
| India | 2012 | 2020 | 512 Kbps | 34.42%  | 34.42% |
| Iran | 2017 | - | - | - | - |
| Maldives | 2014 | 2018 | N/A | 100% | 100% |
| Nepal | 2015 | - | 512 Kbps | 50.32% | 64% |
| Pakistan | 2004 | - | 256 Kbps | 28.27% | - |
| Sri Lanka | N/A | - | 1024 Kbps | 45-60% | 45% |

**Source: Questionnaire**

**Table 2: Information of SATRC member countries**

|  |  |  |
| --- | --- | --- |
| **Member Countries** | **Regulatory Perspective for Broadband Expansion** | **Collaboration among SATRC Countries** |
| Afghanistan | Afghanistan has implemented open access policy, through that policy broadband technology can be expanded and also providing subsidy from the telecom development fund (TDF) for those areas where operators not interested to provide broadband services.In addition, private companies are allowed to install their own OFC backbone around the country for whole sale supply in the market. So, right now we have one government OFC operators and three private company’s licensees in Afghanistan. | SARTC countries should make polices regulations and legislations to allow land lock countries to have access to submarine cable. |
| Bangladesh | Broadband License3G and 4G TechnologyOptical Fibre LicenseSubmarine cable operatorsITC operators | Provided license to Submarine cable operators and ITC operators |
| Bhutan | Providing technology choice to the service providers for broadband expansion and also providing subsidy from the universal service fund for those areas which are economically not viable as well as far flung areas (remote)  | Collaboration is the best option in promoting the broadband services in SATRC Countries. Most of the SATRC still depend on the international contents as local content are not matured enough. Therefore, sharing of cache (international web server) by different ISPs in the region will be very helpful in bringing down the cost on international connectivity as well as quality of broadband services.  |
| India | The regulatory measures to enhance the ease of doing business particularly for broadband expansion are: **Efficient Right of Way Rules****Active Infrastructure sharing** | The access to the submarine cable landing stations may be provided by neighbouring countries for International internet Bandwidth at reasonable rates. Some collaboration is already there but it should be enhanced further. |
| Iran | - | - |
| Maldives | Easy Access to Spectrum, Tax breaks, reduced bureaucracy in approvals, Sharing of rollout coverage within service providers |  |
| Nepal | Simplifying the licensing procedureFacilitating the existing internet service providers so that they can upgrade their customers to broadband. | Drafting not only policies, but mandatory legislative provisions.Working together in common areas of interest.Leading countries share what type of project gave best results in what type of scenario so that following countries can expand broadband network quickly. |
| Pakistan | (i) Fast track processes for rights of way (ii) In building cabling (iii) Use of utility infrastructure (iv) Infrastructure sharing (v) Development of standards for fibre deployment (vi) Development of a fibre roll out plan agreed with the sector (vii) Introduction of wholesale fibre services (viii) Inclusion of broadband in the set of services to be supported by the USF (ix) A presumption in favour of fibre over copper for all | - |
| Sri Lanka |  | Collaboration is the best option in promoting the broadband services in SATRC Countries. Recommend to put regional internet exchange. |

**Source: Questionnaire**

Analyzing the questionnaires, it was found that most of the member countries ensuring broadband expansion through rollout obligation, open competition and Government projects. All the countries are providing telecommunication services through 3G and 4G technologies and mobile broadband is dominating the market. Though the SATRC member countries adopted broadband policy/strategy, most of them did not mention the time duration or time of expiration. Some countries adopted broadband policy for long period of time. All the countries did not define broadband in terms of speed.

# 5. Broadband Implementation Challenges

Over the recent past years the most of the SATRC countries have formulated the National Broadband Policy but facing challenges in case of implementation. Global broadband continues to show healthy growth, although there are some supply side and demand side challenges. The common supply and demand sides challenges that almost every country in the regions have been facing are given in the Table 3 below-

