



**BHUTAN INFOCOMM &
MEDIA AUTHORITY**
འབྲུག་པན་དོན་བརྒྱུད་འབྲེལ་དང་
བད་བརྒྱུད་དབང་འཛིན།



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ANNUAL REPORT
2020-21

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VISION

**“To be premier
Information,
Communications and
Media Regulator”**

MISSION

**“To foster an environment for fair
and sustainable competition,
stimulate innovation, encourage
investment, ensure that all
Bhutanese have access to quality
ICT & Media services at affordable
prices founded on the principles
of Gross National Happiness”**

OUR CORE VALUES



PROFESSIONALISM

We ensure results without compromise...We work professionally and collaboratively to deliver results and facilitate our clients without prejudice.



ACCOUNTABILITY

We are responsible for our actions...We take responsibility for our actions and value the ability of our staff and organization to honour our commitments.



INNOVATION

We anticipate change and shape it to fit our purposes...We keep pace with the rapid technological changes and promote new technologies and employee development programs.



TEAMWORK

We are committed to a common goal....We are one organization, one team committed to build an environment where every person is encouraged and appreciated for his/her efforts.



INTEGRITY

We do the right thing.....We are transparent, honest and ethical in all our interactions with employees, clients and the public.

DIRECTOR'S FOREWORD

I am pleased to present the 13th annual report of Bhutan InfoComm and Media Authority for the year 2020-2021. We are presenting with the hope that this report will be informative and provide a comprehensive view of the work taken by the Authority in fulfilling our mandates towards being an enabler of efficient ICT service delivery in the country.

Although the year has been a difficult one undergoing through the global pandemic, we have been fortunate under the leadership of His Majesty and the guidance of the government. In the past one year, His Majesty has been travelling extensively along the high-risk areas and borders looking after the concerns and difficulties of the people and monitoring the COVID-19 situation in the country. Under his leadership and the efforts of the government, we have been able to deliver most of our annual planned activities.

For this financial year, as an ICT and media regulator, the Authority reviewed and developed numerous strategies and guidelines to enhance the regulatory environment, enforcement, and compliance with the convergence of emerging technologies. We also took several internal studies to streamline and assess regulatory issues and improve on the quality of services, while protecting the stakeholders' rights. And also work towards maintaining the competition, delivery of efficient and ICT services through ensuring that the security, national integrity, economic and socio-cultural interests of Bhutan are not neglected. Further, we could strengthen the regulatory mechanism through the consistent monitoring and implementation of transparent regulatory decisions and open and transparent licensing framework.

The Authority is proud to mention that we continued our work towards achieving our target of providing universal access to ICT services where we provided subsidies through the Universal Service Fund (USF) to connect remote and unconnected rural communities. The completion of RCP- Phase V has connected 389 villages in 10 Dzongkhags and successfully commenced the RCP-Phase VI in March 2021. In the areas of public service delivery, the Authority is pleased to mention that we could work around the time to reduce the turnaround time in the provision of our service. To enhance the quality of service, the Authority took the task of periodically reviewing and analyzing the key performance indicators (KPI) of the two telecom service providers and carried out radio spectrum monitoring and EMF monitoring in the country.

To enhance the digital cable industry and the services in the country, the Authority has issued the second Multi-Service Operator (MSO) license and a few cable operators in the country. The Authority in collaboration with the Department of Information and Media (DoIM) also initiated the project of installation of Ku-band dishes for BBS channel reception in rural areas for the people to access the news and information. Within this financial year, 8399 Ku band equipment was installed and provided with BBS services to the rural villages. Besides licensing, for the awareness of Public the Authority also developed advocacy material on Mobile Quality of Service (QoS) monitoring, EMF monitoring and its importance to the public, Land Mobile Radio (walkie talkie) and digitization of cable television.

As an organization committed to our core values of innovation, accountability, integrity, teamwork and professionalism, we will set the basis for our way forward and we will strive to achieve the maximum impact with the resources entrusted to us. We are determined to fill every gap and institutionalize best regulatory practices suited to our country. We look forward to achieving much more in the coming years.



(Jigme Wangdi)
Director

A. ICT AND MEDIA SECTOR AT A GLANCE

The Authority is mandated to issue and monitor the following ICT and media establishments in the country:

1. Media and Broadcasting Sector



Community/Campus Radio (8)

KYD 91.1 Community Radio (READ Bhutan)
Edi Community Radio, Tarayana Foundation
Lhop Community Radio, Tarayana Foundation
Rigzhung Lungta Campus Radio
Sherubtse Campus Radio
College of Science and Technology Campus Radio
Samtse Campus Radio
JNEC Campus Radio



Commercial FM Radio (5)

Radio Valley
BBS
Kuzoo FM
Centennial Radio
Yiga Radio



Television (1)

BBS 1 & 2

Newspapers (7)

Kuensel
Bhutan Times
Bhutan Today
Business Bhutan
The Bhutanese
Gyalyi Sarchog
The Journalist



2. Cable TV Services

A total of 92 cable TV Operators are licensed across the 20 Dzongkhags. The total number of cable TV operators and total number of subscribers are provided in Annexure 1.

