



National Broadcasting and Telecommunications Commission (NBTC)

NBTC

ANNUAL REPORT
2018





Long Live The King





Communication is an essential factor for national development, prosperity, stability and security, especially in the rapid change situations in the world. The prompt and up-to-date of the communications is highly important and all parties and agencies related to national communications should therefore provide cooperation to one another and share their achievements closely and harmoniously. Above of all, they should take a deep and wide study and research of the technical matter and modern technologies, and select a good and effective parts for being applied to their work wisely and proactively in the way that suits the country status and environment so that the national communications are fully developed and able to facilitate the economic and social development and truly support the stability of the nation.

Chitralada Villa

15 July 1983

(The Royal Proclamation was bestowed by His Majesty King Bhumibol Adulyadej
on the Occasion of the Centennial of the Post and Telegraph Department
and the National Communications Day, 4 August 1983)

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ทรวงพระเจริญ





PREFACE

The Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and its additional amendment (No.2) B.E. 2560 (2017) Article 76 has stipulated that the National Broadcasting and Telecommunications Commission or NBTC shall prepare report on the spectrum management, broadcasting, television and telecommunications services as the case may be, and submit to the Cabinet and the National Assembly within 120 days as from the ending date of each accounting year as well as disclose to the public.

The Office of the NBTC has therefore collected important performances of the NBTC and the Office of the NBTC throughout the year under the power and duties stipulated by the laws in areas of spectrum management, regulation on broadcasting, television and telecommunications business operations, work plans and results, and future work plans as well as related information such as market environment and competition, trend on broadcasting, television and telecommunications industries, problems and obstacles arising from the service operation. Details are as shown in the report.

The NBTC expects that this NBTC Annual Report 2018 will be useful for all stakeholders, sectors and interested people for the acknowledgement of the result of the NBTC performance in the previous year, as well as be beneficial to related parties and the general public for their proper use.

The National Broadcasting and
Telecommunications Commission
March 2019

Message from the Chairman of the NBTC

General Sukit Khamasundara

NBTC Commissioner Acting Chairman of the NBTC

Term of Office

(6 October 2017 - Present)

“The NBTC intends to create the balance of the national telecommunications, broadcasting, and television industries of all sectors as well as promote the Office of the NBTC to become a leading organization in ASEAN in the regulation and development of communication services for the sustainable country stressing to benefit the states and the public”



The National Broadcasting and Telecommunications Commission (NBTC) has strived, throughout the past seven years, to enhance the development of the national communications service to be stable and progressive in accordance with the changing context of technology, economy and society.

In the year 2018, the NBTC had performed important duties in both spectrum management and business licensing and regulation in line with the Thailand Development Policy 4.0 of the government as well as supported the implementation of National Strategies and National Reform Plans through its vision on “stability, prosperity and sustainability” Thailand will become a developed country through developments based on the sufficiency economy philosophy. The important performances are such as

1. Spectrum Management and Business Licensing

1) Having organized the spectrum auctions in the frequency bands of 900 MHz and 1800 MHz by taking into account the efficiency of the spectrum allocation and the utmost benefit of the general public which will lead to the development of wireless telecommunications infrastructure. New telecommunication services with better quality of service will also be provided for the people.

Currently, the amount of frequency for the international mobile service that has already been allocated and is the process of allocation to the industries is totally 420 MHz.

2) Having launched the criteria, procedure and condition of spectrum refarming on the unused or the unworthy-used frequencies or the use for more worth which is an important mechanism that helps support the NBTC to manage the spectrum more efficiently by refarming the allocated frequency for re-allocating such as the frequency in the band of 2600 MHz.

2. Regulation on Business Operation

1) Having carried out the measure to mitigate the effect on broadcasting operators in order to continue solving the problem of digital TV operations from the previous year such as issuing of the Notification on criteria and procedure for the provision of radio or television broadcasting (No.4), supporting the operation of digital TV operators in part of the burden arising from compliance with the Must-Carry Notification and supporting the cost of broadcasting through the digital terrestrial television network (MUX) to the digital TV service provider at the amount of 50 percent of the network rental fee for 24 months.

2) Having established a Center of Operational Policing for Thailand Against Intellectual Property Violations and Crimes

on the Internet Suppression (COPTICS) in order to facilitate those who have been affected by copyright infringement from online goods selling and to build trust in international level on Thailand's measure for the fast suppression of online copyright infringement and patents.

3. Universal Service and Social Service

Having implemented the project on the provision of mobile phone service and a broadband internet service to 3,920 border villages (Zone C+) and the provision of broadband internet service to 15,732 villages in remote areas (Zone C) as planned in order to create opportunities and social equity for the low income and disadvantaged people.

4. Consumer Protection

1) Having prescribed that all mobile phone service provider shall provide the prepaid mobile SIM card users registration with a new identity method for proof and confirmation by fingerprint or face recognition since 1 February 2018 onwards.

2) Having adopted digital technology to enhance consumer protection through the development of applications, and in the year 2019, the NBTC has enabled the "Netcare" application for parents to control the internet access of their children, as well as the "MoCheck" application for consumers to search for information on the standard-approved telecommunications equipment.

5. The Broadcasting and Telecommunications Research and Development Fund for the Public Interest

In the year 2018, Having promoted the innovative research and development to be in accordance with Thailand 4.0 Policy and aligned with the National Strategy and National Plan for Digital Development for Economy and Society.

During 2013 - 2018, the NBTC had immersed itself in developing the management of the Fund to be more efficient and stable in order to drive the country development in several dimensions consisting of economic development dimension, social development dimension, human resource development dimension, and safe and security dimensions.

For the direction of crucial implementation in 2019, the NBTC will support the government's policies in driving the National Strategy on 5G by arranging various preparations, setting the criteria for spectrum auction in multiband to further the drive of national economic (frequency bands of 700 MHz / 2.6 GHz / 3.5 GHz / 26 GHz / 28 GHz), problem resolution of digital TV in long-term, including the national and international coordination on the spectrum management as the administrative state agency in international communications service with international organizations, governments and agencies in international spectrum management, as well as the operation on the mission under new legal framework that will grant the NBTC authority on the regulation and determination of the criteria for granting the right to access to satellite orbit.

On behalf of the NBTC commission, I would like to thank all executives, employees, staff of the Office of the NBTC and all related parties for your great support and contribution to the work of the NBTC which made the missions achieved all the goals as set.

Moreover, the NBTC will induce and the Royal Wish of His Majesty King Maha Vajiralongkorn Bodindradebayavarangkun in serving times and doing good by carrying out the missions and duties in good faith in the broadcasting, television and telecommunications service regulation in order to create balance in the telecommunications, broadcasting and television industries of the country. Also, the NBTC will promoted the Office of the NBTC to become a leading organization in ASEAN in the regulation and development of communications service for the sustainable country stressing to benefit the states and the public so that the people and the nation are stable, prosperous and sustainable forever.

General



(Sukit Khamasundara)

NBTC Commissioner

Acting Chairman of the NBTC

Message from Secretary-General of the NBTC Mr. Takorn Tantasith



The Office of the NBTC had carried out its mission for the development of telecommunications, broadcasting and television services in the year 2018 under the policies on driving activities and projects continuously at full capacity in order to achieve the goals as planned, in accordance with government policies and national strategies on the country development for the benefit of the people as a whole, by having collaboration with all relevant sectors and focusing on developing work procedures and personnel to ensure the good governance and high performance of the organization. The outstanding performances in the previous year are as follows:

1. Having organized the spectrum auctions in the frequency bands of 900 MHz and 1800 MHz for the efficient use and allocation of the spectrum as well as the quality which has been improved for the overall benefit of consumers. The revenue received from the auctions which was more than 67,502 million baht will be submitted to the Ministry of Finance for further use on the country development.

2. Setting up the criteria, procedures and condition on the spectrum refarming on the unused or the unworthy-used frequencies or the use for more worth in order that the spectrum management will be more efficient. The criteria has become effective since 28 November 2018.

3. Having expedited and regulated the implementation of the project on the provision of mobile phone service and a broadband internet service in the border areas which had been signed the contract on 28 September 2017 for 3,920 border villages, 2.1 million households or 6.3 million people. The service will be officially launched throughout the country on 1 May 2019. Besides, the measure to subsidize the internet connection at the amount of 200 baht per month has been applied for 3 years to more than 600,000 households of the low income living in the border areas starting from 1 May 2019 to 30 April 2022, which is in line with the government policy to reduce inequality, generate income, and disperse prosperity across rural areas.

4. Providing support to the digital TV industry according to the Order of the National Council for Peace and Order No.9/2018 regarding the measure to mitigate the effect on the broadcasting and television business operators in order to assist the digital TV operators who have been affected by the economic and social crisis in submitting the request to suspend the license fee to use the frequency up to 3 years. Also, the Office of the NBTC has supported the cost of broadcasting through the digital terrestrial television network (MUX) at the amount of 50 percent of all network rental fee for 24 months within the budget framework of 2,000 million baht funded by the Broadcasting and Telecommunications Research and Development Fund for the Public Interest.

5. Having supported and cooperated with the Food and Drug Administration, Ministry of Public Health, to monitor the advertising of illegal or hype health products broadcasting through television, radio broadcasting and internet by expanding the scope of cooperation for the closely action in the region in order to protect consumers which is enable the Office of the NBTC to suspend the illegal or hype advertising faster.

6. Having established a Center of Operational Policing for Thailand Against Intellectual Property Violations and Crimes on the Internet Suppression (COPTICS) by integrating cooperation for the operation with the Royal Thai Police to suppress the copyright infringement of online goods selling products such as Facebook, Instagram, Line, etc., by reducing the process of blocking the access to URL or illegal website from no less than 6 months to only 1 - 2 days according to the government's policy.

7. Having regulated the prepaid mobile SIM card users registration with a new identity method for proof and confirmation by "2-Shae" method and the data collection of mobile subscribers to be the same standard either prepaid and postpaid system in order to set up the regulatory process of operation of service providers to be more efficient and reduce problems of counterfeiting of the subscribers' registration.

8. Having provided support and cooperation with the Bank of Thailand for the implementation of PromptPay service to be more convenient and safer by taking a role in the collaboration between mobile service providers and commercial banks for technical development of ownership authentication of mobile phone numbers in the PromptPay service subscription which help promote the national e-Payment according to the government's policy.

I would like to take this opportunity, on behalf of the Secretary-General of the NBTC, to thank the NBTC Commissioners for the support to the operation of the Office and also thank all personnel of the Office of the NBTC for your contribution and great work at full capacity in order to push forward the development of communications service of Thailand to be prosperously, up-to-date, and able to support people for a better quality of life.



(Mr.Takorn Tantasith)

Secretary-General of the NBTC

The National Broadcasting and Telecommunications Commission



General Sukit Khamasundara

NBTC Commissioner
Acting Chairman of the NBTC



► Education

- Bachelor of Science Chulachomkiao Royal Military Academy, Class 20
- M.A. in Political Science (Security Resources Management), Burapha University
- Joint Staff Course, Command and General Staff College
- Certificate, National Defence College of Thailand, Class 44
- Professional Engineer (Civil Engineering), Board of Control of the Professional Engineering
- Certificate, Top Executive Program, Capital Market Academy, Class 15

► Work Experience

- Chief of Army Engineering Battalion 1, Royal Guards
- Commander of the 1st Development Division
- Deputy Commander-in-Chief of the First Army Area
- Special Consultant to the Royal Thai Armed Forces Headquarters
- Special Royal Guard
- Judge to the Supreme Military Court

- Member of the Committee to Formulate the Policy for the Provision of Universal Basic Telecommunications Services and Social Services, National Telecommunications Commission
- Advisory Board of the Management of Doctoral Philosophy Program in Political Science, Burapha University
- Person in charge of “the Project of the Construction of Entrance and Services Pathways in Suvarnabhumi Airport”
- Director of the Royal Project Don Khun Huay, Phetchaburi Province
- Director of the Royal Initiative Project Huay Mae Prieng, Phetchaburi Province
- Director of the Queen Sirikit Forest Park Project, Ratchaburi Province
- Director of the Construction Project of Benjakiti Park, Bangkok
- Chief of the Secretariat on Psychological Operations and Public Relations, Royal Thai Army
- Chief of the Secretariat Office of the Internal Security Operations Command

Colonel Natee Sukonrat, Ph.D.

Vice-Chairman of the NBTC



Colonel Settapong Malisuwan, Ph.D.

Vice-Chairman of the NBTC

Term of Office

(7 October 2011 - 9 October 2018)



▶ Education

- Bachelor of Science in Electrical Engineering, Chulachomkiao Royal Military Academy (Gold Medal Award)
- Master of Science in Electrical and Telecommunication Engineering, University of South Florida, USA
- Ph.D. in Electrical and Telecommunication Engineering, University of South Florida, USA

▶ Work Experience

- Senior Engineering Officer, Project on Globalstar Low Earth Orbit Satellite, San Diego, California, USA
- Consultant to the iPSTAR Satellite Project
- Chairman of the CDMA Project Steering Committee, CAT Telecom Public Company Limited
- Board of Directors, TOT Public Company Limited
- Acting CEO, TOT Public Company Limited
- Senior Engineering Officer, Armed Forces Telecommunications Office, Royal Thai Armed Forces Headquarters
- Chairman of the Working Group on Community Radio Service
- Sub-committee on Broadcasting and Television Services
- Chairman of the Committee for Drafting Spectrum Management Master Plan and National Table of Frequency Allocation
- Chairman of the Committee for Drafting Telecommunications Services Master Plan
- Chairman of the Committee for the Licensing of Broadband Wireless Access Service (BWA)
- Chairman of the Committee for the Licensing of International Mobile Telephony or 3G and beyond
- Commissioner, the National Telecommunications Commission (NTC)

▶ Education

- Bachelor of Science in Electrical Engineering (First Class Honors, Gold Medal Award), Chulachomkiao Royal Military Academy (Armed Forces Academies Preparatory Pre-Cadet Class 26, Chulachomkiao Royal Military Academy Class 37)
- Master of Science in Electrical Engineering (MSEE), Georgia Institute of Technology, USA
- Master of Science in Electrical Engineering (Telecommunications), George Washington University, USA
- Ph.D. in Electrical Engineering (Telecommunications), Awarded for Excellence by National Engineering Honor Society (Beta Pi), Florida Atlantic University, USA

▶ Work Experience

- Platoon Leader, 1st Signal Battalion, King's Guard
- Lecturer, Department of Electrical and Computer Engineering, Chulachomkiao Royal Military Academy
- Associate Judge of Intellectual Property and International Trade Court, Class 3
- Officer in the Chief of Staff attached to Deputy Supreme Commander, Royal Thai Army
- Performing duties in CAT Telecom Public Company Limited as follows:
 - (1) Secretary to the President of CAT Telecom Public Company Limited
 - (2) Committee for Supervising the Operation and Projects of CAT Telecom Public Company Limited
- Associate Professor, Business School, Trident University International, USA (Accredited Internet Distance Learning University)

Lt. Gen. Perapong Manakit, Ph.D.

NBTC Commissioner



Assoc.Prof. Prasert Silphiphat

NBTC Commissioner



► Education

- B.Sc. Chulachomkiao Royal Military Academy, 1978
- M.A. in Social Development (School of Social Development), National Institute of Development Administration (NIDA), 1986
- Ph.D. Sociology of Development, University of Bielefeld University, Germany (Awarded by Germany Government, Thailand-German Student Exchange Program, 1992)

► Work Experience

- Rifle Platoon Leader, Rifle Company, the 3rd Infantry Battalion, the 1st Infantry Regiment Chamberlain Guard, 1978
- Technical Officer, Strategic Research and Development Administration, Institute of Higher Army Studies, 1993
- Performing Duties on Special Advisor Group, Internal Security Operations Command, 1997-2001
- Director of Psychological Operation Division, Military Civil Affairs Department, 1999
- Secretary attached to the Standing Committee on the Military Affairs, the Senate, 2000-2005
- Director of Information Division, Directorate of Joint Civil Affairs, 2001
- Performing official duties to support the Counsellor to the Minister of Defence, 2001-2002
- Assistant Chief of Staff Officer to Deputy Supreme Commander, 2004
- Chief of Satellite Television Division, TV5, 2004
- Expert, the Supreme Command Headquarters, 2005
- Deputy Director, Center for Psychological Operations and Public Relations in the Southern Provinces, National Security Council, 2005-2006
- Producer of the Radio Program on "Ruk Mueng Thai" (Love Thailand), 2006-2010
- Consultant to the Office of National Security Council, 2006-2010
- Spokesman of Ministry of Defence, 2008
- Sub-Committee on Inspection and Investigation in the Committee on Inspection and Investigation for National Reconciliation and Study Research Sub-Committee in the Committee on Inspection and Investigation for National Reconciliation, 2008-2009
- Secretary attached to the Committee for Study and Consideration of Capacity Building and Management of the Army Under the Committee on the Military Affairs, House of Representatives, 2009-2011

► Education

- Bachelor of Arts (Economics), Chiangmai University
- M.A. (Economics) Middle Tennessee State University, USA
- Certificate, National Defence College of Thailand, Class 45
- Certificate, Advanced Course for Executives, Class 33
- Certificate, Advance Justice Administration Course for Executives, Class 3

► Work Experience

- Professor, Faculty of Economics, Chulalongkorn University, 1975-2001
- Vice-Chancellor, Chulalongkorn University, 1997-2000
- Deputy Secretary-General of King Prajadhipok Institute, 2000-2006
- Special Expert in Economics, the Office of National Telecommunications Commission (2007-2008)
- Executive Manager, the Telecommunications Development Fund for the Public Interest, Office of the NTC, 2008-2010



Asst. Prof. Thawatchai Jittrapanun, Ph.D.
NBTC Commissioner



Mr. Prawit Leesatapornwongsa
NBTC Commissioner

▶ Education

- Bachelor of Engineering (Mechanical Engineering), Chulalongkorn University
- Master of Business Administration (Finance), Georgia State University, USA
- Doctor of Philosophy in Business Administration (Ph.D.) (Finance), University of Alabama, USA

▶ Work Experience

- Professor, Faculty of Economics, Chulalongkorn University,
- Instructor of Doctoral Program of Finance (Finance Economics), NIDA
- Special Professor of Doctoral Program of Finance (Finance Economics) for the Joint Doctoral Program in Business Administration (JDBA), Chulalongkorn University, Thammasat University and National Institute of Development Administration (NIDA)
- Chairman of the B.A. program in Economics (International Program), Faculty of Economics Chulalongkorn University
- Chairman of Labor and Management Development Center, Faculty of Economics, Chulalongkorn University
- Director of the Computer Centre, Faculty of Economics, Chulalongkorn University
- Scholarship selection committee of the NBTC
- Special Instructor in Finance, Business Administration Course in Public/Private Universities
- Advisor to the Committee on Finance, Treasury, Banking and Financial Institution, the Senate
- Advisor to the Committee on Budget Administration Follow-Up, House of Representative
- Project Leader, the Index of Exports of the Thai National Shippers' Council

▶ Education

- Bachelor of Medicine, Chulalongkorn University, 1987
- Bachelor of Political Sciences, Sukhothai Thammathirat University, 1992
- Diploma, Preventive Medicine (Public Health), the Medical Council of Thailand, 1992
- Master of Public Health, Institute of Tropical Medicine, Belgium, 1999
- Diploma, Family Medicine, the Medical Council of Thailand, 2004

▶ Work Experience

- Director of Huay Tap Tan Community Hospital, Sri Sa Ket Province
- Director of Sri Rattana Community Hospital, Sri Sa Ket Province
- Director of Lad Bua Luang Community Hospital, Ayudhaya Province
- Director of Uthai Community Hospital, Ayudhaya Province
- Chairman of rural Doctors society
- Secretary-General of the Coordinating Committee of Thai NGOs for Primary Health Care
- Secretary-General of Foundation for Consumer
- Member of the 2nd National Economics and Social Advisory Council
- Chairman of Working Group Consumer Protection, National Economics and Social Advisory Council
- Executive Director of the Telecommunications Consumer Protection Institute (TCI)
- Sub-Committee of the Human Rights, the National Human Rights Commission of Thailand

Executive Summary



Executive Summary

The NBTC has performed its mission in spectrum management and the regulation of broadcasting, television, and telecommunications business operation in accordance with the advancement of technology and the rapid change of environment. In the year 2018, the NBTC had continuously focused on building a balance between consumers and operators, enhancing the collaboration with all relevant parties and being a supporting mechanism to push forward the implementation of the mission to be in line with and connected to the goals for country development under the National Strategy and government policies for the sustainable economic and social growth. The NBTC has also taken into account the views

and opinions of people and all stakeholders, as well as the observations and suggestion of Members of National Legislative Assembly and Office of the Auditor General of Thailand for the operation improvement and development, and set up guidelines for driving the implementation/important projects to accomplish as planned; for example, solving the problem of digital terrestrial television business operators, having arranged the spectrum auction, regulating telecommunication service rates, building knowledge and understanding of the public about the effects of electromagnetic radiation from the mobile phones base station, etc. Major performances are as follows:

1. Major performances

1.1 Having resolved problems of digital terrestrial television business operators

(1) Having operated under the Order of National Council for Peace and Order No.76/2016 regarding the measures to promote the broadcasting, television, and telecommunications services for the public benefit, in continuation to the year 2017, by supporting the satellite public television service to be able to broadcast universally and efficiently, building trust for both public and private operators, promoting the radio broadcasting, television and telecommunication industries to be more efficient, and establishing stability for the economy system in overall as follows:

- Having extended the payment period of the license fee to use the spectrum for the provision of digital terrestrial television service in category of national commercial service. At the end of the year 2018, the Office of the NBTC has approved the applications of 16 companies (19 licenses) requesting for paying the rest of license fee to use the spectrum starting from the 4th installment onwards according

to the criteria, procedures and conditions prescribed in the list attached to the Order of the Head National Council for Peace and Order No.76/2016.

- Supporting the expenses for the transmission of satellite public television service at the amount of 622.165 million baht (as of the end of the year 2018) on the account of the Broadcasting and Telecommunications Research and Development Fund for the Public Interest.

(2) Having operated under the Order of the Head of National Council for Peace and Order No.9/2018 regarding the measure to mitigate the effect on the broadcasting and television business operators in order to assist the digital TV operators who have been affected by the economic and social crisis and therefore are unable to pay for the license fee to use the spectrum in the prescribed period, as well as to provide the business operators with times, opportunities, and capital to improve capabilities for providing service and production or broadcasting quality programs in response to the needs of society and rapid advancement of technology. As a result,

an overall economic system of the country will be stable and the most efficient. In the year 2018, the performances as follows:

- Having suspended payment of the license fee to use the spectrum. The NBTC has approved in the year 2018 that the licensees who have requested for the right to suspend payment of the license fee according to the Order of Head of National Council for Peace and Order No.9/2018 for 16 companies, 19 licences totally, are able to suspend payment of the license fee for the rest installments for 3 years starting from 23 May 2018 onwards. However, there are 3 licensees (3 licenses) who neither have not paid for the license fee to use the spectrum nor submitted the request for the payment suspension of the license fee.

- Having support of the cost of network rental of digital terrestrial television network (MUX) to the licensees of digital terrestrial television business at the amount of 50 percent of the network rental fee for 2 years starting from June 2018 - May 2020. At the end of 2018, the NBTC has already supported the operators for totally 312.550 million baht.

(3) Having revised the annual license fees of television business according to the NBTC Notification on License Fees of Broadcasting or Television Business (No.3) in the year 2018 the NBTC by improving and reviewing the rate of annual license fee of television business to be the same rate as the annual license fee of telecommunications business which is in line with technology convergence and the merger of the broadcasting and telecommunications regulatory body. The fees rate will be calculated on the progressive basis with a more diversified distribution of income ratio base in order to be suitable for the changing environment of the industry as well as to increase an opportunity of survival of the television business in overall.

1.2 Driving the implementation of the project on the provision of mobile phone service and broadband internet service in the border areas for 3,920 villages.

Having expedited the implementation of the project which have been categorized into 2 parts; 1) provision of broadband service, and 2) provision of mobile signal service which consists of 5 services: (1) public Wi-Fi in the village (2) broadband service at schools (3) broadband service at the Sub-district health promoting hospital (4) USO Net Center and (5) expansion of mobile signal coverage which is currently in the process of operation and will be officially launched the service at the same time across the country on 1 May 2019. For the promotion of the use of internet service at the household level, the NBTC has specified additional conditions in the service contract with the service provider that people in the project area who want to use the broadband service at 30/10 Mbps at their own households shall be able to contact the service provider for the service at 200 baht per month, decreasing from the general market price which is 599 baht per month. The service is expected to be launched since May 2019 and will be ended at the same time by the end of May 2024. In addition, in the cases that the households in the project area wishing to use the broadband service are found that the households members are the low-income under the Government Welfare Registration Project, the NBTC will afford the monthly broadband service charge at 200 baht for 36 months (3 years) starting from May 2019 to the end of April 2022.

The provision of basic telecommunications universal service obligation (USO) is one of important missions of the NBTC which leads to the expansion of the coverage areas of quality communication network. The NBTC has also taken into account the target groups in both spatial dimensions (rural, remote, and shortage of services) and social dimensions (children, the elderly, people with disabilities, the low income people, and the disadvantaged) which will help improve the quality of life, generate opportunities and social equality, as well as enhance the competitiveness of people, local community and businesses including the potential to access the necessary and update information of people in the

society to be used for further development in all dimensions. The project covers 3,920 villages in remote areas (approximately 2.1 million households or 6.3 million people).

1.3 Regulation on radiocommunications devices to be used in the unmanned aerial vehicles which are remotely controlled from outside (Drone)

Having issued the NBTC Notification on Licensing Criteria and Condition to use the frequency for the unmanned aerial vehicles for general use, which has been published in the Royal Gazette on 18 January 2018. The Notification has required that people must register for drone processor only with the Office of the NBTC in order to facilitate the general public to be able to use drone for general purposes as well as to reduce confusion of the drone possession registration in several organizations. However, for the drone controller, the registration shall be made with the Civil Aviation Authority of Thailand (CAAT). In 2018, there are 14,509 drones¹ being registered and the top 5 areas where the registration was made for drone processor are Bangkok, Nonthaburi, Chiangmai, Pathum Thani and Samut Prakan.

1.4 Regulation on telecommunications service rates

Having continuously monitored telecommunications service rates including the rate of mobile phone service charges in the frequency band of 2100 MHz, 1800 MHz and 900 MHz to be in accordance with the licensing conditions which allows people to use mobile phone services at a lower service rate. This included reviewing the rate of telecommunications business license fees to be appropriate with the market conditions and in accordance with the costs of telecommunications business regulation as follows:

(1) Having monitored and regulated the telecommunications service rates to be in accordance with the licensing conditions of telecommunications business, Type 3, for International Mobile Telecommunications (IMT), in the frequency band of 2100 MHz which shall not exceed the following rates.

Voice service	Short message service (SMS)	Multi-media service (MMS)	Internet service
0.82 baht/minute	1.33 baht/message	3.32 baht/message	0.28 baht/MB

(2) Regulation on the rates of service charge to be in accordance with the NBTC Notification on the Licensing Criteria and Procedures to use the Spectrum for Telecommunications Service in the frequency band of 1800 MHz and the NBTC Notification on the Licensing Criteria and Procedures to use the Spectrum for Telecommunications Service in the frequency band of 895-915 MHz/940-960 MHz which the rate of service charge shall be lower than the following rates.

Voice service	Short message service (SMS)	Multi-media service (MMS)	Internet service
0.69 baht/minute	1.15 baht/message	3.11 baht/message	0.26 baht/MB

1.5 Spectrum auctions in the frequency band of 1800 MHz and 900 MHz

Having organized the spectrum auction by taking into an account the most efficient frequency allocation, the promotion of free and fair competition, and the encouragement to improve quality of service for the development of Thai telecommunications industry in the future which will lead to the utmost benefit of consumers in overall. In 2018, the NBTC had organized the spectrum auctions as follows:

¹ Data as of November 2018

- Organizing the spectrum auction in the frequency band of 1800 MHz on 19 August 2018 according to the NBTC Notification on Licensing Criteria and Procedures to use the Spectrum for Telecommunications Service in the frequency band of 1740-1785/1835-1880 MHz. There were 2 winning bidders, Advanced Wireless Network Company Limited and DTAC TriNet Company Limited.

- Organizing the spectrum auction in the frequency band of 900 MHz on 28 October 2018 according to the NBTC Notification on Licensing Criteria and Procedures to use the Spectrum for Telecommunications Service in the frequency band of 890-895/935-940 MHz. The winning bidder was DTAC TriNet Company Limited.

The revenue from the spectrum auctions in the frequency bands of 900 and 1800 MHz was totally 67,502.020 million baht (including VAT), in which after deducting the auction expenses, the NBTC will submit to the Digital Development for Economy and Society Fund and the Ministry of Finance as state revenue for the use of further country development.

1.6 Preparation for driving Thailand into 5G technology

Having signed a Memorandum of Technical Cooperation with Chulalongkorn University for the establishment of the 5G Testing Center to study, test and check the availability of equipment and systems including services related to 5G technology. In addition, the NBTC has also set up a Working Group to set up Licensing Criteria and Procedures to use the Spectrum in the frequency band of 700 MHz in order to set up licensing criteria and procedures to use the spectrum for telecommunications service in the frequency band of 700 MHz and Radio Frequency Plan for International Mobile Telecommunications (IMT) in the frequency band of 700 MHz, as well as prepared for the frequency allocation to be in orderly.

1.7 Support on the provision of Internet of Things service

Having appointed a committee to set up guidelines for regulating the Internet of Things (IoT)

in order to study and set up models for regulating in various related areas, such as the use of telecommunications numbers, frequency allocation, technical standard determination, business licensing and radiocommunications equipment licensing, safety and personal data protection of service users, etc. Also, the NBTC had appointed several working groups to support the operation and information to the committee.

The working groups consisted of qualified representatives from various related sectors such as representatives from public agencies, private organizations, associations and academic institution. At present, the Office of the NBTC is in the process of studying and preparing the draft notification, criteria, manuals, rules and regulations which will be affecting on the regulation and promoting the development of Internet of Things technology as well as preparing for the readiness to support technology to be developed in the future.

1.8 Managing spectrum to be sufficient for the efficient use and in accordance with the advancement of technology

Having set up the draft Spectrum Management Master Plan No.4 B.E. to be in line with the Development Plan for the Digital Economy and Society, National Strategy, and the Radio Regulations of the International Telecommunication Union by taking into account the technology development. The practical guidelines on international frequency will also be formulated as well as guidelines on refarming frequency for frequency reallocation and improvement of spectrum usage. In the year 2018, the NBTC has issued the Notification on Criteria, Procedures and Conditions for Refarming the Unused or Unworthy Use Frequencies to be more worthwhile, which has been published in the Royal Gazette on 27 November 2018. The notification has prescribed guidelines for repayment, reimbursement, or compensation for frequency refarming by taking into account the rights of those whose frequencies have been refarmed and those who have been affected by the frequency refarming.

1.9 Developing mechanism and methods for mobile phone subscribers registration to be more efficient

Having developed mechanism and methods for mobile phone subscribers registration to be more efficient by organizing campaign activities for the SIM card registration with 2-Shots Identity (2-Shae) in several provinces to build knowledge and understanding of the public as well as accelerate the expansion of service points for SIM card registration to cover all areas continuously. Since the Office of the NBTC's Notification regarding the Data Storage and Details about Mobile Phone Subscribers with Identity Methods (No. 2) has become effective, all mobile phone operators must provide the identity registration to prepaid mobile phone subscribers through fingerprint or face recognition method at every service point starting from 1 February 2018 onwards. In addition, the NBTC has revised the regulations concerning mobile phone service subscribers' registration and data storage to be clear and standardized, both post-paid and pre-paid system, as well as set up measures to control the registration of mobile phone subscribers and the number of SIM cards possession. The formulation of the draft NBTC Notification on mobile phone service subscribers' registration and data storage will lead to more accurate data storage of service users and help reduce the problem of counterfeiting of service users' registration.

The establishment of the regulatory process of the operation of mobile phone service providers to be more modern and efficient will initiate an effective subscribers' data management of the telecom industry. In the year 2019, the NBTC will continue developing data storage of mobile phone service users in order to prove and confirm of identity in electronic form via mobile phone to be more concise and effective.

1.10 Enhancing the level of regulation and building confidence in electronic financial transactions continuously

Having operated to encourage data linkage between mobile phone service providers and commercial banks for verifying mobile phone numbers in order to provide PromptPay service. The PromptPay system requires mobile phone numbers data for registering service subscription including receiving and transferring money by using mobile phone numbers. On 1 November 2018, the Office of the NBTC, Bank of Thailand, Thai Bankers Association and the Telecommunications Association of Thailand under the Royal Patronage of His Majesty the King had jointly announced the progress of achieving agreement between 20 financial institutions and 6 mobile phone service providers in developing a technique to verify the mobile phone number ownership which will make the PromptPay registration safer and more convenient. The new system will be able to operate from 1 January 2019 onwards.

At present, the number of subscribers who have registered by mobile phone numbers is more than 16 million numbers, with a total transaction value of more than 3.9 trillion baht and the transfer amount per time is approximately 5,100 baht. The cooperation between industries is the first and important step of the private sector to link and exchange data in concrete ways which will result in benefits for the public and further development of the economy system in wider areas.

1.11 All overhead telecom and broadcast cables Organized and installed underground

Having carried out organized and installed all overhead telecom and broadcast cables underground which has been done continuously since the year 2016 through the collaboration with Metropolitan

Electricity Authority, Provincial Electricity Authority, related government agencies, and telecommunications operators in order to enhance a quality society, create a beautiful scenery and ensure safety in life and property for people. This includes promoting the telecommunications infrastructure sharing for the utmost benefit of the

nation. In the year 2018, the installation of overhead telecom and broadcast cables in Bangkok area underground had been done completely with a total distance of 23 kilometers.

1.12 Support on the prevention and suppression of intellectual property violations on the internet

Having established a Center of Operational Policing for Thailand Against Intellectual Property Violations and Crimes on the Internet Suppression (COPTICS) at the Office of the NBTC to prevent the intellectual property violation on the internet which is likely to increase upon the advancement of technology by having collaboration with the Royal Thai Police in order to effectively prosecute offenders through the process of law enforcement, help facilitate those who have been affected by copyright infringement, reduce the duration of suppression process of accessing to URL or website that commit an offence from at least 6 months to only 1-2 days.

1.13 Consumer protection in broadcasting, television and telecommunications services

The NBTC has always placed the importance on protecting the consumers' benefits in broadcasting, television, and telecommunications services through promoting the strength of consumers, building a network of cooperation and enhancing knowledge and understanding in broadcasting, television and telecommunications services, creating a variety of communication channels to disseminate the right knowledge, promoting the development of creative media, as well as raising consumers' awareness of the rights and immunity of media users to be able to protect their rights, especially in the digital world where information is quickly forwarded to each other. Therefore, the fact that some media consumers have become media producers has been an important issue. In the year 2018, the major performances of the NBTC on consumer protection such as:

- The random measurement of the strength level of electromagnetic field radiating from mobile phone base stations throughout the country.

- Building the right knowledge and understanding of the public about the effects of electromagnetic radiation from mobile phone base station on the safety of human health by presenting the technical information obtained from the neutral and reliable agencies such as World Health Organization (WHO), International Agency for Research on Cancer (IARC), health agencies in many countries, etc., to ensure people of safety.

- Having cooperation with the Food and Drug Administration (FDA) in monitoring illegal contents and advertising on radio and television media in order to solve the problem of advertising food, medicine and health products that are exploiting consumers.

- Organizing seminar activities to raise consumers' awareness of rights and radio-television media in cooperation with the network of educational institutions in regional areas so that teachers and activists are able to develop concepts and contents for teaching and learning and apply such concepts and contents to enhance knowledge, understanding, and know-how of the target groups for being able to prevent and protect themselves at first hands or transferring knowledge to society or participating in a network of advertising watch, reporting clues, or filing complaints to the Office of the NBTC.

- Organizing workshops to enhance knowledge, and understanding of techniques or methods on media literacy of academic personnel in higher education in areas of Mass Media or Mass Communications, Science of Education or Education Science so that they are able to apply the contents or texts concerning media literacy to their teaching and learning preparation effectively. The NBTC had also encouraged other higher education institutions/ regional universities to provide teaching and learning courses on integrated media literacy in Mass Media or Mass Communications and Science of Education or Education Science appropriately.

- Developing criteria and management of consumer protection in broadcasting and television services to protect the consumers' rights and freedom

from being violated and exploited by operators. The NBTC has approved the determination of the operation of the television licensees who provide non-frequency television network services shall be an action that exploit consumers in broadcasting and television services if the services have been provided by using some special techniques or actions to control consumers to receive a particular channel signal every time the television receiver or receiving device is turned on. Those behaviours are the characteristics that force consumers to receive the services as determined by the licensees inevitably and unreasonably which causing annoyance and restricting the rights of consumers to have a freedom of choice to receive TV channels.

1.14 Fund allocation of the Broadcasting and Telecommunications Research and Development Fund for the Public Interest (BTFFP)

Having approved the fund allocation according to the Fund's objectives as proposed by the Fund Management Committee. In 2018, the NBTC had approved the fund allocation to the Type 2 grantees (the achievement-based projects according to the Fund Management Committee's policy) at the amount of 376.98 million baht, and the fund allocation to the Type 1 grantees (Project or activity originating from the eligible person requested be promoted and supported) for 52 projects at the amount of 304.30 million baht, including supported budget for the operation according to the government policy, such as supporting the cost of renting the digital terrestrial television network (MUX) to digital terrestrial television licensees at the amount 50 percent of the television network rental fee. For 24 months under the budget framework of 1,958.40 million baht, supporting the project on Thai Telecommunication Relay Service (TTRS) the Universal Foundation for Persons with Disabilities under the budget framework of 475.09 million baht, supporting the project to promote the access to information which are useful for the development of quality of life of the Blind through telecommunications network to TAB

Foundation under the budget framework of 92.30 million baht, the fund granted to promote the project to develop facilitation system for doing business portal to the Office of the Public sector Development Commission (OPDC) under the budget framework of 45.00 million baht.

Moreover, the NBTC has enhanced the potential of personnel and continuously strengthened the operational efficiency in order to drive the organization to become a high-performance organization as well as be a mechanism to drive the efficient operation according to the NBTC's policies and be prepared to cope with support the NBTC's challenging missions within a highly dynamic environment. This included the operation in accordance with the policies and strategies for country development and laws relating to the operation of the Office of the NBTC as follows:

(1) Developing the organization to have a good management system that is transparent and accountable governance of the Office of the NBTC and announcing the good corporate governance policies as well as preparing a manual for the NBTC personnel to use as guidelines. In addition, the Committee on Integrity Transparency Assessment of the Office of the NBTC has been appointed to prepare for the Integrity and Transparency Assessment (ITA) of the operation of government agencies in the year 2019 according to the guidelines of the Office of the National Anti-Corruption Commission (ONACC), including the establishment of the Anti-Corruption Action Center of the Office of the NBTC.

(2) Organizing trainings for enhancing knowledge on the Government Procurement and Supplies Management Act and E-Government-Procurement system (EGP) to the personnel of the Office of the NBTC continuously so that they are able to work in compliance with the law efficiently, and also ensure the public of confidence by applying the same standard of practice framework as other government agencies with a transparency in the procurement process and fair competition.

(3) Budget management of the Office of the NBTC for the year 2018 had been done as a surplus budget with revenues collected in the amount of 9,104.526 million baht. The annual budget expenditure for the year 2018 was totally 5,876.360 million baht and the result of budget expenditures from the operation of the Office of the NBTC was 4,574.273 million baht, and the NBTC had already submitted to the Digital Development for Economy and Society Fund, Office of National Digital Economy and Society Commission according to Section 24 (4) of the Act on Digital Development for Economy and Society B.E. 2560 at the amount of 2,922.931 million baht. It is expected that the Office of the NBTC will submit more amount of money as the state revenues for totally 2,866.189 million baht.

(4) Improving the efficiency of services to be in accordance with the measure for facilitation and reduction of the burden of the public by issuing

a Notification to cancel the requirement for a copy of the identity card and a copy of the household registration in the application for the approval, licensing, license, registration, notification; and applying the practical guidelines under the government's plan for improving service provision, according to the Licensing Facilitation Act B.E. 2558 (2015), to the internal process development of the Office of the NBTC in order to support the digital government under the National Strategy in areas of balancing and developing the government management system. Those internal processes are the preparation on the public guide for the issuance of radio communications licenses and the participation in the project to enhance the development of government service provision to the juristic person through central biz box with the Office of the Public Sector Development Commission (OPDC).