Table 3:

|  |  |
| --- | --- |
| **Supply-side Challenges** | **Demand-side Challenges** |
| Dynamic definition of BroadbandLimited financial resourcesLimited in-country infrastructure, especially national fibre optic networks, and limited or very expensive infrastructure for international connectivityVandalism and disruptions caused by road works (results into disruption of networks and services resulting into losses)Lack of expertise and relevant skills (R&D)Inadequate supply of power Lack of competition in the market Limited amount of spectrumavailable for wireless broadbandComplex regulatory environment and Right of Way (RoW)Enabling small- and medium-scale enterprises (SMEs)Lack of cooperation and collaboration between key role players | Low levels of purchasing power,and relatively high service pricesAwareness/low levels of education,especially regarding ICT skillsLimited availability of (andhigh taxes on) consumerelectronic equipmentLimited availability ofrelevant local contentDigital divideLack of Trust/Security |

***Source: ITU and Broadband Policy & Different types of Report Published by SATRC Member Countries***

# 6. Mitigation Approaches

Mitigation Approaches of Supply side challenges are given in the Table 4 below:

Table 4: Mitigation Approaches of Supply side challenges

|  |  |
| --- | --- |
| **Supply-side Challenges**  | **Mitigation Approaches** |
| Definition of Broadband | -Regulators or policy makers should redefine broadband speed and quality dynamically according to the needs of the time, by fulfilling today’s applications and anticipating tomorrow’s requirements |
| Limited financial resources | -Levies on operators to finance USFs. -Promote public-private partnership model to attract higher private investments in infrastructure construction and business operation.-Additional sources of funding (e.g., from international institutions) |
| Limited in-country infrastructure, especially national fibre optic networks, and limited or very expensive infrastructure for international connectivity | -Universal Social Funds (USF) is one means of providing access to remote and underserved areas-Grants to build infrastructure, mandatory infrastructure-sharing-Focus on expanding network coverage (e.g. via coverage obligations, rather than on spectrum proceeds) |
| Vandalism and disruptions caused by road works (results into disruption of networks and services resulting into losses) | -Ensure requisite protection for existing infrastructure and monitoring |
| Lack of expertise and relevant skills (R&D) | -Strengthen the skill development efforts for training and nurturing technical professionals and other talents |
| Inadequate supply of power | -Ensure power supply urban as well as rural area |
| Limited amount of spectrumavailable for wireless broadband | -Provide clear roadmap of national radio frequency spectrum allocation and make available adequate amount of spectrum-Roll-out of public WiFi in public spaces |
| Complex regulatory environment and Right of Way (RoW) | -Regulator should ensure transparency in case of all kind of services and RoW permission should be economical/reasonable and less time consuming |
| Lack of competition in the market  | -Create a good environment, promoting fair competition and efficient use of resources |
| Enabling small- and medium-scale enterprises (SMEs) | -Provide incentives, funding and other support mechanisms for the SMEs to use ICT, in particular broadband |
| Lack of cooperation and collaboration between key role players | -Policy makers, stakeholders as well as different types of relevant organizations should be aligned |

Mitigation Approaches of Demand side challenges are given in the Table 5 below:

Table 5: Mitigation Approaches of Demand side challenges

|  |  |
| --- | --- |
| **Demand-side Challenges** | **Mitigation Approaches** |
| Low levels of purchasing power, and relatively high service prices | -Ensure the availability and affordability of broadband enabled devices and services for poor or at-risk households and other vulnerable groups |
| Awareness/low levels of education especially regarding ICT skills | -Engage in ICT literacy campaigns and digital skills courses to boost user capacities, awareness and interest-Promote effective ICT skills through training and education at all levels, formal and informal, with a special focus on girls and women |
| Limited availability of (and high taxes on) consumer electronic equipment | - Government may take measures to reduce taxes, Value Added Taxes (VAT) and import duties on telecommunication/ICT equipment and services to make broadband more affordable |
| Limited availability of relevant local content | -Promote the development of local and relevant broadband applications and content, including in multiple languages |
| Digital divide | -Regulator should mandate roll-out obligation and Performance Bank Guaranty (PBG) in the licensing guideline. Besides, Government may wish to release some funds to increase broadband access in rural areas.  |
| Lack of Trust/ Security | -Enhance transparency and control of market information to inform consumers about market prices and their rights to enable them to make informed decisions-Undertake communication campaigns to increase trust and security |

# 7. Best Practice

It has been found that there is no single, comprehensive blueprint for best practice. However the following seven key issues are core to national broadband development:

* Policy, Legal and Regulatory
* Infrastructure, Connectivity and Devices
* Capacity Building and R&D
* Awareness and Outreach
* Content and Applications
* Financial and Investment
* Monitoring and Evaluation

##  7.1 Policy, Legal and Regulatory Aspects

An appropriate Policy, Legal and Regulatory framework is critical for the effective implementation of the National Broadband Strategy. Such a framework should accelerate the deployment of broadband and facilitate the consumers as well as stimulate the trust and confidence in the uptake of broadband services. Therefore Policy, Legal and Regulatory framework reform is necessary in some particular areas for broadband services. Some relevant policies such as broadcasting, media, content and application etc should be developed. Further, Legal and regulatory framework for consumer protection, protection of personal data, electronic commerce and signatures, cyber crimes, security of systems and networks, infrastructure development and usage, infrastructure sharing, broadband quality of service etc. should be developed.

The Government of Uganda recognizes the key role ICT plays in socio-economic development and as such has endeavors to put in place an enabling Policy, Legal and Regulatory environment. Broadband is about effective and efficient access to information; the right of access to information is enshrined in the Constitution of the Republic of Uganda5. To ensure effective and efficient access to information, the Constitution is supported by various policies, laws and regulations. The policies and laws supporting broadband development in Uganda include:

* Uganda Communications Act 2013
* National ICT Policy, 2013
* The National Information Technology Authority-Uganda Act, 2009
* National e-Government Framework for Uganda, 2010
* Analogue to Digital Migration Policy, 2011
* Cyber Laws
* ICT Governance Framework

## 7.2 Infrastructure, Connectivity and Devices Aspects

To enhance the Broadband experiences a transparent, affordable and open access shared infrastructure is needed. Further, the seamless interconnection and coordination of many different networks are required for broadband access. Fibre optic submarine cable, International Terrestrial Cable (ITC) and Satellites are the provider of broadband international link. Countries should adopt policies either to use the satellites as backup capacity or ITC as redundant path in case there is cut of fibre optic submarine cable. Besides to develop a nationwide fibre optic network and to reduce cost, policy should be developed that can create competition among the operators.

To establish the last mile connectivity through wireless broadband networks, private and Government owned telecom operators should work. Public and Private partnership (PPP) should be develop to deploy wireless broadband infrastructure across the nation. In Addition, Government/regulator must action or license spectrum for wireless broadband network development.

Another way in which governments can promote wireless broadband availability throughout a country is to establish coverage obligations at the time of initial licensing. In fact, most licenses include specific coverage obligations in their terms and conditions.

Regulator should ensure transparency in case of RoW permission and RoW should be reasonable and less time consuming.

For broadband network development uninterrupted power supply is essential. Government should take some projects to distribute continual power supply across the country. Vandalism and road works should be taken in consideration to accelerate the broadband development.

Moreover, to extend the broadband connectivity to all underserved and remote areas the USF should be utilized. Policy makers or Regulators should formulate guideline to ensure that the best possible use is made of USF.

While affordability represents an overwhelming barrier to enhance the broadband access, the Government should take some measures; such as Community Access Centres Programs, Digital Community Centres Programs etc.

## 7.3 Capacity Building and R&D Aspects

Over the recent past years the SATRC countries have adopted their National Broadband Policy with limited experience in broadband. Therefore there are substantial capacity building and training requirements throughout the authority. These requirements focus on the regulatory/policy aspects and on the technical (spectrum management, tariff regulation, interconnection regulation, licensing, technical standards, enforcement, dispute resolution, cyber security etc.) aspects as well. Different types of training or capacity building methodologies should be adopted to enhance the capacity of the members of the regulatory authority or the allied persons who are engaged in approval or standardization process.

R&D not only stimulates innovation but also plays an important role in the adoption of existing technologies. National R& D has become essential for the countries to promote innovation as well as to deploy the existing technologies. R&D plays a vital role not only for telecom equipment standardization but also for service approval. R&D creates innovation; more innovation means more competition reducing cost and improvement in quality.