The number of cable TV services in respective Dzongkhags are given below:

Dzongkhag	Number of Cable TV Services
Bumthang	4
Chukha	7
Dagana	4
Gasa	1
Haa	1
Lhuntse	2
Monger	7
Paro	4
P/ Gatshel	5
Punakha	4
S/Jongkhar	7
Samtse	5
Sarpang	10
Thimphu	4
Trashigang	8
T/Yangtse	2
Trongsa	4
Tsirang	3
Wangdue	6
Zhemgang	5
Total	93

3. ICT Sectors

a. Mobile Subscribers

Subscribers: 762,975
Service providers: Bhutan Telecom Limited and Tashi Infocomm Limited.



(Increased by **3.66%** as compared to 2020).

b. Fixed Telephone Subscribers

Subscribers: 21,779
Service provider: Bhutan Telecom Limited.



(Decreased by **3.95%** as compared to 2020).

The market share of Bhutan Telecom Limited is 464,568 and the market share of Tashi Infocomm Limited is 298,407. See Figure 1 for percentage breakdown.

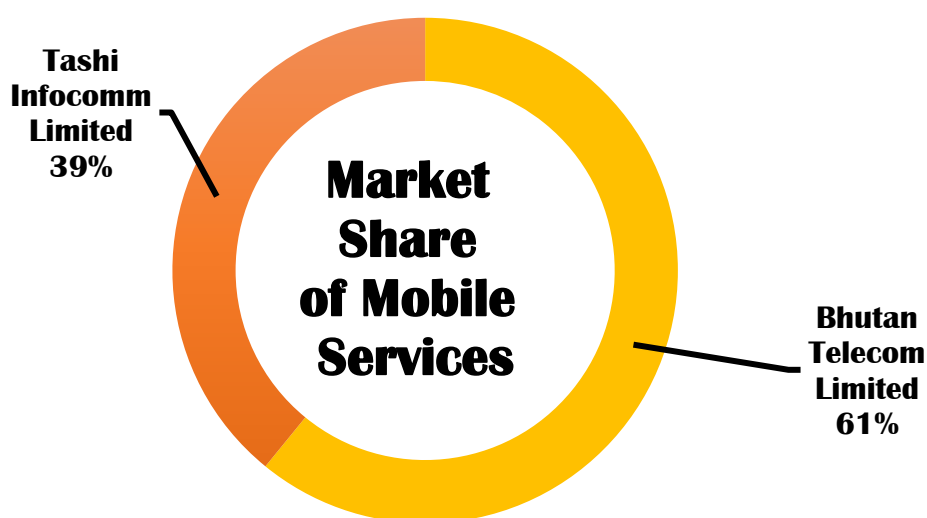


Fig. 1 Market Share of Mobile Services

There are 2,827 fixed broadband subscribers in the country. The market share of fixed broadband subscribers is as in Figure 2.