2. Summary of the operation of the Office of the NBTC according to the observations of the Office of the Auditor General of Thailand (OAG)

The Office of the NBTC has received observations and suggestions of the Office of the Auditor General of Thailand (OAG) to improve and develop the operation in several important areas as follows:

2.1 Annual expenditure budget preparation and management

The Office of the NBTC had prepared the annual expenditure budget of the Office of the NBTC under the operational framework, direction and goals according to the Master Plan of Spectrum Management B.E. 2555 (2012), Master Plan on Broadcasting and Television Service No.1 B.E. 2555-2559 (2012-2016), Master Plan on Telecommunications Service No.1 B.E. 2555-2559 (2012-2016) and Annual Action Plan of the Office of the NBTC in order that the budget of the office of the NBTC had been spent at the most efficient and effective. The Office of the NBTC had proposed to the NBTC for a policy on the preparation of the

budget expenditure and also appointed the Sub-committee to consider the budget of the Office of the NBTC which consisted of external experts in the budget to consider and scrutinize the budgeting to be appropriate and in line with the NBTC's legal mission and the plan specified by taking into account the efficiency and effectiveness. In each year, the Sub-committee will determine the guidelines for considering the budget expenditure in order to have the annual budget expenditure prepared appropriately and in accordance with the mission of the Office of the NBTC before presenting to the NBTC for the budget approval. After that the Office of the NBTC operated activities according to the annual action plan and budget expenditure plan by having the operating results reviewed and the budget expenditure improved in the Mid-year in order to adjust the action plan and budget to be in line with the actual operation. If there were any programs or projects

that the NBTC had considered them unnecessary for operating, the NBTC will approve the cancellation of the operation and use the budget for other important projects that are more urgent and worth. However, if the operations have not been taken, the Office of the NBTC will submit the budget expenditure to the state as the public revenue.

In the year 2018, the Office of the NBTC had operated under the Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and the additional amendment, Section 57 Paragraph 2 which stipulates that “the Office of the NBTC shall present the draft annual budget expenditure to the Committee on National Digital Economy and Society for considering and giving opinions so that the Office of the NBTC corrects or improves the draft annual budget expenditure”. This help making the budget preparation of the NBTC be concise, appropriate for the mission, and effective as well as be in accordance with national policies and plans regarding digital development for economy and society with the standard of budgeting principle that is similar to the preparation of public budgeting. Also, Section 57 (2) stipulates that the “budget expenditures of the Office of the NBTC at any items or projects that have already been budgeted and not spent or not created debts obligations within that fiscal year, the items or projects shall be cancelled, and the Office of the NBTC shall submit the budget for the items or projects to be public revenue”. Therefore, the Office of the NBTC has revised the regulations to be in accordance with the Act on the Organization to Assign the Frequency and, as a result, from the fiscal year 2017, the Office of the NBTC has set aside money to draw over the year only items that have already been created debts and signed the contract but cannot be disbursed completely within the fiscal year.

2.2 The operation of the committees and individuals related under the requirements of the organization and the National Anti-Corruption Commission (NACC)

The Office of the NBTC has urged the committees and individuals related to strictly comply with the regulations and requirements for their operation. In cases that the committee to set up the term of references or the committee to prepare the mid price or the procurement committee has not performed its duties in accordance with the relevant regulations and lacked of caution or employed the procurement method that do not comply with relevant regulations which caused damages to the Office of the NBTC by the operation, the Office of the NBTC shall investigate for facts and take the operation according to the process concerned.

2.3 Organizing supplies

Since the year 2015, the Office of the NBTC has organized and separated supplies that are usable and unusable. For the unusable supplies, the Office of the NBTC will propose to the NBTC for approval to dispose according to the relevant regulations. After the Office of the NBTC has disposed the unusable or unnecessary supplies, it made the Office easier to organize the rented warehouses in Khlong Toei and reduce the number of warehouses to rent. Moreover, the Office of the NBTC has separated the good condition supplies and notified other bureaus of types and number of the supplies that are in good condition so that they can use those supplies without the necessity to procure new ones.

2.4 Procurement of durable articles with a higher specific characteristics than the standard account of durable articles of the Office of the NBTC

(1) Preparation of the request Capital budget, worthiness and utilization of durable articles

At present, the Office of the NBTC has conducted the procurement according to the Government Procurement and Supplies Management Act B.E. 2560 (2017) which requires that the standard price of durable articles of the Bureau of the Budget shall be referred as a mid price for the procurement; therefore, to prepare the budget

expenditure for investment, the Office of the NBTC shall proceed with careful and concise consideration and the procurement of durable articles with specific characteristics will be made only as necessary and appropriate. In addition, the Office of the NBTC will urge all bureaus to strictly apply the standard price of durable articles of the Bureau of the Budget as the mid price for the budget preparation.

(2) The calculation of a mid price, the disclosure of the mid price of government agencies have been done under the Organic Act on Counter-Corruption B.E. 2542 (1999), Section 103/7, Paragraph One, which was additional amended by the Organic Act on Counter-Corruption (No.2) B.E. 2554 (2011) stipulating that the government agencies shall prepare information on procurement costs, especially the mid price and the calculation of the mid price in electronic system so that people are able to access for checking. The NACC has prepared a guideline manual on the disclosure of information of procurement costs, mid price and the calculation of mid price (revised version) for the government agencies to use as a practical guideline. The manual states that "... the method of mid price calculation or the calculation of mid price will use what criteria in calculating the procurement price, the government agencies must do in a compliance with laws, regulations, rules, cabinet resolutions, or the practical guidelines of the government agency itself."

In order to comply with the provisions of the law, in 2015, the Secretary-General of the NBTC has therefore prescribed the criteria for calculating the mid price in the procurement of the Office of the NBTC B.E. 2558 (2015) requiring to use the standard price according to the standard account of durable articles of the Office of the NBTC instead of the standard account of durable articles of the Bureau of the Budget because the NBTC's Regulation regarding the Budgeting of the Office of the NBTC B.E. 2555 (2012) and the Criteria to Classify the Type of Costs according to the Budget Expenditure of the Office of the NBTC B.E. 2535

(1992) which stipulates that details of the durable articles shall be in accordance with the standard account of the durable articles of the Office of the NBTC.

Even later, the Office of the NBTC will announce the NBTC Regulation on the Durable Articles B.E. 2558 (2015), being effective since 2 September 2015, in which the Article 9 stipulates that "the procurement of the Office of the NBTC shall be in compliance with the Regulations of the Office of the Prime Minister on Procurement B.E. 2535 (1992) and its amendments, mutatis mutandis, "However, as the Regulations of the Office of the Prime Minister on Procurement B.E. 2535 (1992) has not prescribed any criteria regarding the calculation of the mid price, the Office of the NBTC therefore calculates the mid price by complying with the criteria on the calculation of mid price in the procurement of the Office of the NBTC B.E. 2558 (2015) according to the guideline manual set by the NACC. Later on, when the Government Procurement and Supplies Management Act B.E. 2560 (2017) has become effective, the Office of the NBTC as a government agency under the Act must comply with the calculation of the mid price as prescribed by law; that is, using the standard price criteria of the Bureau of the Budget or other agencies.

2.5 Disclosure of the mid price

The Office of the NBTC has always conducted the disclosure of mid price according to the guidelines for the disclosure of information of procurement costs, the mid price and the calculation of mid price, and on 11 October 2018 the Office of the NBTC had circulated the guidelines on the announcement of information of the mid price and the calculation of mid price regarding the procurement of the government agencies according to the guidelines manual on the announcement of information of the mid price of the Comptroller General's Department, since 4 October 2018 onwards. However, in case of errors, such as the person responsible for disclosing the mid price only

the table showing the allocated budget framework and the mid price (reference price) in the procurement which is not a construction work without specifying the price in each item according to the terms of reference (TOR), the Office of the NBTC has brought the suggestions of the SAO to carefully improve the work process and shall be disclosing the complete details.

2.6 Reduction of international travel entertainment expenses

The Office of the NBTC has complied with the Cabinet's resolution since 9 September 2015 onwards for travelling to work in foreign countries only on important missions that need the attendance of the organization including reducing the number of travellers and followers. Moreover, it has commanded all bureaus not to include the study visit to foreign countries in the projects to hire the consultants. If it is of the need to travel abroad in some cases, the bureau shall propose the matter which includes reasons and necessity to the Secretary-General of the NBTC consideration on a case-by-case basis. As a result, the expenses of travelling to work in foreign countries has been decreased continuously, as well as the entertainment expenses which will be emphasised on the basis of necessity for supporting the mission of the NBTC, especially on the travelling to attend the international meetings with International Organizations such as ITU, WTO, etc., where there is a necessity to welcome important persons during the meetings.

2.7 Composition of the Sub-committee and Working Group

The Office of the NBTC has adjusted the number and reduced the composition of the Sub-committee and the Working Group to be as necessary which help decrease the expenditure and budget for meeting attendance fees since the year 2015 continuously.

2.8 Arrangement of Memorandum of Understanding (MOU)

The Office of the NBTC has set up the practical guidelines for establishing a technical cooperation agreement (MOU) by avoiding the specification of payment conditions. If there is a necessity to pay money for the operation, it is required to set up a project budget in order to carry out the operation according to relevant regulations, and the guidelines shall be strictly complied to all bureaus.

2.9 Integration of plans/projects on information technology and communications

The Office of the NBTC has appointed a Chief Information Officer (CIO) to oversee the direction of information technology development of the Office of the NBTC. A working group has also been appointed to consider and scrutinize the projects on information technology and communications of the Office of the NBTC. It also help setting up criteria and practical guidelines for the procurement of information technology and communication systems of the Office of the NBTC, determining the specific characteristics of the information technology systems that are suitable for multi-tasks in order to integrate the overall plans/projects on information technology of the Office of the NBTC to be in accordance with the Strategy Plan on the Development of Information Technology and Communications of the Office of the NBTC as well as reducing the redundancy in the operation.

In conclusion, the NBTC has committed to the development of the broadcasting, television, and telecommunications services through the operation of duties in determining policies and regulation to be appropriate, modern, universal, and facilitate the development of industries and services on the basis of well-rounded information and participation of all stakeholders, as well as encourage the contribution of public, private, academic and social sectors to improve the working process to achieve the goal for Thailand development as planned.



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General Information



The NBTC and the Office of the NBTC

On 7 October 2011, the National Broadcasting and Telecommunications Commission or “NBTC” has been appointed by the Royal Proclamation according to Section 17 of the Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (the Act on the Organization) B.E. 2553 (2010) consisting of 11 persons: one person for the Chairman of the NBTC, two persons for the Vice Chairman of the NBTC and eight persons for the Commissioners of the NBTC. Section 35, Section 37, Section 38 and Section 40 of the Act stipulates that The NBTC shall appoint a Broadcasting Commission, called in short “BC” and a Telecommunications Commission, called in short “TC” to have the power to act on behalf of the NBTC in regulating the broadcasting, television and telecommunications services by taking into account the utmost benefits of the public at national and local levels in education, culture, state security and other public interests, free and fair competition, determining criteria and procedures on the network access interconnection in broadcasting, television and telecommunications services, and determining criteria for broadcasting, television and telecommunications business operation, including the protection of consumers’ rights and freedom to access and utilize frequencies in the broadcasting, television and telecommunications as well as the encouragement of the public participation in the public media operation. The NBTC also performs other tasks in accordance with the provisions of relevant laws. The NBTC Commissioners shall hold office for a term of six years as from the date of being appointed by the King and shall serve for only one term.

The NBTC has continued performing its mission under the powers and duties prescribing by the Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications

Services B.E. 2553 (2010) and on 22 June 2017, the Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services (No.2) B.E. 2560 (2017) has been published in the Royal Gazette and come into force from the date after the publishing date in the Royal Gazette onwards, which is the amendment of the law regarding the Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services to be more appropriate and in accordance with the provisions of the Constitution of the Kingdom of Thailand. The Act on Organization (No.2) B.E. 2560 (2017) has abolished Section 35, Section 37, Section 39 and Section 40 of the Act on the Organization B.E. 2553 (2010) prescribed that stipulates that the number of the NBTC commissioners shall be reduced from 11 persons to 7 persons. In addition, the Transitory Provisions has stipulated that “the commissioners who still hold the office on the effective date of this Act shall remain in office to continue performing their duties until the expiration of the term or vacation of office upon other causes. In the case where there is a vacation of office, no matter of what causes, it shall be deemed that the NBTC consists of the existing commissioners unless the remaining commissioners consists of less than four persons where all the commissioners shall vacate office upon the cause of expiration of term, and the NBTC commissioners shall be appointed according to the Act on the Organization B.E. 2553 (2010), which is additional amended by this Act. While the new NBTC commissioners have not yet been appointed, the existing NBTC commissioners shall continue perform duties until the new commissioners appointing by the Act on the Organization B.E. 2553 (2010), which is additional amended by this Act, take the office. In the case where the Chairman vacates office,

the existing commissioners shall elect one among themselves to be the Chairman to continue perform the duties". In the year 2018, four NBTC commissioners had vacated from the post by the law and, as a result, seven NBTC commissioners have continue perform duties until the expiration of term; that is, on 7 October 2018.

In 2018, the NBTC Commissioners consists of the following members:

1. General Sukit Khamasundara
Commissioner Acting
Chairman of the NBTC
2. Colonel Natee Sukonrat
Vice-Chairman
3. Colonel Settapong Malisuwan
Vice-Chairman*
4. Lt.General Perapong Manakit
Commissioner
5. Mr.Prasert Silphipat
Commissioner
6. Mr.Thawatchai Jittrapanun
Commissioner
7. Mr.Prawit Leesatapornwongsa
Commissioner

On 24 April 2018, the Head of National Council for Peace and Order had the Order No.7/2018 on Cancellation and Suspension of the Nomination and Selection Process for the Appointment of Commissioners of the National Broadcasting and Telecommunications Commission, Item (1) The nomination and selection process for the appointment of commissioners of the NBTC which has been carried out on the day before the date this Order comes into force shall be cancelled, and the nomination and selection process for the appointment of the NBTC shall be suspended until the Head of National Council for Peace and Order will provide another Order and, Item (2) the commissioners who still hold the office on the effective date of this Order shall remain in office to continue performing their duties as necessary as prescribed by Section 42 of the Act or Organization (No.2) B.E. 2560 (2017). In the meantime, in the case where there is a vacation of office, no matter of what causes, it shall be deemed that the NBTC consists of the existing commissioners unless the remaining commissioners until the Head of National Council for Peace and Order will provide another Order.

The NBTC and its power and duties

According to Section 27 of the Act on the Organization B.E. 2553 (2010) and its amendment (No.2) B.E. 2560 (2017), the NBTC shall have the power and duties as follows:

1. To formulate a Frequency Management Master Plan, Table of National Frequency Allocations, Broadcasting Master Plan, Telecommunications Master Plan, Radio Frequency Plan, and Telecommunications Numbering Plan, and proceed according to the Plans. However, such Plans must comply with National Policies and Plans on Digital Development for Economy and Society.

2. To assign radio frequencies for the undertaking of sound broadcasting, television broadcasting, radiocommunications, and telecommunications services.

3. To prescribe characteristics and categories of sound broadcasting, television broadcasting, and telecommunications services.

4. To license and regulate the use of radio frequencies and radiocommunication equipments in the undertaking of sound broadcasting, television broadcasting, and telecommunications services or radiocommunications service; and prescribe

* Resigned from the position on 9 October 2018

licensing criteria and procedures, conditions, or licensing fees. In this regards, the NBTC may assign the Office of the NBTC to grant licenses instead of the NBTC only for the licensing in the part of radiocommunications equipments according to the criteria and conditions specified by the NBTC.

5. To prescribe criteria for the efficient use of radio frequency without causing interference to the same type of business and other type of business.

6. To license and regulate the operations of sound broadcasting, television broadcasting, and telecommunications services to allow service users to have choices of services with quality, efficiency, timeliness, reliability and fairness; and prescribe licensing criteria and procedures, conditions, or licensing fees.

7. To license and regulate the use of telecommunications numbers; and prescribe licensing criteria and procedures, conditions, or licensing fees.

8. To prescribe criteria and procedures for interconnection, and criteria and procedures for setting access charges or interconnection charges to be applied to the undertaking of sound broadcasting, television boardcasting, and telecommunications services, both for the same type of business and other type of business, which shall be fair to service users, service providers and investors, or between the telecommunications service providers with due regard to public interest.

9. To set tariff structure and price structure for sound broadcasting, television broadcasting, and telecommunications services which shall be fair to service users and service providers with due regard to public interest.

10. To set standards and required technical specifications for sound broadcasting, television broadcasting, telecommunications and radio - communications services.

11. To prescribe measure for the prevention of anti-competitive conduct or unfair competition in sound broadcasting, television broadcasting, and telecommunications services.

12. To prescribe measure for the provisions of telecommunications services universally and equally.

(12/1) To reform the frequencies which is unused or unworthy used or to make it more worth as specified in the Plan, which shall be determined in accordance with (1), from those who have been authorized to re-allocate in accordance with the criteria, procedures and conditions prescribed by the NBTC. However, such conditions must define the method of compensation, disbursement, or remuneration for those who have been reformed of the frequencies by taking into account the rights of those affected by the frequency reforming in each case.

13. To protect rights and liberty of the people from being exploited by the operators; protect individual right of privacy and freedom to communicate by means of telecommunications; promote rights, freedom and equality of the people in the access to, and use of frequencies in the sound broadcasting, television broadcasting, and telecommunications services.

14. To coordinate matters relating to frequency management, both at the national and international levels, as a governmental administrative agency in international communications service with international organizations, governments and international agencies on frequency management; support the public affairs in order to have satellites or obtain the rights to access to satellite orbit in order to be in accordance with the Plans to be determined under (1) and the National Policies and Plans on Digital Development for Economy and Society.

15. To determine and resolve issues relating to interference of frequencies.

16. To monitor and provide advice on the undertaking of sound broadcasting, television broadcasting and telecommunications services.

17. To set forth regulation on merger, cross ownership-holding or broadcasting market dominance amongst mass media business or by any other person, which has the effect of impeding

the liberty of the public in perceiving information or of obstructing public access to a diversity of information.

18. To promote a formation of licensees, broadcasters, and mass media professionals in the radio and television businesses into diverse forms of organizations which will have the mandate to set forth ethical standards and self-regulation pertaining to the occupation or profession under the ethical standards.

19. To issue rules or notifications with respect to general administration, personnel administration, budget, finance and property and other businesses of the Office of the NBTC.

20. To approve the budget expenditure of the Office of the NBTC, including the financial of the Fund.

21. To determine and approve financial allocation for the Fund as proposed by the Fund Management Committee.

22. To provide information and participate in negotiations or making agreements between the

Kingdom of Thailand and foreign governments or international organizations in matters relating to frequency management, sound broadcasting, television broadcasting, telecommunications services, or other related undertakings.

(22/1) To provide information relating to the performance of the NBTC and operators having been authorized by the NBTC, in respect of digital as requested by Office of the National Digital Economy and Society Commission for the use of analyzing and formulating the National Policies and Plans on Digital Development for Economy and Society.

23. To give advices to the Cabinet for an issuance of, or amendment to, legislation related with frequency allocation and other matters relating to frequencies, sound broadcasting, television broadcasting, and telecommunications services.

24. To prescribe rules, notifications or orders under the powers and duties of the NBTC.

25. To perform any other acts as prescribed in this Act or other laws.

The Office of the NBTC and its powers and duties

Section 56 and Section 60 of the Act on the Organization B.E. 2553 (2010) and its amendment (No.2) B.E. 2560 (2017) stipulates that the Office of the National Broadcasting and Telecommunications Commission, or called in short “the Office of the NBTC” is a juristic person, having a status of state agency and shall not be subject to the government agency under the law on public administration, or state enterprise under the law on budgetary procedure or other laws, and directly report to the Chairman of the NBTC. The Office of the NBTC shall have a Secretary-General of the NBTC who shall be responsible for the work performance of the Office of the NBTC and shall be the superior of officials and employees of the Office of the NBTC, and coupled with Section 57 has prescribed the powers and duties of the Office of the NBTC as follows:

1. Be responsible for the Office of the NBTC’s revenues and expenditures.

2. Prepare the Office of the NBTC’s annual budget expenditure and submit to the NBTC for endorsement. The said annual budget expenditure shall include any budget with respect to the conduct of official duties of the NBTC, the Performance Follow-up and Evaluation Committee and Office of the NBTC. Such annual budget expenditure shall be prepared with consideration of worthiness, cost effectiveness and efficiency. In case that any item or project is already been allocated of the budget but has not paid or created debt obligations within the fiscal year, the item or project shall be cancelled and the Office of the NBTC shall submit the budget for such item or project as state revenue.

3. Monitor and follow up spectrum utilization.
4. Receive and consider complaints with regard to the use of spectrum, the operation of broadcasting and telecommunications business in order to examine and solve the problems or propose recommendations to the NBTC for consideration in accordance with the criteria prescribed by the NBTC.
5. Study, compile and analyze information related to the spectrum, the use of spectrum, the operations of broadcasting and telecommunications business.
6. Be responsible for the administrative work of the NBTC and the Fund Management Committee.
7. Perform other acts as entrusted by the NBTC.

Section 52 of the Act on Organization B.E. 2553 (2010) and its amendment (No.2) B.E. 2560 (2017) which stipulates that the Broadcasting, and Telecommunications Research and Development Fund for the Public Interest shall be established with the objectives to ensure that the people have been provided with the broadcasting, television and telecommunications services universally; promote community services and support community service operators; promote and support communication resources development, research and development in the broadcasting and telecommunications sector, as well as to increase people's capabilities in keeping pace with the media's technology in the aspect of spectrum utilization, information technology, facilities for the disabled, elderly, or underprivileged as well as telecommunications industries and related industries; promote and support human resource development in the broadcasting, television and telecommunications services, information technology, as well as the operation of the organizations who is responsible for setting ethical standards of the occupations or professions under the law on broadcasting and television business operation; support, promote and protect

consumers in the broadcasting, television and telecommunication services; support the operation under the Act on Safe and Creative Media Development Fund by allocating money to the Safe and Creative Media Development Fund; encourage the most efficient use of frequencies, the spectrum refarming in order to re-allocate, and support the substitution, compensation or remuneration for the refarmed frequencies for the maximum efficiency in the use of frequencies.

Section 65 of the Act on the Organization B.E. 2553 (2010) and its amendment (No.2) B.E. 2560 (2017) stipulates that the Office of the NBTC's revenues shall be derived from spectrum license fees and business license fees under Section 42 paragraph two and Section 45 paragraph three, revenues or benefits accrued from the conduct of duties of the NBTC and the Office of the NBTC, revenues derived from the Office of the NBTC's property, money and property donated to the Office of the NBTC in accordance with the regulation set forth by the NBTC for the work of the Office, and subsidies from the government. Revenues of the Office from business license fees and revenues or accrued from the conduct of duties of the NBTC and the Office of the NBTC after deducting by expenditures for efficient conduct of the Office of the NBTC, necessary burden costs, and money allocated for the Fund under Section 52 and the Technology Development for Education Fund under the law on national education shall be remitted to the state treasury. In the case where the Office of the NBTC revenues are not sufficient for efficient conduct of the Office of the NBTC, including necessary burden costs, and other sources are not available, the government shall allocate the national budget to the Office of the NBTC as necessary.

Vision

“Being a leading organization in the ASEAN regulating and developing communications business for sustainable national development”

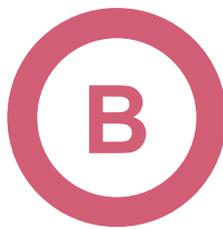
Mission

“To support the NBTC concerning spectrum management as well as licensing and regulating the broadcasting, television, radiocommunications, and telecommunications business operations with efficiency, transparency and good reputation in ASEAN.”

Core Value



Navigating to
International



Building
Innovation



Teamwork &
Transparency

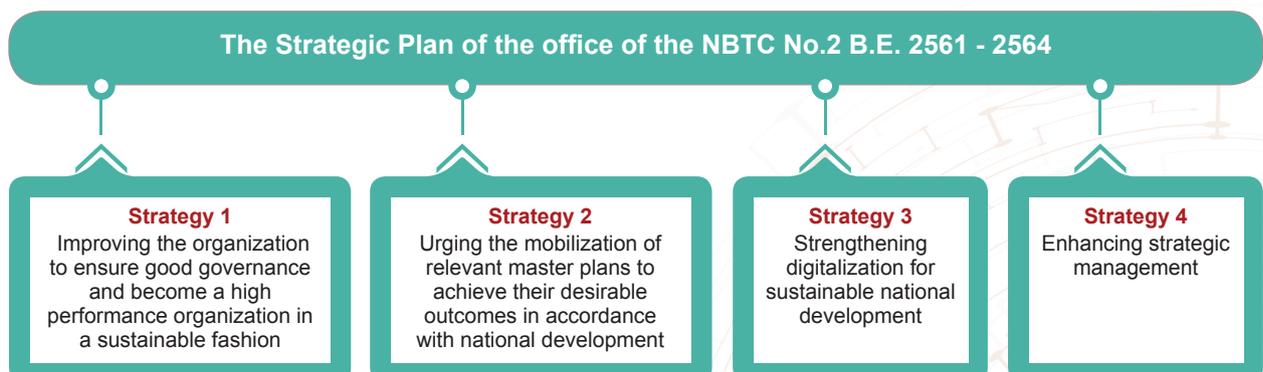


Consistent
Professionalism

Strategic Issues of the Office of the NBTC and the connection with the Government's Policies, National Strategy, and National Reform

The NBTC has carried out the missions according to powers and duties under the Act on the Organization B.E. 2553 (2010) and its amendment (No.2) B.E. 2560 (2017) which prescribed that the NBTC shall formulate the Spectrum Management Master Plan, Broadcasting Master Plan, and Telecommunications Master Plan and proceed according to the Plans which must comply with National Policies and Plans on Digital Development for Economy and Society.

In addition, in the year 2018, the Office of the NBTC had announced the Strategic Plan of the Office of the NBTC No.2 B.E. 2561-2564 (2018-2021) to be used as the 4-year operational framework by taking into account the connection and consistent with the National Strategy, National Reform Plan, and Digital development Plan for Economy and Society including the said 3 Master Plans.



The Strategic Plan of the Office of the NBTC No.2 B.E. 2561 - 2564 (2018 - 2021) has defined 4 strategic issues to be used as the operational framework and to drive the implementation of policies and plans including the missions under the Spectrum Management Master Plan, Broadcasting Master Plan, and Telecommunications Master Plan as follows:

Strategy 1 : Improving the organization to ensure good governance and become a high performance organization in a sustainable fashion

Strategy 2 : Urging the mobilization of relevant master plans to achieve their desirable outcomes in accordance with national development

Strategy 3 : Strengthening digitalization for sustainable national development

Strategy 4 : Enhancing strategic management

The NBTC and the Office of the NBTC have carried out the mission under its legal authority, the strategies of the Master Plans and the Office of the NBTC Strategic Plan. Moreover, the NBTC has focused and supported the implementation of important projects as part of the drive of National Strategy and the related National Reform Plans for the concrete achievement such as supporting the National Strategies in areas of National Competitiveness enhancement, Public Sector Rebalancing and Development, National Security, Social Cohesion and Just Society and Human Capital Development and Strengthening. The major performances are such as the implementation **of the project to provide mobile signals and high-speed broadband services in 3,920 villages in the border area in order to provide opportunities and increase the potential of livelihood of people in remote areas, support the use of internet which is an important factor that supports the driving of Digital Policies for Economy and Society to be concrete and achieve maximum efficiency** and support the National Strategy in creating opportunities and social equality to achieve the goal of creating fairness and reducing inequality in all dimensions. In the

year 2018, the Office of the NBTC had reported significant operation that is consistent with the National Strategy and National Reform Plan for 23 workplans projects through the database system for the follow-up, monitor and evaluation of the implementation according to the National Reform Plan (EMENSCR), which is in accordance with the Act on Plan and Procedures of the Implementation of National Reform B.E. 2560 (2017).

Moreover, the NBTC and the Office of the NBTC have integrated the cooperation with government agencies, private sector and the citizen network in supporting and driving the implementation of government policies for the good quality of life of people, such as

- Having established a center of Operational Policing for Thailand Against Intellectual Property Violations and Crimes on the Internet Suppression (COPTICS) at the Office of the NBTC to reduce the process of the prevention of the intellectual property violation on the internet by having integrated the collaboration with the Royal Thai Police for the operation.

- Handling problems on advertising of illegal food, drugs and health products via all types of media in order to solve problems quickly, efficiently, in time, and to support the government's policy on the acceleration, monitor and management of the illegal advertisement of health products through a variety of media, which is the integrated collaboration with the Food and Drug Administration (FDA) that help reduce the process of the law enforcement of both organizations in order to promptly terminate the illegal advertising.

- Having accelerated the provision of National Single Emergency Number which is the collaboration with the Royal Thai Police in order to quickly suspend and manage emergencies, disturbance and natural disasters efficiently as well as to help reduce the loss of life and property of the people.

- Having carried out activities on the public relations campaign “Do not let children being raised by screens” through a variety of media both in short and long term in which the NBTC had cooperated with the Faculty of Medicine Ramathibodi Hospital, Chulalongkorn Hospital, and Siriraj Hospital for the provision of information and knowledge on raising children appropriately and safely in the online society.
- Having implemented the project to support the Blind’s access to useful information via telecommunications network for the development of quality of life by developing a specialized communication system for the Blind to be able to access information as general people. The implementation had been done through the collaboration with TAB Foundation for the provision of useful information for the development of the quality of life of the Blind and the Disabled through printed media (print disability) through telecommunications network.
- Having supported the provision of e-Payment service for the license fees of radiocommunications through the National Single Window (NSW) system of Thailand in order to increase payment channels for license fees for the radiocommunications devices importers/exports, either government agencies, private sectors or general people via electronic systems in the form of e-Payment, which is the collaboration with TMB Bank, Krungsri Ayudhya Bank, Bangkok Bank, and Kasikorn Bank.
- Having organized overhead telecom and broadcast cables and installed these cables underground in order to organize overheard telecom and broadcast cables laying on electric poles by installing the cables underground which will assure the safety of life and property of people. The operation has been done through integrating cooperation with the Metropolitan Electricity Authority, Bangkok Metropolis, Royal Thai Police, Telecommunications Association of Thailand Under the Royal Patronage, and telecommunications operators.



The High - Level Executives of the Office of the NBTC



Air Marshal Dr. Thanapant Raicharoen

Deputy Secretary-General
Spectrum Management and
Regional Affairs



Mr. Takorn Tantasith

Secretary-General
of the NBTC



Mr. Trairat Viriyasirikul

Deputy Secretary-General
Strategic and Internal Affairs



Mr. Korkij Danchaivichit

Deputy Secretary-General
Telecommunications Affairs



Mr. Pakpien Soontornsud

Principal Expert

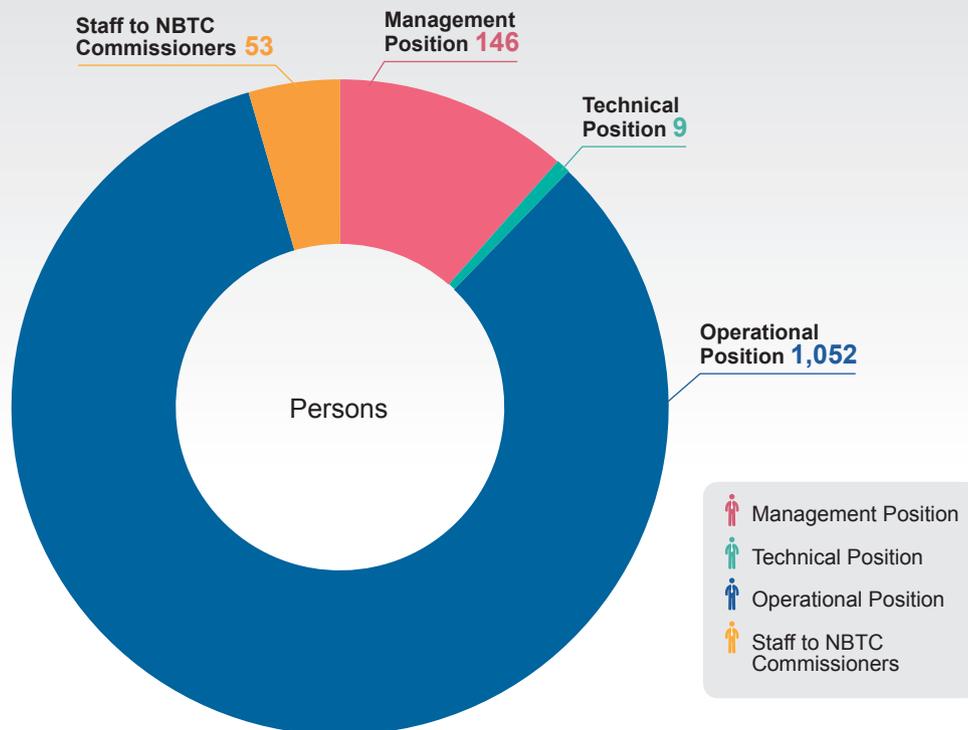


Asst. Prof. Dr. Pakdee Manaves

Deputy Secretary-General
Broadcasting Affairs

Manpower of the Office of the NBTC

In 2018, the manpower of the Office of the NBTC was 1,264 persons, as shown below:



Management Position

Senior Executive (Deputy Secretary-General)	4 persons
Middle-level Executive (Executive Director)	35 persons
Junior Executive (Division Director)	107 persons

Operation Position

Senior Officers	519 persons
Middle-level Officers	363 persons
Junior Office Staff	120 persons
Staff	50 persons

Technical Position

Principal Expert/ Senior Expert/Expert	9 persons
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Staff to NBTC Commissioners

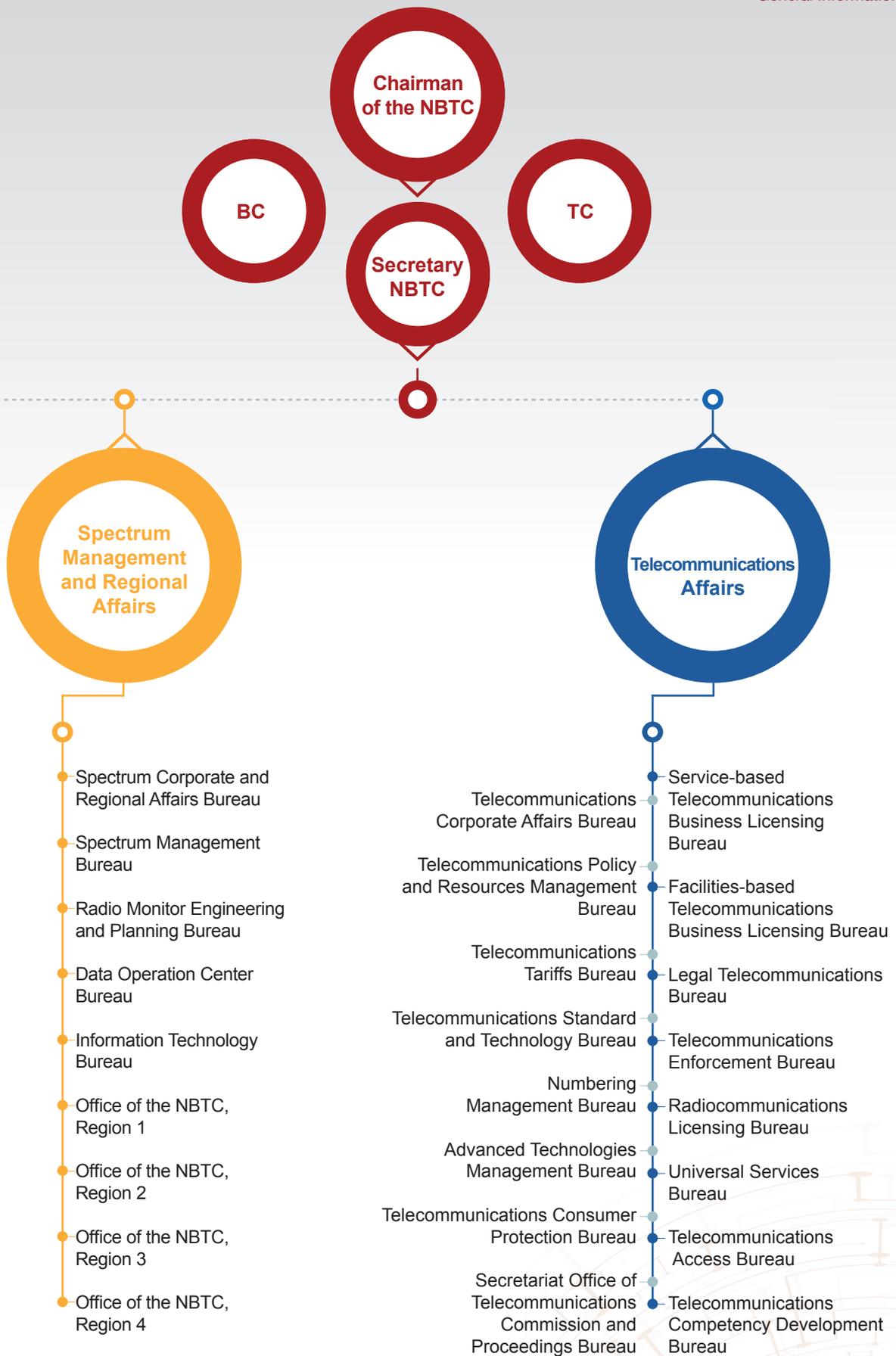
Advisor	15 persons
Secretary	6 persons
Secretary Assistant	9 persons
Employee	23 persons
Driver	4 persons

Remarks : Data as of 31 December 2018

Organization Structure of the Office of the National Broadcasting and Telecommunications Commission



Remarks : Data as of January - December 2018



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2

Major Performance of the NBTC in 2018



Communication business is an important factor in driving government policies and strategies for the development of the country to achieve the goal of transforming and developing Thailand into the 4.0 era, both in terms of enhancing the country's competitiveness and creating opportunities and social equality. It is therefore a major challenge to the National Broadcasting and Telecommunications Commission (NBTC) in the regulation of communication business in the digital age where technologies has been converged and developed rapidly resulting in a disruption of the economic and industrial systems as well as a rapid changing of consumer behaviours.

In the year 2018, the NBTC has continued performing duties and moving forward to develop and drive the broadcasting, television and telecommunications industries of Thailand to grow sustainably by promoting and supporting the expansion of the digital economy industry infrastructure, reducing the gap of technology access and utilization, and promoting the media literacy of general public including the revision of rules and regulations to be up-to-date and in

line with current conditions, for the utmost benefit of the people and the nation. Besides, the NBTC has also taken the accomplished missions in the past years as a driving force for implementing challenging missions.

Moreover, the NBTC has defined the operation policies in accordance with the government's policies and national strategy for driving urgent important tasks to achieve concrete outcomes, such as spectrum management to be most efficient and beneficial to the general public, the support on the expansion of telecommunications service network and digital terrestrial television network to cover all areas throughout the country, the support on the city management system that are conducive to developing quality and safety of life and society, the enhancement of media literacy of people and the improvement of operational efficiency according to observations and recommendations from the Parliament, House of Representatives and the Senate including members of the National Legislative Assembly on the operation of the NBTC in the year 2017 as follows:

Strategic and Organization Management Affairs

The NBTC has always committed to the good governance for operating missions in the regulation of business operation. In 2018, the Office of the NBTC has defined a strategy on developing the organization to be a organization with good governance and sustainable high performance so that the executives, staff and employees of the Office of the NBTC have guidelines for performing duties on the basis of ethics, morals and good governance with the goal to build trust of stakeholders in the good governance in operations of the NBTC and the Office of the NBTC including supporting the Office of the NBTC with an explicit, transparent and accountable management system along with good governance which is acceptance by relevant sectors. The performance of the NBTC is as follows:

Policy on the good corporate governance of the Office of the NBTC

Policy on state, society and environment

- Main policy related to the state
- Main policy related to society and environment

Policy on corporation

- Main policy related to the performance
- Main policy related to the prevention of corruption

Policy on practitioners

- Main policy related to quality of life
- Main policy related to personnel management

Policy on service recipients and stakeholders

- Main policy related to service receivers
- Main policy related to stakeholders

1. Setting the policy on the good corporate governance of the Office of the NBTC and having announced the policy so that the executives, staff and employees of the Office of the NBTC use as practical guidelines consisting of policy on state, society and environment, policy on service recipients and stakeholders, policy on practitioners, and policy on corporation.

2. Preparing for the integrity and transparency assessment (ITA) of the operation of government agencies according to the guidelines prescribed by the Office of the National Anti-Corruption Commission (ONACC) by appointing the Committee on Integrity Transparency Assessment of the Office of the NBTC, building knowledge and understanding and encouraging the participation of personnel at all levels on the awareness of the importance of the framework of moral and transparency assessment in the operation continuously to push forward the development of internal work system to be more efficient, which is in line with the national strategy in the strategy for Public Sector Rebalancing and Development to achieve the government goal of transparency, free from fraud, and misconduct.

3. For the procurement, the NBTC has recognized of building the public's confidence and

transparency in the procurement process and urged the Office of the NBTC to use the same standard practice as other government agencies under the Public Procurement and Inventory Management Act B.E. 2560 (2017) in order to have an operational plan that will make the procurement efficient and effective, as well as providing opportunities for fair competition.

4. The budget management in the year 2018 of the Office of the NBTC had been done in a surplus budgeting type with the revenue collected at the amount of 9,104.526 million baht while the annual budget expenditure plan in 2018 was prepared at the amount of 5,876.360 million baht. The overall budget expenditure in 2018 was totally 4,574.273 million baht and the Office of the NBTC had already submitted to the Digital Development Fund for Economy and Society, Office of the National Digital Economy and Society Commission according to Section 24 (4) of the Digital Development for Economic and Social Development Act B.E. 2560 (2017) for 2,922.931 million baht. It is expected that the Office of the NBTC will submitted additional money as the state revenue at the totally amount of 2,866.189 million baht.