## 7.4 Awareness

To raise public awareness of the benefits of broadband services and promote their use, governments should provide training on how to use computers and the Internet. This training can contribute to the rapid and widespread penetration of broadband. In the short run, such training generates demand. It can also be a step toward universal service when the program targets underserved groups. ICT training for children and students can change their learning behavior and interests and, by extension, alter their parents’ views of ICT and broadband.

## 7.5 Applications and Content

Applications and content development has become one of the top priorities to enhance the National Broadband experiences. Applications are function-specific software programs that use a broadband connection to deliver content to users. Applications provide tools and services that are useful for both consumers and businesses and therefore add value to broadband. New and innovative applications improve business efficiency and productivity, as well as provide new ways to personally interact through social networking applications. Similarly useful content is an essential underlying element of broadband adoption. Local content or content in native language will accelerate the implementation of broadband strategies. Policymakers can play a key role in promoting local content, as well as digital content generally. Governments can also play an important role in developing local content and local applications by directly creating local content and local applications in the form of e-government applications.

##  7.6 Financial and Investment Aspects

To encourage the growth of the broadband, countries need to emphasize on competition as well as on private sector investment. In developed sometimes in some developing countries, the majority of the private investment comes from within the country itself. In the least financially endowed countries, however, private investment may also come from foreign sources. In order to attract the foreign private investment, a clear regulatory and legal environment, and a good development plan is needed to boost up broadband strategy implementation. Further, Government should find an appropriate financing model in which government oversight and intervention is focused mainly on funding and financing for effective broadband deployment.

## 7.7 Monitoring and Evaluation Aspects

For the effective and efficient implementation of broadband, Policy makers should develop some mechanism to measure that the policy objectives are being achieved. Some sort of measurement is needed to identify whether corrections and refinements to policies programs are needed. Every country should adopt some monitoring and evaluation strategies to find out the country’s broadband development. Broadband indicators are needed in this regard. The broadband indicators likely to be of the most interest to policy makers are availability, demand, quality and pricing. Additional indicators also may be useful for monitoring and analysis.

# 8. Recommendation

* Definition of Broadband
* Timescale for strategy
* Quality and Cost of Broadband
* Applications and Content Activities
* Small and Medium sized Enterprises (SMEs) Moving Up the Value Chain
* Investment in Broadband Infrastructure
* Security and Data Protection
* Expertise and R&D
* Stakeholders Consultation
* Government Policies and Strategies
* Cooperation and Collaboration between Key Role Players

## 8.1 Definition of Broadband

Broadband has to be defined dynamically and should not be allowed to remain static. The definition (in terms of speed and quality) should set standards that will enable all citizens to fulfill today’s needs while anticipating future requirements. More importantly, the definition needs to be proactive and compatible with development aspirations of the country.

## 8.2 Timescale for Strategy

 **C**ountries should not develop their strategy for more than 5 (five) years. International Telecommunication Union (ITU) recommends the timescale of around 3-5 years. As the technology is moving fast, to predict the fast-changing industry and to keep pace with it policy should be developed for shorter time period.

## 8.3. Quality and Cost of Broadband

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Policies should be formulated to ensure fair and healthy competitive environment that will reduce the cost and provide better services making broadband more affordable to citizens with lower-income. Regulator should create an environment that will minimize the variation in capacity, speed and cost of broadband services among service providers, to ensure a wider adoption by the user. Policies to reduce pricing and to limit the types of services offered towards establishing a more transparent regulatory regime must be closely monitored and firmly enforced. This will facilitate businesses and citizens in making better and informed decisions. To trim down the digital dividend and to cater for the needs of low-income households broadband should be offered at very low cost but with the same quality standards. This will attract current non-users as well as those still using low-speed connections. Moreover broadband quality and pricing should be monitored and evaluated regularly in order to be competitive against regional and global competitors.

##

## 8.4. Applications and Content Activities

Policy and Value Added Services (VAS) guideline should be formulated to encourage the local content development. Service providers and developers should be encouraged to work closely together in developing community- and business-relevant content and applications. Collaborative platforms should be established and operated by relevant agencies. This sector should be incentivized or fully funded by the Government.

## 8.5. Small and Medium sized Enterprises (SMEs) Moving Up the Value Chain

Though the SMEs play an important role in the economy and society, their broadband services adoption is very limited. They lack awareness on how ICT can improve their businesses, partly due to lack of ICT literacy. They lack financial resources for acquiring ICT infrastructure, tools and services. They also lack financial resources to employ expertise. SMEs are generally reluctant to embrace the ICT work culture.