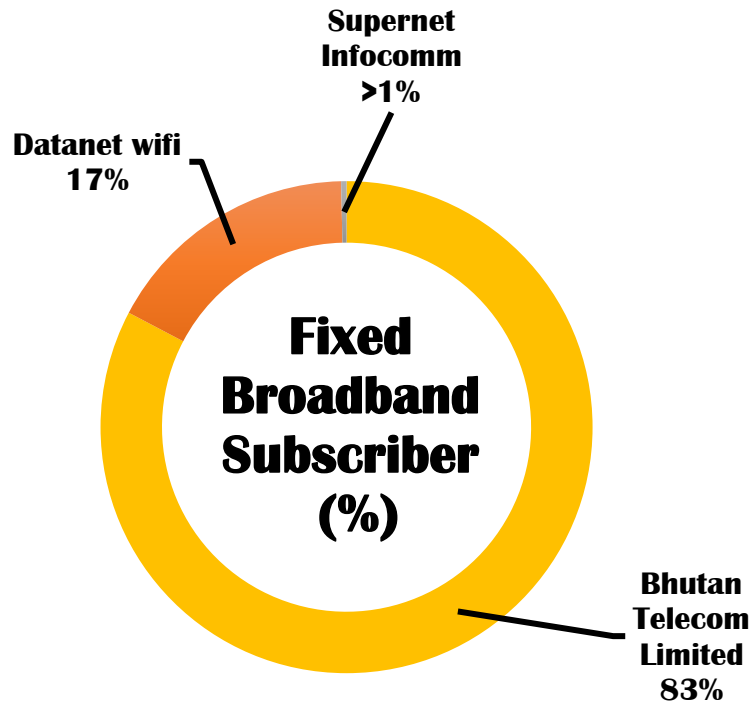


Fig 2. Fixed Broadband Service Provider and its Market Share

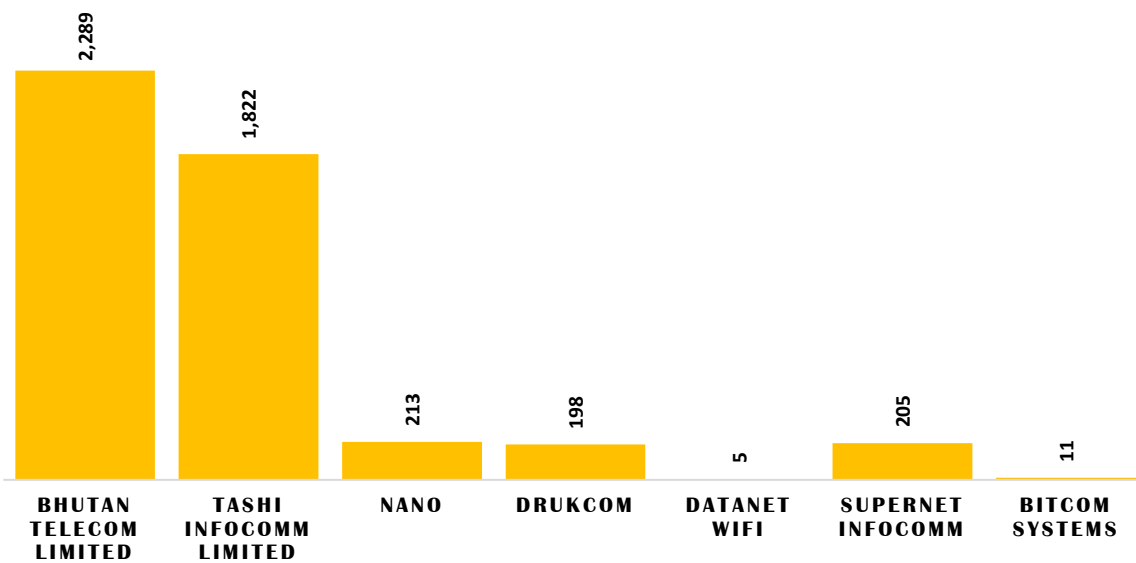


Fig. 3 Internet Leased Line Service Provider

B. Reflection of the Activities

During the Financial Year 2020-2021, the Authority implemented the following activities:

1.1. Regulatory Frameworks:

1.1.1. Formulation of New Regulatory Frameworks:

In keeping with the advancement and its technology and to protect ICT and Media consumers, the Authority developed the following regulatory frameworks:

a. Rules and Regulations for Internet Service Providers in Bhutan

These rules and regulations have been developed as per Sections 90 to 118 and 459 of the Information, Communications and Media Act of Bhutan, 2018 by the Bhutan InfoComm and Media Authority for granting licences for the establishment and operation of Internet Service Providers in Bhutan. Before these rules and regulations, any provision related to Internet Service Providers was governed by the Rules and Regulations for ICT Facilities and Services in Bhutan.

b. Tariff Implementation Monitoring Strategy

In order to monitor whether fixed internet and mobile voice and data services tariffs are implemented as per the approved tariffs by the ICT service providers (Telecoms and Internet Service Providers), the Authority carried out a detailed study on how to monitor the tariff implementation and developed the tariff implementation strategy.

This strategy is to monitor the tariff implementation where the Authority will monitor whether the mobile service providers are providing the exact data volume to the subscribers as per their subscriptions. The Authority will be subscribing to the respective tariff packages and determine if the exact package data volume is provided for respective packages. Moreover, the Authority will also determine if the voice call and short message service (SMS) charges are implemented based on the tariff charges per unit call duration. The tariff implementation monitoring will be carried out quarterly a year.

c. Costing Model for Telecommunications

In 2011, the Telecommunication Tariff (First Amendment) Order 2009 was issued to lease fibers for free to the telecom and ICT service providers to cater to the affordability of the telecommunication services.

Since then, the telecommunication system has taken a major developmental shift towards mobile data and consequently, the existing costing model is not much

relevant with the current telecommunication services. Moreover, the costing model was developed more than a decade ago which was mostly oriented towards circuit switched networks. As a result, there is a need for a costing model that fits the current mobile services and also for other relevant telecommunication services.

Therefore, the Authority hired a national consultancy firm to develop a costing model for mobile voice and data, and fixed internet services.

d. Television Broadcasting Regulatory Framework

A regulatory framework on television broadcasting was developed through the study of the economic viability of private Television Broadcasting Network, its platform of broadcasting and the licensing regime for the Broadcasting Sector.

The report on the regulatory framework identifies relevant best practices in the regulatory arena, desktop research and literature review, stakeholders' consultations, and the analysis of current regulatory framework, and provides recommendations for the setting up of licensing framework for Broadcasting in Bhutan including licensing format and mode of licensing.

e. Band plan for services in 3.5 GHz band especially for 5G services

There is an exponential increase in domestic communication traffic and with this, there is a need to enhance the capacity of mobile networks. In order to cater new demand of people in mobile technology, in 2015, the International Telecommunication Union – Radiocommunication sector (“ITU-R”) officially adopted the term International Mobile Telecommunication beyond 2020 (“IMT-2020”) as the vision for fifth generation (“5G”) mobile networks. The 5G is projected to operate in a mix of frequency bands with different propagation characteristics. This spectrum mix includes radio frequencies below 1 GHz to support massive IoT applications, frequencies from 1 to 6 GHz for enhanced mobile broadband and mission control, and high frequencies above 6 GHz for dense networks (commonly known as the millimeter wave or mm Wave band). The 3.5 GHz band is the current frontrunner 5G band which has a mixed advantages of both capacity and coverage over low and high bands.

Therefore, the Authority in consultation with the stakeholders and industries has formulated the 3.5GHz frequency band plan which may be used for 5G services in Bhutan.