5. The money allocation of the Broadcasting and Telecommunications Research and Development Fund for the Public Interest (BTFP)

by having approved the allocation of the Fund monetary in accordance with the Fund's objectives as proposed by the Fund Management Committee. In 2018, the NBTC had approved the fund allocation to grantees of projects type 1 (Project originating from the eligible person who requested be promoted and supported by the fund according to the Fund's objectives and Section 52 (1) (2) (3) and (4) of the Act on the Organization B.E. 2553 (2010) and its amendment) for 52 projects with the budget framework of 311.21 million baht, and type 2 (Project focusing on the achievement-based according to the policies of the Fund Management Committee) at the amount of 376.98 million baht; the fund allocation at the amount of 28.32 million baht to the Creative and Safe Media Development Fund in 2018 according to Section 52 (5) of the Act on the Organization, including the budget allocation to support important implementation under the government's policies such as supporting the cost of network rental for digital terrestrial television network (MUX) to licensees of digital terrestrial television at the amount of 50 percent of the television network rental fee for 24 months under the budget framework of 1,958.40 million baht, supporting the project on Thai Telecommunication Relay Service (TTRS) the Universal Foundation for Persons with Disabilities under the budget framework of 475.09 million baht, supporting the project to promote the access to information which are useful for the development of quality of life of the Blind through telecommunications network to Thailand Association of the Blind under the budget framework of 92.30 million baht, the fund granted to promote the project to develop facilitation system for doing business portal to the Office of the Public Sector Development Commission (OPDC) under the budget framework of 45.00 million baht which is to drive the development of the country in accordance with the National Strategy for Public Sector Rebalancing and development.

• **Social contribution activities** by inducing the royal wishes of His Majesty King Maha Vajiralongkorn Bodindradebayavarangkun to the provision of services and good deeds, as follows:

(1) Participation in the rescue operation of the lost in Tham Luang - Khun Nam Nang Norn, Chiang Rai province by supporting fixed radiocommunication devices to facilitate the communications, coordinating with telecommunications operators to install mobile signal amplifier stations in order to ensure the efficient use of mobile phones in communication around areas of the incident, including coordinating with the radio broadcasting operators in the area for broadcasting news by taking into account the accuracy of the information and content about reporting event in terms of mental impacts of listeners who monitored the situation.

(2) Participation in volunteer activities of "We Do Good Deeds with the Heart", walking on the campaign "Love the Canal: Do not leave do not throw and pour, and doing good" for conducting public benefit in the remembrance of His Majesty King Bhumibol Adulyadej, Boromnat Bophit, and to continue the royal initiative of His Majesty the King in the maintenance and development of rivers, canals and ditches and to raise awareness of the people living by the river and canal side in the maintenance of canals and ditches as well as encouraging learning by practicing for the benefit of the nation.

(3) Conducting the inspection and monitoring of radio frequency interference in the Biking activity of "Un Ai Rak Khlai Khwam Nao" under the theme "The River of Rattanakosin" to prevent the interference of communication network provided in the event to ensure the efficient use as well as monitoring for sources of interferences in order to solve the problems promptly and timely.

(4) Organizing social activity on "NBTC WE CARE" to raise awareness of people in the use of technology 4.0 and building consciousness on the online society, etc.

Spectrum Management

In 2018, the NBTC had implemented the policy on spectrum management as follows:

1. Setting policies and spectrum management plan to be efficient and in line with international standards and the regulations of the International Telecommunication Union as well as being suitable with the changes of technology advancement.

(1) The NBTC had performed in the spectrum management which is a national scarce resource according to the provisions of Section 60 of the Constitution of the Kingdom of Thailand B.E. 2560 (2017) in terms of maintaining the frequency of the country and such operation must be consistent and in line with international standards and the regulations of the International Telecommunication Union (ITU). The NBTC has thus followed-up and attended the World Radiocommunication Conference (WRC) continuously. After the attendance in the WRC 2016, the Office of the NBTC has improved the Spectrum Management Master Plan and Table of Frequency allocation of Thailand to be consistent and compatible with the international table of frequency as well as improving the international footnotes that containing a different frequency usage from the table of frequency allocation in the Radio Regulations of the International Telecommunication Union to maintain the right to use specific frequencies due to the use of frequency bands of Thailand in some cases may not comply with all international standards, therefore the reservations must be made. Later in 2018, the NBTC has formulated the (draft) Spectrum Management Master Plan No.4 (B.E. ...) which was to revise the Spectrum Management Master Plan to be in line with the National Digital Economy and Society Development Plan and Policy including the National Strategy and National Reform Plans as well as the radio regulations of the International Telecommunication Union for the benefit of spectrum management to be more efficient and in accordance with the rapid changing of technology advancement.

(2) Preparation of the following manuals concerning the frequency usage to provide guidelines for the frequency allocation in aeronautical service, radiocommunications in land mobile service and fixed service by reducing the use of discretion, having an accuracy based on technical principle and radio regulations of the International Telecommunications Union.

- The manual on the frequency allocation for aeronautical service
- The manual on the frequency allocation for radiocommunications in land mobile service
- The manual on the frequency allocation for radiocommunications in fixed service

(3) Preparation of the manual on the request of the rights to satellite orbit on behalf of Thailand to the International Telecommunications Union

(4) Preparation of practical guidelines related to the fixed satellite orbit service which is in accordance with Section 60 of the Constitution of the Kingdom of Thailand B.E. 2560 (2017).

2. Preparation and attendance to the World Radiocommunication Conference 2019 (WRC-19) during 28 October - 22 November 2018

Since the year 2016, the NBTC has carried out activities for the preparation of the WRC-19 including the appointment of the working group for the preparation of the World Radiocommunication Conference 2019 (WRC-19) consisting of representatives from related sectors to participate in the activities of the study groups, study and analyze the report of the study and recommendations of the study groups, international organizations and related member countries, and prepare Thailand's proposals on important issues to be proposed to the WRC-19, as well as considering the determination of Thailand's position on important agendas or proposals that affect the interests of Thailand. For the WRC-19 in 2018, the NBTC had prepared the Thailand's position towards the agendas consisting of the agenda relating to the Geostationary Satellite Orbit (GSO)

and Non-Geostationary Orbit (NGSO), and other agendas concerning the use of frequencies (such as agenda on the spectrum for 5G), by taking into account the technological advancements and national interests.

The NBTC also attended to the Sub-group meetings to consider issues related to Thailand especially the Sub-group of the ITU-R which is responsible for the communication via radio frequency either frequency management and satellite orbit including radio communication, radio broadcasting, and television. In 2018, the NBTC had attended and participated in the ITU-R meetings for 13 times and prepared 2 proposals to the APT Wireless Group meeting, as well as preparing 20 proposals to the Preparatory Meeting of the World Radiocommunication Conference 2019 of the Asia-Pacific Telecommunity No. 3 (APG - 19 - 3) for 6 working groups.

3. Coordination on spectrum management both in domestic and international level, especially in border areas in order to have a distinct and complete framework of international agreement in the border areas including problems consideration and resolution of the frequency interference among each other.

The NBTC had continuously organized the Joint Technical Committee (JTC) Meeting on the Frequency Coordination and Allocation along the Border Areas with neighbouring countries every year, and in 2018, the meeting was held to coordinate the work and solve problems of frequency interference including maintaining the rights to protect the use of frequency in the border areas as follows:

- The Preparatory Meeting of the 33rd Joint Technical Committee on Frequency Coordination and Allocation along border areas between Thailand-Malaysia (JTC - 33).

- The Preparatory Meeting of the 9th Joint Technical Committee on Frequency Coordination and Allocation along border areas between Thailand-Laos (JTC - 9).

Moreover, the NBTC had attended the Sub-group meetings and signal testing between Thailand and Lao PDR (Joint measurement) for 4 times

- The Preparatory Meeting of the 7th Joint Technical Committee on Frequency Coordination and Allocation along border areas between Thailand - Cambodia (JTC - 7).

- The Preparatory Meeting of the 1st Joint Technical Committee on Frequency Coordination and Allocation along border areas between Thailand - Myanmar (JTC - 1) which is the first frequency coordination meeting between Thailand and Myanmar.

4. Setting the criteria of the use of frequencies to be efficient and without interference between each other.

In 2018, the NBTC has formulated the notification of criteria and improved the radio frequency plan to ensure the frequencies will be used efficiently, suitably and consistent with the current use as follows:

- (1) The NBTC Notification on Radio Frequency Plan for Citizen in the frequency band of 245 - 247 MHz.

- (2) The NBTC Notification on Radio Frequency Plan for Citizen in the frequency band of 78 - 79 MHz.

- (3) The NBTC Notification on Radio Frequency Plan for International Mobile Telecommunications (IMT) in the frequency band of 824 - 839/869 - 884 MHz.

- (4) The NBTC Notification on Radio Frequency for Mobile Service in the frequency band of 885 - 895/930 - 940 MHz.

- (5) The NBTC Notification on Licensing Criteria to Use the Frequency for the Ultra-wideband Radiocommunications Devices in the frequency band of 1.6 - 10.6 GHz.

- (6) The NBTC Notification on Criteria and Licensing Condition to Use the Frequency for the Unmanned Aerial Vehicles for General Use

- (7) The NBTC Notification on Criteria for Licensing and Regulating the Use of Radiocommunications Devices in the Citizen Band (CB)

- (8) The NBTC Notification on Criteria for the Use of Frequency for Maritime Mobile Service

Regulation on Telecommunications Service

In 2018, the NBTC had implemented the important policy on telecommunications as follows:

1. Formulation of Telecommunications Master Plan No.2 (2019 - 2023)

The NBTC had formulated the Telecommunications Master Plan No.2 (2019 - 2023) by setting direction of regulation telecommunications service of the Office of the NBTC which is accordance with the 20 Year of National Strategy, National Reform and National Digital Economy and Society Development Plan and Policy, and published in the Royal Gazette on 12 November 2018 for being used as guideline for the development and promotion of free and fair competition among operators, licensing to use spectrum, and telecommunications business licensing, including consumer protection and the business regulation.

2. Arrangement of spectrum auction in the frequency band of 1800 MHz

The NBTC had organized the spectrum auction in the frequency band of 1800 MHz according to the NBTC Notification on Criteria and Procedure for the Licensing to Use Spectrum for Telecommunications Service in the frequency band of 1740 - 1785/1835 - 1880 MHz, on 19 August 2018. There were 2 winning bidders as follows:

(1) Advance Wireless Network Company Limited bidding for a total price of 12,511 million baht, was the winner of 1 set of 2 x 5 MHz in the frequency range of 1740 - 1745 MHz, coupled with 1835 - 1840 MHz.

(2) DTAC Trinet Company Limited bidding for a total price of 12,511 million baht, was the winner of 1 set of 2 x 5 MHz in the frequency range of 1745 - 1750 MHz, coupled with 1840 - 1845 MHz.

However, the payment of the spectrum auction in the frequency band of 1800 MHz has been divided into 3 instalments as follows: the payment of the 1st instalment is 50 percent, the 2nd instalment is 25 percent and the 3rd instalment is 25 percent respectively. Both winning bidders have already paid the 1st instalment to the Office of the NBTC at the total amount of 13,386.770 million baht

(including VAT). After deducting expenses of the auction arrangement, the Office of the NBTC will submit the money from auction to the Digital Development Fund for Economy and Society and Ministry of Finance as state revenue. Also, the NBTC Meeting has its resolution to approve the license to use the spectrum in the frequency band of 1800 MHz to Advance Wireless Network Company Limited being effective from 15 September 2018 to 24 September 2033, and DTAC Trinet Company Limited being effective from 16 December 2018 to 15 September 2033.

3. Arrangement of spectrum auction in the frequency band of 900 MHz

The NBTC had organized the spectrum auction in the frequency band of 900 MHz according to the NBTC Notification on Criteria and Procedure for the Licensing to Use Spectrum for Telecommunications Service in the frequency band of 890 - 895 MHz/935 - 940 MHz on 28 October 2018. The result of the spectrum auction in the frequency band of 900 MHz which is the radio frequency in the range of 890 - 895 MHz coupled with 935 - 940 MHz of 2 x 5 MHz and the winner was DTAC Trinet Company Limited who bided for a total price of 38,064 million baht.

For the payment of the spectrum auction in the frequency band of 900 MHz has been divided into 4 instalments as follows: the payment of the 1st instalment is 4,020 million baht, the 2nd instalment is 2,010 million baht the 3rd instalment is 2,010 million baht, and the 4th instalment is 30,024 million baht. The DTAC Trinet Company Limited has already paid the 1st instalment to the Office of the NBTC at the total amount of 4,301.40 million baht (including VAT). After deducting expenses of the auction arrangement, the Office of the NBTC will submit the money from auction to the Digital Development Fund for Economy and Society and Ministry of Finance as state revenue. Also, the NBTC Meeting has its resolution to approve the license to use the spectrum in the frequency band of 900 MHz to DTAC Trinet Company Limited being effective from 16 December 2018 to 15 December 2033.

4. The refarming of unused or unworthy use frequencies to be more worthwhile

The NBTC has issued the Notification on Criteria, Procedures and Conditions for Refarming the Unused or Unworthy Use Frequencies to be more worthwhile, which has been published in the Royal Gazette on 27 November 2018 to support the efficient frequency management of the NBTC by revoking the assigned frequency to re-assign so that the utilization of the frequency can be done for the maximum benefit of the public. The notification has also prescribed guidelines for repayment, reimbursement, or compensation for those whose frequency has been revoked by taking into account the rights of those who have been affected by the frequency revoking. In addition, to implement the said notification, the NBTC has appointed a working group on frequency refarming with the power and duties to prepare a report of the analysis of the frequency refarming, formulate the frequency refarming plan, support the study of spectrum evaluation and coordinate with relevant agencies. The working duration of the working group was 30 days before the implementation of the process of frequency refarming.

5. Implementation of the project on the provision of mobile signal and broadband service in the border areas

The NBTC has signed in the contract for project on the provision of mobile signal and broadband service in the border areas (USO Net) on 28 September 2017 for supporting the government's policy in the expansion of mobile signal network and broadband service to cover all villages throughout the country. The project area covers 3,920 villages with the 2.1 million households or 6.3 million population. The project is now in the process of implementation according to the contract, and the service will be officially launched at the same time throughout the country on 1 May 2019.

The service under the USO Net project consists of the public free WiFi in the community and government agencies locating in areas of targeted villages for 5,229 points which is divided into 3,149

villages; government agencies consists of 1,210 schools and 107 Sub-district health promoting hospitals including 763 Centers of USO Net. The people will receive and use the service under the USO Net project for free of charge for 5 years. Besides, when the USO Net service has been provided, people in the project area who want to use the broadband service at 30/10 Mbps at their own households shall be able to contact the service provider for the service at 200 baht per month (starting from 1 May 2019 - 30 April 2024). However, although the Office of the NBTC has set the fee for internet service at 200 baht per month, it is found that the fee still be an obstacle to households with low income in the access to broadband service in the household level. From the result of data surveyed based on social basis, it is found that among all population in the area of the USO Net project, more than 600,000 households approximately are categorized in the group of the people with low income, or accounting for 1.8 million population. In order to reduce inequality and expand opportunities to the households with low-income in the area of USO Net project areas to access and use broadband services thoroughly and equally, be able to access to services provided by the government such as distance learning, telemedicine, etc., which will be the returning of happiness to the people according to the government's policy, the NBTC therefore has the resolution to carry out the "Measures to support the cost of connection to broadband service for low-income households having registered under the State Welfare Registration Project 2017".

The Office of the NBTC will support the cost for the use of internet service at the speed of 30/10 Mbps for 36 months starting from 1 May 2019 - 30 April 2022 and the Office of the NBTC will inform the 600,000 households in the area of the project by letters during 16 January 2019 - 15 March 2019 and request them to submit evidence confirming the request for obtaining their rights to the Office of the NBTC through 2 channels: (1) postal channels (2) electronic channels: USOFREENET@nbt.go.th, without any charge.

6. Revising the notifications and criteria concerning mobile phone registration with identity methods

The NBTC has expedited the enhancement of understanding of mobile phone SIM card registration with identity methods to people and accelerated the expansion of service points for SIM card registration to cover all areas continuously. Since the Office of the NBTC's Notification regarding the Data Storage and Details about Mobile Phone Subscribers with Identity Methods (No.2) has become effective, all mobile phone operators must provide the identity registration to prepaid mobile phone subscribers through fingerprint or face recognition method at every service point starting from 1 February 2018 onwards. In 2018, the NBTC had carried out campaign activities for the registration of SIM cards with 2-Shae with identity method in various provinces such as Khon Kaen, Chiangmai, Chonburi, and Songkhla, etc., including having drafted the Notification on Mobile Phone Service Subscribers' Registration and Data Storage in order to improve the rules and regulations to be distinct in the registration and data storage of mobile phone users to the same standard both post-paid and pre-paid systems. The draft notification has been approved by the NBTC Meeting on 14 February 2018 including the approval to assign the Office of the NBTC to organize a meeting for public hearings and a focus group meeting on the (draft) NBTC notification in which the Office of the NBTC had already reported the result of the meetings to the NBTC for acknowledgement. The NBTC has defined the measure for supervising the registration of mobile phone subscribers and the number of SIM card possession and held 4 meetings with the mobile phone service providers to notify the above-mentioned measure. The formulation of the draft NBTC Notification on Mobile Phone Service Subscribers' Registration and Data Storage will result in the more accurate data storage of mobile phone users and reduction of the forgery of subscribers' registration meanwhile the regulatory process of the operation of mobile service

providers will be created to be modern and more efficient which, in the end, will push forward the telecommunications industry to be able to manage data of service users efficiently. In 2019, the NBTC will further develop the data storage of mobile phone subscribers in order to verify and authenticate the identity in electronic form via mobile phone to be more concise and effective.

7. Supporting government's policy in promoting electronic financial transactions

The NBTC has collaborated with the Bank of Thailand for the operation to upgrade the level of regulation for ensuring consumers of the use of PromptPay service. In 2018, the NBTC had pushed forward the operation on data linkage between the mobile service providers and financial institutions for the provision of PromptPay service and other financial transaction to support the government's policy that focusing on promoting electronic financial transactions to be a mechanism to drive Thailand towards the goal of becoming a cashless society. The PromptPay system requires mobile number information to register for subscribing the service including receiving and transferring money through the use of a mobile phone number. The Office of the NBTC and the Bank of Thailand as the regulators, therefore, have played an important role in encouraging the collaboration between mobile service providers and commercial banks to assure the people of the convenience and secure of electronic payments via the PromptPay system as well as being witnessed the signing ceremony of the Memorandum of Understanding regarding the receipt and transfer through PromptPay system between Thai Bankers Association and the Telecommunications Association of Thailand under the Royal Patronage of His Majesty the King and Thai Bankers Association on 2 May 2017. Later, on 10 October 2018 the mobile service providers and commercial banks had signed a Memorandum of Understanding on the verification of mobile phone numbers for the provision of PromptPay service in order to develop techniques for verifying ownership of mobile phone numbers when applying for service to be more conveniently and securely.

On 1 November 2018, the Office of the NBTC, Bank of Thailand, Thai Bankers Association, and the Telecommunications Association of Thailand under the Royal Patronage of His Majesty the King had jointly announced the progress of the achievement of the agreement between 20 financial institutions with 6 mobile service providers of the verification of the ownership of mobile phone numbers which is an upgrading of using the USSD code *179 by adding the reference code and direct linkage between the financial institution's data exchange center and mobile service providers during the PromptPay registration process which makes the PromptPay registration more secure and convenient. The system will be available from 1 January 2019 onwards.

This operation will help support and promote electronic financial transactions through the PromptPay system to be more secure as well as supporting the continuous expansion. At present, it is found that the number of subscribers registered with mobile phone numbers is over 16 million numbers, with a total transaction value of more than 3.9 trillion baht; while the amount of transfer per time is about 5,100 baht. Such cooperation is considered the first collaboration between industries where the private sector has connected and exchanged data in concrete way and, as a result, people will get benefits in wider areas. The NBTC will also develop and extend the cooperation to other areas to further drive the digital economy and Thailand 4.0.

8. Support on the provision of Internet of Things service

The NBTC has realized the importance of the change of technology especially the Internet of Thing (IoT) technology, which affected the changes of the communications industry, business industry, and other services as well as the way of life of people. The Office of the NBTC has thus appointed a committee to set up guidelines for regulating the Internet of Things (IoT) on 4 April 2018 as well as other related working groups as follows:

(1) A working group on numbers and identification to study and prepare recommendations

regarding the use of numbers and identification for IoTs service provision.

(2) A working group on spectrum and technical standards to study and prepare recommendations regarding spectrum and technical standards for IoTs service provision.

(3) A working group on licensing and competition to study and prepare recommendations regarding the licensing, competition and other regulation concerning IoTs.

(4) A working group on security and privacy to study and prepare recommendations regarding security and privacy of the users of IoTs, and

(5) A working group on data management to study and prepare recommendations regarding data management arising from IoTs service. At present, the Office of the NBTC is in the process of studying and preparing the draft notification, criteria, manuals, rules and regulations which will affect the regulation, as well as encouraging the development of Internet of Things technology and preparation for supporting the technology to be developed in the future.

9. Building the right knowledge and understanding of the public about the effects of electromagnetic radiation from mobile phone base station on the safety of human health

According to the government's policy on country development towards economy and society system, the NBTC had set up the plan for the provision of universal telephone and broadband services. To implement the plan, the NBTC has driven the expansion of mobile phone network to cover all areas across the country to support communication and information access of people. However, It is well known that mobile phones shall not work without the support of mobile phone base stations. Therefore, the mobile phone base stations are installed everywhere in the area where people live.

Base station consists of antenna, supporting structure for antenna installation, radio transmitter, radio receiver, and coaxial cable. Examples of supporting structure for antenna installation include plumbing tanks, construction (buildings), mobile phone towers, high voltage transmission pole, street

light pole, etc. The antennas of the base station will emit low level of electromagnetic fields of radio frequency to send data to mobile phones. However, people living in communities and nearby where the base stations will be installed are concerned about the health effects of exposure to electromagnetic fields of radio frequency emitting from the antenna of the base stations. Such concerns arose after people have received information that electromagnetic fields can cause illness and be at risk to developing cancer and those public concerns lead to the complaints to the Office of the NBTC and local agencies and/or the administrative court. In some cases, complaints have been made through public media and in the year 2018, the Office of the NBTC had received 180 complaints requesting for the resolution to the concerns about the base stations which the Office of the NBTC has proceeded as follows:

(1) Randomly measure the strength of electromagnetic fields of radio frequency from mobile phone base stations nationwide.

The NBTC has randomly measured the strength of electromagnetic field of radio frequency from mobile base stations nationwide to build confidence for people in the areas. From the survey of base stations both in Bangkok and provincial areas, it is found that the strength of the electromagnetic field is hundreds of times lower than the safety standard. The random measurement of the strength of electromagnetic field of radio frequency from mobile base stations has been done according to the NBTC Notification on Criteria and Measure for the Regulation of Safety on Human Health from the Use of Radiocommunications Devices in which the Office of the NBTC has taken from the Guidelines³ developed by International Commission on Non-Ionizing Radiation Protection (ICNIRP). The ICNIRP's recommendations are the standard designed by using scientific study results that have already been confirmed and proven. At present, the ICNIRP is in the process of

revising recommendations for the exposure to electromagnetic field of radio frequency and the Office of the NBTC is following-up the progress of this issue and will consider revising the relevant notifications after the ICNIRP has already published the revised recommendations which is expected to be in the year 2019.

(2) Enhancing knowledge and understanding of people of the necessity to expand mobile phone networks including having required operators to make people understand.

The NBTC has published documents in the form of brochures, journals and academic documents to disseminate to people and interested persons. The information in these documents were taken from the conclusion of the neutral and reliable agencies in presenting facts to the public, such as the World Health Organization, international organization for cancer research, international organization that develops safety standards for electromagnetic field exposure and health agencies in many countries. In addition, the NBTC organized seminars to enhance knowledge of the public, citizen network, government agencies, and local administration in every region, every year continuously since 2015 onwards about the expansion of the mobile phone networks and the safety standards for the use of radiocommunications devices presenting by speakers from the Office of the NBTC, Department of Disease Control and Department of Medical Sciences (Ministry of Public Health).

For the operators, before installing the base stations, they have to make the people living in the community and nearby the venue to the install base stations understand in accordance with Article 12.5 of the NTC Notification on Criteria and Measure for the Regulation of Safety on Human Health from the Use of Radiocommunications Devices to build confidence in the safety of wireless communication technology and reduce concerns and anxiety of the public. The meetings

³ International Commission on Non-Ionizing Radiation Protection (ICNIRP), "Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz)," Health Physics, Vol. 74, No.4, pp. 494-522, 1998. Searching from <https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf>

to be organized to make people understand must participate by local leaders (such as village headman, sub-district headman, community president, chairman of housing estate juristic persons), local leaders (such as district director, sheriff, president of the district administration organization, mayor, president, provincial administrative organization), government officers or representatives from the Office of the NBTC. The operators must attach pictures and evidence of the meetings for making people understand to the application for the license to install radiocommunications base station from the Office of the NBTC⁴.

(3) Seeking opinions of the World Health Organization regarding the safety of the exposure to electromagnetic fields from mobile base stations.

The Office of the NBTC had a letter dated 29 October 2018 to seek the opinions from the World Health Organization regarding the safety of the exposure to electromagnetic fields from base stations and received a letter dated 6 November 2018 from Dr. Emilie van Deventer, Head of the Radiology Department, World Health Organization⁵, which part of the letter referred to the following documents and journals:

- Basic information of the World Health Organization on “Electromagnetic fields and public health: Base stations and wireless technologies” which stating in the conclusion that “when considering the level of exposure [electromagnetic field strength] that is very low and the research results having been collected until today, there is no reliable scientific evidence that the weak radio frequency signal from base stations and wireless networks cause adverse health effects.”

- Journals publishing in the World Health Organization’s Journal recently, in which one part of the conclusion had been translated into Thai that, “In sum, our review [of scientific literature]

does not indicate the connection between any health results and the exposure to electromagnetic fields from MPBSs [mobile phone base stations] at levels that are often found in people’s daily lives”.

The key point in the response letter is that the World Health Organization has continuously followed-up the researches on electromagnetic fields and health by carrying out activities under the International EMF Project which was established in 1996. In the area of electromagnetic fields of radio frequency from base stations, the letter indicated that “until now the scientific evidence has not showed the risk of adverse health effects from mobile base stations, and the above conclusion is still valid”.

(4) Resolving complaints about the installation of mobile base stations near the residence.

For the resolution of the complaints on the public’s concerns about the effects on health from the installation of base stations near the residence, the NBTC will examine the application for a license to install radiocommunications stations if it is legally. If the radiocommunications stations are installed without approval, the operators will be legally punished according to relevant laws. In the case that the operator is granted the license to install the radiocommunications stations a legitimate radiocommunications station, the NBTC will send officials to take field operation randomly in the area to measure the strength of the electromagnetic field of radio frequency if it is accordance with the criteria specified in the NTC Notification regarding Criteria and Measure for the Regulation of Safety on Human Health from the Use of Radiocommunications Devices. If it is found that the strength level of electromagnetic field of radio frequency exceeds the standard criteria, the Office of the NBTC shall issue an order to the operator to improve the strength level to be in line with the standard criteria.

⁴ From the Office of the NBTC Notification on Guidelines for making people understand about the installation of radiocommunications base stations according to the NTC Notification on Criteria and Measure for the Regulation of Safety on Human Health from the Use of Radiocommunications Devices, Article 12.5, the Office of the NBTC, 2018. Searching from <https://www.nbtc.go.th/Business/commu/radio/licensing.aspx>

⁵ From the explanation attached to the official correspondence letter between the Office of the NBTC and World Health Organization regarding the mobile phone base station and health (p.5-10), The Standard and Telecommunication Technology Bureau, 2018. Searching from <http://www.nbtc.go.th/News/Information/36118.aspx>

However, from past examination, there is none of base station that emits electromagnetic fields of radio frequency exceed the benchmark. In case of a dispute or dissatisfaction of people on the installation of base stations nearby the residence, people are able to exercise their rights to file complaints to the NBTC for investigation or prosecution at the administrative court which is the basic right of the people.

Moreover, the NBTC has encouraged operators to install base stations with low transmission capacity and cover smaller-size of service areas as well as encouraging operators to use the supporting structure for co-installing antennas to help reduce the number of mobile phone towers and make a better landscape. Also, there are operators in order to reduce the number of mobile signal transmission tower and a better line of sight. At present, several operators have shared the supporting structure for antennas installation.

10. Installation of the Overhead telecom and broadcast cables underground

The Office of the NBTC, in collaboration with Metropolitan Electricity Authority, Bangkok, Royal Thai Police and TOT Public Company Limited has carried out the organized and installed of overhead telecom and broadcast cables underground since the year 2016 onwards to improve the laying on the mess electricity poles in Bangkok to be orderly by installing overhead telecom and broadcast cables underground. This will help create a beautiful scenery, increase the safety of life and property of people and encourage the telecommunications infrastructure sharing for the utmost benefit to the nation. In 2018, the NBTC has completely installed the overhead telecom and broadcast cables in Bangkok area underground for totally 23 kilometers as follows:

2019

Having planned to bring the communications lines underground in the following routes:

- **Soi Nana**
(from Sukhumvit Road to Saen Saep Canal, not cross the canal)
- **Sathupradit Road**
(Thanon along Chaleram Maha Nakhon Expressway to Soi Sathupradit 12)
- **Soi Sawang Arom**
(Soi Sathupradit 19 from Sathupradit Road to Narathiwatratchanakharin Road)
- **Wireless Road,**
- **Phra Chan Road,**
- **Phetchaburi Road**
(From Yommarat intersection to Uruphong intersection)
- **Nakonsawan Road**
(From Commercial Phra Nakhon Intersection to Phadung Krung Kasem canal)



2018

Having completely installed the Overhead telecom and broadcast cables in Bangkok area underground at the total distance of 23 kilometers as follows:

- **Phaholyothin Road**
(from Ladprao intersection to Victory Monument)
- **Pradipat Road**
(from Pradiphat intersection to Saphan Khwai intersection)
- **Ratchawithi Road**
(From Tuek Chai Intersection to Victory Monument)
- **Yothi Road**
(from Soi Soarak to Rama VI)
- **Yothi Road**
(from Phayathai Road to Soi Senarak)
- **Phayathai Road**
(from Victory Monument to Pathumwan intersection)
- **Sri Ayutthaya Road**
(from the Office of the Higher Education Commission to Phayathai Police Station)
- **Ayutthaya Road**
(from Phayathai Road to Ratchaprarop Road)
- **Ratchaprarop Road**
(from Ayutthaya Road to Pratunam intersection)
- **Chitralada Project**
(from Phanitchayakan Intersection to Yommarat intersection)
- **Petchaburi Road**
(from Banthat Thong intersection to Uruphong intersection)
- **Petchaburi Road**
(from Phayathai Road to Banthat Thong Road)
- **Rama I Road**
(from Phayathai Road to Saphan Kasatsuek)
- **Sukhumvit Road**
(from the railway to Soi Sukhumvit 71)
- **Ratchadamnoen Nok Road**
(from Phan Fa Lilat Bridge to Makkhawan Rangsang Bridge)

11. Establishment of the Center of Operational Policing for Thailand Against Intellectual Property Violations and Crimes on The Internet Suppression (COPTICS)

The NBTC, in collaboration with the Royal Thai Police, has established Center of Operational Policing for Thailand Against Intellectual Property Violations and Crimes on the Internet Suppression (COPTICS) at the Office of the NBTC on 18 December 2018 to reduce

the process of suppression of intellectual property violations and facilitate those who have been affected by the copyright infringement of online goods selling products. The operating process can be reduced for blocking the access to URL or illegal website from no less than 6 months to only 1 - 2 days according to the government's policy due to complaints received from many countries about the copyright infringement of online goods selling products.

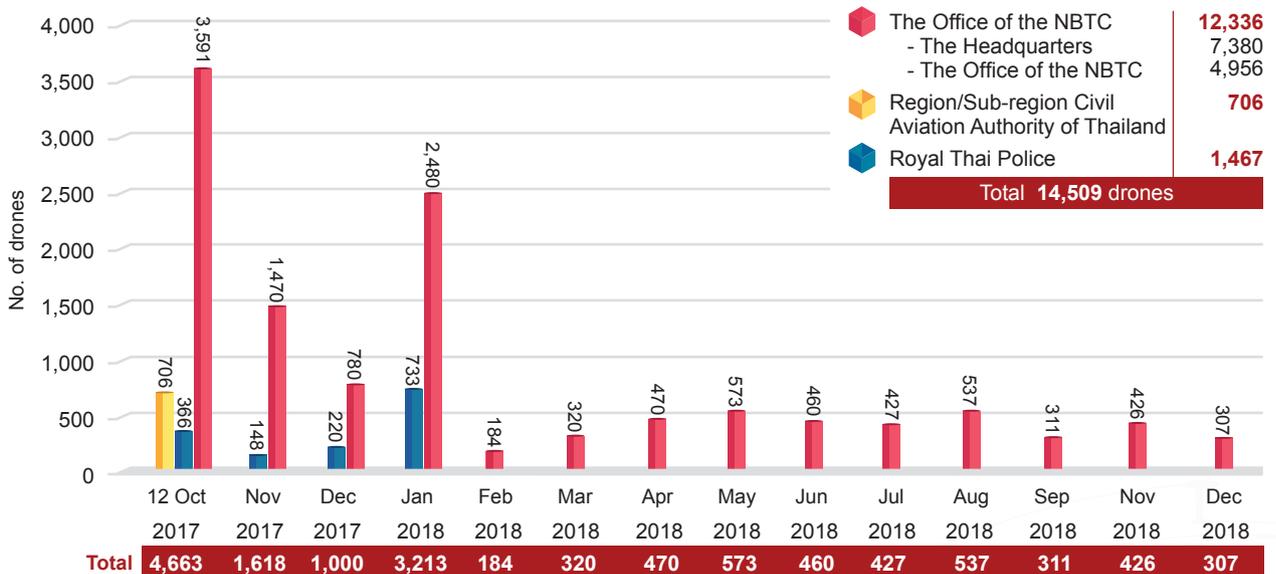
12. The Auction of Beautiful Numbers of Mobile Phone Numbers

The NBTC has focused on the resources management of telecommunication numbers to be sufficient for the needs of the industry and response to the change of technology and encourage the efficient and worthy use of telecommunication numbers in order to provide opportunities for people to access to beautiful numbers equally and thoroughly. In 2018, the NBTC had organized the auction of beautiful numbers of mobile phone service on 27 May 2018 and the revenues from the auction was 14,654.771 million baht (including VAT). From the year 2016 - 2018, the NBTC had organized 5 auctions of beautiful numbers and the revenue from the auction was totally 268,318.644 million baht (including VAT) in which the NBTC will further deliver the revenue of the auction after deducting expenses as state revenue.

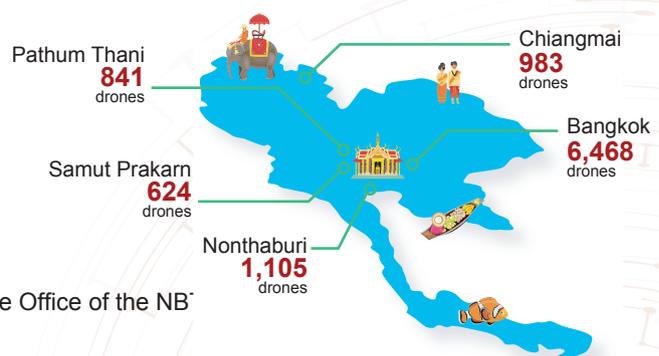
13. Regulation of radiocommunications devices to be used in the unmanned aerial vehicles which are remotely controlled from outside (Drone)

The NBTC has issued the NBTC Notification on Criteria and Condition for the Licensing to Use Frequencies for the Unmanned Aerial Vehicles for General Use, publishing in the Royal Gazette on 18 January 2018. The notification prescribed that people shall register for drone possession only with the Office of the NBTC in order to facilitate the people and reduce confusion for the registration of drones possession in several departments. For the registration of drone controller, it can be made at the Civil Aviation Authority of Thailand (CAAT). From 12 October 2017 to 1 November 2018⁶, the number of drone possession registered with the office of the NBTC was totally 14,509 drones and the top five areas where people registered for drone possession consist of Bangkok, Nonthaburi, Chiangmai, Pathum Thani and Samut Prakan.

Summary of drones registration during 12 October 2017 - 30 November 2018



The top-five provinces of drone registration



*The ranking is the data of drone registration made to the Office of the NB

⁶ Data as of November 2018

14. Preparation for 5G technology

The NBTC has prepared for supporting the provision of telecommunications service according to the government’s policy on driving Thailand into 5G technology by having signed a Memorandum of Technical Cooperation with Chulalongkorn University for the establishment of the 5G Testing Center on 11 December 2018 for the establishment of the 5G Testing Center in Chulalongkorn University for 2 years for conducting the study, test and check of the availability of equipment and systems including services related to 5G technology such as connection device of Internet of Things (IoT), Big Data storage and analysis system, Intelligent Transportation System (ITS), Telehealth system, etc., The technical cooperation will cover the exchange and enhancement of knowledge, experiences and academic information for developing knowledge on 5G technology between personnel of both parties. Also the service from the operation of the center will be developed to be a pilot service for offering to the public.

Moreover, the Office of the NBTC has set up a Working Group to set up licensing criteria and procedures to use the spectrum in the frequency band of 700 MHz on 12 December 2018 in order to set up licensing criteria and procedures to use the spectrum for telecommunications service in the frequency band of 700 MHz and Radio Frequency Plan for International Mobile Telecommunications (IMT) in the frequency band of 700 MHz, as well as prepared for the frequency allocation to be in order.

15. Consumer Protection in Telecommunications Service

The NBTC has encouraged the use of technology and innovation to increase the efficiency of consumer protection. In 2018, the applications have been developed as follows:

(1) The NetCare application, which is an application used by parents to control the internet access of children to prevent problems from internet addictions and the use of internet in the wrong way. The application consists of 4 main functions as follows: 1) Determining the duration of internet use by setting the number of hours needed

to use during the day 2) Setting the duration of internet use by specifying the period of time that the internet can be used 3) Suspending the use of some applications, and 4) Suspending the use of internet immediately. Also, there is an SOS button in case of emergency. When using the app, it will immediately contact the parent and sending the current location to the email that the parent has registered which will be useful for increasing the safety of the family’s members.



(2) The MoCheck application, which is the application to facilitate consumers to search for information on telecommunication equipment that has been approved of the standard, and to enable consumers to be safe from the use of telecommunication devices.



(3) The O-liang application, which is an application that provides a channel for sharing knowledge and experiences and notifying news and information and various Important activities in telecommunications for the staff of the Office of the NBTC and outside people.

Regulation on the broadcasting and television services

In 2018, the NBTC had implemented the policies in broadcasting and television services as follows:

1. Supporting television business operation

(1) Having supported the digital terrestrial television operators according to the Order of the Head of National Council for Peace and Order No.76/2016 on the measure for supporting the broadcasting, television and telecommunications business operation for public benefit which has become into forced since 20 December 2016. Since the digital terrestrial television business operation has a various forms of competition which results from the advancement of technology coupled with the impact of the national economic conditions that affects the income of honest operators, this made them unable to pay the license fee to use spectrum within the specified period within the time required. At the same time, the encouragement of people to be able to access and perceive an accurate, complete and various information is also important both in maintaining order and national security. Therefore, it is necessary to have measures to promote the efficiency of the industry and create stability for the national economy. In summary, the past operations are as follows.

- Having extended the payment period of the license fee to use the spectrum for the provision of digital terrestrial television service in category of commercial service in national level. If any licensees to use spectrum is unable to pay for the license fee as prescribed by the criteria, they can notify the Office of the NBTC by letter and if the Office of the NBTC has considered it appropriate that licensee will be able to extend the period of fee payment which according to the Order of the Head of the National Council for Peace and Order No. 76/2016, the period of license fee payment can be extended for the rest (from the 4th instalment onwards) by separating the payment of the remaining minimum price of 10 percent into 2 instalments, while the fee of the exceed of minimum price of the rest of 60 percent shall be divided into 6 instalments in order to help ease the burden

of digital TV operators to relieve the burden of the remaining spectrum auction payment of the honest business operators but getting affected by the economic and social conditions. At the end of 2018, the Office of the NBTC had considered the approval for the licensee who submitted the request for paying the remaining license fee from the 4th period onwards according to the criteria, methods and conditions set forth in the statement attached to the Order of the Head of the National Council for Peace and Order No. 76/ 2016, for 16 companies, at the total of 19 licenses.

- Supporting the cost of the satellite television signals transmission in general service provision in accordance with the NBTC Notification on Criteria for Television Broadcasting in General Service for a 3-year period starting from 20 December 2016 - 19 December 2019. As of 31 December 2018, the Broadcasting and Telecommunications Research and Development Fund for the Public Interest had already provided the financial support of a total of 622.165 million baht.

