PRESENTATION ON THE USAGE OF SATELLITE COMMUNICATION SYSTEM IN BHUTAN AND OTHER REGULATORY ASPECTS

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འབྲུག་བརྡ་དོན་བརྒྱུད་འཕེལ་དང་བརྡ་བརྒྱུད་དབང་འཛིན།
དཔལ་ལྡན་འབྲུག་གཞུང་།
BHUTAN INFOCOMM AND MEDIA AUTHORITY
ROYAL GOVERNMENT OF BHUTAN

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Bhutan and its Telecommunications History (1)

Country Background

- Small landlocked country with China in North and India in South.
- Less than 0.7 million population.
- 38394 square km
- Remained in a self-imposed isolation until 1960s.
- Planned modern development began with first 5 Year Plan in 1961.

Start of Telecommunicati -on Services

- First systematic approach and planning started from 1963.
- Started from unconnected trunk radio systems.
- First link with outside world (India) established in 1984 through analog microwave link.
- Gradual connection through microwave link with different regions of the country

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Bhutan and its Telecommunications History (2)

Start of Telecommunication Services

- Started Internet services in June 1999.
- Started Cellular Mobile Services in November 2003
- There was only one Mobile operator called Bhutan Telecom Limited BTL (State-owned company).
- Liberalization of telecom services and licensed a private telecom operator called Tashi InfoComm Private limited in 2006.

Enhancement of Telecom Services

- Current subscribers number more than 0.6 million.
- 90% cellular mobile penetration reached presently.
- EDGE/GPRS,
- Evolved mobile broadband services (wired and wireless services).
- 3G services, 4G LTE and LTE-advanced services

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Satellite Communication in Bhutan

- The satellite services plays vital role for communication in mountainous country like Bhutan.
- The telecommunication and broadcasting service's reach to the rural end is difficult through terrestrial network.
- Lacks financial capacity and the professional capacity in launching its own satellite, thus Bhutan does not have its own satellite at the moment.
- Nevertheless, Bhutan uses satellite services from other satellite service provider.
- The regulatory framework mostly deals with the ground segment satellite regulation.

- The services availed are for example, Television broadcaster in Bhutan avails the service of INSAT 4A satellite to broadcast in C-band frequency.
- Telecom operator uses Intelsat satellite and Thaicom satellite for voice and data connectivity as well as for redundant network. And also used for the backhaul cellular mobile link.
- Local ISPs uses the TELSTAR 18 of Telsat or Intelsat 12 satellite.

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Policy and Framework for Satellite Service Regulation in Bhutan

- Ministry of Information and Communication of Bhutan issues policies and directives.

- BICMA (regulator) implements and enforces the policies and directives.

- Regulation of Telecommunication sector governed by the BICM Act 2006 and the Telecommunications and Broadband Policy of Bhutan.

- **Currently, there is no specific regulation formulated on the satellite communication systems in the country.**

- **However, the operation of ground satellite stations especially the spectrum use are governed and regulated through the National Radio Rules.**

- **Considering the increase in the use of satellite services in the country, there is a critical need for Bhutan to develop separate and specific regulatory tools and framework for the operation of satellite communications in Bhutan.**

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Satellite Services – Spectrum Allocations and Other regulatory Aspects

- Any Telecos and ISPs in the country intending to utilize the satellite services shall obtain the frequency approval/permit/license for the spectrum Uplink and Downlink.

- The frequency assignments are done based on the requirement of satellite link frequencies and the allocations of the National Frequency Allocation Table.

- For the operation of satellite services in the country, local operators have the freedom to choose any foreign satellite operator/network which will serve their purpose the most.

- The other necessary agreements, mode of operation, conditions and the payments with the foreign satellite operators/owners are left with the satellite service users (local operator) themselves.

- **No satellite fillings on the ground satellite earth stations to the ITU has been done so far to the ITU.**

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Satellite Services – Spectrum Allocations and other Regulatory Aspects (2)

•The VSAT permit is not issued to individual applicant/users in the country.

•The VSAT permit is issued only to financial institutions, diplomatic international organizations, government organizations and the ISPs.

•The operation of satellite phones are also not permitted except for the emergency operations. The Inmarsat, Thuraya and the Irridium satellite services are used for mobile satellite services for such operations.

• To avail the services of foreign satellite network, the applicant shall possess the ISP license.

•Some of the factors which determine the selection of foreign satellite services from the operators are:

✓Cost of bandwidth availed
✓The availability of the satellite footage
✓The type of satellite service available

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Satellite Provider Services Used in Bhutan (1)

The satellite service providers network are availed by Telecos, Internet Service Providers (ISPs) and the Television broadcaster in the country.

Bhutan Telecom Limited (Telecos)

- Avails the Intelsat satellite Network for the voice and data connectivity and also for the redundancy connectivity.
- Backhaul link for Cellular Mobile Connectivity in the remote and inaccessible areas.

Tashi InfoComm Limited (Telecos)

- The TICL although does not use the satellite services at the moment, however has kept the provision to use either ThaiCom or ArabSAT or IntelSAT for its redundancy for the International voice connectivity. Currently, TICL has deployed International Voice Connectivity through fiber connections.
- They also have a plan to use the satellite services for their backhaul network for the cellular mobile connectivity in very remote and inaccessible areas.

Satellite Services Operation in Bhutan (2)

Bhutan Broadcasting Service (Television Broadcaster)

- The BBSC broadcasts its television signals in the C-band frequency 6GHz availing the satellite services of INSAT 4A geostationary satellite since 2006. The BBSC utilizes 6MHz bandwidth from the INSAT 4A for Fixed Satellite broadcasting.
- Apart from the use of INSAT 4A satellite, the BBSC also has a Digital News gathering VAN which is used for important LIVE broadcasting carried out in Ku-band frequency. In this case, the BBSC hires the satellite bandwidth in lease from other satellite provider.