1.1.2. Review of Existing Rules:

a. National Radio Rules and Regulations 2021

The Authority revised and published the National Radio Rules and Regulations (NRRR) 2021. The NRRR 2011 was revised based on the need to align with the International Telecommunication Union (ITU) Radio Regulations so that its national frequency allocations and assignments have to be based on the regional frequency allotment made by the ITU. The NRRR 2021 provides the effective spectrum pricing methodology where the spectrum pricing is based on the amount of bandwidth allocated and the properties of frequencies. The rules also provide the reuse of spectrum thus enabling efficient use of scarce spectrum resources.

b. Standards for Telecommunications Towers

The rapid development of wireless services and networks require the construction and densification of network infrastructures such as telecommunication Base Transceiver Station (BTS) stations, towers, repeaters and monopole stations to cater the growth in demand of telecommunication services and capacities. However, such infrastructure establishments require compliance with certain technical standards. In particular the emission from the transceiver needs to comply with the required electromagnetic field emission standards. Therefore, the Authority developed the Standards for Establishment of Telecommunications Towers.

c. Rules and Regulations for Publications

The Authority reviewed and revised the existing Rules and Regulations for Publications. With this revision, the Publishers and individuals who intend to publish books and apply for publication house license can get better clarity and comprehension.

1.2 New licenses/certificates Issued by the Authority during the FY 2020-2021

1. Multi-Service Operator (MSO)- 1
2. Cable TV Services- 2
3. Business Process Outsourcing Services (BPO)- 1
4. Entertainment Permit- 5
5. Radio Communication License - 36
6. Certificate of book registration- 88
7. Printing Press license- 1
8. Publication House license- 1

1.3 Verification of Telecommunication and Broadcasting Stations' EMF (electromagnetic field)

In order to ensure that electromagnetic field emission exposure from all Cellular Base Transceiver Stations (BTS) are safe, the Authority carried out the measurement of EMF exposure from BTS in the country. The Authority had completed the EMF exposure measurement of 130 towers during the financial year 2020-2021. The monitored EMF of the places are Thimphu, Wangdi, Trongsa, Bumthang, Mongar, Trashigang and Trashiyangtse.

The measurement of EMF exposure is carried out based on the safety standards recommended by the International Commission on Non-ionizing Radiation Protection (ICNIRP).



The ICNIRP measuring EMF Exposure

1.4 Radio Spectrum Monitoring

Radio Spectrum Monitoring is a process of observing the radio frequency spectrum usage to realize its efficient usage and to minimize the radio interference. The two types of radio frequency monitoring systems are based on the fixed and mobile radio monitoring systems. The Authority has one fixed radio monitoring station at Tsirang (Rakshedrangra) and one handheld Spectrum monitoring system using Spectrum Analyzer. During the financial year, the Authority carried out the radio spectrum monitoring in Wangdue Dzongkhag and detected three unauthorised radio users. The unauthorised users were thus made to formally apply for the license and operate after registration.

1.5 Quality of Mobile Service (QoS)

In order to ensure consumer satisfaction, the Authority monitored the Quality of Data and Voice Services based on a monthly Operational Support System (OSS) Report. In general, both service providers did not face major issues both in terms of mobile and data services. The Authority has also monitored the quality of services for data during the second nationwide lockdown in Thimphu. Based on the drive tests conducted, the results were shared with the service providers to further improve the telecommunication services and rectify the shortcomings.

The Authority monitors the performance of the service providers on a quarterly basis. The two parameters were used to determine the Key performance indicator (KPI) of the voice service of the mobile communication network of two service providers. One of them being the **Call Switched Drop Rate (CSDR)** which is a fraction of the telephone calls which due to technical reasons were cut off before the speaking parties had finished their conversational tone and before one of them had hung up.

The Quality of Service for the mobile data services were measured using the four parameters. From the four parameters, the following two are:

1. **Packet Drop Rate (PDR):** measured as a percentage of packets dropped with respect to packets sent.
2. **Data Throughput Rate:** To measure the speed of data upload or download

Furthermore, the Authority has completed a drive test for four (4) national highways for the financial year 2020-2021. The drive tests were conducted along Thimphu-Phuentsholing, Thimphu-Haa, Haa-Paro and Paro-Thimphu national highways. The test results were shared with the two telecom operators so that they can plan and work towards improving their mobile coverage.

1.6 Voice and SMS for affordable service

In line with the 12th Five Year Plan to offer affordable telecom services, we could revise the tariff for voice and SMS. With effect from May 2021, the voice and SMS tariff of both the telecommunication operators, viz. Bhutan Telecom Ltd. (BTL) and Tashi InfoComm Ltd. (TICL), was reduced and the average reduction percentage (%) following the revision is as follows:

- i) Voice: 32%
- ii) SMS: 31.11%

1.7 Data reduction for affordable services

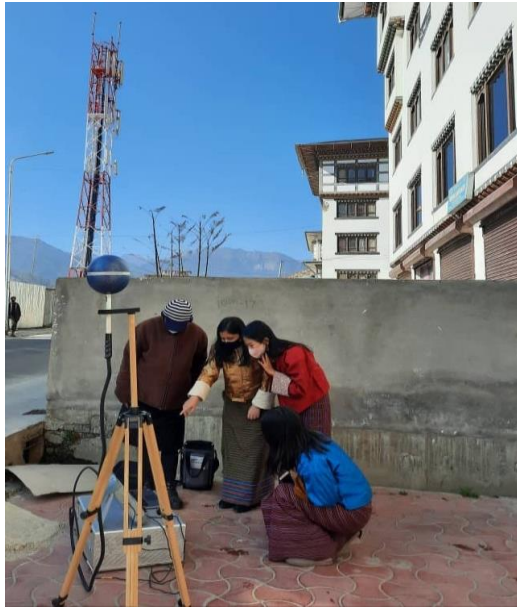
Data communication has become vital for all subscribers and the requirement is felt more urgent with the onset of pandemic situations. Almost every Government to citizens services are made available online and affordable data tariff is key to make this endeavor successful. School education was done entirely online in 2020 and therefore, the Authority had approved a special data tariff for students.