(2) Having supported the digital terrestrial television business operators according to the Order of the Head of the National Council for Peace and Order No.9/2018 on Measure to Relieve the Impact on Broadcasting and Television Operators which has become effective since 23 May 2018 to provide assistance to the operators who got affected by the economic and social conditions that tend to cause more serious problems due to business competition. In addition, the media consumption behaviour of the people has changed due to a result of the rapid change beyond the expectations in communication technology and telecommunications, including to prevent the impact on the access to and receipt of information, and the learning for the development of quality of life, the NBTC thus issues the measures to assist the broadcasting and television operators to operate and pay for license fees to use the spectrum on the basis of reality in society. The operations can be summarized as follows:

- Having suspended the payment of license fees to use spectrum which the Office of the NBTC considered of the approval for the licensees who had requested to exercise their rights to suspend the payment of license fees under the Order of the Head of National Council for Peace and Order No.9/2018 for 16 companies (19 licenses) to be able to suspend the payment of license fees to use spectrum of the rest instalments from the year 2018 onwards for 3 years starting from 23 May 2018. However, there were 3 licensees (3 licenses) who have not applied for the payment of license fees according to the criteria, methods and conditions prescribed in the list attached to the Order of the Head of National Council for Peace and Order No.76/2016 and the suspension of the payment of license fees the Order of the Head of National Council for Peace and Order No.9/2018.

- Supporting the rental fee of the digital terrestrial television frequency-used network (MUX) to the licensees of digital terrestrial television operators at the rate of 50 percent of the network rental cost for 2 years starting from June 2018 - May 2020. On 31 December 2018, the NBTC had already supported the network rental fee to operators for the amount of 312.550 million baht. In addition, in 2018 the NBTC had adjusted the rates of rental fee for digital terrestrial television networks to be in line with the cost of service provision and be reasonable and fair to service providers and network service providers according to Section 42 of the Broadcasting Service Act B.E. 2551 and the NBTC Notification on Guideline for the Regulation of Service Rate in Broadcasting and Television Service. The said rates will be applied for 2 years in order to be in accordance with the practical guideline for the support of the network rental fee under the Order of the Head of National Council for Peace and Order No.9/2018 by reducing the rate of network rental fee at 22 - 26 percent.

(3) Improvement of annual license fee of television business

The NBTC has improved the annual license fee of television business to be suitable for the changing environment of the industry and increasing the chances of survival of the television business in overall by issuing the NBTC Notification on License Fees of Broadcasting or Television Service (No.3) which published in the Royal Gazette on 9 February 2018. The essence of the notification is to review the rate of license fees of broadcasting and television business to be the same rate as the annual license fees for telecommunications businesses and be in line with the technology convergence and the regulatory convergence of the broadcasting and telecommunications services by calculating the fee in progressive rate with multi-tier distribution of the proportional income to 7 tiers. Details are as shown in Table 1.

Table 1 : Rate of annual license fees of television service

Revenue	Progressive rate of fees
Income 0 - 100 million baht	0.125 percent
Exceed 100 - 500 million baht	0.25 percent
Exceed 500 - 1,000 million baht	0.50 percent
Exceed 1,000 - 10,000 million baht	0.75 percent
Exceed 10,000 - 25,000 million baht	1.00 percent
Exceed 25,000 - 50,000 million baht	1.25 percent
Exceed 50,000 million baht	1.50 percent

In this regard, the licensees existing on the date of this notification comes into force shall pay the annual license fees in accordance with the rates and criteria prescribed in this Notification for the annual license fee payment that is made to the licensee's accounting period or the ending date of the business operation or the license is revoked, from 31 December 2017 onwards.

(4) Consideration of problem resolving of digital terrestrial television operators in long term

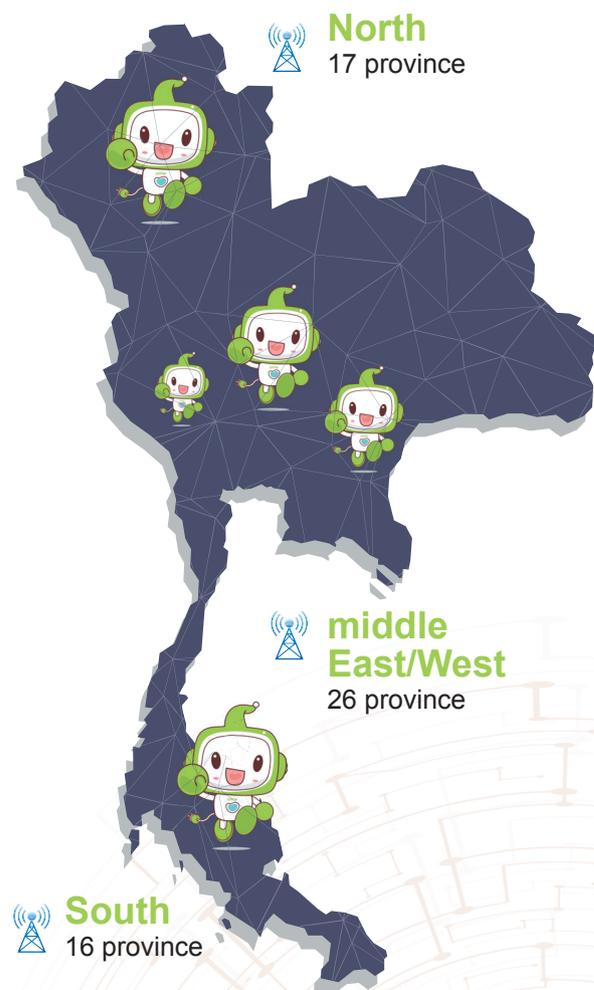
The NBTC aims to resolve problems and promote digital television operations in Thailand to support the stable growth by establishing 2 working groups in 2018 which consisted of 1) The working group to resolve problems and promote digital television operations in long term with the objective to seek measures to assist the digital terrestrial television operators who got impacts from economic and social situation, business competition that is likely to cause more serious problems as well as the result of rapid technological changes, and 2) the working group to set up the practical guideline for the broadcasting of important television programs and general television programs with the objective to gather facts and problems of the digital terrestrial television operators and non frequency-used television network service providers to comply with the NBTC Notification on the Public Broadcasting Television Service (Notification on Must Carry) and the NBTC Notification on Criteria for Broadcasting of Important Television Programs Only in the Must Carry Service B.E. 2555 (2012).

The working groups had organized meetings for discussion and gathering comments and suggestions from stakeholders, and summarized the results of the consideration for the problem solving and promotion of digital terrestrial television operations in long term, such as accelerating the improvement of the use of frequency in the band of 700 MHz to be used for the utmost efficiency, supporting the operation of digital terrestrial television operators in terms of costs arising from compliance with the Must Carry Notification and the cost of broadcasting through digital terrestrial television networks, etc.

(5) Conducting public relations and campaigns for enhancing knowledge and understanding of people and supporting the transition to the viewing of digital terrestrial television continuously.

The NBTC had conducted public relations and campaigns for enhancing knowledge and understanding of people and supporting the transition to the viewing of digital terrestrial television continuously in 2018 as follows:

- Project on campaigns for the transition to the viewing of digital television and terminating of watching analog television under the concept of “Joining the transition to digital TV, with clear and high definition, free viewing, throughout Thailand”, with the view to encouraging the public to be alert and have an understanding of the termination of analog terrestrial television and seeing the need to switch over to viewing digital terrestrial television. The activities had been done during February to May 2018. Details are as shown as follows:



- North Region for 17 provinces. The mobile forums were organized to build knowledge and understanding of people as well as the field operation to community areas to provide knowledge by introducing and distributing brochures, producing radio spots in 3 local languages and broadcasting on the top ten radio stations in the North covering 17 provinces and outdoor media.

- Central Region, East Region and West Region for 26 provinces. The activities consisted of a production of radio spots, production of script, production and dissemination of news documentaries or special reports, production and distribution of special interview programs, production of logo, campaign on the transition showing on the announcers' table during news period and TV programs, production and dissemination of journals in the Department of Public Relations journals, publication of the banner Nong Doo Dee via social media and production and installation of vinyl banner signs.

- South Region for 16 provinces. The activities consisted of taking field operation to disseminate knowledge and information; organizing trainings on the installation of terrestrial television reception equipment to vocational college students; organizing mobile forums, such as walking campaigns, discussion seminars, demonstration of equipment installation for TV viewing, distribution and installation of fishbone antennas to receive terrestrial television signals in a digital system for people, distribution of set-top-boxes and antennas for government agencies that providing service to people, and providing tuning services of digital TV and set-top-boxes for the viewing of people.

- Implementation of the project for publishing the TV Guide and contents which is useful for the viewing of digital television of people with the objective to encourage people to recognize the TV Guide of digital terrestrial television channels and useful content for watching which is to create additional channel to reach people directly as well as to acknowledge movements occurring in the digital television. The TV Guide was published in the form of a journal under the title "Digital TV Guide

by NBTC" and distributed to target groups in the areas of BTS, MRT, office buildings, private companies, government agencies and community sites for a journal per month in a period of 12 months starting from August 2017 - July 2018. This included disseminating and publicizing through various social media channels.

2. Consumer protection in broadcasting and television services

In 2018, the NBTC had cooperated with the Food and Drug Administration (FDA) in monitoring illegal contents and advertising on radio and television media in order to solve the problem of advertising food, medicine and health products that are exploiting consumers including other actions for protecting consumers as follows:

(1) Developing consumer strength and enhancing knowledge and understanding, knowing the deceptive advertising or causing misunderstandings about the services or products.

The NBTC had carried out activities under the Broadcasting Master Plan to enhance consumers' knowledge and understanding and knowing of the deceptive advertising so that the consumers are able to protect their rights. The implementation also supports and conforms to the goals of the National Reform Plan in mass communication and information technology that aims to enhance knowledge of people through various processes. The activities of the NBTC for enhancing people's knowledge and understanding included the issues of advertising on food, drugs and health products such as organizing seminars to raise consumers' awareness of rights and radio-television media in cooperation with the network of educational institutions in regional areas so that teachers and activists are able to develop concepts and contents for teaching and learning and apply such concepts and contents to enhance knowledge, understanding, and knowhow of the target groups for being able to prevent and protect themselves at first hands or transferring knowledge to society or participating in a network of advertising watch, reporting clues, or filing complaints to the Office of the NBTC.

(2) Developing and enhancing capabilities of people in media literacy

The NBTC had carried out activities to develop and enhance the capability of people in media literacy which is consistent with the National Reform Plan in mass communication and information technology as follows:

- Encouraging the application of radio-television media literacy in higher education by having cooperation with 13 academic institutions in 4 regions for organizing workshops to enhance knowledge, and understanding of techniques or methods on media literacy of academic personnel in higher education in areas of Mass Media or Mass Communication, Science of Education or Education Science so that they are able to apply the contents or texts concerning media literacy to their teaching and learning preparation effectively. The NBTC had also encouraged the 13 higher education institutions/universities to provide teaching and learning courses on integrated media literacy in Mass Media or Mass Communication and Science of Education or Education Science appropriately.

- Enhancing media literacy in 36 institutes of non-formal education system by organizing workshops to exchange knowledge and learning and encourage the participation in promoting radio-television media literacy with domestic educational institutions in order to upgrade the driving of activities for promoting and supporting the development of the public's capability on media literacy in broadcasting and television services.

- Having cooperation with the network of educational institutions for organizing 4 meetings to raise awareness of people's rights, knowing radio and television media in the area of the network of educational institutions in Chiang Mai, Nakhon Phanom, Nakhon Si Thammarat and Bangkok.

- Gathering knowledge body about consumers' right in radio-television media and providing channels for communication and dissemination regarding media literacy in various formats such as Infographic, videos media, journals, etc. This also includes providing a variety of

communication channels to disseminate knowledge and to be teaching materials for educational institutions such as organizing activities in areas of operation, creating Website: <http://bcp.nbtc.go.th/> and Facebook: <https://www.facebook.com/con.rights>

(3) Developing criteria and management of consumer protection in broadcasting and television services

In order to protect the consumers' rights and freedom from being violated and exploited by operators, in 2018 the NBTC has developed the criteria and management of consumer protection in broadcasting and television services as follows:

- Setting the practical guideline concerning consumer protection in broadcasting and television services in accordance with the National Strategy in creating opportunities and social equality to promote fairness and reduce inequality in all dimensions, and be in line with the National Reform Plan in laws to protect consumers' rights from being exploited by operators. The NBTC has approved the determination of the operation of the television licensees who provide non-frequency television network services shall be an action that exploit consumers in broadcasting and television services if the services have been provided by using some special techniques or actions to control consumers to receive a particular channel signal every time the television receiver or receiving device is turned on. Those behaviours are the characteristics that force consumers to receive the services as determined by the licensees inevitably and unreasonably which causing annoyance and restricting the rights of consumers to have a freedom of choice to receive TV channels as well as having issued the Office of the NBTC Notification on the Action considered to be the Exploitation of Consumers in the Broadcasting and Television Services according to Article 5(12) of the NBTC Notification on the Action considered to be the Exploitation of Consumers in the Broadcasting and Television Services B.E. 2555 (2012) (No.4) on 2 November 2018.

- Building knowledge and understanding of operators to deterrent the action of broadcasting and television operators through the process of providing comments and suggestions in the meeting of Sub-committee of consumer protection in broadcasting and television services in order to encourage the development of service provision in broadcasting program or advertising or any actions to avoid the exploitation of consumers in broadcasting and television services.

3. Supporting the quality broadcasting operators for community service

In 2018, the NBTC had carried out activities to encourage communities with the preparedness to be the eligible person to apply for a license for the provision of broadcasting service in a category of community service which is to support the quality broadcasting operators of community service to be a medium for encouraging participation and strengthening a sustainable communities. On 2 October 2018, the Office of the NBTC had held a ceremony of the 1st announcement of the list of quality community radio stations. There were 12 radio stations having broadcasted in a trial operation of the community service (community radio) who passed the examination and received funding from the Broadcasting and Telecommunications Research and Development Fund for the Public Interest (BTFP) according to the NBTC Notification on the Criteria for Promoting Community with the Preparedness and Supporting the Quality Broadcasting Service Operators of Community Service B.E. 2560 (2017) for developing their stations to be a role model for other radio broadcasting operators of community service in the management of stations to be efficient, effective and be useful to people in the community and the country. In the event, there was a clarification about the programs quality and efficiency assessment of the broadcasting operators of community service so that they can understand and be able to comply with the conditions correctly.

4. Promotion and support of personnel development in broadcasting and television services

The NBTC has placed the importance on the promotion and development of the announcers, host of programs, moderators, users of community service media including interested and voluntary individuals to obtain knowledge and experiences in the operation of broadcasting and television business as well as having social responsibility according to professional ethics and assigned the Office of the NBTC to provide training courses on the announcers in broadcasting and television services at 3 levels: basic, intermediate and advanced levels, in 5 subjects consisting 1) General knowledge about broadcasting and television services 2) Related laws 3) Skills development in broadcasting and television services 4) Ethics and code of conduct in the broadcasting and television profession and 5) Standardization of language use, which is in accordance with the NBTC Notification regarding Training and Testing to Receive the Announcer NBTC in the Broadcasting and Television Services B.E. 2556 (2013). Those who have completed all 3-level of trainings will be able to take the test to receive the announcer NBTC and it is certified that those who passed the test will be able

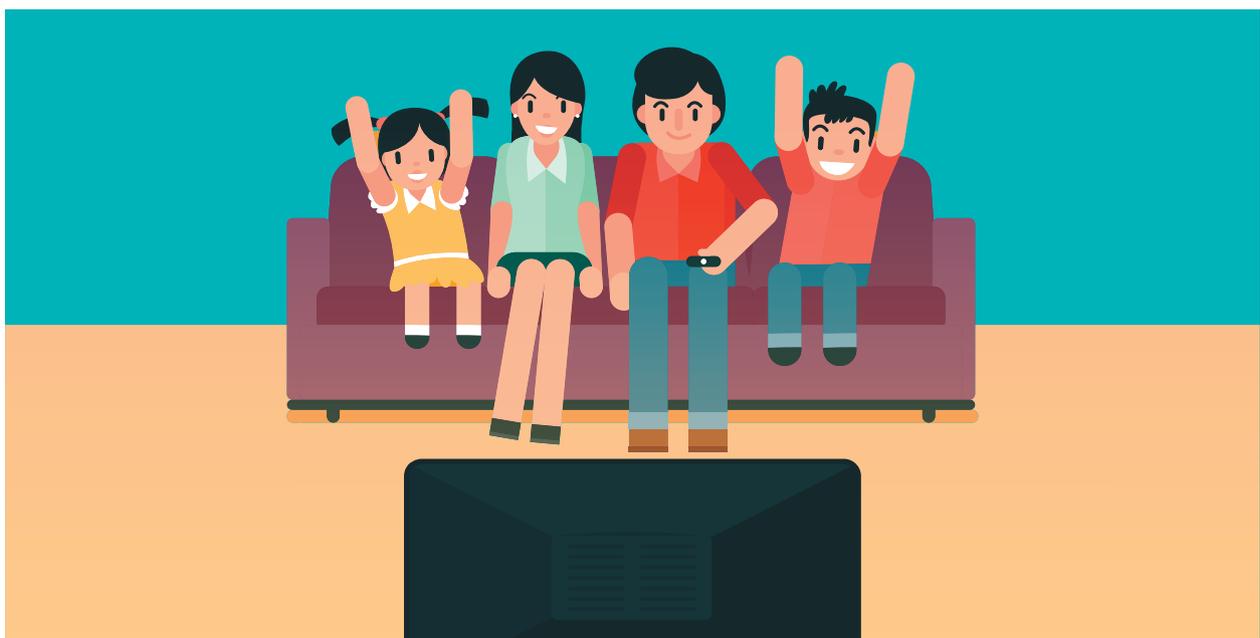


to act professionally with accountability by taking into account the public interest as well as to further improve the quality of broadcasting and television business operation. In 2018, there were 121 people who passed the test.

Moreover, the NBTC has realized on the importance of having standards in the operation of broadcasting and television business which consists of the development of personnel quality, programs and business operators because such factors can affect society, especially those who act as announcers, host of programs, moderators who have influenced programs viewers, such as the children and juveniles. Therefore, those who act as announcers, host of programs, moderators shall be the role model for the viewers and the NBTC has an attempt to require the licensees for the provision of broadcasting or television services to recruit or select moderators to announce or inform messages in the telecast or broadcasting by organizing the Focus Group Meeting for listening and presenting guidelines for determining the standards of the licensees for the provision of broadcasting or television services in recruiting or selecting moderators to announce or inform messages in the telecast or broadcasting on 22 November 2018 at the Office of the NBTC. It is now in the process of drafting the Notification.

5. Setting the Parental Rating of TV programs

The NBTC has recognized the importance of protecting children who watch television programs that may influence and affect on them from accessing to contents containing inappropriate speeches or expressing behaviours which is rude, violent or inappropriate. In order to prevent the access to those inappropriate contents, therefore, the NBTC has issued the NBTC Notification regarding Technical Standards for Digital Terrestrial Television Receivers in order to determine that the digital terrestrial television receivers must be categorized of the code used for setting the Parental Rating (Parental Rating Code) and allow users to set the rating as they need. The tool is being used as parental assistant who help monitor the programs containing violent contents or behaviour at the first stage. At present, the parental rating can be set at the “Setting Menu” of the television to prevent children to watch inappropriate programs that are not suitable for their ages. The new models of digital terrestrial television receivers that have passed the type approval and certified since 25 August 2018 can support functions of the Parental Rating and a list of models that support the Parental Rating function can be checked at the website of the Office of the NBTC.



International Affairs in Broadcasting, Television and Telecommunications Services

The NBTC has continuously supported the operation of international affairs in the broadcasting, television and telecommunications services for building the integrated collaboration including exchanging views and experiences in order to bring knowledge, international standards to further develop the potential and capability of personnel of government agencies, relevant private sector and the public as well as personnel of the Office of the NBTC. Moreover, the NBTC has technical cooperated with relevant agencies at national level, promoted international cooperation under various frameworks both bilateral and multilateral levels including the implementation under commitments in the Memorandum of Cooperation, by taking into account the national interests, and help drive government policy in driving the country towards a stable and sustainable digital world. The important activities in 2018 are as follows:

1. The implementation under the MOU on broadcasting content between the Office of the NBTC and Korea Communications Commission

Since the year 2017 that the Office of the NBTC has signed the MOU on broadcasting content with Korea Communications Commission (KCC) with the objective to promote the cooperation between regulators in both countries in supporting the cooperation between television operators with an expectation to encourage the co-organization of producing program contents, promote cooperation between program producers in publishing international program content, promotion of television content publishing activities as well as information exchange on regulation and policies related to television program content. During the year 2017 - 2018, the important activities are as follows:

- On 18 September 2017, a joint meeting was held to discuss and exchange information on the television industry market conditions, rules and regulations relating to the co-production of content and guideline for future cooperation to promote the co-production of contents.

- On 8 December 2017, a joint meeting was held to discuss the approach to promote cooperation between the governments of both countries, personnel exchange. Also, a workshop was held to exchange technical knowledge on television filming techniques, and to promote the co-production of television programs of both countries.

- On 14 December 2018, a joint meeting was organized between the Office of the NBTC, Ministry of Culture and the Korea Communications Commission to drive and promote the cooperation on television content production at the government level between Thailand and South Korea.

2. The operation under the Memorandum of Cooperation between the Office of the NBTC and the Ministry of Posts and Telecommunications of Lao People's Democratic Republic

The NBTC and Ministry of Posts and Telecommunications of Lao People's Democratic Republic (Lao PDR) had signed the Memorandum of Cooperation in 2016 with the objective to solving the problem of frequency interference in the border areas and regulating telecommunications service. One of the important tasks under the said cooperation agreement is that the NBTC will support the improvement and development of the mobile phone subscribers' registration system to be appropriate for Lao PDR in order to solve the problem of terrorism, drug trafficking or the call center gang who fled or committed an offense in a neighboring country, and to separate the good people from the bad people.

Since the year 2017, the Lao PDR has started the trial of the said system according to the procedure, under the NBTC's support, and on 12 February 2018, the government of Lao PDR had invited Thailand to join the ceremony to officially deliver the mobile phone subscribers' registration system to Lao PDR.

3. The operation under the Joint Statement on Reduction of Data Roaming Service Charge between Thailand and Russian Federation

On 30 May 2017, the NBTC had signed the Joint Statement between the Office of the NBTC and Ministry of Telecom and Mass Communications of the Russian Federation with the objective to promote the reduction of roaming rates for data roaming services between Thailand and the Russian Federation including the exchange of knowledge and experiences on cyber security in terms of the security in using telecommunications services. On 21 November 2018, the NBTC held a meeting with the Deputy Minister of Digital, Telecommunications and Mass Communications Development of the Russian Federation to discuss ways to promote cooperation on digital economy, media and journalism of both countries and the issue of the follow-up of progress under the joint statement, especially the reduction of roaming rates between the two countries.

4. Organization of a meeting in ASEAN level on "the 4th SOMRI Working Group on ASEAN Digital Broadcasting" during 20 - 21 September 2018 in Bangkok. The objective of the meeting was to exchange and present the progress of the transition to the digital television and termination of the analog television of ASEAN member countries according to the agreement of ASEAN member countries which targeting that the year 2020 will be the year that all 10 ASEAN countries will terminate the broadcasting in the analog system. The meeting was attended by representatives from 9 ASEAN member countries consisted of Brunei, Indonesia, Laos, Malaysia, Myanmar, Philippines,

Singapore, Thailand and Vietnam, as well as officials from the ASEAN Secretariat.

5. The preparation of a Memorandum of Agreement between the Office of the NBTC and the Regulator of the Socialist Republic of Vietnam on 20 June 2018 at the Office of the NBTC with the objective to strengthening cooperation between regulatory bodies especially the exchange of technical cooperation and best practices between the telecommunication regulators in the digital age that the demand for using information is increasing and the social media is growing nowadays

6. Organizing workshop on "Future of ICT Application and Broadcasting 5G and beyond" during 3-4 December 2018 in Bangkok, which was the operation under the Memorandum of Cooperation between the Office of the NBTC and Ministry of Internal Affairs and Communications (MIC) with the objective to encourage the cooperation between organizations and present innovations and new technologies that will be used or is currently being used in relation to 5G ICT Application and Japanese broadcasting technology including information technology for education, the development of Modern Financial and Financial Inclusion, the development of Tele-Medicine technology, intelligence transport system, information technology for disaster relief, technology for the 4K/8K transmission in television and broadcasting services and Big Data and cyber security, as well as the exchange of opinions, visions and experiences of experts and senior executives of leading organizations of Japan.

7. Organizing an international symposium on "Global Cyber Security Opportunities and Challenges Conference" on 6 December 2018 in Bangkok by hosting in cooperation with International Telecommunications Society (ITS) with the objective to extend the content of cyber security and exchange on telecommunications knowledge from academic personnel with expertise in cyber security.

3

Major Performances of the Office of the NBTC in 2018



The Office of the NBTC has responsible for the administrative work of the NBTC and supported the operation as well. The duties of the Office of the NBTC also includes the management process, following-up and monitoring the use of spectrum, broadcasting, television and telecommunications business operation and personnel development to enhance potential of the Office of the NBTC's employees and encourage them to perform duties with integrity, on the basis of good governance so that it can be a mechanism to drive the NBTC's

operation efficiently for the benefit of the people. In addition, the Office of the NBTC has collaborated with relevant sectors to drive the development of broadcasting, television and telecommunications business and performing tasks to support the government's policies and National Plan for Digital Development for Economy and Society for the sustainable growth of the country according to the goals set. In 2018, the performance of the Office of the NBTC are as follows:

Management of the Office of the NBTC

1. Upgrading the Office of the NBTC to become the digital office which conforms to the National Strategy in driving the goal of building a working culture that aims at achievement and common interests, responding to the needs of people in a convenient, fast, and transparent manner, as well as applying the practical guideline under the Plan for Upgrading Government Service (Phase 2) to the development and improvement of the internal administrative process of the Office of the NBTC as follows:

- Having appointed a working group to prepare the guideline for people and recommend guideline for the establishment of a joint service center of the Office of the NBTC

- Having appointed a working group to supervise the implementation of the Plan for Upgrading Government Service (Phase 2) according to the Licensing Facilitation Act, B.E. 2558 (2015).

2. Raising the confidence level of people and all stakeholders concerning the performance of duties of the Office of the NBTC which based on the principles of morality, ethics and good governance. In 2018, a working group to promote good governance of the Office of the NBTC has been appointed to set up a good governance guideline of the Office of the NBTC and criteria for the good governance assessment. Also, many activities were held to promote and encourage the participation of the

executives and employees of the Office of the NBTC including trainings and seminars on good governance according to international standards. The Office of the NBTC has also announced the good corporate governance policies and prepared a manual for the NBTC personnel to use as guidelines. In addition, the Committee on Integrity Transparency Assessment of the Office of the NBTC has been appointed to prepare for the integrity and transparency assessment (ITA) of the operation of government agencies in the year 2019.

3. Having established the Anti-Corruption Action Center of the Office of the NBTC to be responsible for preparing plans, guidelines and measures to prevent and suppress corruption, including coordinating, accelerating, following-up and protecting ethics, as well as encouraging good governance, morality, and transparency of the Office of the NBTC to be appropriate and in line with the government's policy concerning prevention and suppression of corruption in government agencies.

4. Having signed the Memorandum of Understanding (MOU) and Operational Plan among 22 organizations consisted of the Office of the National Anti-Corruption Commission, the Office of the NBTC, organizations, associations, foundations, communications agencies, the entertainment industry, and related agencies, with the objective to promoting and supporting those organizations,

associations, foundations, communication agencies and the entertainment industry to build a society that does not tolerate corruption, cooperating in stimulating the cultivation of consciousness of Thai people to change their concept and behavior to live their lives, as well as participating with the Office of the NACC for preventing and suppressing the corruption to drive the National Strategy on Prevention and Suppression of Corruption. In addition, the Office of the NBTC had participated in the activities under the cooperation, such as the activity under the media production project in integrated communication under the theme “Thailand No Corruption” to raise awareness of people participating in the project to fight against corruption and be ashamed of corruption and changing the basic thinking to be ready for preventing and suppressing the corruption as well as creating a sense of morality and ethics of the general public, government agencies, private sector, political sector, children and youth, etc.

5. Developing human resource to enhance the potential of performing their duties with expertise, and be prepared to support the mission effectively in order to achieve the goal of upgrading the Office of the NBTC to become a high-performance organization such as

- Organizing the project on knowledge management (KM) of the Office of the NBTC and the annual NBTC KM DAY to enhance knowledge and skills of personnel to have the potential to perform professionally, exchange knowledge among themselves in order to develop the Office of the NBTC to become a learning organization in the future.

- Organizing activities on the annual knowledge sharing to brothers and sisters of the Office of the NBTC to improve the knowledge management and encourage the organization learning including strengthening the good relationship of personnel which will lead to the establishment of a network of cooperation in working. In the year 2018, the activities organized under topics related to the main mission had

included new body of knowledge on technology, innovation, regulations concerned such as application of Internet of Things (IoT), the 20 year Strategy; National Economic and Social Development Plan No.12; National Reform Plan and the NBTC, Unmanned Aerial Vehicles and the Digital Development for Economic and Society, the impact of 5G and AI for Telecom Industry and Society, etc.

- Preparing the NBTC Journal 2018 to be a source of knowledge body and research related to spectrum management, the regulation on broadcasting, television, telecommunications and radiocommunications services and having disseminated to the executives and employees of the Office of the NBTC and those interested for further use. On 18 December 2018, the Office of the NBTC had organized a seminar on the NBTC journals with the objective to exchange knowledge and establish a network of technical cooperation between the Office of the NBTC and researchers, scholars and related persons as well as organized the exhibition to introduce the selected journals publishing in the NBTC Journal.

6. Enhancing the efficiency in the regulation, law enforcement, and investigation, search and arrest offenders related to broadcasting, television, radiocommunications, and telecommunications services including facilitating people in providing service for license application as well as receiving complaints of people, consumers, and related organizations in all provincial areas. In 2018, the Office of the NBTC has also improved location of the Office of the NBTC Region and the Office of the NBTC Sub-region to be more suitable as follows: the Office of the NBTC Sub-region 11 (Samutprakarn), the Office of the NBTC Sub-region 15 (Ayudhaya), the Office of the NBTC Sub-region 21 (Roi Et), the Office of the NBTC Sub-region 32 (Tak) and the Office of the NBTC Sub-region 41 (Yala)

7. Having additional amended 13 regulations related to internal organization management to be used for more efficient performance.

Follow - Up and Monitoring of the Spectrum Broadcasting, Televisions and Telecommunications Services

The Office of the NBTC has its duties in managing spectrum and regulating the use of frequencies in broadcasting, television and telecommunications services to be efficiently with no interference including follow-up and monitoring the use of frequencies. The Office of the NBTC Region 1 - 4 and Office of the NBTC Sub-region 21 have undertaken the mission on following-up and monitoring the use of radio frequency in broadcasting, television and telecommunications services to be right with no interference according to the standard of the radio frequency emission⁷ of International Telecommunication Union (ITU). The tasks consisted of examining and resolving frequencies interference; handling complaints on the use of frequencies; monitoring the unauthorized use of frequencies; searching, arresting and prosecuting the offenders against the Radiocommunications Act B.E. 2498 (1955) and Section 53 of the Broadcasting and Television Businesses Act; following-up and monitoring the frequencies radiation to be in line with the standard on safety of the Electromagnetic Field radiation on human health, and monitoring contents on television

programs and radio programs which may be the exaggerated advertising. The performance of the Office of the NBTC in 2018 is as follows:

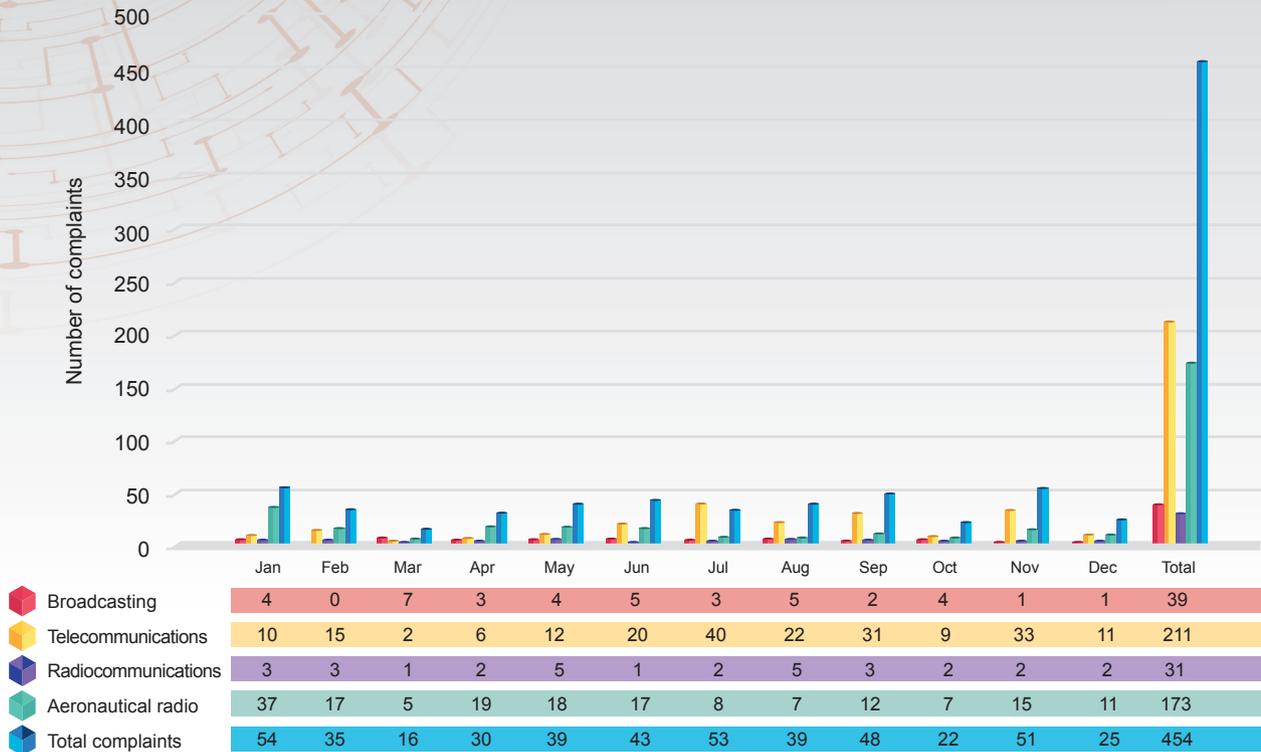
1. Examining and Resolving radio frequencies interference

The Office of the NBTC Region and Sub-region have monitored the use of frequencies including resolving the radio frequencies interference that having been notified by public and private agencies, the general public and operators of broadcasting, television and telecommunications services. In 2018, the Office of the NBTC had received complaints on frequencies interference in several services such as broadcasting service, telecommunications service radiocommunications service and aeronautical radio service through various channels such as telephone, fax, letters, and Call Center 1200 for totally 454 times in which telecommunications service was received the highest complaints at 46.48 percent, followed by aeronautical radio service at 38.11 percent, broadcasting service at 8.59 percent and radiocommunications service at 6.82 percent, respectively. Details are as shown in Chart 2

⁷ Parameter measurement for the frequency emission standard is accordance with the Regulation of International Telecommunication Union (ITU Recommendation) as follows:

- (1) Radio frequency measurement is under the Regulation of ITU - R consisting of 1) ITU - R SM. 373-3 2) ITU - R SM. 1045-1
- (2) Measurement of the use amount of radio frequency is under the Regulation of ITU - R consisting of 1) ITU - R SM.182-4 2) ITU - R SM.1172 3) ITU-R SM.1393
- (3) Modulation measurement is under the Regulation of ITU - R consisting of ITU - R SM.328-10
- (4) Measurement of bandwidth is under the Regulation of ITU - R consisting of 1) ITU - R SM.443-4
- (5) Measurement of radio frequency deviation is under the Regulation of ITU - R consisting of ITU - R SM.1286-3
- (6) Measurement of electromagnetic field strength is under the Regulation of ITU - R consisting of 1) ITU - R SM.378-6 2) ITU - R SM.1447
- (7) Finding radio directions is under the Regulation of ITU - R consisting of 1) ITU - R SM.854 2) ITU - R SM.1053
- (8) Finding location is under the Regulation of ITU - R consisting of ITU - R PL.434

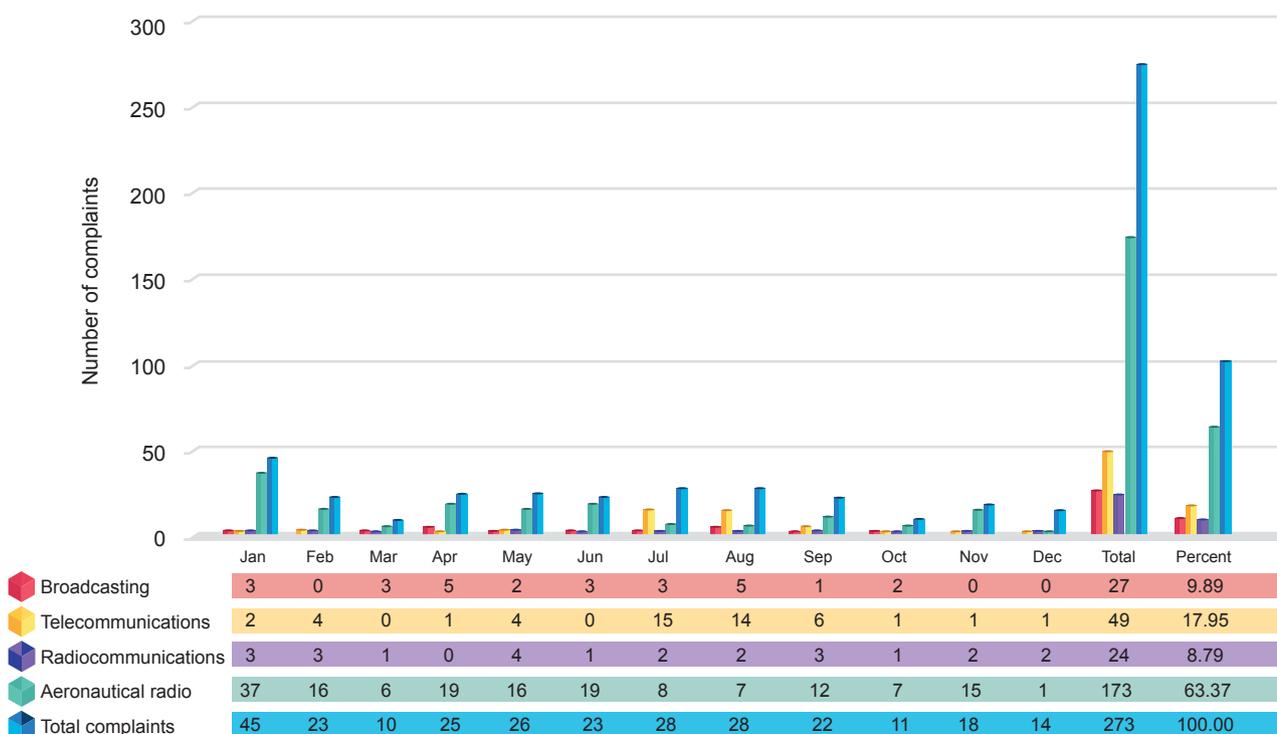
Chart 2 : Number of complainants on the use of frequencies in services provided in 2018



Remarks : Data as of December 2018

The Office of the NBTC Region and the Office of the NBTC Sub-region had examined the frequencies interference and resolved problems for totally 237 cases. Details are as shown in Chart 3.

Chart 3 : Monitoring and resolving problems on frequencies interference in services provided in 2018



Remarks : Data as of December 2018

Having considered the above issues on radio frequencies interference, it is found that the highest number of complaints were about the frequencies used having been interfered which is 57.71 percent, followed by the anxiety of safety on human health

from the installation of mobile phone base stations which is 30.62 percent, quality of signal and service provision which is 4.63 percent and other issues which is 7.05 percent, respectively. Details are as shown in Table 2.

Table 2 : Complaint issues on the use of frequencies of organizations concerned in 2018

Organizations	Complaint issues				Total	Percent
	Frequencies used having been interfered	Installation of station/ Safety on human health	Quality of signal/problems on service provision	Others		
Aeronautical Radio of Thailand Ltd.	173	0	0	0	173	38.11
Radio broadcasting stations	16	0	1	0	17	3.74
Government agencies/State enterprises	14	7	0	7	28	6.17
Companies/Department stores/Shops	0	0	0	0	0	0.00
General public	13	117	19	25	174	38.33
Mobile phone operators	46	15	1	0	62	13.66
Total	262	139	21	32	454	100.00
Percent	57.71	30.62	4.63	7.05	100.00	

Remarks : Data as of January - December 2018

The frequencies used having been interfered is considered the top issue and the organization that filed the most complaints on this issue is the Aeronautical Radio of Thailand Ltd. (AEROTHAI). It is found that the main cause of the interference comes from the spurious emission of radiocommunications transmitters which may not meet technical standards prescribed by the Office of the NBTC or other equivalent Certification Bodies which led to the faultily function of radiocommunications transmitters. The secondary cause of the interference comes from

the use of co-channel frequencies intermodulation product, the interferences that are the result of the broadcasting of radio broadcasting stations for trial operation, either the spurious emission, the use of co-channel frequencies, and the result of intermodulation product which is in the same frequency band of aircraft navigation, the frequencies used for controlling air traffic and the frequency for instrument landing system which made the communication in the aviation radio service inefficient and may lead to a flight accident. Details are shown in Table 3.