Satellite Services Operation in Bhutan (3)

Local Internet Service Providers (ISPs)

- The private ISPs, for instance the DrukCom Private Enterprise avails the satellite services of TELSTER 18 of Telsat or Intelsat 12. The service is used for an Internet Access/Data Access through VSAT network.
- Here too, the local operators avails the satellite service through their own choice.
- However, the spectrum approval/license to operate the system is sought from the regulator.

Future Opportunities, Initiatives and Activities

- Satellite communication - an effective means for the developing countries in providing connectivity to the remote and inaccessible areas.

- Very recently, the India has committed to take initiative to build and launch a communication satellite for the benefit of SAARC countries.

- SAARC countries - South Asian Association for Regional Cooperation which includes 8 countries.

- India has proposed launch of an exclusive communication satellite say SAARC-SAT where some of the applications intended under SAARC satellite are:
  - ✓ Tele-education
  - ✓ Tele-medicine
  - ✓ Enabling inter-governmental communication networks
  - ✓ Enabling emergency communication for disaster situations
  - ✓ Television broadcast

Future Opportunities, Initiatives and Activities (2)

• The proposed SAARC-SAT will carry 12Ku-band transponder with 36MHz usable bandwidth for each transponder.

• There is a possibility to assign dedicated transponder capacity of around 36MHz – 54MHz for each country upon agreeing to relevant provisions.

• Will be an opportunity for a country like Bhutan where it does not have a satellite of its own or the capacity to launch its own satellite at the moment.

• For the purpose, the Bhutan government has formed a National Task Force Study Group to study on the essential type of services/applications that can be availed from the SAARC-SAT and the necessary ground stations to be established.

• The Bhutan Government focuses on the using the SAARC-SAT for the following purposes in the country:

- ✓ **Tele-education**
- ✓ **Tele-medicine**
- ✓ **Emergency disaster communication**
- ✓ **Backhaul link for Rural telecommunications coverage**
- ✓ **Television broadcasting etc**

Future Opportunities, Initiatives and Activities (3)

• Planning to establish the separate division to deal with the promotion and regulation of Satellite systems in Bhutan as well as to carry out update and coordination issues with the ITU

• Formulate the specific policies and regulatory framework for the satellite communications system in Bhutan.

• Carry out study on the reservation of satellite orbital slots for the country.

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Issues and Challenges

- Bhutan lack experts in the field of telecommunications.
- No specific policies and regulatory framework in place.
- Sometimes we receive coordination request from some of the countries through ITU, however not able to carry out professional review on the coordination.
- Lack of financial resources to avail the satellite services.
- No strong studies and research carried out in the field of satellite communications.

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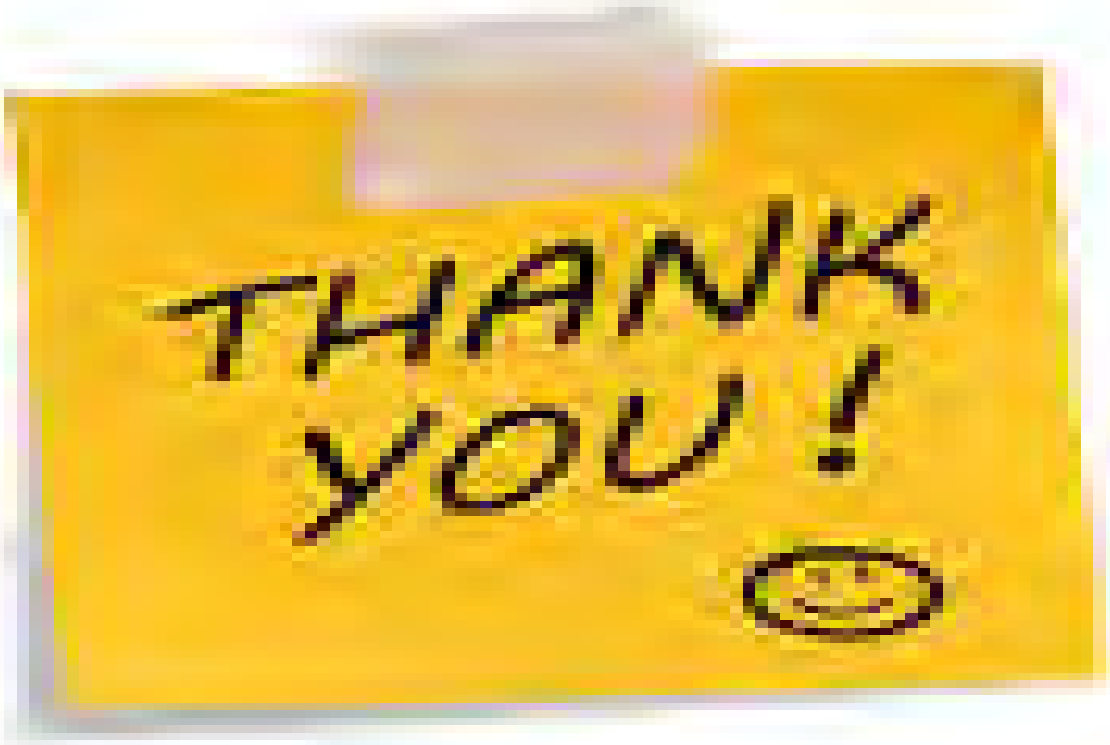

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