In addition, the general data tariff has been reduced by an average of approximately 29% in the last fiscal year.

1.8 Students Internship



Interns with Spectrum Management Division



EMF Monitoring

The Authority engaged three students from the College of Science and Technology (CST) for more than a month as a part of their On-Job-Training module. They were introduced to the functions of the spectrum analyser and ways to monitor the radio frequency using the equipment. The Authority presented a theoretical demonstration as well as practical hands-on-experience on EMF (Electric Magnetic Field) monitoring to measure the radiation from the towers as per ICNIRP standards and the quality of Services Monitoring for both mobile data and voice. Besides all those activities the Authority also assigned them to segregate the VHF spot frequency usage based on the area of operation as per our old database and taught about the spectrum resources and its management.

1.9 Rural Communication Programme (RCP)

1.9.1 RCP Phase V

The RCP Phase V was successfully completed in October 2020 connecting 389 households under 35 villages in 10 Dzongkhags with 2G, 3G and 4G mobile communication services. In addition, 4 Cordyceps collecting areas, 6 yak herding places, Jumolhari Lhakhang and RBA outpost under Soe Gewog, Thimphu were also connected. Based on the completion report submitted by the two service providers, the monitoring and evaluation of the programme was carried out accordingly.

Some Pictures from the field visits of the RCP V sites



A RCP site in Chogsa,
Namgaycholing, Samtse



Battery Bank for Power supply in
remote 4G Site, Lhuentse



An array of solar panels at RCP site in Lhuentse



A RCP site in Singye Dzong, Lhuentse

1.9.2. RCP Phase VI

The Authority successfully commenced the RCP-Phase VI in March 2021 and will be completed by September 2022. Through this phase, 483 households under 66 villages in 10 Dzongkhags will be connected including the 8 yak herding places under Laya Gewog, Gasa. The villages will be connected with 2G (voice) and 4G (data) mobile communication services.

The Authority has also carried out physical verification of designated villages/places under RCP-Phase VI.



Agreement Signing with BTL and TICL

1.10 Installation of Ku-band dish for BBS channel reception in rural areas

The Authority in collaboration with the Department of Information and Media (DoIM) initiated the project of connecting the rural households without BBS service through installation of Ku band dish. The Authority thus licensed seven (7) Ku band installation permit holders to install Ku band dishes in rural areas. Until today, a total of 8399 Ku band equipment was installed and provided with BBS services to the rural villages. As per our earlier survey over 30,000 households do not have access to BBS TV. Having access to BBS services is essential and important for the people residing in remote parts of the country to access important national information especially during the pandemic situations.

1.11 Secretariat Office Building

The Authority officially shifted to its newly constructed office building at Motithang, Thimphu in April 2021. Now BICMA not only has an independent office space but also can put up antenna structures required for the monitoring of the national radio spectrum. As an ICT and Media Regulator many stakeholders come to avail our services and the new office building is centrally located.



Hon'ble Lyonpo Karma Donnen Wangdi (MOIC) with BICMA Staff



Hon'ble Secretary Dasho Phuntsho Tobgay (MOIC) with BICMA Staff

1.12 Complaints handled

The Authority received and resolved a total of 17 complaints and the details on the complaints are provided in Annexure 2.

1.13 Advocacy Programmes

Considering the importance of public awareness on some important activities carried out by the Authority and to encourage the public to actively participate in sharing evidence-based obstacles and issues, the Authority have developed the following infographic advocacy videos:

1. Land Mobile Radio (walkie talkie)

The video is to advocate the importance of land mobile radio (walkie-talkie) users getting registered to prevent and minimize the radio communication interferences in the country.

2. Digitization of cable television

The video is aimed at advocating the public and the cable operators to migrate to the digital cable television services and systems in order to derive several benefits of digital cable television services in the country.

3. Mobile Quality of Service (QoS) Monitoring

The video is aimed at advocating the public on the importance of carrying out the mobile quality of services monitoring and the support from the public in lodging the mobile quality of service complaints to the Authority formally.

4. EMF monitoring and its importance to public

The video is advocating the public on the necessary monitoring activities being carried out by the Authority to ensure safe and reliable communication services. Besides, it also advocates that the public need not have to worry about the emission from the mobile towers as the Authority regularly monitors the standard compliance.

C. Studies Undertaken

1. Introducing Differential Tariff for Domestic Traffic

The Information, Communications and Media Act of Bhutan (the Act) 2018 empowers Bhutan InfoComm and Media Authority to implement policy guidelines on tariffs and determine tariff for licensed services in accordance with the policy directives issued by the Ministry of Information and Communications. The Authority carried out a study on the possibility of introducing a separate tariff for all domestic internet traffic in the country.

2. Studies on 5th Generation Network and IoT (Internet of Things)

The Authority has undertaken the studies on Internet of Things (IoT) and 5th Generation Network (5G). The studies cover the whole background of 5G and IoT, features and technologies, Spectrum and Bandwidth requirements, and way forward for any policy and regulatory interventions. The studies have also covered the deployment of BPC's own sort of IoT by connecting substations and to connect the home energy meters by installing smart meters.