Table 3 : Statistics of the aeronautical radio interference from various causes during 2016 - 2018

Cause of interference	2016	2017	2018	Total
Using the same frequency band	10	8	5	23
Using adjacent frequency band	0	0	1	1
Spurious emission	64	35	28	127
Results from co-inspection	9	1	1	11
Harmonic emission	0	0	0	0
Having interference outside responsible area	-	-	15	15
Having interference but having been resolved	-	-	88	88
No interference	132	107	35	274
Total	215	151	173	539

Remarks : Data as of January - December 2018

2. Monitoring the unauthorized frequency

To ensure the right use of radio frequency, the Office of the NBTC has monitored the use of frequencies and notification of the use of frequencies and found that the most use of unauthorized frequencies are mainly occurred in broadcasting and radiocommunications services. In 2018, the Office of the NBTC has the order for suspending the operation and taking legal process on the offenders for totally 18 persons consisting of (1) the broadcasting service that use the unauthorized frequencies for 8 persons (1 person from government

agency, 2 persons from companies/shops, and 5 persons from foundation/disaster prevention) (2) the radiocommunications service that use the unauthorized frequencies for 10 persons consisting of 8 persons from radio broadcasting stations and 2 persons from general public. The results of the use of unauthorized frequencies were founded by either the officers of the Office of the NBTC Region and Sub-region or receiving complaints from the general, public and private agencies requesting for the Office of the NBTC action to conduct further investigation. Details are as shown in Table 4.

Table 4 : Action on suspension and legal process on the offenders of using unauthorized frequencies in 2018

Office of the NBTC	Services that use unauthorized frequencies			Source of findings			Office of the NBTC Region/ Sub-region
	Broadcasting service	Radio communications service	Total	General public	Private agencies	Public agencies	
Office of the NBTC Region 1	6	6	12	4	1	1	6
Office of the NBTC Region 2	1	1	2	0	0	1	1
Office of the NBTC Region 3	1	3	4	0	0	0	4
Office of the NBTC Region 4	0	0	0	0	0	0	0
Total	8	10	18	4	1	2	11

Remarks : Data as of January - December 2018

3. Searching and arresting according to the laws

The Office of the NBTC Region and Sub-region had operated on searching and arresting and taken legal process on the offenders against the Radiocommunications Act B.E. 2498 (1955) and Section 53 of the Broadcasting Business Act for the unauthorized use, installation, trade radiocommunications equipment, in cooperation with police officers and military. In the year 2018, the offenders found and submitted to the inquiry

officers for prosecution was totally 51 cases, consisting of the prosecution of the offenders in broadcasting service for 12 cases and the prosecution of the offenders in radiocommunications service for 39 cases. In addition, the officers had searched and arrested the offenders for the unauthorized use of radiocommunications equipment in broadcasting service for 103 equipment and the unauthorized use of radiocommunications equipment in telecommunications service for 1,155 equipment. Details are as shown in Table 5 - 6.

Table 5 : Result of the action on the use of unauthorized frequencies in 2018

Office of the NBTC	Jan - Dec 2016				Jan - Dec 2017				Jan - Dec 2018			
	Broadcasting	Telecommunications	Radiocommunications	Total	Broadcasting	Telecommunications	Radiocommunications	Total	Broadcasting	Telecommunications	Radiocommunications	Total
Office of the NBTC Region 1	1	0	4	5	2	0	3	5	1	0	11	12
Office of the NBTC Region 2	5	0	0	5	3	0	2	5	7	0	1	8
Office of the NBTC Region 3	11	0	0	11	2	0	3	5	4	0	25	29
Office of the NBTC Region 4	0	0	0	0	0	0	3	3	0	0	2	2
Total	17	0	4	21	7	0	11	18	12	0	39	51

Table 6 : Number of radiocommunications devices and equipment that had been searched and arrested for the unauthorized use in broadcasting and telecommunications services in 2018.

Office of the NBTC	Broadcasting service				Telecommunications service			
	Cases	Radio communications devices	Equipment	Total	Cases	Radio communications devices	Equipment	Total
	(1)	(2)	(3)	(2)+(3)	(1)	(2)	(3)	(2)+(3)
Office of the NBTC Region 1	1	0	53	53	11	410	5	415
Office of the NBTC Region 2	7	6	27	33	1	0	6	6
Office of the NBTC Region 3	4	4	13	17	25	184	540	724
Office of the NBTC Region 4	0	0	0	0	2	8	2	10
Total	12	10	93	103	39	602	553	1,155

4. Regulation of safety on human health from the use of radiocommunications devices and measurement of electromagnetic radiation levels of radiocommunications stations

The Office of the NBTC has measured the technical standard of radio frequencies emission of mobile phone base stations of telecommunications operators continuously according to the operating plan for measuring the electromagnetic radiation levels of radiocommunications devices in order to regulate the safety on human health from electromagnetic field after the installation of radiocommunications stations to be efficient and in accordance with criteria and measure for regulating

the safety on human health from the use of radiocommunications devices and the NBTC Notifications concerned.

In 2018, the officers had measured the Electromagnetic Field radiation level for totally 534 times which can be divided to the operation according to the operating plan set for 504 times and the operation according to complaints received from people in addition to the plan for 30 times. The result of the measurement found that the Electromagnetic Field radiation level of radiocommunications stations meets the requirement of the standards. Details are as shown in Table 7.

Table 7 : Plan - result of the examination of Electromagnetic Field radiation in 2018

Organizations	Jan 18		Feb 18		Mar 18		Apr 18		May 18		Jun 18		Jul 18		Aug 18		Sep 18		Oct 18		Nov 18		Dec 18		Jan-Dec 18		2017	2016	2015
	Plan	Result	Plan	Result	Result	Result	Result																						
Office of the NBTC Region 1	12	16	12	11	12	19	12	15	12	18	12	4	12	10	12	23	12	10	12	17	12	17	12	10	144	170	77	139	24
Office of the NBTC Region 2	10	12	10	7	10	8	10	4	10	1	10	8	10	10	10	10	10	10	10	9	10	14	10	10	120	103	57	183	13
Office of the NBTC Region 3	10	7	10	10	10	15	10	10	10	6	10	6	10	11	10	9	10	10	10	9	10	6	10	6	120	105	59	227	13
Office of the NBTC Region 4	10	12	10	12	10	16	10	8	10	10	10	10	10	12	10	11	10	17	10	12	10	21	10	15	120	156	59	110	13
Total	42	47	42	40	42	58	42	37	42	35	42	28	42	43	42	53	42	47	42	47	42	58	42	41	504	534	252	659	63

Remarks : Data as of January - December in 2018

5. Monitoring contents and advertising, in cooperation with the Food and Drug Administration, Ministry of Public Health

In 2018, the Office of the NBTC had focused the operation on the process of follow-up, monitoring the broadcasting of programs or advertising which may be an action that exploits consumers such as programs/advertising of food, drugs and health products, the deceptive or exaggerated advertising, etc., or taking the operation in cases of complaints. Also, the Office of the NBTC has integrated the mechanism for

resolving problems on advertising of food, drugs and health products that may be an action that exploits consumers in broadcasting and television services by having collaboration with the Food and Drug Administration (FDA) for the establishment of the center for monitoring illegal contents on radio and television and social media operating by officers and experts of both organizations. When complaints arise or an offense is found, officers can analyze, diagnose and identify the guilty immediately. At present, the conclusion can be done within 3 days.

Moreover, in order to handle the problems of advertising on food, drugs and health products at the provincial level as efficiently as the head quarters and leads to the truly consumer protection in broadcasting and television service, the Office of the NBTC and Ministry of Public Health by the FDA have therefore set a joint policy to extend the results to the regional level by having a cooperation on the advertising monitor between the Office of the NBTC

Region/Sub-region and the Provincial Public Health Office in which the Office of the NBTC Region will coordinate with the Provincial Public Health Office and collect information and evidences for being used in the consideration process and submit the result to the Headquarters of the Office of the NBTC for further action. The results of the operation in 2018 are as shown in Table 8.

Table 8 : Monitoring illegal contents against food and drugs laws relating to broadcasting and television services

Action taken	Frequency-used television service (Digital television)	Non frequency-used television service (Satellite/ Cable TV)	Broadcasting service	
			Office of the NBTC - FDA	Office of the NBTC Region - Provincial Public Health Office
Having monitored and found the advertising of licensees that is considered an action which exploits consumers	13 persons	61 persons	305 stations (861 cases)	33 stations (77 cases)
Operators who were considered by the FDA to have broadcasted advertising that is considered an action which exploits consumers	13 persons (42 cases)	61 persons (132 cases)	50 stations (84 cases)	33 stations (77 cases)
Having an administrative order on licensees to temporary suspend the advertising that is considered an action which exploits consumers	12 persons (28 orders)	59 persons (116 orders)	34 stations (36 orders)	6 stations (6 orders)
Having an administrative order on licensees to suspend the advertising that is considered an action which exploits consumers	2 persons (2 orders)	13 persons (13 orders)	1 station (1 order)	In process

Remarks : Data as of 27 December 2018

Besides, in 2018 the Office of the NBTC, in cooperation with the FDA had organized the meeting for building understanding about mechanism for handling problems on food, drugs and health

products in regional level as follows: the North Region in Chiangmai on 31 August 2018, the Southern Region in Songkhla on 18 October 2018, and Bangkok during 26 - 27 November 2018.

Efficiency and effectiveness of the complaints handling of consumers in broadcasting, television and telecommunications services

The Office of the NBTC has carried out the mission for protecting people's rights and freedom in terms of right of privacy, freedom to communicate, and equality in accessing to and utilizing communication technology. In addition it has committed to perform the duties in the follow-up, examining and resolving problems on complaints regarding the use of frequencies, the broadcasting, television and telecommunication business operation in order to prevent actions that are considered to exploit the people, promoting and supporting the establishment of the citizen network for raising awareness of media literacy, and the operation on dispute resolution in order to maintain good relations of parties. In 2018, The major performance on receiving and considering complaints of consumers in broadcasting, television and telecommunications services are as follows:

1. Complaints receipt

The Office of the NBTC has improved the efficiency of complaints receiving and handling continuously by developing the working system of the Call Center 1200 to be able to support the provision of service to people throughout 24 hours through various channels such as hotline 1200, Mobile Application NBTC 1200, SMS, Email, Fax and Social Contact. Also, the Office of the NBTC has provided additional channel to link the system in the Multi - Touchpoint form to exchange information on complaints which related to external agencies, namely the Government Contact Center (GCC) "Hotline 1111", Office of the Permanent Secretary, the Prime Minister's Office and the Office of the Consumer Protection Board (CSPO) "Hotline 1166". At present, the number of people using the Call Center 1200 to inquire about interested information and file complaints has decreased from the previous year. In 2018, the number of complaints through Call Center was 2,854 issues in which the top three complaints consists of complaints on mobile phone service such as problems of being charged for the unsubscribed SMS/SMS spam, problems of mobile number portability, etc., for 2,065 issues, followed by the complaints on internet service and service cancellation without fees for 321 issues,

and complaints on the installation of mobile phone base stations/radiocommunications stations for 180 issues, respectively. Moreover, the number of inquiries from the people received by the Call Center was totally 46,755 issues which is decreasing from the previous year. The top three inquiries are composed of digital terrestrial television service such as distribution of digital TV coupons, methods for viewing/connecting digital TV devices for 15,879 issues, followed by inquiries on mobile phone service such as being charged for unsubscribed SMS and SMS Spam, details of service usage and cancellation of mobile phone service for 10,205 issues, and inquiries on channels for contacting telecommunications operators for 4,876 issues, respectively.

For the year 2018, the office of the NBTC has assigned the Call Center 1200 to be the center for receiving complaints on the unorganized overhead telecom and broadcast cables which is an important mission that the Office of the NBTC has been in the process of implementation to be in line with the government policies and to prepare for supporting Bangkok to become a Capital of ASEAN. When a problem on unorganized overhead telecom and broadcast cables is found, people are able to notify the problems to Call Center Hotline 1200 or send pictures, coordinates/locations where the unorganized overhead telecom and broadcast cables problems are found through Line: @nbt1200 so that the Office of the NBTC shall coordinate operators to resolve the problems soonest. The number of complaints on unorganized overhead telecom and broadcast cables was totally 5,247 issues which is the notification through Line : @nbt1200 for 3,530 issues and other channels (tel. 1200, E-mail) for 1,717 issues and it can be categorized by areas of problems found under the responsibility of the Office of the NBTC Region as follows:

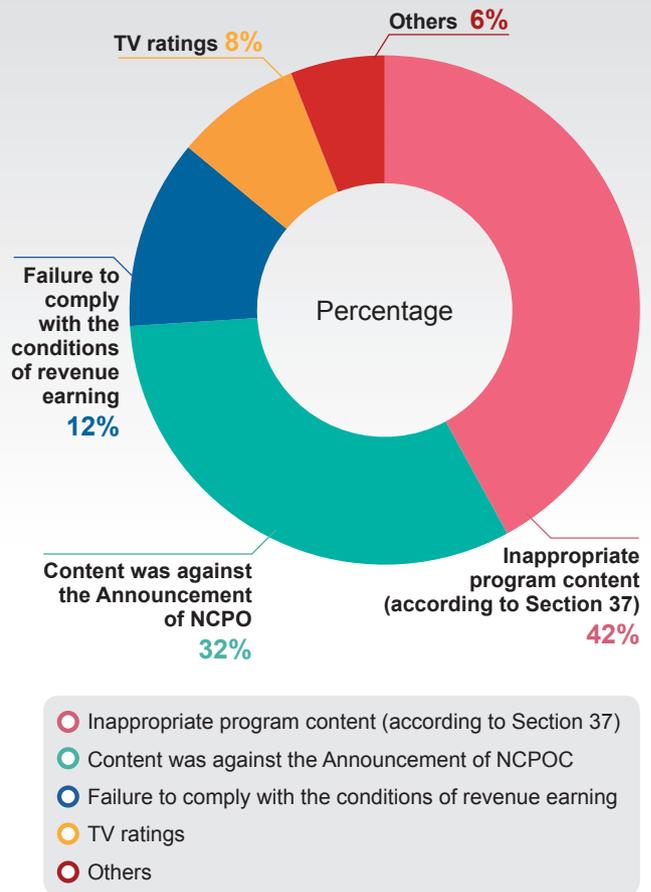
The Office of the NBTC Region 1 for 3,704 issues, the Office of the NBTC Region 2 for 508 issues, the Office of the NBTC Region 3 for 609 issues and the Office of the NBTC Region 4 for 426 issues.

2. Complaints handling in broadcasting, television and telecommunications services

2.1 Resolving complaints in broadcasting and television service

(1) Having carried out the complaints on program schedule and content in broadcasting and television services. In 2018, the number of complaints was totally 98 issues which can be divided to 1) digital TV service for 49 issues 2) cable TV and satellite TV system for 21 issues 3) radio broadcasting in trial operation for 18 issues 4) radio (existing operators) for 6 issues and 5) other issues for 4 issues. The highest issue of complaints was the issue of inappropriate contents which had been considered in accordance with the legal framework, Section 37 of the Broadcasting Business Act B.E. 2551 (2008), such as the content that is against the public order or good morals of the people which is accounted for 42 percent, followed by the issue on program content that caused confusion, provocation, incitement to conflicts which are against the Announcement of the National Council for Peace and Order No.97/2014, additional amended by the Announcement of the National Council for Peace and Order No.103/2014, which is accounted for 32 percent, the issue on advertising that was against the conditions of revenue earning of the radio broadcasting in trial operation in category of public service and community service and failed to comply with the NBTC Notification on Licensing Criteria for Radio Broadcasting Services (Trial Operation) B.E. 2555 (2012), which is accounted for 12 percent, the issue of TV rating due to the presentation of sexual content, language and violence, which is accounted for 8 percent, and other issues such as the broadcasting failed to comply to the program schedule, tie in ads, and the content broadcasting lacked of useful information for society, which is accounted for 6 percent, respectively. However, the Office of the NBTC had already resolved the complaints on program schedule and content for 89 issues, accounting for 90.82 percent in which the process of consideration was taken under the NBTC Notification on Determination of Procedure and Duration for the Consideration of Request or Complaint in Broadcasting and Television Services. Details are as shown in Chart 4.

Chart 4 : Complaint issue on program schedule and content in 2018



Remarks: Complaints data since 1 October 2017 - 30 September 2018 in which the process of consideration was taken under the NBTC Determination of Procedure and Duration for the Consideration of Request or Complaint in Broadcasting and Television Services

(2) Having handled the complaints on the action which is considered to be an exploitation of consumers in broadcasting and television services according to the process under the prescription of the NBTC Notification on Determination of Procedure and Duration for the Consideration of Request or Complaint in Broadcasting and Television Services and the Notification of the Office of the NBTC on the Action which is considered to be an Exploitation of Consumers in Broadcasting and Television Services B.E. 2555 (2012). It is found that the number of complaints in 2018 was totally 74 issues which can be divided to the complaints in television service for 68 issues, most complaints were about cancellation of service provision, changes on terms

of service provision without notifying consumers in advance of not less than 30 days, non-refund of unpaid bill to consumers within 30 days as required by law (such as satellite box costs, advance payment

for monthly package) and the complaints in broadcasting service for 6 issues. However, 68 issues had already been resolved/completed, or accounting for 91.89 percent. Details are as shown in Table 9.

Table 9 : Statistics of complaints concerning the action which is considered to be an exploitation of consumers in broadcasting and television services

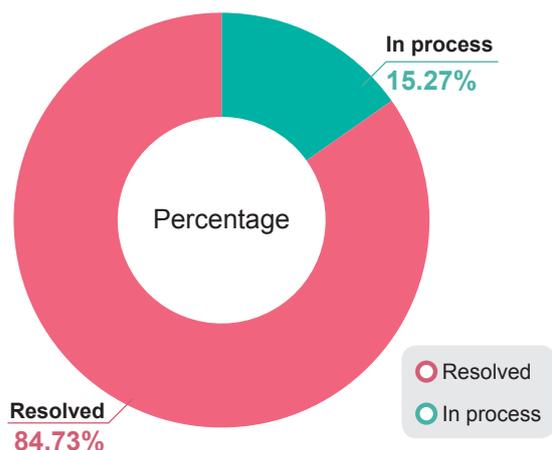
Type of service	Number	Resolved/Completed		Resolved/Completed	
		No. of complaints	Percent	No. of complaints	Percent
Television service					
1. Digital TV					
1.1 Program channel	13	12	92.31	1	7.69
1.2 Devices/signal receivers	-	-	-	-	-
2. Subscription service					
2.1 Network					
2.1.1 Satellite box	51	46	90.20	5	9.80
2.1.2 Cable TV	-	-	-	-	-
2.2 Program channel	4	4	100.00	-	-
Total	68	62	91.18	6	8.82
Broadcasting service					
1. High power station (existing operator)	1	1	100.00	-	-
2. licensees for trial operation					
2.1 Public service	-	-	-	-	-
2.2 Community service	1	1	100.00	-	-
2.3 Commercial service	4	4	100.00	-	-
Total	6	6	100.00	-	-
Grand total	74	68	91.89	6	8.11

Remarks : 1) Data as of 1 October 2017 - 30 September 2018 as the process of complaints consideration in broadcasting and television service is according to the NBTC Notification on Determination of procedure and duration to be completed for considering the request or complaints in broadcasting and television services which is totally not less than 2-3 months
 2) Complaints data as of 31 December 2018

2.2 Having resolved complaints in telecommunications service

(1) Having resolved problems of complaints in telecommunications service or those who have suffered from the provision of telecommunications service such as problems on standard and quality of service provision, add-on service, Billing inaccuracy and cancellation of service. In 2018, the number of complaints was totally 2,692 issues in which 2,281 issues were resolved or accounting for 84.73 percent and 411 issues have been in process or accounting for 15.27 percent. Details are as shown on Chart 5

Chart 5 : Status of complaints resolving process in telecommunications service



The top three type of service having been complained consisted of mobile phone service at 76.71 percent, internet service at 11.92 percent, and installation of mobile phone base stations / radiocommunications stations at 6.69 percent. For the top three main issues having been complained consisted of standard and quality of service provision at 45.84 percent, add-on service at 22.36 percent and billing inaccuracy at 16.01 percent. Details are as shown in Table 10 and Table 11.

Table 10 : Status of complaints resolving process categorized by type of service in 2018

Type of service	Total complaints	Status of complaints	
		Resolved	In process
Mobile phone	2,065	1,746	319
Internet	321	293	28
Radiocommunications stations	180	121	59
Fixed-line	126	121	5
Total	2,692	2,281	411

Remarks : Data as of 31 December 2018

Table 11 : Complaint issues in 2018

Main complaint issues	Total complaints	Status of complaints	
		Resolved	In process
Standard and quality of service provision	1,206	976	230
Add-on service	599	552	47
Billing inaccuracy	433	369	64
Cancellation of services	234	200	34
Right of privacy and personal information	108	93	15
Validity of service	66	49	17
Incorrect/incomplete information provision	23	22	1
Other complaints	18	16	2
Access to services	5	4	1
Total	2,692	2,281	413

Remarks : Data as of 31 December 2018

(2) Having carried out the disputes mediation between telecommunications licensees and complainants which focusing on the request of the complainant and the Office of the NBTC shall coordinate and facilitate both parties for the arrangement of the disputes mediation. During 1 January - 31 December 2018, there were 117 issues that both parties preferred to take the process of mediation which can be divided into 2 cases as follows:

- The complaints that were taken into the mediation process for 11 issues and 10 of those issues were successfully mediated, which is accounted for 91 percent. For the rest of 1 complaint, the mediation was not successful or accounting for 9 percent.

- The complaints that both parties agreed to end the dispute before conducting the mediation process and the complaints that any party refused to take the mediation process but preferred to take the complaints procedure according to the NBTC Notification on the Procedure for Receipt and Consideration Complaints on Telecommunications Services B.E. 2559 (2016) for totally 106 issues.

The top 5 of complaint issues that both parties declared their intent to enter the mediation process consisted of the impact of mobile phone base station on human health, billing inaccuracy, mobile number portability, being charged for service after the service had been cancelled and being charged for service during the service had been suspended.

In 2018, the Office of the NBTC has given the importance on promoting media literacy, raising awareness and immunity of people to be able to protect their rights and select the correct information without distortion and utilize the information effectively, which is to drive the National Reform Plan in mass communication and information technology and link to the National Strategy Plan in creating opportunities and social equality for supporting the development of information technology and creative media in the digital society age as follows:

- Having organized the forum for exchanging knowledge on news and information presentation through radio-television media

concerning consumers with a gender diversity year 2 on the topic “Follow-up the conscription of bisexual for a military service through media”.

- Organizing the activity according to the Thai Consumers Protection Day in Chiangmai to raise awareness and enhance knowledge of people including creating trend of thinking before consumption, never believe the exaggerated advertising.

- Organizing training on rights, freedom and equality of people to use and consume media in order to enhance people’s learning and understanding of rights, freedom, equality to use and consume media, as well as realizing of the consequences of using media.

- Organizing the consultation meeting with relevant organizations in provincial level to build understanding and encourage the participation for protecting consumers in broadcasting, television and telecommunications services No.1/2018 in Chiangrai with the objectives to build understanding and encourage the participation of all sectors in the business regulation and consumer protection in broadcasting, television and telecommunications services.

Moreover, the Office of the NBTC has placed the importance on promoting and disseminating the alternative dispute resolution methods through mediation along with building knowledge and understanding about the telecommunications dispute mediation center so that people have a better understanding of alternative dispute resolution and be able to use channels for filing complaints and receiving information efficiently. As a result, consumers and the general public will be able to protect their rights and get the utmost benefits from the service. The important operation has included organizing a training project to enhance the basic knowledge of telecommunications service “for those who have passed the selection to register in the list of mediators of the Office of the NBTC and related persons”, organizing a workshop project on complaints handling and disputes mediation in telecommunications service for telecommunications business licensees and staff of the Office of the NBTC, etc.

Management of the Broadcasting and Telecommunications Research and Development Fund for the Public Interest

1. Performance in 2018

1) Strategic Plan Driven: the BTFP had driven the operation under the vision of being a mechanism to promote and support fund for the benefits of the broadcasting, television and telecommunications services and industries related to be ready for the industrial revolution in the 4.0 era. In the year 2018, the framework for the allocation of funds is determined by driving in the direction of the master plan. In 2018, the BTFP had set the guideline framework of fund allocation according to the direction of the draft Master Plan of the Broadcasting and Telecommunications Research and Development Fund in 5 years, which is in line with the Telecommunications Master Plan No.2 and the draft Broadcasting Master Plan No.2.

2) The Fund Allocation: the BTFP has allocated fund, according to the Fund's objectives for the public interest and people. In 2018, the fund had been allocated under the framework of type of fund as follows:

The fund allocation for promoting and supporting the fund grant type 1 (Project originating from the eligible person who requested be promoted and supported by the fund according to the Fund's objectives and Section 52 (1) (2) (3) and (4) of the Act on the Organization B.E. 2553 (2010) and its amendment) for 52 projects with the budget framework of 304.30 million baht, and type 2 (Project focusing on the achievement-based according to the policies of the Fund Management Committee) at the amount of 376.98 million baht, including supporting budget for the implementation according to the government's policies. The important allocation of the fund included supporting the cost of network rental for digital terrestrial television network (MUX) to licensees of digital terrestrial television at the amount of 50 percent of

the television network rental fee for 24 months under the budget framework of 1,985.40 million baht; supporting the project on Thai Telecommunication Relay Service (TTRS) within the budget of 475.09 million baht; supporting the project to promote the access to information which is useful for the development of the quality of life of the Blind through telecommunications network within the budget of 92.30 million baht; granting fund to support the project for developing the facilitation system of doing business portal, within the budget of 45.00 million baht.

3) Monetary management of the BTFP: in 2018, the receivable of the Fund was totally 17,171.98 million baht, while the total disbursement was 6,422.15 million baht, and the balance was 7,874.13 million baht. On 31 December 2018, the remaining balance was 49,148.97 million baht which the BTFP had deposited all cash in commercial banks and specialized financial institutions in the country according to the Fund's Regulation regarding the collection, expenditure, accounting and accounting system B.E. 2555 (2012) with an average return of 1.60 percent per year.

4) Follow-up and evaluation: the Fund has established a mechanism to follow-up and evaluate the operation of the Fund including follow-up and evaluating the implementation of projects granted by the BTFP as follows:

(1) The mechanism to follow-up and evaluate the operation of the Fund includes the appointment of a sub-committee to follow-up and evaluate projects of the Broadcasting and Telecommunications Research and Development Fund for the Public Interest to consider, follow-up and evaluate the fund expenditure to be in accordance with the BTFP's objectives under the following guidelines:

- The consideration, follow-up and evaluation of the projects by inviting the fund grantees to report the progress of the project periodically to the Fund Management Committee Meeting for consideration and giving useful comments or observations including providing suggestions for solving problems and obstacles in the implementation to be successful and in accordance with the Fund's objectives.

- The consideration, follow-up and evaluation of the projects by taking the field operation on the projects that were considered to have a significant impact on the public or society in general in order to acknowledge the progress and problems/obstacles of the project implementation.

(2) Mechanism for follow-up and evaluation of the Office of the NBTC

- The appointment of the committee to examine and accept the research results of experts in related fields to supervise the results of the project implementation according to the fund grant contract agreement to be effective and achieve the projects' objectives including approving the projects' outcome delivered by the grantees.

- Having required the fund grantees to submit the project progress report and the expenditure report according to the period specified in the fund grant contract agreement

- Hiring consultants to evaluate the efficiency and effectiveness of the completed projects in order to obtain empirical data that the funds spent for promoting and supporting the projects have truly been worthwhile and responsive to the needs of the people.

5) Promoting the image of the BTFP: the BTFP published and disseminated information such as policies, role and duties, mission, and performance including the preparation of executive interviews to be published to the public through

various communication channels in order to enhance knowledge and understanding of the operation of the Research and Development Fund by selecting printed media and online media in each target group so that the information can be disseminated in widest area continuously, thoroughly and effectively Including collecting and publishing general information. Moreover, the BTFP has collected and published the information relating to the operation of the BTFP under the Strategic Plan (2017 - 2021), the criteria and methods for Rules and procedures for applying for scholarships Including important information of the BTFP to the public for their better understanding of the BTFP's operation.

2. Efficiency and effectiveness evaluation of the BTFP

The efficiency and effectiveness of the BTFP's operation in 2018 are as follows:

2.1 Efficiency Evaluation

The BTFP has announced to promote and support the fund monetary type 1 in the year 2018 under the allocation budget framework of 300 million baht through the selection of organization appropriate to be promoted and supported including having reduced the budget to be appropriate with the amount of work by taking into account the maximum benefit of the budget expenditure, and proposed the consideration results to the NBTC for consideration and approval. In the year 2018, there were 52 projects of those who deserved to be promoted and supported⁸ at the allocation budget of 304.30 million baht from the total amount requested for being promoted and supported of 531.85 million baht, in which the budget could be reduces and saved for 227.55 million baht, or accounting for 43 percent. Details are as shown in Table 12

⁸ Data as of 30 December 2018

Table 12 : Summary of the budget for each project which had been approved by the NBTC

Unit : Million baht

Item	Projects	Budget requesting for allocation	Budget approved	Details
1	Project to enhance the potential for the provision of information services for the disadvantaged society on high land (pilot) <i>Organization: Foundation for Community Energy Enterprise</i>	19.93	11.34	Internet center, alternative energy in the area of C+ zone where electricity is not available (pilot), (2 places)
2	Project to develop understanding skill and use digital technology (Digital Literacy) for creating opportunity of education and trade of the community in USO Net border area <i>Organization: Communication Policy Study Center, Communication Arts, Sukhothai Thammathirat Open University</i>	12.87	7.82	Developing the prototype internet center of digital literacy and community digital economy in the area of C+ zone (1 place)
3	Project on the service provision of closed caption (CC) and audio description (AD) for people with disabilities in the television programs of National Broadcasting Services of Thailand <i>Organization: The National Broadcasting Services of Thailand, Public Relations Department</i>	2.24	1.45	AD and CC of the National Broadcasting Services of Thailand (167 hours/service)
4	Project on program production "THE STRONGER" <i>Organization: People Media TV Co., Ltd.</i>	16.82	7.73	The program provides information and channels for seeking assistance from government and private agencies, with the length of 25 minutes, 30 episodes, broadcasting on Bright TV and Youtube, Facebook, along with the closed caption.
5	Mahidol Channel Kids Project <i>Organization: Mahidol University</i>	19.81	10.24	Program for children, youth and family, 7 programs, with the length of 5 - 10 minutes, 187 episodes, broadcasting on Thai PBS channel and re-run on Mahidol channel and Youtube, Facebook, along with the closed caption.
6	Punfun Punyim Project <i>Organization: Punfun 2013 Co., Ltd.</i>	5.15	4.92	The program provides activities to assist the underprivileged in the society, with the length of 25 minutes, 50 episodes, broadcasting on Royal Thai Army Radio and Television Channel 5 and Youtube, Facebook, along with the closed caption.
7	Project on TV program production "Wheel share" <i>Organization: Positive Creation Co., Ltd.</i>	9.18	5.11	The program offers the opportunity for creating career (work at home) for the disabled with the length of 30 minutes, 50 episodes, broadcasting on Royal Thai Army Radio and Television Channel 5 and Youtube, Facebook, along with the closed caption.

Item	Projects	Budget requesting for allocation	Budget approved	Details
8	Kao Tee Kla Project (Brave Move) <i>Organization: The Redemptorist Foundation for People with Disabilities</i>	18.00	6.28	The program presents creating inspiration by the disabled who is the role model with the length of 25 minutes, 24 episodes, broadcasting on TNN 24 channel, along with the closed caption
9	Survival Project : Real World <i>Organization: Dear 36 Co., Ltd.</i>	4.85	4.52	Program for the elderly and the disabled, presenting on developing the quality of life, with the length of 5 minutes, 40 episodes, broadcasting on Channel 3 Family, Re-run on Money channel and Youtube, Facebook, along with the closed caption
10	Project on Television Program for Promoting the Public Health in the Elderly Group through Tourism in Thailand <i>Organization: Rama Television Channel Faculty of Medicine, Ramathibodi Hospital, Mahidol University</i>	4.69	3.72	Program for the elderly, presenting the medical tourism with the length of 30 minutes, 20 episodes, broadcasting on ThaiPBS channel, Re-run on Rama channel and Youtube, Facebook, along with the closed caption
11	Project on Go Through Siam Program (program for the public benefit for all ages target groups) <i>Organization: Kidzone Plus Co., Ltd.</i>	19.76	8.40	The program presents arts, culture, traditions and Thai way of life in closed caption and audio description in bilingual systems (Thai and English), with the length of 25 minutes, 30 episodes, broadcasting on Bright TV channel and Youtube, Facebook, along with the closed caption.
12	Project to drive the development according to the philosophy of sufficiency economy "To Release in the Philosopher's Way" <i>Organization: Bright TV Co., Ltd.</i>	18.00	6.97	The program presents the role model of the philosophy of sufficiency economy, with the length of 30 minutes, 40 episodes, broadcasting on Bright TV channel, Re-run on Bright TV channel and Youtube, Facebook, along with the closed caption.
13	Research project for the development of an integrated role of media, a case study of "model of mass media and the development to enhance the community level to be filled with the value in the way of pro-Thailand" <i>Organization: DN Broadcast Co., Ltd.</i>	18.95	7.48	The program presents the community economy development, with the length of 30 minutes, 40 episodes, broadcasting on New 18 channel, and Youtube, Facebook, along with the closed caption.
14	Project for research and evaluation of television program production for the benefit of the elderly "Cool Digital 4.0" <i>Organization: Social Business Leadership Center of Kasetsart University</i>	13.05	8.50	Program for the elderly, presenting the technology innovation in digital age, with the length of 5 minutes, 90 episodes, broadcasting on Royal Thai Army Radio and Television Channel 5, Re-run on Royal Thai Army Radio and Television Channel 5, and Youtube, Facebook, along with the closed caption.

Item	Projects	Budget requesting for allocation	Budget approved	Details
15	Project on documentary program for children, youth and Thai families' learning. <i>Organization: Next Step Co., Ltd.</i>	20.00	8.40	The program presents important natural and historical places, with the length of 25 minutes, 40 episodes, broadcasting on New 18 channel, Re-run on Channel Good TV along with the closed caption.
16	"Chu Jai" Project: the elderly's heart health caring robot, for the elderly care center <i>Organization: Faculty of Engineering, Mahidol University</i>	12.17	8.93	Developing Smart Healthcare Administrative Application System with "Chu Jai" robot to monitor negative emotions, evaluate behaviour problems, and evaluate memory problems together with taking care, assisting and mental treating of the elderly through an automatic interaction throughout 24 hours.
17	Project on notebook for safe health and food, on Blockchain permission <i>Organization: Mae Jo University</i>	5.57	4.60	Developing notebook for safe health and food to help improve the quality of life and warn of health problems for the elderly, the disabled and mothers and child, resulting in better quality of life for the Thai population in the group of the elderly, the disabled and the mother and child.
18	Project for the development of an individual health care platform in a holistic manner <i>Organization: Foundation for Equilibrium Therapy for Age and Health in the Patronage of Her Royal Highness Chaofa Petcharatsuda Sirisopaphanawadee</i>	18.88	13.03	Developing application and website to analyze the health risks that are reliable according to medical procedures. The indirect results on Face Detection can keep the face shape and related medical information to be developed to a database for further research. The research results can be extended to promote wider use.
19	Elderly care project <i>Organization: Asian Institute of Technology</i>	7.43	4.53	Increasing readiness to cope with the rapid increase of the elderly population. The prototype model shall be further developed to commercial products which create a new market for smart home devices that will help families watching the elderly as well as reducing dependence on foreign software.
20	Project for the use of smartphone sensors to find preliminary arterial stenosis of the elderly with risk factors for cardiovascular disease. <i>Organization: Suan Dusit University</i>	1.43	1.03	Developing application that use smart phone sensors to find preliminary arterial stenosis of the elderly with risk factors for cardiovascular disease.
21	Project on location tracking system to monitor the safety of the elderly in the building <i>Organization: Faculty of Science and Technology University of the Thai Chamber of Commerce</i>	3.84	3.37	Developing a location tracking system to monitor the safety of the elderly in the building, which can measure and predict health risks which affects the safety of daily life as well as alert immediately including sending information to medical professionals or public health personnel to diagnose symptoms and give advice on relieving symptoms or saving lives.

Item	Projects	Budget requesting for allocation	Budget approved	Details
22	<p>Knowledge production project for alternative medicine teaching "Traditional Lanna Way"</p> <p><i>Organization: Tai Ethnic Learnin Center in Lanna, Social Research Institute, Chiang Mai University</i></p>	0.80	0.77	<p>1. It is a recording of information and disseminating knowledge about alternative medicine of Lanna people to be used for teaching and for the general public who are interested.</p> <p>2. It is the basic knowledge body application including conserving national arts and culture by disseminating knowledge, building understanding and realizing the value of arts and culture.</p>
23	<p>Project to explore attitudes and needs of the people with hearing impaired or interpretation to television programs presentation under the regulation of the NBTC.</p> <p><i>Organization: Kasetsart University</i></p>	5.80	3.79	<p>1. TV program producers are more aware of the production of programs that take into account the perception of the people with hearing impaired or interpretation to be able to understand.</p> <p>2. The people with hearing impaired or interpretation to be able to understand and perceive information from television programs that they are interested in which help bring in the benefit for a living.</p> <p>3. The NBTC will be able to set policies to improve contents and types of television programs that are suitable for consumers with hearing impaired and interpretation.</p>
24	<p>Project for developing the explosive radar detection system under the railway for the security in the southern border provinces</p> <p><i>Organization: King Mongkut's University of Technology North Bangkok</i></p>	12.64	11.30	<p>Prototype of the ground penetrating radar systems for the prevention of improvised explosive device attacks. The development of a ground penetrating radar system will help solve the problem of under-rail bombing in the southern border provinces and can be used by the Southern Railway Disaster Surveillance Center based on the communication systems to receive information from radar on trains.</p>
25	<p>Project on Home without breaker 4.0: Revolutionize the electricity industry and disaster prevention.</p> <p><i>Organization: Ray Enterprise for Society</i></p>	19.83	11.47	<p>Promoting REM to HoME@Cloud, creating new knowledge body for the connection, resulting in the convergence of ICT and electricity and stimulating creativity in building new Apps that use electricity as the center of management to change consumer behaviour in using electricity and daily mission management.</p>
26	<p>Project for developing prototype of SMART Agriculture Platform by the integration of remote recognition technology with the AquaCrop model</p> <p><i>Organization: Faculty of Engineering Kasetsart University (Bang Khen)</i></p>	4.92	4.06	<p>Developing the forecast system of rice productivity which will allow farmers to manage and adapt to natural disaster situations caused by climate change by introducing 2G / 4G technology to support the appropriate decisions to help reduce costs / increase productivity including reducing the burden of the state compensation for the loss of farmers.</p>

Item	Projects	Budget requesting for allocation	Budget approved	Details
27	Intelligent household business accounting system project for the development of Thai farmers to Thailand 4.0 <i>Organization: Rangsit University</i>	4.61	2.55	Building software applications to cover the scope of household business accounting data recording for farmers in order to obtain an information system that would be useful for farmers in recording income, expenses and liabilities easier; reducing irregularities in accounting recording, and reducing errors in calculations to support the household accounting management and extend the management to government agencies so that they can use the accounting information that has been stored systematically and correctly in planning on investment for farmers either before, during or after the harvest.
28	Project for developing the prototype of intelligent pig farming by LoRaWan communication network <i>Organization: King Mongkut's University of Technology North Bangkok</i>	2.99	2.72	The prototype of intelligent pig farming will help manage pig farming in both reducing costs and increasing competitiveness for small and medium enterprises to access technology to compete with large entrepreneurs by applying LoRaWan technology to a medium of data communication and problems solving in the pig raising process. It will be beneficial to pig farming entrepreneurs especially entrepreneurs in the areas where communication is not connected.
29	Project for the development of an innovative model for converting textbook to digital game media for the integrated communication education in cooperation with a hierarchical community of practice learning center for teachers in the distance learning corridor areas. <i>Organization: Start-up enterprises</i>	19.57	9.11	Developing an innovative prototype program for converting textbook to digital game media which is useful for learners in the remote areas, opportunity expansion areas, learning corridor areas, as well as enhancing teachers of direct experience in the development of digital game media for education
30	Project to drive the quality of education and develop online systems to support the teaching of project work by an integrated research-based philosophy of sufficiency economy <i>Organization: Office of Academic Services, Prince of Songkla University</i>	18.43	6.30	Developing knowledge management system and supporting the learning that is linked between "teachers and students" with "experts and knowledge" through the internet which can be extended to schools in other areas, as a result, the quality of education in the areas will be upgradable and the philosophy of sufficiency economy will also be driven to apply in educational institutions.