 They suffer from a “fear factor”, relating to business security, safety and authentication challenges.

To overcome the inherent problems faced by SMEs as outlined above, there is a need to formulate and implement receptivity to change programmes among them. Initially, resistance can be expected but with provision of adequate funding for well-crafted capacity and capability building programmes, SMEs will be able to migrate more readily to the information- and knowledge-based way of doing business. In order to facilitate their key role in development, a broadband programme for SMEs should be planned and implemented strategically and holistically, integrating technology, infrastructure, people and institutional strategies.

## 8.6. Investment in Broadband Infrastructure

To achieve the policy target and overcome the barrier or challenges Government or policy maker should take some initiative to attract investment in national as well as in international level. The Regulator should ensure and encourage level playing field to expand the broadband infrastructure. To achieve the policy goal investment should be promoted along with (considering) the endorsement of new market entrant, issuance of new licenses, elimination of red-tape etc. Besides, closer collaboration between the national investment promotion agency (IPA) and working with existing and new operators should be encouraged to promote the investment.

##  8.7. Security and Data Protection

As policymakers and private sector service providers consider ways to increase broadband use and promote online participation in personal, professional and governmental activities, privacy and security concerns will have to be addressed. Many potential users may be afraid of using broadband services for reasons related to privacy, security or identity theft. Therefore, National CERT should be formed to protect data, privacy, and security as well as to give relief from different types of harassment. Moreover, policy should be developed to secure the e-transaction and business.

## 8.8. Expertise and R&D

Most of the countries developed their broadband strategy with limited experience and expertise in understanding the full ecosystem requirements of a broadband strategy. Establishment or the involvement of R&D increases the innovation. Innovation will lead to increase in competition as well as enhance the quality and reduce the cost of services

## 8.9. Stakeholders Consultation

For the effective implementation of broadband strategy, consultation with a broad range of

Stakeholders are necessary. Governments should provide for a public consultation process that allows liberal opportunities to obtain input from the private sector, consumers, and other relevant stakeholders.

## 8.10. Government Policies and Strategies

Over the past years, many countries successfully have implemented their broadband strategies. The technology as well as the Internet platform is fast-moving so to keep pace with this trend the review of these policies and strategies are needed on regular basis. The following policy and strategy issues should be taken in consideration-

* Creation of a more level playing field for service providers. It should be ensured that all service providers are treated equally.
* Government should consider the separation of wholesaling and retailing activities to avoid duplication in market practices and conflicts of interest. This unbundling of activities will ensure there is fairness in practice among all retailers which again will benefit all citizens.
* The government should make the policy to narrow the development gap between urban and rural communities. Providing equal access everywhere across the nation will narrow the digital divide and also enable the nation to also narrow the ICT-enabled innovation gap.
* Finally, a key national strategy is to ensure that the regulatory institution responsible for the Internet and broadband to be more independent and autonomous in implementing and enforcing national policies, while employing a more participatory approach in consensus building by engaging regularly with all key stakeholders.

##  8.11 Cooperation and Collaboration between Key Role Players

To ensure success in implementing the broadband policies and strategies towards driving

the national development agenda to a higher level, key role players need to be intensely engaged with and mobilized. Ministry and regulatory authority should work in collaboration for any kind of ICT approval process. ICT industry players have to assume a more proactive role in building capacity and capability among users and consumers, especially the SMEs, to apply broadband for innovation and productivity enhancement. Specific incentives need to be provided to encourage industry to assume this role effectively and efficiently. Regulatory bodies have to monitor, evaluate and guide industry towards achieving more balanced development. Community-based groups and Internet centres need to be remobilized to promote wider usage, and the development of applications, content and broadband-based infrastructure and services to enable social and economic transformation.

# 9. Conclusion

Analyzing the questionnaires and desk research (gone through broadband policy/strategy of member countries, broadband related different reports , ITU’s MIS report, Broadband for all report etc.) it has been found that it is very difficult to come out with a single guideline for different SATRC member countries. However, collaboration among member countries is needed to enhance the broadband experience.

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