3. Feasibility Study on Private Television Broadcasting Station

Considering the emerging technologies and development in broadcasting services, the Authority conducted a detailed feasibility study on the possibility of licensing Private TV Broadcasting Stations in Bhutan including assessment of current situation and development of regulatory framework related to broadcasting service. This study provides evidence-based recommendations and a way forward on the future prospect of private television broadcasting service in the country.

4. Over the Top (OTT)

OTT (Over-the-Top) can be defined as any application or service which is capable of delivering digital content and services to the public over an internet access network. OTT platforms are getting increasingly popular in Bhutan where text messaging, audio and video messaging, multimedia, entertainment services are delivered through internet medium and applications. With the growth of OTT services, various policy and regulatory challenges related to OTT services have also emerged. With this, the Authority has carried out an internal study on the regulatory aspect of OTT services in Bhutan.

The study made an assessment on the impact of OTT service to traditional telecom or broadcast services and OTT positive impact on social and economic aspects of people especially consumers point of view. The study also made assessments regarding the benefit of OTT service, privacy and security challenges of OTT services, level playing field of OTT services and telecom

service providers and regulation on OTT service in other jurisdictions. With the above assessments, the study suggests that the regulation on OTT services is not needed at this point of time but the developments on OTT can be monitored and intervention as felt necessary can be done at appropriate time. The study also suggests that the security and privacy issues related with OTT services need to be monitored and the need for detailed study on OTT market feasibility and development of OTT regulation.

D. STAKEHOLDER ENGAGEMENT

The Authority carried out the following consultation meetings pertaining to ICT and Media's various issues, and for feedback and comments from the stakeholders:

Details on consultations held:

Sl.no	Consultation held with	No. of consultation held	Remarks
1	Publication House Licensees	1	Discussed on the revised Rules & Regulations of Publication
2	Telecom Operators	1	Pre-bid meeting on RCP VI
3	BMC, MOIC, DOC, BBSC	1	Meeting on Private TV Study on 21st September 2020
4	Telecom Operators	1	Discussion on geo-coordinates of RCP VI
5	BBSC	1	Discussion on BBSC's license and way forward
6	Telecom Operators, BCAA, DoAT, BBS & Thromdes	1	Consultation on the standards for establishing telecommunication towers
7	Telecom Operators, MoIC, NANO, DrukCom, DataNet	1	Consultation on the development of tariff implementation strategy

8	Telecom Operators	4	<ul style="list-style-type: none"> a. SMS and Voice tariff revision b. Revision of Interconnection Rates c. Fiscal Incentives d. Bonus/special offers. e. Leased Line Bandwidth Subscription. f. Quality of Services (QoS). g. Band plan for services in 3.5 GHz band
9	NetCom Bhutan and ABCO	4	<ul style="list-style-type: none"> a. Issues with MSO and cable operators b. Fulfillment of regulatory obligations by MSO c. Way Forward

E. HUMAN RESOURCE

1. Current Staff Strength

The total staff strength of the Authority as of June 2021 is 30 (14 male and 16 female).

2. Civil Service Award

On 12th December 2020, five officials of the Authority received Civil Service Awards in recognition of their dedicated service to the nation. Mr. Pema Rinzin, Senior Communication Supervisor was awarded the Gold Medal for completing 30 years of service and Mr. Chhabilal Adhikari, Senior ICT Technical Associate was awarded a Silver Medal for completing 20 years of service. Mr. Sonam Phuntsho, Deputy Chief Communication Officer, Mr. Ugyen Dorji, Driver and Mr. Mon Saya Nesor, Driver received the Bronze Medal for 10 years of their service to the nation.



3. New Appointment

During the year, Ms. Sangay Zangmo, Assistant Information and Media Officer and Ms. Tenzin Dema, Communication Supervisor joined as a regular employee, and Ms. Sonam Pelmo, Dispatcher, joined on contract with the organization.

4. Transfer

During the year, the following five officials joined the Authority:

Sl.no	Name	Designation	Remarks
1	Phub Gyeltshen	Chief Program Officer	Appointed through open competition/ transfer from MoIC
2	Tashi Tenzin	Dy. Chief Information & Media Officer	From Department of Information & Media, MoIC
3	Soenam Tshomo	Sr. Research Officer	From Department of Agricultural & Marketing Cooperatives, MoAF
4	Kiba Lhaden	Sr. Program Officer	From Dzongkha Development Commission
5	Tshering Choden	Sr. ICT Officer	From Ministry of Economic Affairs

The Authority also bid farewell to the following three officials:

Sl.no	Name	Designation	Remarks
1	Wangay Dorji	Chief Communication Officer	Appointed as Director of Department of Professional Support, Anti-Corruption Commission
2	Tshewang Choden	Sr. Research Officer	Transferred to Gross National Happiness Commission
3	Sonam Lhamo	Sr. ICT Officer	Transferred to Department of Information Technology & Telecom, MoIC

5. Resignation

During the same year, the following four officials resigned voluntarily from the civil service:

1. Sonam Tobgay, Assistant Communication Officer, 7 years and 5 months (01/06/2011 - 22/10/2018)

2. Karma, Assistant Human Resource Officer, 5 years and 11 months (01/03/2013 - 01/01/2019)
3. Yangka Pem, Assistant Information & Media Officer, 6 years (01/03/2013 - 01/03/2019)
4. Younten Dolma, Assistant Communication Officer, 6 years (01/03/2013 - 11/03/2019)