Item	Projects	Budget requesting for allocation	Budget approved	Details
31	Project to study and develop the prototype for detecting and locating unauthorized signal sources with unmanned aircraft <i>Organization: King Mongkut's University of Technology North Bangkok</i>	9.17	7.73	The frequency monitoring agency or the security agency have knowledge and the prototype for detecting and locating unauthorized signal sources with unmanned aircraft and be able to suppress the offenders including the surveillance of potential hazards may be arising from a remote control sabotage by radio frequency.
32	MuTherm - Facesense project: the system for non-contact temperature screening which can detect a multi-facial temperature and data transmission via communication network. <i>Organization: Photonics Technology Laboratory, National Electronics and Computer Technology Center, National Science and Technology Development Agency</i>	19.91	15.41	Developing the system for non-contact temperature screening using thermal technology which can detect a multi-facial temperature and data transmission via communication network. The MuTherm can detect multi-facial temperature to monitor and prevent the loss of body, life, property and all related impacts arising from abnormal body temperature conditions on various reasons
33	Pilot project for the development of learning centers and courses to create Visual Reality Technology (VR) for students <i>Organization: King Mongkut's University of Technology North Bangkok</i>	19.89	12.95	Learning centers and courses to create Visual Reality Technology (VR) for training 200 students
34	Project on knowledge development for mass media in broadcasting and television services <i>Organization: ISARA Institute, Media Development Foundation of Thailand</i>	13.19	6.16	Training for enhancing knowledge in areas concerned of senior and middle executives of the agencies related to radio, television, media for a total of 110 people.
35	Project for developing local and regional program producers to produce programs to enhance the learning of children, youth and families <i>Organization: World Survey Foundation</i>	7.55	6.47	Training for 300 local program producers and getting a quality documentary contest of 60
36	Project on performance research and development and performance assessment system for the new generation of media personnel <i>Organization: College of Public Administration Burapa university</i>	13.34	3.93	Developing courses of competency, media professional ethics, and training of 100 students, as well as preparing a feasibility studies report on the development of a prototype competency assessment system.

Item	Projects	Budget requesting for allocation	Budget approved	Details
37	Project on platform to develop consultants for organizational change to the digital age <i>Organization: Association Thai Software Industry (ATSI)</i>	14.21	6.97	Developing and training on digital technology for 100 experts and start-up groups
38	Project for developing wireless communication in the 5G era in national level, Episode 1, Encryption technology: technology transfer, telecommunications personnel development, preparation of knowledge and media manuals <i>Organization: Chulalongkorn University</i>	1.19	0.98	Knowledge transfer to 500 researchers and lecturers
39	Project on career path camp training on information technology, radio and television broadcasting, and telecommunications for students and students in Kamphaeng Phet Province and nearby provinces <i>Organization: Kamphaeng Phet Rajabhat University</i>	5.18	2.44	Training on information technology for 1,000 students in Kamphaeng Phet Province and nearby
40	Enhancing skills of media literacy and supporting the youth role (love peace) to develop the southern border provinces <i>Organization: Association for Peace in the South (Peaceful of Southern Boundary Organization: POSBO)</i> <i>Project duration of 12 months</i>	17.92	3.80	Network of the youth having the understanding of media literacy in the southern border area
41	Yes before sharing ... sure before like. <i>Organization: Youth Association for City Development</i> <i>Project duration: 12 months</i>	1.98	1.77	1. Creating knowledge body in driving mechanism of participation in the media literacy. 2. Participants have more skills in media literacy.
42	Project for developing media literacy kit and training program for teachers for early childhood and young children <i>Organization: Bureau of Promotion and Academic Services, King Mongkut's Institute of Technology Ladkrabang</i> <i>Project duration: 21 months</i>	5.04	4.63	1. Groups of children, teachers, parents and guardians have the ability to think, analyze and distinguish media appropriately according to the development of the target group. 2. The number of people who have trained in the use of the Media Literacy Kit in schools and the child development center in Bangkok and local administrative organizations was totally 500 people.

Item	Projects	Budget requesting for allocation	Budget approved	Details
43	Enhancement of the potential of the digital know-how and knowingly that is related to the engagement and risks of using online social media of the people <i>Organization: Faculty of Communication Arts, Chulalongkorn University</i> <i>Project duration: 24 months</i>	3.82	3.17	Website for learning that focuses on textbook and content which can be used as a tool to enhance digital literacy and online social media awareness for people
44	Project on Thai puppet cares about consumers <i>Organization: Foundation for the Artist Society</i> <i>Project duration: 7 months</i>	2.35	2.04	Children and youth receive knowledge about knowing danger from online media.
45	Project on Social Media Smart Page Award <i>Organization: Group of persons, Thai Civil Rights and Investigative Journalism (TCIJ)</i> <i>Project duration: 20 months</i>	5.23	2.43	<ol style="list-style-type: none"> 1. Trainees of group of general people receive knowledge on media literacy for 12 persons 2. Increasing the number of creative media production and the amount of safe and creative media space on online social media
46	Project to promote skills on media literacy of the disadvantaged and the elderly of ethnic groups <i>Organization: Anothai Foundation</i> <i>Project duration: 18 months</i>	1.96	1.64	Trainees have skills on media literacy, creative media production, use or communication in various channels
47	Measurement of the strength of the electromagnetic field radiating from a community radio base station and digital television transmission stations <i>Organization: Electrical and Electronic Product Testing Center (PTEC) National Science and Technology Development Agency (NSTDA) Ministry of Science and Technology</i> <i>Project duration: 24 months</i>	13.49	10.45	<ol style="list-style-type: none"> 1. Providing testing service of electromagnetic propagation from radio stations or television stations 2. Upgrading the domestic testing lab 3. Being a testing laboratory on the effects of electromagnetic field on human health from radio stations, television stations
48	Study project on the effectiveness, efficiency and guidelines for the development of digital terrestrial television viewing in Thailand after the transition <i>Organization: Thammasat University Research and Consultancy Institute</i>	12.50	5.21	Four reports on digital television after the transition and a policy recommendation paper proposed to the NBTC and related agencies.

Item	Projects	Budget requesting for allocation	Budget approved	Details
49	The Research and Development Project on Stenograph for Thai Language <i>Organization: Suan Dusit University</i>	8.54	4.35	Researching and developing the prototype of the typewriter of the closed caption that can actually be used and useful in the development of work in the right promotion and protection of the disabled to access or perceive and utilize television programs according to the criteria and policies of the NBTC.
50	Intelligent coordination wireless network for monitoring natural disasters and SAR <i>Organization: Amateur Radio Association of Thailand under the Royal Patronage</i>	8.31	6.93	Wireless emergency backup networks for disaster areas such as earthquakes, tsunamis, etc., are beneficial to people and those who are concerned can receive a fast and accurate information about the nature in the needed areas free of charge. Also, farmers can receive the information about the nature in the certain time in order to evaluate the decision to plan for the operation.
51	Project on rescuer cars be proficient with an information system for efficient assistance. <i>Organization: Srinakharinwirot University</i>	4.50	4.04	The rescuer cars having an information system used for rescuing victims efficiently are considered as technological tools for social enterprise, help reduce damages of national economy and society.
52	Project on alert and surveillance system of water quality of fish farmers in floating baskets along the Mekong River <i>Organization: That Phanom College, Nakhon Phanom University</i>	0.37	0.36	Developing an alert and surveillance system of water quality used for raising fish in floating baskets along the Mekong river basin by using natural imitation and wisdom methods combined with engineering principles as a device to monitor and surveillance water quality at all times and the system will alert and automatically command the aeration machine open automatically when an irregularity is found in order to replace workers who observe fish behaviour in floating baskets which help reduce the cost of fish farmers and the risk of all fish died.
Budget total		531.85	304.30⁹	

Remarks : Data as of 31 December 2018

However, 45 projects has already been signed the contract and it is expected that other 7 projects will be signed the contract by January 2019.

⁹ The opinion from the Fund Management Committee is that the funds should be allocated to promote and support the implementation of the project type 1 in 2018 for 53 projects, with a total amount of 305.42 million baht. However, the result of the NBTC's consideration was to approve 52 projects with a budget framework of 304.30 million baht, and did not approve for 1 project.

2.2 Effectiveness Evaluation

(1) To measure the effectiveness of the projects granted by the Fund which have already been completed, the BTFP had assigned the Mahidol University to conduct a follow-up and evaluation of the projects being promoted and supported by the Fund in 2014 which were completed for totally 16 projects. The said project evaluation had been conducted in 4 dimensions as follows: 1) Efficiency 2) Effectiveness 3) Impact 4) Sustainability, and the evaluation criteria had been categorized into 5 levels. The result of the project evaluation in an average was found that the impact dimension and the sustainability dimension were in the medium level while the efficiency dimension and the effectiveness dimension were in the high level.

(2) In 2018, the financial status of the BTFP has been constantly secured and fulfilled the objectives under Section 55 of the Act on the Organization B.E. 2553 (2010) and its amendment. The financial status of the Fund in 2018 consisted of the total assets at the amount of 69,566.83 million baht, increasing 9,627.36 million baht from the year 2017. Most of the assets was bank deposits at the amount of 49,148.97 million baht. Financial stability was in a very good basis with the current ratio of 18.54 : 1 (higher than accounting base line which defining not more than 1.5 : 1), and the total debt ratio was 0.15 : 1 (lower than accounting base line which defining not exceed 1.5 : 1). The average rate of return of the Fund was 1.60 percent, higher than the rate of return of the 5 large commercial banks in Thailand, which is accounted for 0.87 percent. Details are as shown in Table 13.

Table 13 : Comparison of the financial statement of the Fund between the year 2018 and 2017

Details	Million baht		Increase (decrease)	
	2018	2017	Percent	Million baht
Financial statement				
Bank deposit	49,148.97	38,399.14	27.99	10,749.83
Current assets	60,160.98	50,939.36	18.10	9,221.62
Total assets	69,566.83	59,939.47	16.06	9,627.36
Current liability	3,245.73	1,591.35	103.96	1,654.38
Total liability	10,457.34	6,399.72	63.40	4,057.61
Performance				
Revenue	11,433.52	11,662.36	(1.96)	(228.84)
Disbursement	2,666.30	1,502.53	77.45	1,163.77
Cash flow				
Cash receipts	17,171.98	9,465.60	81.41	7,706.38
Cash disbursement	6,422.15	2,883.67	122.71	3,538.48
Cash receipts over disbursement	10,749.83	6,581.93	63.32	4,167.90
Cash balance	49,148.97	38,399.14	27.99	10,749.83
Financial ratio				
Current ratio (:1)	18.54	32.01	(13.47)	-
Debt Ratio (:1)	0.15	0.11	0.04	-
Average return rate of the Fund	1.60	1.64	(0.04)	-
Average interest rate of 5 large commercial banks	0.87	0.87	0.00	-

(3) The implementation of the projects that were granted and spent in the year 2018 had achieved the objectives under Section 55 of the Act on Organization B.E. 2553 (2010) and its amendment as they have pushed forward the development of broadcasting, television and telecommunications services, including being a part of the linchpin for the development of Thailand in many dimensions such as economy, society, human resources development, and security.

3. Operational goals in 2019

For the year 2019, the BTPF has still committed and focused on the operation for the public benefit to ensure that the people have been provided with the broadcasting, television and telecommunications services thoroughly, including pushing forward the research and development of the broadcasting, television and telecommunications services, building the ability on technology media literacy, frequency usage, information technology, facility technology for the disabled and the elderly, personnel development in broadcasting, television and telecommunications services, consumer protection and supporting the operation according to the government's policies. It has thus set the operational goals for the year 2019 as follows:

3.1 Goal on driving policies and strategies

(1) To review and improve the Master Plan on Research and Development in Broadcasting and Telecommunications Services in 5 years (2017-2021) to be in accordance with the new Master Plan of the NBTC consisting of Telecommunications Master Plan, Broadcasting Master Plan, and Spectrum Management Master Plan including the National Research and Innovation Strategy in 20 years (2017 - 2036).

(2) To formulate the Master Plan on Promotion and Development of Personnel in Broadcasting, Television, Telecommunications and Information Technology in 5 Years to be a direction framework for the promotion and support of personnel and to respond to the needs of the labour market in broadcasting, television and telecommunications and information technology truly and sustainably in line with the policy and direction of the country development.

3.2 Goal on the Fund allocation

The BTFP will allocate the fund in 2019 according to budget framework approved by the NBTC for the amount of 1,000.00 million baht in order to achieve the vision prescribed. Details are as shown in Table 14.

Table 14 : The Fund's monetary allocation framework in 2019

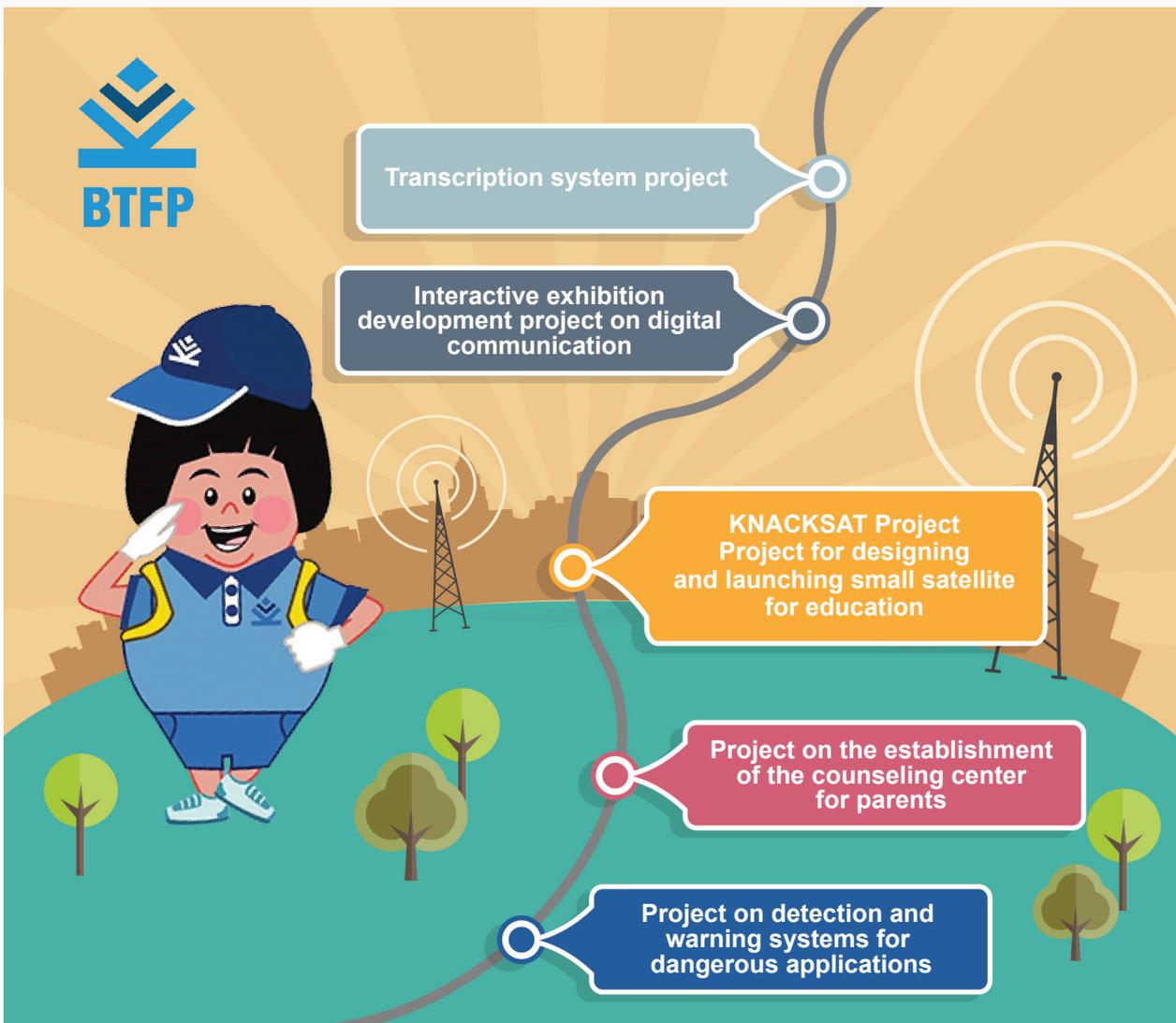
Unit : Million baht

Item	The Fund's monetary allocation framework in 2019	Amount
1	Project Type 1 Project or activity originating from the eligible person requested be promoted and supported	300.00
2	Project Type 2 Project prescribed by the Fund Management Committee	700.00
	2.1 Project focusing on the achievement-based according to the policies of the Fund Management Committee (Strategic Grant)	670.00
	• Broadcasting and television services	200.00
	• Telecommunications service	200.00
	• Spectrum management service	70.00
	• Research and development service	200.00
	2.2 Continual projects (by having agreement with the granted organizations)	30.00
	Total	1,000.00

3.3 Goal on managing the BTFP effectively and securely

The BTFP will improve the management system continuously to be more effective and secure than the previous year, and improve rules, regulations and criteria related to the operation such as practical guideline for project management and applying information technology to facilitate the operation of the Research and Development Bureau and the Fund grantees. It will also enhance the potential of personnel of the Research and Development Bureau to be ready to work in

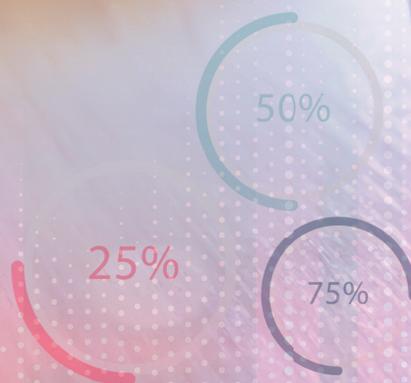
accordance with the BTFP's policies and plans towards the goals achievement. The personnel development includes skills and experiences in policy and plan analysis, project analysis and evaluation, finance and accounting, management of research, intellectual property and foreign languages, as well as promoting the public relations on the BTFP performance, the research granted by the Fund, and information which will be useful to the society and image of the BTFP to be more widely known.





4

Report on Market Situation and Competition in Broadcasting, Television and Telecommunications Services in 2018



Market situation in broadcasting, television and telecommunications services in 2018

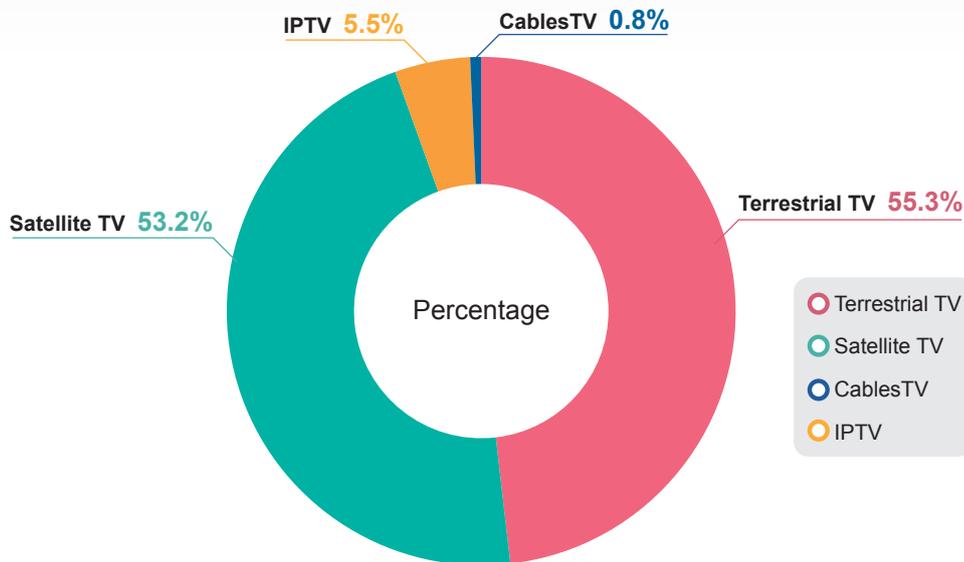
1. Television market situation in 2018¹⁰

1.1 Proportion of the access to Thai households of platforms for television viewing

According to the survey on platforms for television viewing of Thai households via terrestrial television network (analog and digital system), satellite network, cable network, and IPTV network conducted by the National Statistical Office in 2018¹¹, it is found that most households have

viewed television programs through terrestrial television network by using antenna (analog system) and Set-Top Box (digital system) or accounting for 55.3 percent, followed by viewing via satellite network which is accounted for 53.2 percent, and viewing via cable network and IPTV network which is accounted for 0.8 percent and 5.5 percent, respectively. Details are as shown in Chart 6.

Chart 6 : Proportion of penetration to Thai households of channels for viewing television



Remarks: Households can answer more than one channel of viewing.

Source: National Statistical Office

1.2 Proportion of viewers on television channels in 2018

According to the survey data on television channel viewing of people throughout the country, it is found that in 2018, the proportion of viewers on terrestrial television to the proportion of viewers on cable TV and satellite TV was 88.44 : 11.56 percent in average. However, when considering the

proportion of viewers on television channels categorized by residential areas, it is found that the proportion of viewers who live in Bangkok and its vicinities on terrestrial television remains higher than the proportion of viewers living in provincial areas, or it can be accounted at the proportion of 92.73 : 87.55 percent. Details are as shown in Table 15.

¹⁰ Television data from Nielsen is collected from the population at the age of 4 and above

¹¹ The National Statistical Office, Ministry of Digital for Economy and Society had conducted the survey of 83,880 sampling households in all provinces throughout the country, either within and outside the municipality, in the 1st quarter of 2018. It is a collaboration between the National Statistical Office and the Office of the NBTC to collect data about the households' usage of equipment and networks for viewing television.

Table 15 : Proportion of viewers on television channels during the year 2017 - 2018

Year	Bangkok and its vicinities		Provincial areas		Nationwide	
	Terrestrial (percent)	Cable/Satellite (percent)	Terrestrial (percent)	Cable/Satellite (percent)	Terrestrial (percent)	Cable/Satellite (percent)
2017	59.31	10.69	85.63	14.37	86.26	13.74
2018	92.73	7.27	87.55	12.45	88.44	11.56

Source : Nielsen

However, having compared the proportion of viewers on television channels throughout the country between the year 2018 and 2017, it is found that people across the country are more likely to watch terrestrial television channels, or increasing from 86.26 percent in 2017 to 88.44 percent in 2018; while the proportion of viewers on cable TV and satellite TV channels is likely to decline, or decreasing from 13.74 percent in 2017 to 11.56 in 2018.

1.3 Advertising value of terrestrial television service in 2018

The advertisement value of terrestrial television service in 2018 was totally 67,936 million baht which can be categorized to the advertising of public television channels at the amount of 4,515 million baht, the children, youth and family channels at the amount of 624 million baht, the news and documentary channels at the amount of 2,592 million baht, the standard definition channels (SD) at the amount of 18,045 million baht, and the high definition channels (HD) at the amount of 42,160 million baht. Details are as shown in Table 16.

Table 16 : Advertising value of terrestrial television service during the year 2017 - 2018

Type of TV channels	2017		2018		Percentage of change in 2017 - 2018
	Million baht	Percent	Million baht	Percent	
Public television channels	4,553	7.25	4,515	6.65	- 0.83
Children, youth and family channels	388	0.62	624	0.92	60.82
News and documentary channels	2,560	4.07	2,592	3.82	1.25
Standard definition channels	13,115	20.87	18,045	26.56	37.59
High definition channels	42,211	67.19	42,160	62.05	- 0.12
Total	62,827	100.00	67,936	100.00	8.13

Source : Nielsen

Having considered the advertising value of terrestrial television in 2018 comparing with the advertising value in 2017, it is found that the advertising value is likely to increase for approximately 5,109 million baht or increasing 8.13 percent. However, when comparing the growth of the advertising value categorized by type of

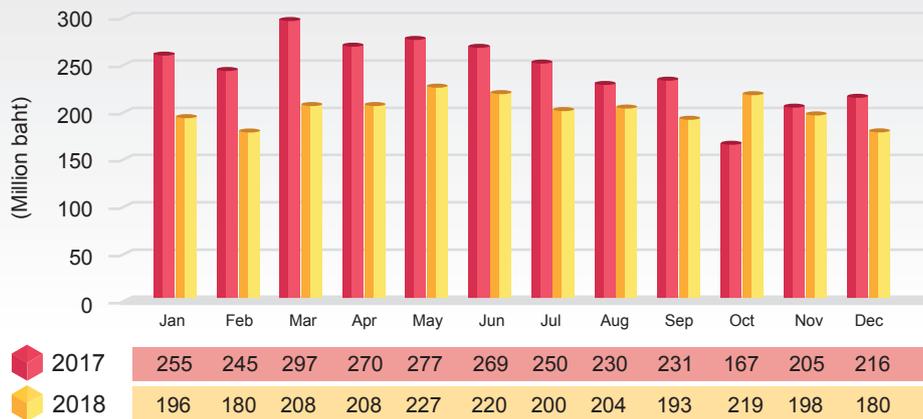
channels, it is found that the advertising value of the children, youth and family channels, the news and documentary channels and the normal definition channels are likely to increase while the advertising value of the public channels and the high definition channels are likely to decrease.

1.4 Advertising value on cable/satellite TV in 2018

The value of advertising on cable/satellite TV in 2018 was totally 2,433 million baht, decreasing from the previous year for 479 million baht, or accounting for 16 percent from the year 2017. This

has shown the trend of less money on advertising will be spread on cable/satellite TV channels due to people's behaviors in a decrease of viewing cable/satellite TV channels across the country. Details are as shown in Chart 7.

Chart 7 : Advertising value on cable/satellite TV during the year 2017 - 2018



Source: Nielsen

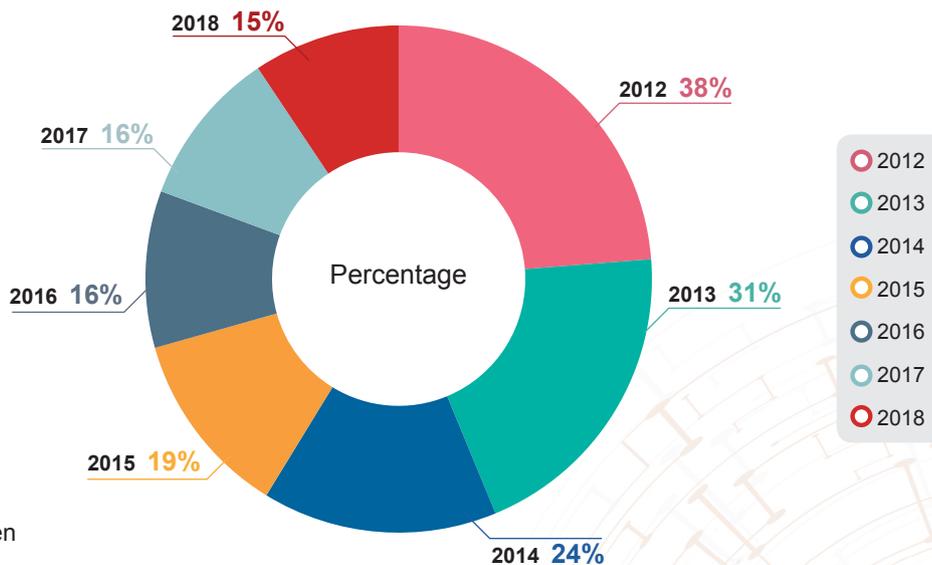
2. Market environment in broadcasting service in 2018¹²

2.1 Proportion of the access to radio broadcasting in all channels in 2018¹³

In 2018, the access rate to radio broadcasting in all channels was 15 percent of the population across the country which is decreasing from the

previous year at 1 percent approximately. It was also found that the most frequent period of time having the highest number of people listening to radio broadcast was between 08.00 - 11.00 hrs. and 14.00 - 18.00 hrs. Details are as shown in Chart 8.

Chart 8 : Proportion of the access to radio broadcasting in all channels during the year 2012 - 2018



Source: Nielsen

¹² Radio data on from Nielsen is collected from the population at the age of 12 and above

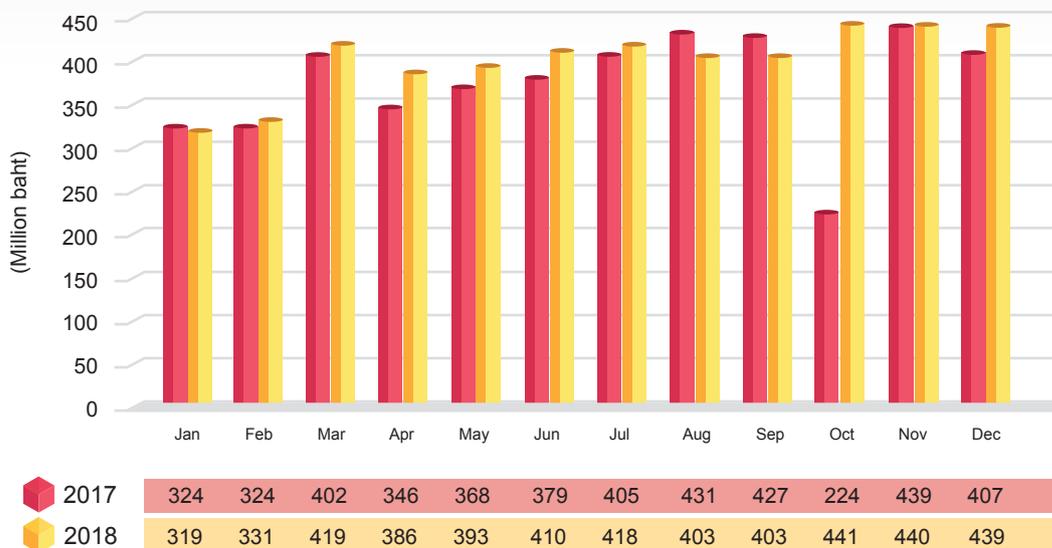
¹³ is the survey on the population at the age of 12 and above who listen to the high power F.M. radio for 40 stations (87.5 MHz - 107.0 MHz) in all channels (such as radio receivers, mobile phones, tablets, computers, etc.) in Bangkok and its vicinities areas

However, when considering from the proportion of the number of people listening to radio broadcasting (categorized by venue), it is found that most people like to listen to radio at home, followed by listening in cars and workplace. Besides, the most frequent device using for listening to radio is the radio receivers, followed by mobile phones and computers, respectively.

2.2 Advertising value in the broadcasting service in 2018

The advertising value via the 36 high power radio broadcasting stations in FM system in Bangkok and its vicinities (88.0 - 91.5 MHz, 93.0 - 103.5 MHz and 104.5 - 107.0 MHz) in 2018 was 4,802 million baht. However, when the comparison was made to the year 2017, it is found that the advertising value in the year 2017 was approximately 4,476 million baht, lower than the advertising value in the year 2018 for 326 million baht or accounting for 7 percent. Details are as shown in Chart 9.

Chart 9 : Advertising expenses via the high power radio broadcasting stations in FM system in Bangkok and its vicinities during the year 2017 - 2018



Source: Nielsen

3. Market environment in Telecommunications service in 2018

The World Economic Forum (WEF), Geneva, Switzerland, held on 16 October 2018 noted the report of global competitiveness ranking by Global Competitiveness Index (GCI) in 2018 of 140 countries around the world by considering the country development factors to promote economic growth continuously and sustainably consisted of 98 indicators of assessment criteria which are divided into 12 pillars such as environment in infrastructure institution, environment in macroeconomic, public health and basic education, advanced education and training, efficiency of goods market, labor

market, money market development, technology availability, market size, business expertise, and innovation.

The result of this ranking found that Thailand has a better world ranking from the 40th to the 38th rank, and ranked third in ASEAN countries, after Singapore that ranked second in the world and Malaysia that ranked the 25th in the world. For other countries in ASEAN such as Indonesia ranked the 45th, the Philippines ranked the 56th, Brunei Darussalam ranked the 62nd and Viet Nam ranked the 77th, etc.

For the ICT Development Index (IDI) Report being released in November 2017, which is the indicator to measure the digital divide and compare ICT performance within and 176 countries worldwide, it is found that in the recent year Thailand ranked the 76th in the world, with a better ranking from the previous rank of the 77th.

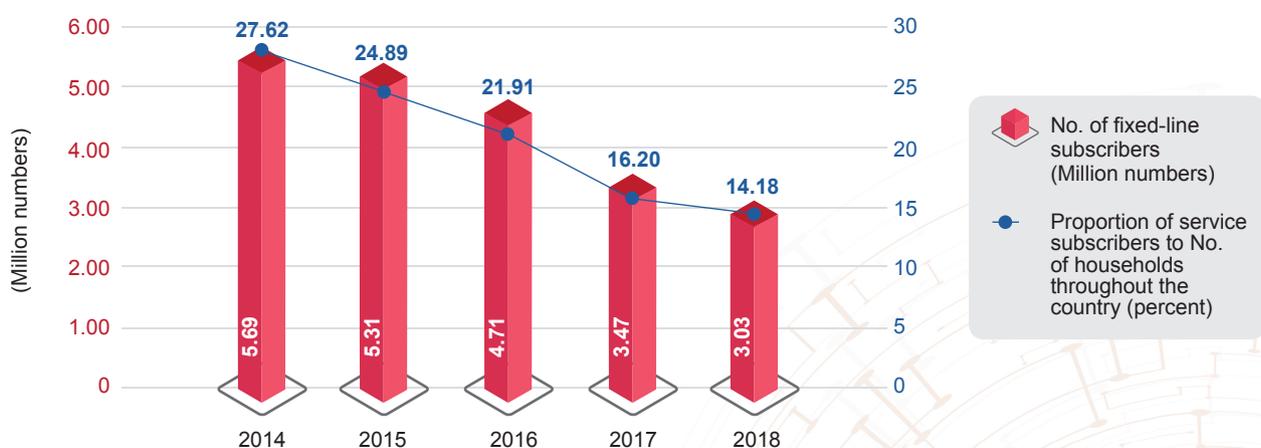
In ASEAN, Thailand has still remained the 4th rank, after Singapore, Brunei Darussalam and Malaysia. However, the key indicators indicate that Thailand ranking is still above the world average and the countries in Asia-Pacific region. There was only the data of the number of fixed internet subscribers per 100 inhabitants and the usage amount of international internet bandwidth (bits/s) per user which remained lower than the world average. It is expected that the operation of the NBTC in the next phase which having focused on the development of the wired internet infrastructure including the expansion of international internet bandwidth will enhance the potential of a better ICT competitiveness and a better rank of ICT development of the country.

The competitive situation in telecommunications market can be divided into 3 major markets consisting of market of fixed-line service, market of mobile phone service and market of internet service.

3.1 Market of fixed-line service

The number of subscribers in the market of fixed-line service of Thailand in 2018 has a constant decrease. In 2018, there was approximately 3.03 million numbers, decreasing 12.68 percent when compared to the year 2017, and the proportion of fixed-line subscribers per the number of households was 14.18 percent. Details are as shown in Chart 10. The market share of fixed-line service is occupied by TOT Public Company Limited (TOT) as it is an incumbent. The main reasons are the nature of the fixed-line business which requires a high investment, thus resulting in a natural monopoly. Besides, there are several limitations under the terms of contract for the entrance to the competition of new operators which made the results of the commercial investment analysis for the fixed-line business unworthy. The reasons also include the market that is fully saturated situation and the behaviour of users that have changed to use substituted services with other technologies to achieve communication objectives for a reason of convenience and lower cost.

Chart 10 : Number of fixed-line subscribers during the year 2014 - 2018*



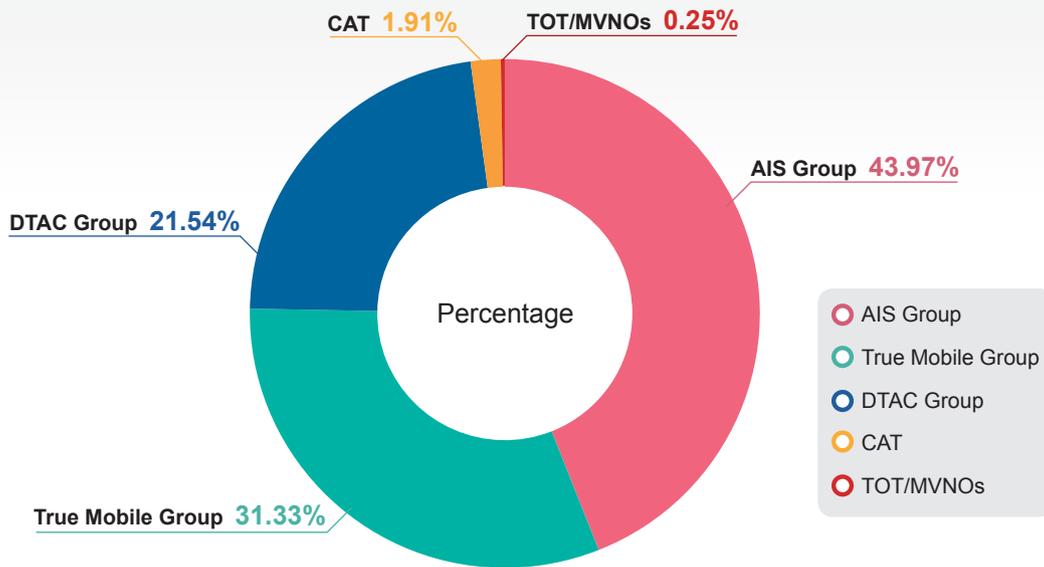
Remarks: *Estimated Data

3.2 Market of mobile service

The number of mobile subscribers in 2018 was approximately 124.81 million numbers or increasing 2.70 percent comparing to the year 2017. When compared the number of mobile subscribers to 100 inhabitants, the penetration rate was 184 percent and when considering the market share of mobile service in 2018, it is found that AIS Group

held the largest market share of 43.97 percent, followed by True Mobile Group who held the market share of 31.33 percent (increasing from 29.66 percent in 2016). Details are as shown in Chart 11. The HHI value of the market of mobile service in 2018 was 3,427, increasing from 3,399 in the previous year.

Chart 11 : Market share of mobile service providers in 2018*



Remarks: *Estimated Data

3.3 Market of internet services

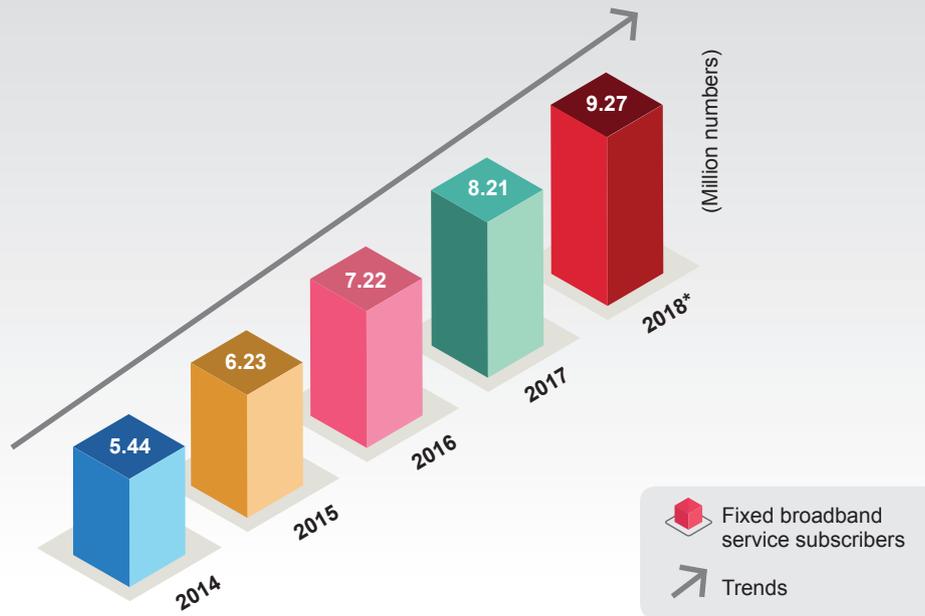
At present, the internet service of Thailand can be provided in various platforms and most internet users have used services through mobile broadband service platform and fixed broadband service platform.

Fixed Broadband

Nowadays, the market of narrowband internet service is about to disappear from the internet service market such as Dial-up technology, and the broadband service can be connected to several technologies by switching from technology in the group of xDSL (Digital Subscriber Line) to technology of FTTP (Fiber to the Premises). In 2018, the number of fixed broadband service

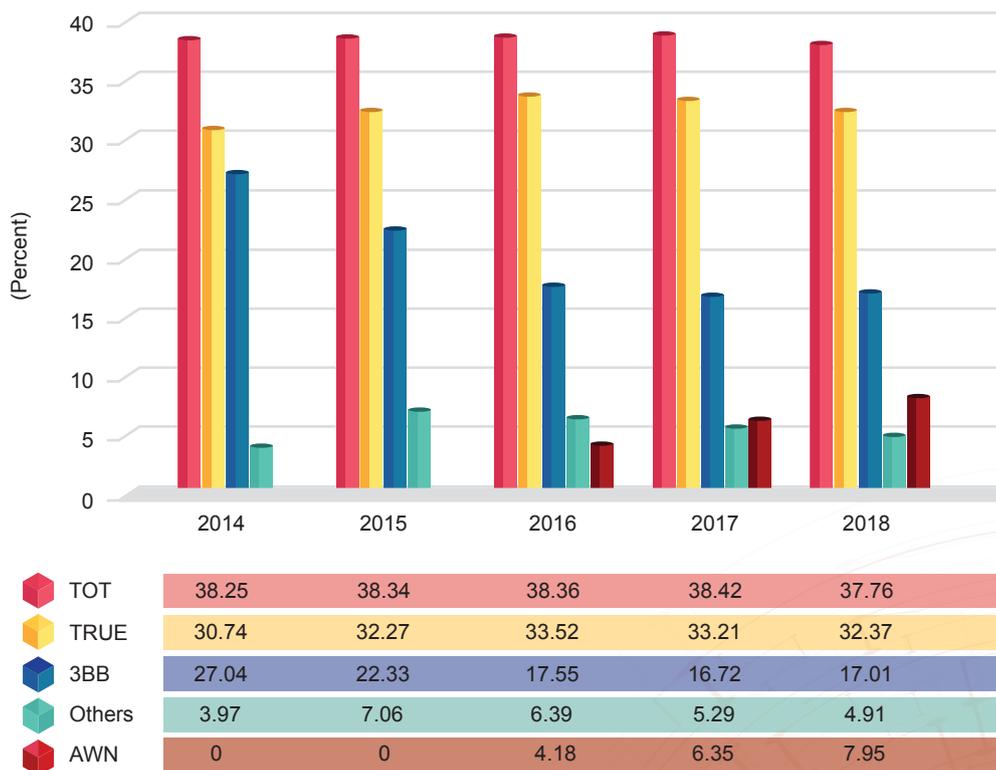
subscribers was 9.27 million subscribers, increasing 12.94 percent when compared to the year 2017, details are as shown in Chart 12. When considering the accessibility, it is found that the proportion of the number of fixed broadband service subscribers was 13.67 subscribers per 100 inhabitants, or 43.34 households that have subscribed the service per 100 households throughout the country. For the market share of fixed broadband service in 2018, it is found that TRUE held the largest market share of 37.76 percent, followed by 3BB who held the market share of 32.37 percent, details are as shown in Chart 13. The HHI value in 2018 was dropped to 2,850 when compared to the previous year which was 2,927.

Chart 12 : Number of fixed broadband service subscribers during the Year 2014 - 2018*



Remarks: *Estimated Data

Chart 13 : Market share of Fixed broadband service during the year 2014 - 2018*



Remarks: *Estimated Data

Mobile broadband service

The number of mobile broadband service subscribers was approximately 72.68 million numbers, or increasing 6.34 percent when compared to the year 2017 with the access rate to the population of 107.15 percent. Details are as shown in Chart 14. Having considered the market share

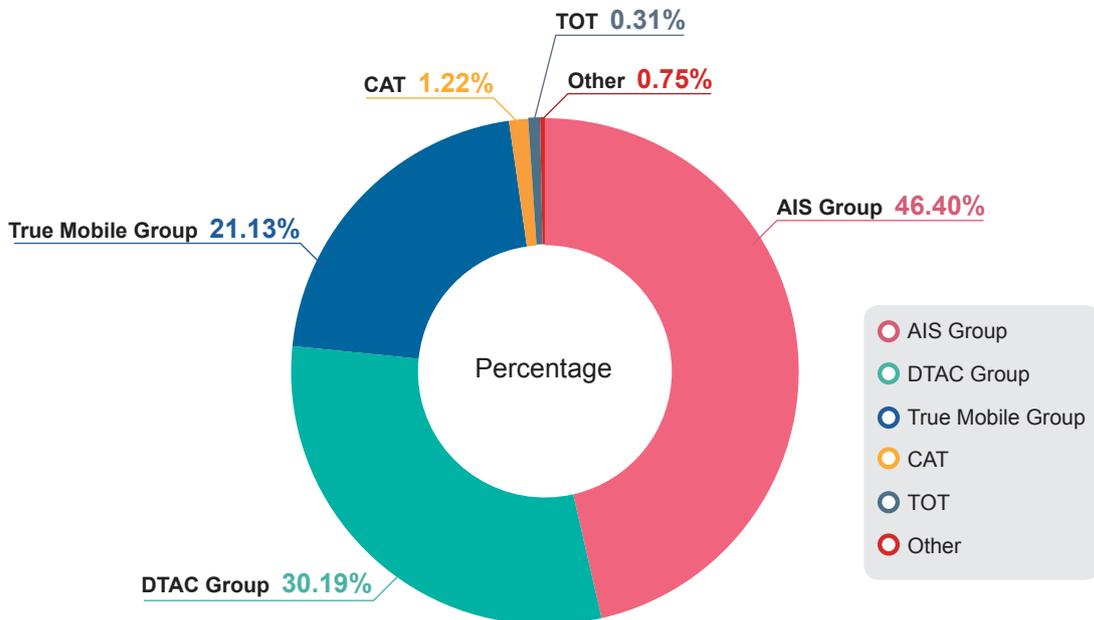
in 2018, it is found that the proportion of AIS Group was the largest at 46.40 percent, followed by DTAC Group with the proportion of 30.19 percent, and True Mobile Group with the proportion of 21.13 percent, details are as shown in Chart 15. For the HHI value, it is likely to increase from 3,480 in 2017 to 3,513 in 2018.

Chart 14 : Number of fixed-line subscribers during 2014 - 2018*



Remarks: *Estimated Data

Chart 15 : Market share calculated by number of internet service subscribers in 2018*



Remarks: *Estimated Data

The observation on the action in the nature of dominance in broadcasting and telecommunications services

1. The observation on the action in the nature of dominance in broadcasting and television services which has impacted the benefits of the state and people

In 2018, the NBTC has revised, and abolished the NBTC Notification on Determination of Characteristics and Regulatory Measures for Mergers, Cross-shareholdings and Dominance in Broadcasting Service with the view to deregulating the criteria and reducing procedures to comply to a complicated notification by issuing the NBTC Notification on Regulatory Measure on Mergers in Broadcasting Services, publishing in the Royal Gazette on 20 August 2018. The part of broadcasting services dominance has been specified in Chapter 2 Business dominance by persons having mutual Interests which is prescribed that if there is any action in a manner of the business domination, either directly or indirectly, done by persons having mutual interests that may result in a monopoly, reduction or restriction of competition, the NBTC may have an order to determine a special measure to prevent the action which is considered a monopoly or a cause to unfair competition. However, after the enforcement of the said notification, there has not yet evidence of any licensees involving in the action in a manner of the broadcasting business domination, either direct or indirect, which may result in a monopoly, reduction or restriction of competition.

2. The observation on the action in the nature of dominance in telecommunications service which has impacted the benefits of the state and people

In 2018, the NBTC had regulated the mergers in telecommunications service and carried out activities according to the mergers by issuing the NBTC Notification on Measure to Regulate Mergers in Telecommunications Service publishing in the Royal Gazette on 19 January 2018. The issuance of the notification is to revise the NTC Notification on Criteria and Procedures for Mergers and Cross-shareholdings in Telecommunications Service B.E. 2553 (2010) in order to increase the

efficiency of the mergers and reduce times and costs; create benefits in practice; obstacles to the promotion of free and fair competition and be in accordance with international principles in the business mergers.

In addition, the NBTC has published the guidelines on Measure to Regulate Mergers in Telecommunications Service to enhance the understanding of licensees or the power control persons of the licensees wishing to merge the business so that they are able to comply to the procedures specified in the NBTC Notification. In the year 2018, the following important actions were taken.

2.1 The operation concerning to business mergers according to the NTC Notification on Criteria and Procedures for Mergers and Cross-shareholdings in Telecommunications Service B.E. 2553 (2010) and the NBTC Notification on Measure to Regulate Mergers in Telecommunications Service.

(1) The operation according to the NTC Notification on Criteria and Procedures for Mergers and Cross-shareholdings in Telecommunications Service B.E. 2553 (2010).

- The mergers between Advance Wireless Network Company Limited and Super Broadband Network Company Limited, by preparing a report to evaluate behavior and impacts on the relevant markets after the mergers in Q2/2017 to present to the NBTC Meeting No.2/2018 on 24 January 2018, and the NBTC Meeting had the resolution to note the report as proposed by the Office of the NBTC.

- The mergers between TIME dotCom International Sdn Bhd. and Symphony Communication Public Company Limited, by preparing a report to evaluate behavior and impacts on the relevant markets after the mergers in Q3/2017 (No.3) - Q2/2018 (No.6) to present to the NBTC Meeting, and the NBTC Meeting had the resolution to acknowledge the report as proposed by the Office of the NBTC.

- The mergers between True Internet Corporation Company Limited and True Internet Company Limited by preparing a report to evaluate behavior and impacts on the relevant markets after the mergers in Q4/2017 (No.3) - Q3/2018 (No.6) to present to the NBTC Meeting, and the NBTC Meeting had the resolution to note the report as proposed by the Office of the NBTC.

(2) The operation according to the NBTC Notification on Measure to Regulate Mergers in Telecommunications Service.

- NTT Communications Company Limited had a letter dated 14 March 2018 to notify the business mergers under Article 5 Paragraph Two of the NBTC Notification on Measure to Regulate Mergers in Telecommunications Service, and the Office of the NBTC had a letter No.5002/10457 dated 11 April 2018 to acknowledge the mergers under Article 5 Paragraph Two of the NBTC Notification on Measure to Regulate Mergers in Telecommunications Service.

- True Internet Corporation Company Limited had a letter No.TICC/REG/152/2018 dated 6 March 2018 regarding the compliance to the NBTC Notification on Measure to Regulate Mergers in Telecommunications Service and the Office of the NBTC had a letter No.5002/10709.28 dated 18 April 2018 to acknowledge the mergers under Article 6 of the NBTC Notification on Measure to Regulate Mergers in Telecommunications Service.

- NTT Communications (Thailand) Company Limited had a letter dated 12 June 2018 to notify the business mergers and Digital Port Asia Company Limited had a letter dated 12 June 2018 to notify the business mergers, and the Office of the NBTC had a letter No.5002/18609 and No.5002/18610 dated 6 July 2018 to acknowledge the mergers under Article 6 of the NBTC Notification on Measure to Regulate Mergers in Telecommunications Service.

Quality of service and telecommunications service rates that are important to the people

The NBTC has regulated the business operation in order to promote the free and fair competition to both operators and people as consumers to receive services with good quality at fair rate of service. The NBTC will check the quality of service provided by telecommunications operators according to the business licensing criteria, procedures, and conditions to ensure that the service provision are in accordance with standards and quality of telecommunications service, and the users are protected to receive services with good quality. Besides, the NBTC has regulated the structure of the rate of service to be fair to users and providers by taking into account the benefits of the country and people as follows:

1. Regulation on quality of service

In 2018, the NBTC had issued the NBTC Notification on Standard and Quality of Telecommunication Service Provision (Data Service) via Mobile Network, publishing in the Royal Gazette on 15 May 2018, which is the amendment of the NBTC Notification on Standard and Quality of Telecommunication Service Provision (Data Service) via Mobile Network B.E. 2555 (2012) to be in accordance with the current development of telecommunication technology and to ensure that the people have received services with good quality. The Office of the NBTC will monitor the quality of telecommunications service provision both in voice service¹⁴ and data service¹⁵ to ensure that the service

¹⁴ The quality of service parameters is shown in Appendix of the NBTC. Notification on Standard and Quality of Telecommunication Service Provision (Voice Service) published in the Royal Gazette on 29 June 2017, No.134, Special Section 173 D.

¹⁵ The quality of service parameters are shown in Appendix of the NBTC Notification on Standard and Quality of Telecommunication Service Provision (Data Service) via mobile telecommunication network published in the Royal Gazette on 15 May 2018, No.135, Special Section 109 D, and the NBTC Notification on Standard and Quality of Telecommunication Service Provision (Data Service) via mobile telecommunication network published in the Royal Gazette on 5 October 2012, No.129, Special Section 152 D.

provision is in line with the standards attached to the NBTC Notifications every year continuously by requiring operators to submit the quarterly report on the test of quality of service provision to the Office of the NBTC, as well as taking the field operation to measure the quality of service provision. The results are as follows:

1.1 Monitoring the quality of telecommunications service provision from the report on the test of quality of service provision submitted by telecommunications operators

(1) The quality of service (voice service) of telecommunications operators consists of fixed-line service, public payphone service, and long distance call via satellite communications service¹⁶, it is found that in 2018 the quality of telecommunications services (voice service) provided by all service providers has met the standards required and most service providers have a high standard of service quality.

(2) The quality of service (data service) of telecommunications operators consisting of Advance Wireless Network Company Limited (AWN), CAT Telecom Public Company Limited (CAT), True Move H Universal Communication Company Limited (TUC), DTAC Trinet Company Limited (DTN), Total Access Communication Company Limited (TAC), and TOT Public Company Limited (TOT), it is found that in 2018 the quality of telecommunications services (data service) provided by all service providers has met the standards required.

1.2 Monitoring the quality of telecommunications service provision by the Office of the NBTC

The Office of the NBTC had taken random tests of quality of services provided by 5 operators of mobile service, either voice or data services, consisted of AWN, TUC, DTN, CAT and TOT, and the test results of quality of service on mobile service provision both voice service within the same network and across network by measuring the success call ratio and call drop rate in 2018, and the results are as follows:

(1) The test result of quality of mobile service provision within the same network of service providers found that the quality of telecommunications service (Voice service) of all service providers has met the standards required¹⁷; that is, the success call ratio was 99.20 percent which is higher than the required target (must higher than 90 percent) and the call drop rate was 0.04 percent which is higher than the required target (must lower than 2.0 percent).

(2) The test result of quality of mobile service provision across network of service providers found that the quality of telecommunications service (Voice service) of all service providers has met the standards required¹⁸; that is, the success call ratio was 99.50 percent which is higher than the required target (must higher than 90 percent) and the call drop rate was 0.02 percent which is higher than the required target (must lower than 2.0 percent).

¹⁶ 1. Fixed-line service: (1) True Corporation Public Company Limited (2) CAT Telecom Public Company Limited (3) True Internet Corporation Company Limited (4) TOT Public Company Limited (5) FIT Telecom Company Limited and (6) Triple T Broadband Company Limited

2. Public phone service: TOT Public Company Limited

3. Mobile service: (1) Advance Wireless Network Company Limited (2) CAT Telecom Public Company Limited (3) True Move H Universal Communication Company Limited (4) DTAC Trinet Company Limited (5) Total Access Communication Company Limited (6) Real Move Company Limited (7) TOT Public Company Limited (8) Mobile Etelco (Thailand) Company Limited (9) Loxley Public Company Limited (10) Loxley Mobile Company Limited and (11) The White Space Company Limited

4. Satellite communication long distance call service: ACeS Regional Services Company Limited (ARS)

¹⁷ Data as of Q3 of 2018. The tests had been done in 4 areas consisting of the Headquarter of the Office of the NBTC, the Office of the NBTC Sub-region 23 (Nakhon Ratchasima), the Office of the NBTC Sub-region 31 (Lampang) and the Office of the NBTC Sub-region 42 (Phuket)

¹⁸ Data as of Q3 of 2018. The tests had been done in 4 areas consisting of the Headquarter of the Office of the NBTC, the Office of the NBTC Sub-region 23 (Nakhon Ratchasima), the Office of the NBTC Sub-region 31 (Lampang) and the Office of the NBTC Sub-region 42 (Phuket)

(3) The test result of FTP DL/UL average throughput, FTP DL/UL completed rate, and HTTP completed rate in 2018 found that the quality of

telecommunications service (data service) of all service providers has met the standards required. Details are as shown in Table 17.

Table 17 : Test result of quality of mobile service provision in both voice and data service of 5 service providers

Measurement Index of Quality of Service		Testing according to the standard of quality of telecommunications service (data service) As of 5 October 2012			Testing according to the standard of quality of telecommunications service (data service) As of 15 May 2018		
		3G and beyond		Target value	4G	4G and beyond	Target value
		Q1	Q2		Q3		
FTP DL	FTP DL Average Throughput (Mbps)	15.75	14.75	≥0.345	8.752	12.237	≥ 2.5
	FTP DL Completed Rate (%)	99.18	97.86	≥80	99.67	99.34	≥ 75
FTP UL	FTP UL Average Throughput (Mbps)	6.34	5.87	≥0.153	3.234	9.907	≥ 80
	FTP U Completed Rate (%)	99.64	98.60	≥70	99.82	99.71	≥ 0.5
HTTP	HTTP Completed Rate (%)	99.37	98.23	≥90	99.65	99.68	≥ 75

Remarks : (1) In Q1-Q2, the tests had been done in 5 areas consisting of the Headquarter of the Office of the NBTC, the Office of the NBTC Sub-region 1 (Nonthaburi), the Office of the NBTC Sub-region 3 (Lampang), the Office of the NBTC Sub-region 4 (Songkhla), and the Office of the NBTC Sub-region 6 (Khon Kaen)
 (2) In Q3, the tests had been done on 3G technology in 4 areas consisting of the Office of the NBTC Sub-region 11 (Bangkok), the Office of the NBTC Sub-region 31 (Lampang), the Office of the NBTC Sub-region 41 (Songkhla), and the Office of the NBTC Sub-region 23 (Nakhon Ratchasima)
 (3) In Q3, the tests had been done on 4G technology and beyond in 4 areas consisting of the Headquarter of the Office of the NBTC, the Office of the NBTC Sub-region 21 (Khon Kaen), Office of the NBTC Sub-region 32 (Chiangmai), and Office of the NBTC Sub-region 42 (Phuket)

1.3 Measuring the quality of mobile service in voice and data service of service providers according to users’ complaints and special tasks assigned.

The Office of the NBTC had examined and measured the quality of service of the operators according to the complaints received or special tasks assigned as follows:

- (1) The measurement of the quality of mobile service in Bangkok and its vicinities and provincial areas in 65 provinces.
- (2) The measurement of the quality of mobile service according to the complaints received for 77 complaints.

(3) The measurement of the quality of mobile service during the activities on “the NBTC Meets People in 2018” for 4 times in Nong Kai, Lopburi date between 15 - 17 November 2018, Mae Hong Sorn, and Phuket respectively.

(4) The measurement of the quality of mobile service according to special tasks assigned such as measuring the signal quality of mobile service to support the measurement of the signal strength along the Thailand - Laos Republic borders in areas of Mukdaharn - Savannakhet District, Laos PDR and Nakhon Phanom - Khammouane District, Laos PDR for 4 times.

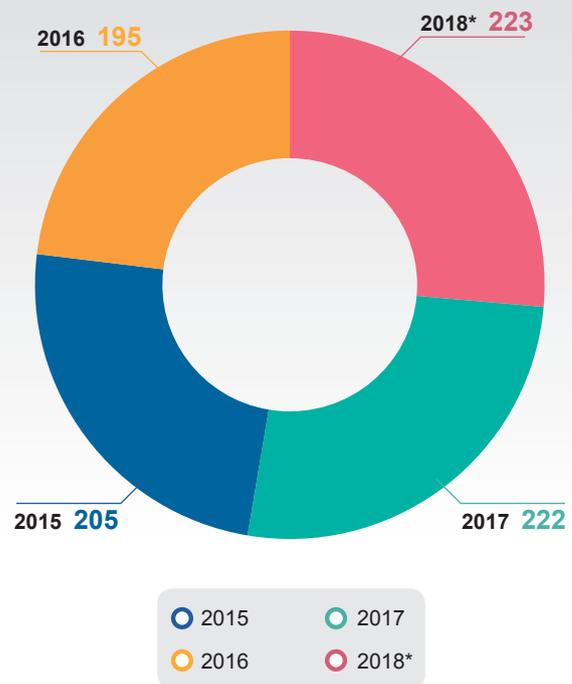
2. Regulation on telecommunications service rate

The NBTC has carried out the regulation on telecommunications service rate, the determination of the structure of service rate to be fair for users, and regulated mobile service rate in the frequency band of 2100 MHz, 1800 MHz and 900 MHz to be in line with the licensing conditions including reviewing the rate of telecommunications license fee to be suitable with market environment and in accordance with the costs of regulating telecommunications service. The operation in 2018 as follows:

2.1 Rate of fixed-line service

At present, there is only one incumbent of fixed-line service or TOT Public Company Limited (TOT), decreasing from the previous year where there were 2 service providers. When considering the average revenue per user (ARPU) per month of the fixed line service provision in 2018¹⁹, it is found that the ARPU was 223 baht/month/number, increasing 0.45 percent from the year 2017, details are as shown in Chart 16. However, the number of fixed line service subscribers is likely to decrease as the service has been substituted by the use of other telecommunications services, combined with the behavior of users of a shorter call duration of telephone usage including the service rates. As well as the cheaper rates and more convenient of the use of mobile phone. It therefore is an important factor likely to decrease the number of users.

Chart 16 : Average monthly income per number (ARPU) of fixed telephone service



Remarks: *Estimated data as of Q4 of 2018

2.2 Rate of mobile service

The mobile service providers in Thailand consists of 3 groups of private incumbents; namely AIS Group, DTAC Group, and TRUE Mobile Group. There are also other the state-enterprises service providers; CAT Telecom Public Company Limited (CAT) and TOT Public Company Limited (TOT), and small service providers without having own network. Having considered the average rate of mobile service of the 3 incumbents in both voice and non-voice services, it is found that in 2018²⁰ each voice service provider had provided the service with an average rate of 0.59 baht/minute in which True Mobile Group had offered the highest average rate of service at 0.67 baht/minute, followed by DTAC Group and AIS Group who had offered the service rates at 0.58 baht/minute and 0.53 baht/minute, respectively.

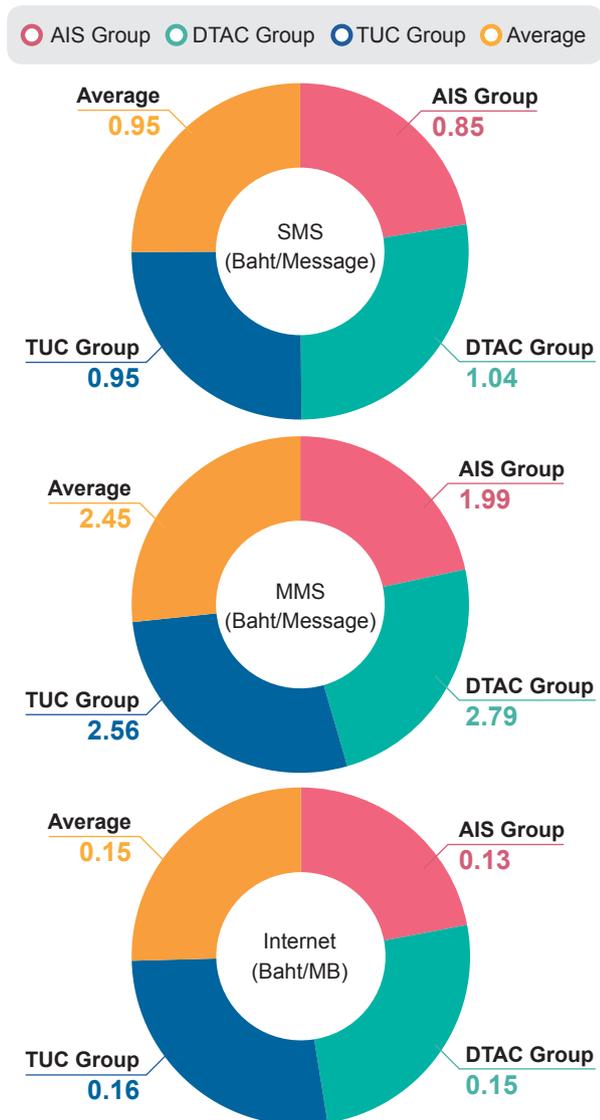
¹⁹ Estimates data as of Q4 of 2018

²⁰ Estimates data as of Q4 of 2018

However, when the consideration is made on the presentation of information of service providers, it is found that each service provider will focus on offering sales promotion programs on the use of mobile internet service instead of voice services.

For the non-voice service of each service provider, it consists of short message service (SMS), multi media service (MMS) and mobile internet service. It is found that in 2018 the average rate service of SMS was 0.95 baht/message, the average rate service of MMS and mobile internet were 2.45 baht/message and 0.15 baht/MB respectively. Details are as shown in Chart 17.

Chart 17 : Average rate of mobile service for non-voice service 2018



Remarks: Estimated data as of Q4 of 2018

2.3 Rate of mobile service in the frequency band of 2100 MHz, 1800 MHz and 900 MHz.

(1) Having monitored and regulated the rate of mobile service in the frequency band of 2100 MHz to be in accordance with the conditions attached to the telecommunications license, type 3 for International Mobile Telecommunications (IMT) service in which the service rate shall not exceed the service rate as shown in Table 18.

Table 18 : Rate of mobile service in the frequency band of 2100 MHz

Voice service	SMS service	MMS service	Internet service
0.82 baht/minute	1.33 baht/message	3.32 baht/message	0.28 baht/MB

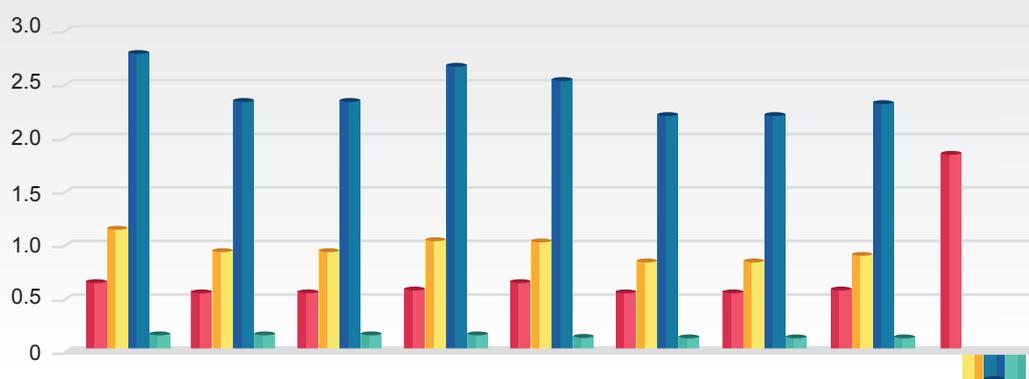
(2) Having monitored and regulated the rate of mobile service in the frequency band of 1800 MHz to be in accordance with the NBTC Notification on Criteria and Procedures for the Licensing to Use the Spectrum for Telecommunications Service in the Frequency Band of 1800 MHz and the NBTC Notification on Criteria and Procedures for the Licensing to Use the Spectrum for Telecommunications Service in the Frequency Band of 895-915 MHz / 940-960 MHz in which the service rate according to the licensing conditions shall not exceed the service rate as shown in Table 19.

Table 19 : Rate of mobile service in the frequency band of 1800 MHz and 900 MHz

Voice service	SMS service	MMS service	Internet service
0.69 baht/minute	1.15 baht/message	3.11 baht/message	0.26 baht/MB

From the monitor of mobile service rate of licensees in those 3 frequency bands consisting 2100 MHz, 1800 MHz and 900 MHz, it is found that during the year 2017 - 2018 the average rate of service of each service (Voice, SMS, MMS, Internet) are as shown in Chart 18.

Chart 18 : Average rate of mobile service of each service
(in the frequency band of 2100 MHz, 1800 MHz, and 900 MHz)



	Frequency band of 2.1 GHz	Frequency band of 1800 MHz	Frequency band of 900 MHz	Overall average rate of mobile service in all Frequency bands	Frequency band of 2.1 GHz	Frequency band of 1800 MHz	Frequency band of 900 MHz	Overall average rate of mobile service in all Frequency bands	Rate of change (percent)
	In 2017				In 2018				
Voice (baht/minute)	0.66	0.56	0.56	0.58	0.65	0.56	0.56	0.59	1.72
SMS (baht/message)	1.15	0.94	0.94	1.05	1.02	0.85	0.85	0.91	-13.33
MMS (baht/message)	2.78	2.34	2.34	2.67	2.54	2.21	2.21	2.32	-13.11
Internet (baht/MB)	0.17	0.17	0.17	0.17	0.15	0.14	0.14	0.14	-17.65

When considering the overall rate of mobile service, it is found that the rate of voice service in 2018²¹ was increased 1.72 percent comparing to 2017. However, the increasing rate of voice service is still in line with the conditions prescribed in the Notification. For SMS, MMS and Mobile Internet services, the rate of service were decreased 13.33, 13.11 and 17.65 percent respectively comparing to the year 2017.

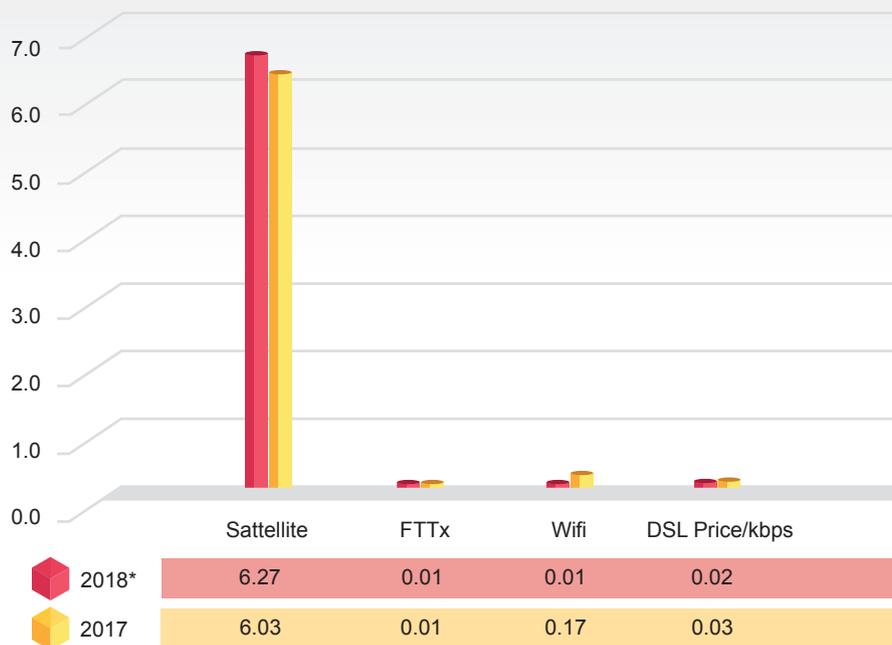
²¹ Estimates data as of Q4 of 2018

2.4 Rate of fixed internet service

There are 4 main service providers of fixed internet service consisting of TOT Public Company Limited (TOT), True Internet Company Limited, Triple T Broadband Company Limited (3BB) and Advance Wireless Network Company Limited (AWN). Having considered the rate of fixed

internet service via fixed network categorized by type of technology in 2018²² comparing to the previous year, it is found that the rate of internet service via satellite was decreased, while the rates of broadband service, WiFi and broadband service via DSL were increased. Details are as shown in Chart 19.

Chart 19 : Average rate of broadband service via fixed network



Remarks: *Estimated data as of Q4 of 2018

2.5 Formulation of the draft NBTC Notification on Determination and Regulation of Structure Rate of Domestic Mobile Service

In 2018, the Office of the NBTC by the Working Group for setting up criteria of the regulation of structure rate of domestic mobile service has set up the draft NBTC Notification on Determination and Regulation of Structure Rate of Domestic Mobile Service which comprised of 2 main parts: structure rate of service and duties of licensees with the objectives to (1) determine and regulate the structure rate of mobile service to be the same standard in all frequency bands (2) ensure that the users are provided with fair service rate which reflecting the

service rate of sales promotion programs including all service promotion at present (3) determine guidelines for protecting and reducing service charge in the excess part of the right to use (4) increase transparency of information disclosure to consumers (5) cancel unnecessary expenses for consumers (6) create more choices for consumers to access cheaper service rates by defining the initial sales promotion and (7) enhance the efficiency of regulation under the technological convergence. The Notification is currently in the process of proposing to the meeting of the Sub-Committee to scrutinize the works of the NBTC in telecommunications service for consideration.

²² Estimates data as of Q4 of 2018

Trend of broadcasting, television and telecommunications industries in 2019

1. Trend of broadcasting and television industry in 2019

In the year 2018, The behaviour of Thai people in watching television has been changed to the viewing through internet and mobile application (digital platform) channels. Not only the changing behaviour of viewing television and the development of digital technology have reduced the past limitations that television viewing had to be transmitted via terrestrial network, cable and satellite but also changed the entire business environment in the television industry. The changes that have challenged TV channel operators (both terrestrial television operators and cable/satellite operators) during the past years are that the advertising amount of money circulating in the television industry tends to decrease approximately 10,521 million baht from the year 2015 and more amount of money was distributed to digital platform. From the information taken from the Digital Advertising Association (Thailand)²³, it is found that the advertising through digital media was worth up to 14,973 million baht in 2018, or 21 percent increasing from the previous year. Among the above challenges, many TV channel operators have begun to adapt themselves by broadcasting program content through digital platforms along with television media in order to expand their customer base and revenue base from the advertising amount of money distributed to digital platforms. However, the data of viewing television programs via digital platforms that are likely to sharply increase has not yet been collected and used as part of the analysis of television viewing behaviour. The television operators therefore are unable to use the data as references in earning advertising revenue. In the year 2019, the development of guidelines for measuring behaviours of television viewing in all aspects will thus be an important and necessary task which have to cover both the viewing through traditional media (TV media) and digital platforms such as mobile applications, etc. For the radio operators, they need to adapt themselves in the same model of the television channel operators; that is, from the information on number of radio listeners through various devices, it was found that during the

year 2016 - 2018, the behaviour of Thai people in listening to program content from radio receivers has been decreasing with an average of 1 percent per year. On the contrary, the listening to program content via mobile phones has gradually been increased with an average of 2 percent. Such changing behaviour has created opportunities to radio operators to broadcast content and music via online channels and applications. The radio broadcasting via digital platforms will help radio operators to reach more listeners without areas restriction including create a variety of choices for listeners at all ages and gender.

2. Trend of telecommunications industry in 2019

The growth of telecommunications industry of Thailand which has increased continuously is the result of an increasing amount of the use of internet, while, on the other hand, the usage volume of voice service has decreased. However, the competition status in the industry is still at a high level. The year 2019 will be the year that all telecommunications operators focus on 5G to prepare for the upcoming technology. The coming of 5G technology will help enhancing competitiveness, managing resources and industrial system of either the public or private sectors in managing resources to be more efficient. In this regard, all sectors that have been affected by the entry of 5G, such as the financial and banking sector, industrial sector, agricultural sector, transportation sector, logistics, etc., must adapt themselves to cope with 5G and new technologies such as IoT, AI, etc. In addition, the cybersecurity, which is no less important to others, will also be another issue that every major organization or large business unit will focus on such threats. For example, the financial and banking operators will place the importance on financial cybercrime and hacktivism that tend to disclose customers' confidential data to the public, therefore, it is necessary to invest more cost in Cybersecurity in order to increase security for the business. The entrepreneurs need to change the operating model continuously both in technology and information security or else they will be affected by such crimes.

²³ Digital Advertising Association (Thailand) (DAAT) was officially founded in October 2012. At present the association members are 54 companies.

5

Budget Management in 2018



Statement Data

Expenses (including buying, commission, and occupancy costs)

Profit

Expenses

and administrative expenses

from operations

Income, net

before income taxes

Income tax provision for income taxes

Income

earnings per share

Adjusted earnings per share

Dividends declared per share (a)

Operating Data

2017	2018
913,380	513,357
180,000	180,000
200,000	200,000
407	407
9,485	9,485
9,778	9,778
9,707	9,707
1.86	1.86
85	85
5	5
205,933	205,933
38,475	38,475
152,700	152,700
3,511	3,511
156,271	156,271
58,310	58,310
97,961	97,961
2	2
2	2

The overall performance on budget expenditure of the Office of the NBTC in 2018 compared to 2017

In 2018, the Office of the NBTC had operated according to the Action Plan and the Budget Expenditure Plan in 2018 for totally amount of 5,876.360 million baht. Details are shown in Table 20.

Table 20 : Budget Expenditure in 2018

Items	Amount (million baht)
1. Budget Expenditure for missions of the NBTC and the Office of the NBTC	5,179.779
2. Project on the construction of the new building of the Office of the NBTC	641.581
Total (1 - 2)	5,821.360
3. Contribution to the Fund	55.000
3.1 Broadcasting and Telecommunications Research and Development Fund for the Public Interest	45.000
3.2 Technology Development Fund for Education according to the Law on National Education	10.000
Total (1 - 3)	5,876.360

Later, the budget expenditure plan had been revised under the original budget framework at the amount of 5,876.360 million baht to be appropriate and in accordance with the actual operating period, and in combining with the resolution of the NBTC Meeting No.21/2018 on 22 November 2018 that approved the additional allocation of the surplus budget in the year 2018 at the amount of 530.000 million baht to the Safe and Creative Media Development Fund by allocating the contribution to the Broadcasting and Telecommunications Research and Development Fund for the Public Interest. Details are as shown in Table 21.

Table 21 : Comparison of plan - outcome of the budget expenditure in 2018

Items	Fiscal year of 2018		
	Plan	Outcome	Percent
1. Budget Expenditure for missions of the NBTC and the Office of the NBTC	4,649.779	3,989.273	85.79
2. Project on the construction of the new building of the Office of the NBTC	641.581	-	-
Total (1 - 2)	5,291.360	3,988.273	75.39
3. Contribution to the Fund	585.000	585.000	100.00
3.1 Broadcasting and Telecommunications Research and Development Fund for the Public Interest	575.000	575.000	100.00
3.2 Technology Development Fund for Education according to the Law on National Education	10.000	10.000	100.00
Total (1 - 3)	5,876.360	4,574.273	77.84

Remarks : Data as of February 2019

Having considered the plan-outcome of the budget expenditure in the year 2018, it is found that the overall budget expenditure in 2018 was totally 4,574.273 million baht or accounting for 77.84 percent, which can be divided to the outcome of budget expenditure for missions of the NBTC and the Office of the NBTC at the amount of 3,989.273 million baht or accounting for 85.79 percent, contribution to the Fund according to the laws at the amount of 585.000 million baht or accounting for 100 percent. For the budget of the project on the construction of the new building of the Office of the NBTC, due to the year 2018 is the transition period of the NBTC which is in the process of recruitment of new NBTC commission according to Section 42 of the Act on the Organization (No.2) B.E. 2560 (2017), the NBTC Meeting No.2/2018 therefore has its resolution to suspend the implementation of the project and assigned the Office of the NBTC to propose to the new NBTC commission for further consideration.

Having considered the comparison of plan-outcome of the budget expenditure between 2017 and 2018, it is found that the Office of the NBTC had spent the budget expenditure for the missions of the NBTC and the Office of the NBTC efficiently. In 2018, the outcome of the budget expenditure was accounted for 85.79 percent which is, however, lower than the year 2017 due to the suspension of the implementation of the project on the construction of the new building of the Office of the NBTC. Details are as shown in Table 22.

Table 22 : Comparison of plan - outcome of the budget expenditure between 2017 and 2018

Unit : Million baht

Items	Fiscal year of 2017			Fiscal year of 2018		
	Plan	Outcome	Percent	Plan	Outcome	Percent
1. Budget Expenditure for missions of the NBTC and the Office of the NBTC	4,535.783	3,813.262	84.07	4,649.779	3,989.273	85.79
2. Project on the construction of the new building of the Office of the NBTC *	439.52	-	-	641.581	-	-
Total (1 - 2)	4,975.303	3,813.262	76.64	5,291.360	3,989.273	75.39
3. Contribution to the Fund**	510.000	510.000	100.00	585.000	585.000	100.00
Total (1 - 3)	5,485.303	4,323.262	78.82	5,876.360	4,574.273	77.84

Remarks : * The NBTC has the resolution in the Meeting No.2/2018 to suspend the implementation of the project on the construction of the new building of the Office of the NBTC, and having assigned the Office of the NBTC to propose to the new NBTC commission for further consideration.

** The NBTC has the resolution in Meeting No.21/2018 to approve the allocation of the surplus budget in 2018 at the amount of 530.000 million baht to the Broadcasting and Telecommunications Research and Development Fund for the Public Interest.