F. REVENUE GENERATION

The following are the revenue generated by the respective division of the Authority during the fiscal year 2020-2021:

Revenue collection of Market and Competition Division				
Sl.no	Type of license	Fees Collected (Nu)	Penalties Collected (Nu)	Total revenue collected (Nu)
1	CaTV license	2,124,278.44	69,400	2,193,678.44
2	Entertainment Permit	14,500.00		14,500.00
3	Radio License	31,000	2,600	33,600.00
4	ICT Facility's License	27,400		27,400.47
5	MSO license	300,000	25,750	325,750.00
6	Telecom operator's License (USF)	48,562,500		48,562,500.00
Total		51,059,678.91	97,750.00	51,157,428.91

Revenue collection of Spectrum management division				
Sl no.	Types of Radio License	Fees Collected (Nu)	Penalties Collected (Nu)	Total Revenue Collected (Nu)
1	Spectrum License	11306735.3	1200	11307935.3
2	Apparatus License	1556790.15	142800	1699590.15
3	Type Approval	14719.6	0	14719.6
4	Amateur	9000	0	9000
5	Rural TV Dish Installation	1000	0	1000
6	VSAT	35152	0	35152
Total		12,923,397.05	144,000	13,067,397.05

Revenue collection of Social Affairs Division

Sl. no	Type of license/certificate	Fees (Nu)	Penalties/others (Nu)	Total (Nu)
1	Book registration certificate	41,000	38,550	4,12,550
2	Printing Press License	1,86,000		
3	Publication House license	90,000		
4	Individual Publication license	57,000		

G. Challenges

1. Human Resource Capacity

The Authority has a mandate to ensure safe and reliable ICT services in the country. In particular, it is important that the public receive better cellular mobile quality of services (QoS). However, due to the shortage in the number of required technical officials in the organization, it is a challenge to reach and monitor quality of cellular mobile services in each and every location in the country.

2. Lack of Required Monitoring Equipment

Besides, the Authority needs to be equipped with the required technical monitoring equipment. The monitoring equipment is needed to carry out radio spectrum monitoring and mobile quality of services monitoring. However, without such required equipment, the Authority is currently carrying out monitoring using the rudimentary equipment which for instance with the help of free software installed in the mobile phones. Such rudimentary monitoring leads to compromisation of precise monitoring data which is not as per the standards. In order to enhance the Authority's capacities in technical monitoring, there is a need for required monitoring equipment.

3. Inability to regulate the multinational companies

The rapid growth of digital economy is a concern from the aspect of how it should be regulated and mainstreamed into nation building. Regulation of such digital businesses will only have bite if BICMA has extra-territorial powers and bilateral cooperation in foreign lands. Regulating digital giants such as Amazon, Google and Facebook are a challenge for a small nation like Bhutan.

4. Broadband Satellite Internet Regulation

As telecommunications technology evolves rapidly globally, the satellite broadband internet is also now gaining significant users in the developed countries. It is important that developing countries like Bhutan also venture into making use of such satellite broadband services in near future. The broadband satellite services see much application especially in the rural connectivity, post-disaster redundant connectivity and also the inflight broadband connectivity. However, without the clear policies on regulating the foreign satellite services, providing services in Bhutan is a challenge that is foreseen for the future.

H. WAY FORWARD

1. Mobile Communication Services

To ensure access to safe, reliable and affordable mobile communication services, the Authority will:

1. Continue monitoring and certification of communication towers for EMF radiation compliance,
2. Monitor and improve the quality of mobile services, both voice and data (3G and 4G) to meet the minimum international threshold level,
3. Carry out drive test along national highways to check the status of the mobile connectivity,
4. Monitor and validate the progress work of RCP VI upon submission of the progress reports from the telecom operators.

In addition, the Authority has assigned the frequency spectrum for 5G services to Tashi InfoComm Limited. And upon commencement of the 5G mobile services by the operator, the Authority intends to procure required monitoring equipment and monitor the quality of 5G mobile services provided by the operators.

2. Online Licensing System

As per the Information, Communications and Media Act of Bhutan 2018, the Authority is mandated to “grant licenses, certificates and permits, and regulate ICT and Media facilities and services and enforce license conditions”. Besides, with the evolution of the ICT and media sector globally, there will be numerous ICT and Media services and facilities which the Authority have to license in future as well.

Without an integrated online licensing system, maintaining the manual database is one of the challenges as the manual database is prone to error, loss of data, lack of flexibility, unreliable, difficult to generate reports and individual official-centricity. Further, the licensing system is proposed to be integrated with the census information of the Department of Civil Registration and Census (DCRC), and payment gateway of the Royal Monetary Authority (RMA) for reliability. Since licensing is one of the important tools for regulation, there is a need for an efficient and effective licensing system with reliable licensing databases.

3. Licensing of Business Process Outsourcing (BPO) and Data Centres

The licensing of information technology enabled Business Process Outsourcing (BPO) and Data Centres, which was being done by MoEA till date, is mandated to be carried out by BICMA as per the Information, Communication and Media (ICM) Act of Bhutan 2018, since it falls under ICT and Media facilities and

Services. As such, the Authority shall carry out the licensing of BPOs and data centres.

4. Study on Over The Top (OTT)- Market assessment, Development and Regulatory aspect

Over The Top refers to the delivery of audio, text messages, video and other media over the internet. OTT platforms are getting increasingly popular in Bhutan, where people can enjoy exchanges of digital text, audio and video messages, favorite shows, sports, movies, and news directly through the internet anytime, anywhere. OTT services have also enhanced the public service delivery with the advent of various online services and applications in Bhutan. With numerous subscription-based OTT platforms coming up in Bhutan, studies need to be conducted on the OTT platforms and services in Bhutan including assessment of the current situation and developments.

5. Television Broadcasting Rules and Regulations

With the completion of the study of the feasibility of licensing private television in Bhutan, the Authority shall develop Television Broadcasting Rules and Regulations. These rules and regulations shall assist the Authority on licensing and regulating Television Broadcasting services in Bhutan. Further, the public shall have clear knowledge on the licensing procedures, obligations and the categories of licenses to apply for, among others.

6. Digitization of Local Cable Operators (LCOs)

With the digitization of Local Cable Operators (LCOs) which is currently ongoing, it is expected that the majority of the LCOs will be digital and interconnected with the MSO by the end of the next 2021-2022 fiscal year. Currently, 43 of 92 cable operators are interconnected with its Multi-Service Operators (MSOs) and sourcing digital television signals from them.

ANNEXURE

Annexure 1: List of Cable Television Operators and Subscribers

Sl. no	Dzongkhag	Total no. of cable operators	Total no. of subscribers
1	Bumthang	4	1,741
2	Chukha	6	4,041
3	Dagana	4	624
4	Gasa	1	187
5	Haa	1	950
6	Lhuntse	2	185
7	Monger	7	899
8	Paro	4	1,986
9	Pemagatshel	5	936
10	Punakha	4	839
11	Samdrup Jongkhar	7	1,495
12	Samtse	5	2,065
13	Sarpang	10	2,580
14	Thimphu	4	33,241
15	Trashigang	8	1,600
16	Trashiyangtse	2	713
17	Trongsa	4	709
18	Tsirang	3	714
19	Wangdue	6	1,650
20	Zhemgang	5	552
	Total	92	57,707

Annexure 2: Details of complaint received and resolved by the Authority

Sl. no	Nature/subject of Complaints	Findings	Action Taken
1	Radiation from the BTS tower near the building at Simtokha lap above Car showroom	Carried out Electro-magnetic frequency measurement and found that the radiation is very low as per the standard	Informed the complainant on the radiation being very low and also directed the Bhutan Telecom to maintain the power level of their BTS tower as per the current measurement
2	Interference in Drukcomm's MMDS links at Dochula	Carried out spectrum monitoring at Dochula and found that Bhutan Telecom was using high power	Directed Bhutan Telecom to reduce their power and since then there are no interference in Drukcomm's MMDS links
3	Radiation from the BTS tower near residence at lower Taba, Thimphu	Carried out Electro-magnetic frequency measurement and found that the radiation is very low as per the standard	Informed the complainant on the radiation being low
4	Complaint against Muktshen Enterprise for no service and installation for Lungta DTH	Found that Muktshen Enterprise was operating without a valid license	Issued letter to the Muktshen Enterprise to apply for the formal license. Also, the Enterprise was made to refund the amount to the complainant
5	Unregulated free-to-air channels through Ku-band disrupts cable service business	Found that some DTH installations provided additional free-to-air channels	Issued a notification letter to all Gewogs, Drungkhags and Dzongkhags for not allowing the installation of DTH in Cable service reached areas
6	Denial of after sale services on DTH installation by the Ku-band permit holder	The case was investigated	Informed the permit holder to rectify the issue and Ugyen Tshering visited the site and

	Ugyen Tshering		rectified the issue
7	Using TD CS as background while advertising Bumthang education system in local channel which make his subscribers to switch to TD CS	Reviewed the complaint	The TD CS used as background while advertising Bumthang education system in local channel was removed by the Dzongkhag education section
8	Excessive charge (Nu.2300) on set-top box by Tashi Rabten Cable Service, Bumthang	Reviewed the complaint	Directed the operator to submit a letter of justification and also issued a notification not to charge more than Nu.2000/- for Set-Top Box
9	Limited number of channels (17) provided by Dragon cable service, Wangdue	Reviewed the complaint	Questioned and asked to resolve the problem over the phone
10	Disconnection of cable line by Norling cable	Reviewed and found that the Norling cable had notified for 2 consecutive months that if the bill payment is not made then the line shall be disconnected to the complainant through local channel	Informed the complainant on the notification being issued by the Norling cable
11	Non-compliance of area of operation	It was found that Tashi Rabten Cable, Bumthang had taken the cable line towards her house which falls under the area of operation of other cable services.	Asked Tashi Rabten cable Service to submit undertaking stating that the line was only for the monitoring purpose and resolve the issue.
12	Requesting to investigate for the denial of CATV line connection service, Serigang, Punakha	The officials from the Authority visited the site for inspection.	Resolved the issues.

13	Requesting the Authority to request to LCO to reconnect his TV line	The issue was between LCO and complainant on dues and disconnection of TV line.	The issue was between the LCO and complainant. However, we called and requested Norling Cable as requested by the complainant.
14	Lack of license terms and conditions enforcement for fair and equal business competition	Since we wanted to get clear related to issues put up by the complainant, we decided to have a bilateral discussion with the complainant.	Called complainant for the bilateral discussion and resolved the issue