Financial Statement of the Office of the NBTC in 2018



Item	2018	2017
Income	550	550
Expenses	150	150
Net Income	400	400
Assets	250	250
Liabilities	200	200
Equity	50	50
Income	270	270
Expenses	180	180
Net Income	90	90
Assets	400	400
Liabilities	350	350
Equity	50	50
Income	450	450
Expenses	150	150
Net Income	300	300
Assets	550	550
Liabilities	500	500
Equity	50	50
Income	800	800
Expenses	650	650
Net Income	150	150
Assets	250	250
Liabilities	200	200
Equity	50	50
Income	250	250
Expenses	150	150
Net Income	100	100
Assets	350	350
Liabilities	300	300
Equity	50	50
Income	400	400
Expenses	250	250
Net Income	150	150
Assets	550	550
Liabilities	500	500
Equity	50	50
Income	800	800
Expenses	650	650
Net Income	150	150
Assets	250	250
Liabilities	200	200
Equity	50	50



Financial Statement of the Office of the NBTC in 2018 For the year ended 31 December 2018

The Office of the National Broadcasting and Telecommunications Commission

Financial Statement
As of 31 December 2018

<u>Assets</u>	<u>Note</u>	<u>2018</u>	<u>Unit : Baht</u> <u>2017</u>
Current Assets			
Cash and cash equivalent	2.2, 3	40,965,249,445.37	19,723,208,311.37
Short-term investment	2.4, 4	42,726,836,153.43	35,288,909,367.85
Receivables from license fee	2.5, 5	148,142,837.95	149,156,751.48
Accrued income-current portion of long-term loans	2.6, 6	21,813,937,224.67	45,304,151,727.71
Contribution to the Digital Development Fund	19	-	7,602,867.22
Prepaid expenses	7	9,845,168.35	6,824,432.45
Receivables from spectrum and radiocommunications rental	2.7	28,159,920.43	28,430,991.80
loan receivable according to Section 52 (6)	8	2,000,000,000.00	2,000,000,000.00
current portion of long-term receivables			
Other current assets	9	821,682,071.74	903,593,690.49
Total current assets		<u>108,513,852,821.94</u>	<u>103,411,878,140.37</u>
Non-current Assets			
Long-term investments	10	217,021,225.43	213,603,568.33
Accrued revenue	2.6, 6	196,027,852,000.00	154,816,802,000.00
Plant and equipment	2.8, 11	1,223,509,811.78	1,311,204,883.70
Financial lease assets	12	88,672,433.94	73,316,892.77
Intangible fixed asset	2.9,13	1,260,349,273.98	337,335,209.88
loan according to Section 52 (6)	8	7,700,000,000.00	9,000,000,000.00
Total non - current assets		<u>206,517,404,745.13</u>	<u>165,752,262,554.68</u>
Total Assets		<u>315,031,257,567.07</u>	<u>269,164,140,695.05</u>

Notes to financial statements are an integral part of these financial statements

The Office of the National Broadcasting and Telecommunications Commission

Financial Statement
As of 31 December 2018

	Note	2018	2017
		Unit : Baht	
<u>Liabilities and Equity</u>			
Current Liabilities			
Creditors and notes payable	14	1,136,077,200.83	952,893,123.46
Accrued revenue	15	89,264,090.92	77,692,122.13
Estimated liabilities for employee benefit	2.14, 16	644,688,177.32	608,193,401.49
State revenue in transit to the Treasury-current portion of long-term debts	2.11, 17	30,368,299,937.12	42,817,994,265.25
Output tax on spectrum auction in transit-current portion of long-term debts	18	875,586,044.24	2,048,424,432.43
Contribution to the Digital Development Fund for Economy and Society-current portion of long-term debts	19	751,061,724.84	-
Financial lease liabilities-current portion of long-term debts	20	30,106,086.94	37,797,693.74
Provisions on Must Carry Project-current portion of long-term debts	21	485,618,893.47	959,470,657.41
Other current liabilities	22	<u>1,849,277,190.73</u>	<u>1,697,615,229.25</u>
Total current assets		<u>36,229,979,346.41</u>	<u>49,200,080,925.16</u>
Non-current Liabilities			
Accrued revenue	2.10, 23	6,660,173,240.83	4,055,993,547.33
Spectrum and radiocommunications equipment rental held in trust	2.7	28,159,920.43	28,430,991.80
State revenue in transit to the Treasury	2.11, 17	184,260,350,000.00	144,688,600,000.00
Output tax on spectrum auction in transit to the Treasury	18	12,824,252,000.00	10,128,202,000.00
Contribution to the Digital Development Fund for Economy and Society	19	6,983,250,000.00	-
Financial lease liabilities	20	61,515,328.96	39,671,195.75
Provisions on Must Carry Project-current portion of long-term debts	21	2,335,919,248.35	670,320,000.00
Other non-current liabilities	24	<u>155,365,875.13</u>	<u>176,402,786.11</u>
Total non-current liabilities		<u>213,308,985,613.70</u>	<u>159,787,620,520.99</u>
Total Liabilities		<u>249,538,964,960.11</u>	<u>208,987,701,446.15</u>
Equity			
Capital		198,325,867.44	198,325,867.44
Retained earnings		105,178,178,817.36	92,661,734,888.24
Other components of equity		<u>(39,884,212,077.84)</u>	<u>(32,683,621,506.78)</u>
Total equity		<u>65,492,292,606.96</u>	<u>60,176,439,248.90</u>
Total Liabilities and Equity		<u>315,031,257,567.07</u>	<u>269,164,140,695.05</u>

Notes to financial statements are an integral part of these financial statements

The Office of the National Broadcasting and Telecommunications Commission

Comprehensive Profit and Loss Statement

For the year ended 31 December 2018

	Note	2018	Unit : Baht 2017
Revenues from operations			
Revenue from telecommunications service	2.12,25	72,029,378,309.56	14,389,898,956.93
Revenue from broadcasting and television service	26	2,803,152,184.42	1,131,320,611.98
Revenue from the Research and Development Fund	27	7,844,870,709.87	9,753,694,883.33
Other revenues	28	<u>885,547,043.55</u>	<u>898,564,374.59</u>
Total revenues		<u>83,562,948,247.40</u>	<u>26,173,478,826.83</u>
Operating Expenses			
State revenue to be delivered to the Treasury	2.12, 29	53,855,707,617.67	5,366,406,841.25
Expenses of the auction	2.12, 30	21,592,184.90	15,787,002.24
Contribution to the Digital Development for Economy and Society	19	10,850,155,800.40	1,365,849,412.47
Human resources expense	2.18, 31	1,439,358,720.08	1,422,666,127.88
Operating expense	2.18, 32	1,415,924,807.36	2,033,806,869.50
Public Utilities Expense	2.18, 33	85,971,483.32	71,615,655.36
Depreciation and amortization	34	594,979,402.59	676,195,043.09
Interest expense from financial lease		3,520,558.45	341,597.27
Contributions to Education, Research and Development	2.17,35	103,047,455.50	104,097,425.98
Expense for promoting and supporting the Fund's objectives	36	2,666,246,288.01	1,502,456,881.79
Contributions to Technology Development Fund for Education		<u>10,000,000.00</u>	<u>10,000,000.00</u>
Total expenses		<u>71,046,504,318.28</u>	<u>12,569,222,856.83</u>
Net profit for the period		<u>12,516,443,929.12</u>	<u>13,604,255,970.00</u>
Other comprehensive profit and loss			
Revenue to be delivered for state revenue		(3,957,031,377.87)	(5,854,632,322.22)
Revenue to be delivered to the Treasury-capital surplus of working capital		(3,197,470,000.00)	(445,000,000.00)
Revenue to be delivered to the Treasury Por Nor 1 Radio Station		<u>(46,089,193.19)</u>	<u>(49,118,798.61)</u>
Total other comprehensive profit and loss		<u>(7,200,590,571.06)</u>	<u>(6,348,751,120.83)</u>
Total comprehensive profit and loss for the period		<u>5,315,853,358.06</u>	<u>7,255,504,849.17</u>

The Office of the National Broadcasting and Telecommunications Commission

Statement of Changes in Equity
For the year ended 31 December 2018

	Note	Unit : Baht			
		Equity	Retained earnings	Other components of equity	
				Revenue over expense to be delivered for state revenue	Total
Balance as of 31 December 2016		198,325,867.44	79,057,478,918.24	(26,334,870,385.95)	52,920,934,399.73
Net profit for the period		-	13,604,255,970.00	-	13,604,255,970.00
Other comprehensive profit (loss)		-	-	(6,348,751,120.83)	(6,348,751,120.83)
Balance as of 31 December 2017		198,325,867.44	92,661,734,888.24	(32,683,621,506.78)	60,176,439,248.90
Net profit for the period		-	12,516,443,929.12	-	12,516,443,929.12
Other comprehensive profit (loss)		-	-	(7,200,590,571.06)	(7,200,590,571.06)
Balance as of 31 December 2018		198,325,867.44	105,178,178,817.36	(39,884,212,077.84)	65,492,292,606.96

Notes to financial statements are an integral part of these financial statements

The Office of the National Broadcasting and Telecommunications Commission

Cash Flow Statement

For the year ended 31 December 2018

	Unit : Baht	
	2018	2017
Cash flow from operating activities		
Net profit for the period	12,516,443,929.12	13,604,255,970.00
Reconciled the revenue over net expense to net cash (expense) from operating activities		
Depreciation and amortization	594,979,402.59	676,195,043.09
Deferred revenue from donation	0.00	(10,786,469.08)
Doubtful accounts (Bad debts receivable)	(1,283,637.90)	56,635,131.40
Interest revenue	(792,092,975.14)	(758,854,154.29)
Loss (profit) from the amortization of plant and equipment	6,445.70	391.11
Loss (profit) from the cancellation of financial lease contract	0.00	1,441,245.16
Interest expense	3,520,558.45	341,597.27
Profit from operating activities before change in assets and liabilities from operating activities	<u>12,321,573,722.82</u>	<u>13,569,228,754.66</u>
Increase (decrease) of change of operating assets		
Fee receivable	2,297,551.43	(83,758,726.51)
Accrued revenue	(17,720,835,496.96)	24,807,996,663.02
Contribution to the Digital Development Fund for Economy and Society	7,602,867.22	(7,602,867.22)
Prepaid expenses	(3,020,735.90)	271,304.71
Spectrum and radiocommunications equipment rental	271,071.37	531,610.22
Other current assets	292,684,646.39	(679,987,001.40)
Increase (decrease) of change of operating liabilities		
Creditors and note payables	183,184,077.37	518,202,197.34
Deferred income	11,571,968.79	1,387,624.88
State revenue in transit to the Treasury	27,122,055,671.87	(17,857,993,194.42)
Contribution in transit to the Digital Development Fund for Economy and Society	7,734,311,724.84	-
Estimated liabilities for employee benefit	36,494,775.83	57,072,401.07
Other current assets	151,661,961.48	1,451,277,403.33
Deferred income	2,604,179,693.50	(776,643,122.95)
Spectrum and radiocommunications equipment rental held in trust	(271,071.37)	(531,610.22)
Output tax on spectrum auction in transit from spectrum auction	1,523,211,611.81	(2,169,697,976.35)
Financial lease liabilities	10,631,967.96	1,043,157.77
Provisions on Must Carry Project	1,191,747,484.41	(265,462,383.59)
Other non-current liabilities	(21,036,910.98)	(84,808,748.37)
Net Cash from Operating Activities	<u>35,448,316,581.88</u>	<u>18,480,525,485.97</u>
Net Cash for Investing Activities		
Cash expense for short-term investment	(7,437,926,785.58)	(8,608,877,701.13)
Cash receivable from long-term investment	(3,417,657.10)	(4,085,600.37)
Cash receivable from interest	581,319,947.50	728,815,135.66
Cash expense for loan investment according to Section 52 (6)	1,300,000,000.00	1,300,000,000.00
Cash expense for plant and equipment	(259,879,725.36)	(269,193,443.84)
Cash expense for financial lease assets	(62,372,570.35)	(61,703,080.21)
Cash expense for intangible assets	(1,123,408,085.93)	(186,269,228.07)
Net Cash from (for) Investing Activities	<u>(7,005,684,876.82)</u>	<u>(7,101,313,917.96)</u>

The Office of the National Broadcasting and Telecommunications Commission

Cash Flow Statement

For the year ended 31 December 2018

	Unit : Baht	
	<u>2018</u>	<u>2017</u>
Cash Flow from Monetary Acquiring Activities		
Surplus to be remitted as state revenue	<u>(7,200,590,571.06)</u>	<u>(6,348,751,120.83)</u>
Net cash expense for monetary acquiring activities	<u>(7,200,590,571.06)</u>	<u>(6,348,751,120.83)</u>
Increase in net cash and cash equivalents	<u>21,242,041,134.00</u>	<u>5,030,460,447.18</u>
Cash and cash equivalents at the beginning of accounting	<u>19,723,208,311.37</u>	<u>14,692,747,864.19</u>
Cash and cash equivalents at the ending of accounting period	<u><u>40,965,249,445.37</u></u>	<u><u>19,723,208,311.37</u></u>

Notes to financial statements are an integral part of these financial statements

The Office of the National Broadcasting and Telecommunications Commission

Notes to Financial Statements
for the year ended 31 December 2018
(Unit : Million baht, except as being specified)

1. General Information

The Office of the National Broadcasting and Telecommunications Commission or “the Office of the NBTC” is a juristic person, having a status of a state agency, established by virtue of the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) (the Act on the Organization 2010) to have powers and duties in regulating and developing the broadcasting, television and telecommunications services for the National Broadcasting and Telecommunications Commission, called in short “the NBTC” who has set up policies, criteria, procedures, conditions, fees, and other rules in matters related to spectrum management, licensing and frequency usage regulation, broadcasting, television and telecommunications business operation, telecommunications numbering usage, telecommunications network interconnection or access, prevention of monopoly or unfair competition, consumer protection, and provision of the broadcasting, television and telecommunications universal service. Also, a Fund shall be established under the Office of the NBTC, namely the “Broadcasting and Telecommunications Research and Development Fund for the Public Interest”, called in short “the Research and Development Fund”.

The Headquarter of the Office of NBTC is located at 87 Soi 8 (Sai Lom), Phaholyothin Road, Sam Sen Nai, Phayathai, Bangkok 10400.

The revenue of the Office of the NBTC shall be under Section 65 of the Act on the Organization 2010 as follows:

- (1) Spectrum license fees and business license fees under Section 42 paragraph two and Section 45 paragraph three.
- (2) Revenues or benefits accrued from the conduct of duties of the NBTC and the Office of the NBTC.
- (3) Revenues derived from the Office of the NBTC’s property.
- (4) Money and property donated to the Office of the NBTC in accordance with the regulation set forth by the NBTC for the work of the Office.
- (5) Subsidies from the government.

Revenues of the Office of the NBTC under (1) and (2) after deducting by expenditures for efficient operation of the Office of the NBTC, necessary burden costs, and money allocated for the Fund under Section 52, the Technology Development Fund for Education under the law on national education and the law on digital development for economic and society, shall be remitted as the state revenue.

2. Accounting Policies

The major policies of accounting to be used in the preparation of financial statements of the Office of the NBTC are as follows:

2.1 Criteria for financial statement preparation

The financial statement of the Office of the NBTC have been prepared in accordance with the general accepted accounting principles including the accounting standards issued under the Accounting Professions Act B.E. 2547 (2004) including the interpretation and accounting practical guidelines promulgated by Federation of Professions.

The financial statements have been prepared on an accrual basis and using historical cost basis to measure the value of components of the financial statements except for the matters described in accounting policies.

Significant transactions having occurred between the Office of the NBTC and the Funds under the Office of the NBTC were eliminated in the preparation of consolidated financial statements.

2.2 The standards of financial statement, the interpretation of accounting standards and the interpretation of financial statement have become effective in the current period and in the future. Details are as follows:

Having become effective in the accounting period starting from or after 1 January 2018.

Accounting standards No.1 (amended in 2017)	on Financial Statement Presentation
Accounting standards No.7 (amended in 2017)	on Cash Flow Statement
Accounting standards No.8 (amended in 2017)	on Accounting policies, change of accounting forecast and errors
Accounting standards No.10 (amended in 2017)	on Situation after reporting period
Accounting standards No.16 (amended in 2017)	on Land, plant and equipment
Accounting standards No.17 (amended in 2017)	on Lease agreement
Accounting standards No.18 (amended in 2017)	on Revenue
Accounting standards No.19 (amended in 2017)	on Employee Benefit
Accounting standards No.36 (amended in 2017)	on Impairment of Assets
Accounting standards No.37 (amended in 2017)	on Estimated liabilities, contingent liabilities, and contingent assets
Accounting standards No.38 (amended in 2017)	on Intangible assets
Financial report standards No.10 (amended in 2017)	on Consolidated financial statement
Interpretations of financial report standards No.21 (amended in 2017)	on Money to be delivered to the State

Having become effective on or after the accounting period of 1 January 2019.

Accounting standards No.1 (amended in 2018)	on Financial Statement Presentation
Accounting standards No.7 (amended in 2018)	on Cash Flow Statement
Accounting standards No.8 (amended in 2018)	on Accounting policies, change of accounting forecast and errors
Accounting standards No.10 (amended in 2018)	on Situation after reporting period
Accounting standards No.16 (amended in 2018)	on Land, plant and equipment
Accounting standards No.17 (amended in 2018)	on Lease agreement
Accounting standards No.18 (amended in 2017)	on Revenue
Accounting standards No.19 (amended in 2018)	on Employee Benefit
Accounting standards No.36 (amended in 2018)	on Impairment of Assets
Accounting standards No.37 (amended in 2018)	on Estimated liabilities, contingent liabilities, and contingent assets
Accounting standards No.38 (amended in 2018)	on Intangible assets
Financial report standards No.10 (amended in 2018)	on Consolidated financial statement
Interpretations of financial report standards No.21 (amended in 2018)	on Money to be delivered to the State

The Federation of Accounting Professions under the Royal Patronage of His Majesty the King has issued Accounting Standards, Standards of Financial Report, new Interpretations of Standards of Financial Report and the amendments which have become effective on the accounting period beginning on or after 1 January 2018. The Executive had assessed the impact of standards and interpretations of such standards and believed that most of them are unchanged in important principles, and will not have any significant impact on the financial statements.

2.3 Cash and Cash Equivalents

Cash and cash equivalents comprise of cash on hand, deposits held at call with banks and cash in bank accounts in classification of less than and 3-month fixed-term account

2.4 Short-Term Investment

Short-term investment is the cash in bank accounts in classification of 3-month fixed-term account from the date of acquisition but no longer than 12 months.

2.5 Fee Receivables

Fee receivables are shown by estimated net value receivable after deducting the doubtful debts which is estimated from reviewing of outstanding balances at the end of accounting periods .

Allowance for doubtful accounts refers to the difference between the receivable book value comparing to receivable realizable value, doubtful account will be recognized in the statement of comprehensive income and will be considered as an integral part of the expenses.

2.6 Accrued income

Accrued income refers to the annual license fee revenue, calculating from the revenue from the business operation taken in the accounting period of the licensee. The payable will be made once a year, within one hundred and fifty days from the end of the accounting period according to the NBTC Notification on Broadcasting Business License Fee B.E. 2555 (2012) and the NBTC Notification on Telecommunications Business License Fee including the revenue from spectrum auction according to Section 42 and 45 of the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services B.E. 2553 (2010) and its amendment, the Announcement of the National Council for Peace and Order No.80/2014, the Order of Head of the National Council for Peace and Order No.76/2016, and the Order of Head of the National Council for Peace and Order No.9/2018.

2.7 Receivables of spectrum and radiocommunications equipment rental

The receivables of spectrum and radiocommunications equipment rental are the receivables that the Office of the NBTC collected from debtors on behalf of the Ministry of Finance. The entry will be recorded in double with the spectrum and radiocommunications equipment rental receivables account. When the amount is paid by the debtors, the recorded entry of spectrum and radiocommunications equipment rental receivables account will be transferred to the account of state revenues in transit to the Treasury - the radiocommunications equipment rental and violation fees.

2.8 Plant and equipment

2.8.1 Assets owned by the authority, plant and equipment having shown by cost price deducted by accumulated depreciation and losses result from accumulated impairment.

Cost price includes direct costs associated with acquisition of assets, the cost of construction, the property constructed by the authority itself. This includes the cost of materials, direct labor and other direct costs related to the supply of assets so that those assets are in the right place and ready to be used.

The components of each building and equipment which are varied and different in the use must be recorded separately from each other.

Profits or losses on disposals of plant and equipment are the difference between net returns receiving from the disposals and accounting value of plant and equipment. The net amount will be recognized as income or expense in profits or losses.

2.8 Plant and equipment (Continued)

2.8.2 Leased assets, The leases that an authority may take the risks and remuneration of possessing the leased assets can be classified by financial lease, plant and equipment acquired through financial lease contracts are recorded as assets by current value of the minimum amount to be paid according to the lease contract, depending on less amount may be, deducted by the accumulated depreciation and losses from accumulated impairment.

The rentals to be paid will be classified into finance expenses and deduction from the liabilities under the lease contract to ensure that the rate of interest, when compared to the outstanding liabilities in each period, is a fixed rate. Finance expenses will be directly recorded on profits or losses.

Costs incurred afterward

The cost of replacing components will be recognized as a part of the accounting value of the item of plant and equipment. If there is a possibility that the authority will get the future economy-based benefits from that item and be able to reliably measure the cost value of the item, the replaced component will be deleted from the account by the accounting cost value incurred in the regular maintenance of plant and equipment and will be recognized on profits or losses upon the occurrence.

Depreciation is calculated by using a straight line basis over the estimated useful lives as follows:

<u>Type of Asset</u>	<u>Estimated Useful Lives (Year)</u>
Plant and its addition	5-20
Electrical and radio equipment	5
Computer equipment	3
Vehicles and transportation	8
Office supplies and others	2-15

Guidelines for the Recognition of Plant and Equipment

- | | |
|----------------|---|
| 1997 - 2002 | <ul style="list-style-type: none"> Equipments to be recognized as assets must have historical cost from purchasing or acquisition at price per unit, set, or group not less than 30,000 baht Equipments that purchased or acquired before the year 2007 shall not be estimated for the price but must be recorded in the Asset Control Registration |
| 2003 - 2007 | <ul style="list-style-type: none"> Equipments to be recognized as assets must have historical cost from purchasing or acquisition not less than 5,000 baht, and be classified according to the durable articles standard account of the Office of the NTC without having amended the existing criteria |
| 2008 - Present | <ul style="list-style-type: none"> Equipments to be recognized as assets must have historical cost from purchasing or acquisition not less than 10,000 baht, and be classified according to the durable articles standard account of the Office of the NTC without having amended the existing criteria |

2.9 Net Intangible Asset

Net intangible assets will be recorded by cost after deducting accumulated amortization and allowance for impairment losses.

The amortization is calculated by using the straight line method according to the estimated useful lives of the intangible assets.

2.9 Net Intangible Asset (Continued)

<u>The criteria for the recognition of intangible assets</u>	
2010 - 2013	Intangible assets of computer program to be recognized as assets must have its value of not less than 50,000 baht
2014 - Present	Intangible assets of computer program to be recognized as assets must have its value of not less than 30,000 baht

2.10 Deferred income

Assets receiving from donation will be recorded as assets together with deferred income, and will be recognized as revenue from donation together with deducting depreciation of the assets receiving from donation according to their useful lives.

The revenue from spectrum auction for the provision of digital TV services will be recognized as deferred income based on the actual costs of each period in relation to the operation on supporting people to receive universal digital television service. The unrecognized income will be shown as liabilities in the deferred income account.

2.11 Surplus to be delivered as state revenue

Surplus or benefits accrued from the operation under powers and duties of the NBTC and the Office of the NBTC in any year which had been received in a year after deducting the operating expenses of the NBTC and the Office of the NBTC and other necessary burdens or obligation expenses including the reserved budget for overlapped disbursement between the fiscal years and contributions to the Funds as prescribed by law, the rest must be remitted as state revenue. Also, the residual money from necessary obligations expenses in the previous years in which the operation could not be completed within 2 years must be remitted as the state revenue.

2.12 The revenue from spectrum auction for the provision of IMT service in the frequency band of 900 MHz and 1800 MHz after deducting the cost of the auction preparation including interests must be submitted as state revenue according to the Act on the Organization 2010, Section 45 Paragraph One.

2.13 License fees for the use of spectrum for the provision of digital television services, in category of national commercial services in the 1st installment, shall be submitted to the Research and Development Fund. However, the fee in part of a minimum price will be used for supporting the public to access to the digital television services thoroughly to be in accordance with to the NBTC Notification on Criteria, Procedures and Conditions for the Spectrum Auction for the Provision of Digital Television Services, in Category of National Commercial Services B.E. 2556 (2013) and Section 53 (2) of the Act on the Organization 2010.

However, the revenue from the license fees for the use of spectrum for the provision of digital television services, in category of national commercial services, after deducting the expenses, must be submitted as state revenue according to the Announcement of the National Council for Peace and Order No.80/2014. Besides, prior to the effective date of the Notification, if the revenue from the license fees have not yet been submitted to the Research and Development Fund after deducting the expenses, it must be submitted as state revenue within fifteen days starting from the effective date of this Notification according to the Order of the Head of National Council for Peace and Order No.76/2016 regarding Measures for Promoting Broadcasting, Television and Telecommunications Business Operation for the Public Benefit. This includes the Order of the Head of National Council for Peace and Order No.9/2018 regarding Measures to Mitigate the Impacts on Radio Broadcasting Service and Television Business Operators by having suspended the payment of the license fees for the use of spectrum which shall not exceed three years and the licensee shall pay the interests on the due date of the license fee payment in each installment to the Office of the NBTC at the same rate of the interest rate policy prescribed by the Financial Policy Committee, Bank of Thailand.

2.14 Employee Benefit

The Office of the NBTC is not subject to the Labour Protection Act, Labour Relations Act, Social Security Act, and Compensation Act. The Office of NBTC has its regulations regarding employee benefits as follows:

Welfare Fund: the Office of the NBTC has provided its staff and employees with the basic welfare and fringe benefits consisting of the support of children's education, healthcare, disaster victims, rescue, assistance in case of death, compensation, and other welfares such as welfare loan, housing welfare, sport and entertainment welfare, and other welfares which are to promote the quality of life, as well as other types of the support as appropriate and necessary, apart from being prescribed under the Regulation of the Office of the NBTC regarding Benefit and Welfare B.E. 2550 (2007) and No.2 B.E. 2551 (2008).

The employees' pension is the pension according to the Regulation of the Office of the NBTC regarding the Employees' Pension and Welfare after Retirement B.E. 2555 (2012). The regular pension will be paid by calculating from the duration of being served the organization multiply by last salary, and extra pension will be paid in 24 times of the last salary by the time of being harm or sick or getting injured to disabled due to operating duties, and 30 times of the last salary when an officer died due to operating duties. The payment of the pension will be disburse from the Pension Fund established by the Office of the NBTC in which the source of revenue is from the initial money and budget allocated from the Annual Budget Expenditure to be adequate for the burden of pension to be paid at the end of the accounting period, including the benefits of pension.

The money in the provident fund is the money contributed by the Office of the NBTC to the Provident Fund at the amount of 10 percent of the employee's salary according to the Special Section of the Fund Regulation of the Office of the NTC under the Provident Fund of the Office of the NTC which has been established under the Regulation of the Office of the NTC regarding the Provident Fund of the Employees of the Office of the NTC B.E. 2549 (2006).

2.15 Revenue Recognition

The Office of the NBTC had recognized the revenues in each type as follows:

- Revenue from the spectrum auction, Section 41, Paragraph Two, and Section 45, Paragraph Two under the Organization Act B.E. 2553 (2010) has been recognized on an accrual basis according to the content of relevant agreements.
- Revenue from the remuneration for spectrum usage for radiocommunications has been recognized on an accrual basis
- Revenue from license fees under the Radiocommunications Act has been recognized upon the receipt of forms and fees.
- Revenue from business license fee has been recognized on an accrual basis.
- Revenue from numbering fee has been recognized monthly on an accrual basis
- Revenue from license fees for spectrum transfer has been recognized upon the receipt of forms and fees
- Revenue from application fee has been recognized according to revenue category of the application upon the receipt of the application and fees
- Revenue from the contributions to the Research and Development Fund (for the expense in USO projects) is the revenue to be delivered to the Fund according to the Broadcasting Business Act and Telecommunications Business Act which has been recognized on an accrual basis
- Revenue from Por Nor 1 Radio Broadcasting Station has been recognized monthly on an accrual basis
- Revenue from other fees has been recognized upon the receipt of forms and fees
- Revenue from interest receivables has been recognized on proportion of time basis
- Other revenues apart from the above-mentioned revenue have been recognized on an accrual basis

2.16 Income of State Enterprise Section 84, Paragraph Three of the Act on the Organization B.E. 2553 (2010) has prescribes about the revenue of state-enterprises that when three years have lapsed after the day on which this Act has come into force, the state enterprises' revenues, which are derived from the undertakings under the authorization, concession or contract according to Paragraph Two that the state enterprises operated under the law on private participation in state undertaking whether the undertaking is in whole or in part, shall be subtracted by the expenses of business license fees calculated from income base which is generated from the authorization, concession or contract, expenses for supporting the provision of universal basic telecommunications and social services in accordance with the government policies and Section 50 in part of calculating from income base which is generated from the authorization, concession or contract, and expenses incurred from the operation associated with the authorization, concession or contract as prescribed by the Ministry of Finance and remitted to the NBTC, upon which it shall transfer the said money to the state treasury.

2.17 The contribution for education, research and development has been recognized as an expense when it is approved to be paid to the right holder. The unpaid money to be delivered back within the period will be deducted from the total expense of the contributions. If the money were delivered after the year of disbursement, it will be recorded as unpaid and return revenue of the contribution for education, research and development showing as other non-operating revenue. These guidelines include the expense with similar items.

2.18 The expenditure for the management of the Research and Development Fund, such as the asset for the Fund management, personnel expenses, meeting remuneration for the committees, expense of public relations activities, expense for organizing meetings, material cost for the Fund management, cost for public utilities, etc., shall be disbursed by the Office of the NBTC according to the Regulation of the Research and Development Fund.

3. Cash and Cash Equivalents

	<u>2018</u>	<u>2017</u>
Cash	0.25	0.22
Petty cash	0.50	0.35
Receivable cheque	0.35	134.05
Bank deposit		
Current account	160.07	67.56
Saving account	37,821.90	13,252.43
Fixed deposit account for 3-month term	2,982.18	6,268.60
Total	<u>40,965.25</u>	<u>19,723.21</u>

	<u>2018</u>	<u>2017</u>
Cash and Cash Equivalents consist of		
Cash from the revenue gained under Section 65 (1 - 2)	7,617.04	13,388.94
Cash and cash equivalents from the revenue gained under Section 65 (3 - 5)	407.04	156.50
Cash and cash equivalents of the Research and Development Fund	6,422.51	3,335.07
Cash and cash equivalents from trust money, guarantee deposits, and others	26,518.66	2,842.70
Total	<u>40,965.25</u>	<u>19,723.21</u>

3. Cash and Cash Equivalents (Continued)

The cash and cash equivalents as of 31 December 2018 and 2017 at the amount of 40,965.25 and 19,723.21 million baht respectively, had included the deposits from the Research and Development Fund at the amount of 21.23 and 21.03 million baht (included the interests receivable) respectively for the existing obligation expense of the Fund including a deposit in a commercial bank with the obligation to hold deposits of 400.00 million baht to maintain a deposit for employees' housing loans.

4. Short-term Investments

	<u>2018</u>	<u>2017</u>
Fixed deposit account with a term of more than 2-month but less than 12 months	42,726.84	35,288.91
Total short-term investments	<u>42,726.84</u>	<u>35,288.91</u>
Short-term investments consist of		
short-term investments from the Research and Development Fund	42,726.46	35,064.07
short-term investments from deposit	0.38	224.84
Total	<u>42,726.84</u>	<u>35,288.91</u>

5. Fee Receivables

	<u>2018</u>	<u>2017</u>
Receivable from remuneration of radio frequency	0.07	0.08
Receivable from numbering fee	797.75	795.43
Receivable from business license fee	74.04	79.29
Receivable	29.66	29.02
<u>Less</u> doubtful accounts	<u>(753.38)</u>	<u>(754.66)</u>
Total	<u>148.14</u>	<u>149.16</u>

The numbering fee receivables as of 31 December 2018 and 2017 for 797.75 and 795.43 million baht, respectively have included the numbering fee of True Move Company Limited since 1 March 2014 to 31 December 2015 for 647.29 million baht and surcharge for 141.13 million baht and the total was 788.42 million baht but True Move refuses to pay the numbering fee to the Office of the NBTC with the reason that the company must comply to the NBTC Notification on Measures for Protecting Users in Temporary Period in case of Termination of the Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013) in which the said Notification has limited True Move's rights in taking benefits from the inactivate numbers and it gave the company the burden for bearing the telecommunications numbering fees. Therefore, True Move is able to include the telecommunications numbering fees in the cost which will be deducted from the operating revenue. It has thus requested the Office of the NBTC to consider the exception of all telecommunications numbering fees since 16 September 2013 (starting from the date of the concession terminated) onwards. In addition, the company has submitted a letter to the Office of the NBTC requesting for the refundable fees of the telecommunications numbering fees from 16 September 2013 to 28 February 2014 at the amount of 190.97 million baht that already paid to the Office of the NBTC.

5. Fee Receivables (Continued)

Later on, the Telecommunications Commissions (TC) had the Resolution in the Meeting No.12/2014 dated 7 May 2014 disagreed to approve the request for the exception of telecommunications numbering fees of True Move and the Meeting No.26/2014 dated 14 October 2014 agreed to assign the Office of the NBTC to take legal processes, and on 31 August 2015 the Office of the NBTC had already submitted the case to the attorney of the Office of Civil Litigation for further proceeding against True Move according to the Undecided Case No.490/2016. However, the Office of the NBTC was the defendant on the claim for damages arising from the compliance to the Notification on Measure for Protecting Users in Temporary Period in case of Termination of the Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013) according to the Undecided Case No.1712/2016, with the capital of 709.65 million baht, which is in the process of the court to determine the end date of the facts finding.

6. Accrued Incomes

	<u>2018</u>	<u>2017</u>
Current portion		
Accrued income of revenue from spectrum auction in the frequency band of 1800 MHz	-	21,608.12
Accrued income of revenue from spectrum auction of Digital TV	-	1,055.66
Accrued income of revenue from spectrum auction in the frequency band of 900 MHz	8,602.80	8,602.80
Accrued income of revenue from business license fee	4,781.16	4,287.56
Accrued income of revenue from the contributions to the USO Fund	<u>8,429.98</u>	<u>9,750.01</u>
Total current portion	<u>21,813.94</u>	<u>45,304.15</u>
Current portion of long-term debts		
Accrued income of revenue from spectrum auction in the frequency band of 900 MHz	164,604.52	136,780.24
Accrued income of revenue from spectrum auction in the frequency band of 1800 MHz	13,386.77	-
Accrued income of revenue from spectrum auction of Digital TV	<u>18,036.56</u>	<u>18,036.56</u>
Total current portion of long-term debts	<u>196,027.85</u>	<u>154,816.80</u>
Total	<u><u>217,841.79</u></u>	<u><u>200,120.95</u></u>

For the accrued income of revenue from spectrum auction in the frequency band of 900 MHz as of 31 December 2018 and 2017 at the amount of 173,207.32 and 145,383.04 million baht, respectively, the accrued income of revenue from spectrum auction in the frequency band of 1800 MHz as of 31 December 2018 and 2017 at the amount of 13,386.77 and 21,608.12 million baht, the licensees have brought the Letters of Guarantee issued by the financial institution in type of commercial bank under the Financial Institutions Business Act B.E. 2551 (2008), to guarantee the payment for the remaining amount of an accrued income from the spectrum auction according to the NBTC Notification.

For the accrued income of revenue from spectrum auction of Digital TV as of 31 December 2018 and 2017 at the amount of 18,036.56 and 19,092.22 million baht, respectively which is the revenue from the spectrum auction for the provision of digital television service, in the category of national commercial service, for 24 licenses, the Office of the NBTC has received the payment of 22 licenses and already submitted the revenue to Ministry of Finance according to the NCPO's Announcement No.80/2017 regarding the amendment to the Act on the Organization. However, for the revenue from the spectrum auction of 2 licenses which the Office of the NBTC has not yet received the payment for 1,005.60 million baht and value-added tax of 70.29 million baht, totally outstanding amount of 1,075.99 million baht, the licensees have brought the Letters of Guarantee issued by the financial institution in type of commercial bank under the Financial Institutions Business Act B.E. 2551 (2008), to guarantee the payment for license fees to use the spectrum. However, the Supreme Administrative Court issued an order on 23 May 2017 affirming the order of the Administrative Court that the NBTC suspends any action on the execution under the letter of guarantee of commercial banks until the judgment has been made or otherwise provided by the order according to the Order No.450/2017 dated 23 May 2017 and the Office of the NBTC is the defendant in the case that the government officials acted unlawfully due to the regulation of the transition to digital television signal transmission system has not been complied to the law and Master Plan. In addition, the withdrawal of the license according to the Resolution of the Broadcasting Commission (BC) with a capital of 749.88 million baht is under the consideration of the Supreme Administrative Court.

On 20 December 2016, the Head of National Council for Peace and Order has the Order No.76/2016 regarding Measure for Promoting the Broadcasting, Television and Telecommunications Business Operation for the Public Benefit to extend the payment period of license fee to use the spectrum in the remaining amount plus interest of the amount to be paid at the interest rate set by the Monetary Policy Committee of Bank of Thailand, and on 23 May 2018 the Head of National Council for Peace and Order has the Order No.9/2018 on Measures to Mitigate the Impacts on Broadcasting and Television Business Operators to suspend the payment of license fee to use the spectrum which shall not exceed 3 years and the licensees shall pay the interests at the interest rate set by the Monetary Policy Committee of Bank of Thailand.

The accrued income of revenue from business license fee as of 31 December 2018 and 2017 at the amount of 4,781.16 and 4,287.56 million baht respectively is the revenue that the Office of the NBTC charged from the operators in the progressive rate of revenue from the operation of telecommunications business type 1-3 according to the NBTC Notification on Telecommunications License Fees and the Revenue from Broadcasting and Television Business Operation according to the NBTC Notification on Broadcasting License Fees in which the operators shall pay those amount within 150 days starting from the end of the accounting period.

The accrued income of revenue from the contribution to the USO Fund as of 31 December 2018 and 2017 at the amount of 8,429.98 and 9,750.01 million baht respectively is the forecast of revenue that the Fund will receive from telecommunications business licensees for the 2nd round (July - December) by calculating from the value of revenue base of telecommunications business operation in each round of the revenue deliverance according to the practical guidelines prescribed by the Fund.

7. Prepaid Expenses

	<u>2018</u>	<u>2017</u>
Prepaid expense on land rental	6.44	6.43
Other prepaid expenses	3.41	0.39
Total	<u>9.85</u>	<u>6.82</u>

8. Loans receivable according to Section 52 (6)

The loan receivable according to Section 52 (6) is the money that the Research and Development Fund has loaned to the Ministry of Finance to promote and support the budget according to the objectives of the Research and Development Fund, Section 52 (6) of the Act on the Organization B.E. 2553 (2010) which has additional specified by the NCPO's Announcement of No. 80/2014 on 9 July 2014, under the Memorandum of Loan Agreement dated 7 January 2016 at the amount of 14,300 million baht to be used as a partial loan for the loan project for the development of water resources management system and the road transport system in the urgent phase. The Cabinet had its resolution on 26 May 2015 to approve that the Ministry of Finance borrow money from the Research and Development Fund and the NBTC had its resolution in the Meeting No.6/2015 on 17 June 2015 to approve the loan from the Research and Development Fund to Ministry of Finance by disbursing from the telecommunications universal service fund account in the same amount that the Cabinet approved. In addition, the Cabinet had a Resolution on 11 August 2015 to approve the guidelines for the loan repayment to the Fund by requiring the Ministry of Finance to set the annual budget expenditure for the year 2017 to 2020.

Loans receivable according to Section 52 (6) as of 31 December 2018 and 2017 are as follows:

	<u>2018</u>	<u>2017</u>
Balance as of 1 January	11,000.00	12,300.00
<u>Increase</u> Loan receivable according to Section 52 (6), current installment	-	-
Total	11,000.00	12,300.00
<u>Less</u> Receiving payment of current installment	(1,300.00)	(1,300.00)
Balance as of 31 December	<u>9,700.00</u>	<u>11,000.00</u>

Loans receivable according to Section 52 (6) as of 31 December 2018 and 2017 are as follows:

	<u>2018</u>	<u>2017</u>
Current portion	2,000.00	2,000.00
Current portion of long-term debts	<u>7,700.00</u>	<u>9,000.00</u>
Balance as of 31 December	<u>9,700.00</u>	<u>11,000.00</u>

9. Other Current Assets

	<u>2018</u>	<u>2017</u>
Suspended input tax	68.94	60.35
Advance loans debtors	24.53	46.53
Accrued interest receivable	210.77	175.34
Advance deposit	500.52	602.42
Other current assets	<u>16.92</u>	<u>18.95</u>
Total	<u>821.68</u>	<u>903.59</u>

The accrued interest receivable as of 31 December 2018 and 2017 at the amount of 210.77 and 175.34 million baht respectively is mostly the accrued bank deposit interest receivable of the Research and Development Fund for 207.33 and 165.78 million baht respectively.

The advance deposit as of 31 December 2018 and 2017 at the amount of 500.52 and 602.42 million baht respectively is the advance deposit for the purchase of Remote Control Radio Monitoring Station and the advance deposit for the provision of universal service.

10. Long-term Investment Fund

	<u>2018</u>	<u>2017</u>
Fixed - deposit account for more than 12 months	<u>217.02</u>	<u>213.60</u>
Total	<u>217.02</u>	<u>213.60</u>

11. Plant and equipment

Items	2018					2017		
	Plant and its addition	Electrical and radio equipment	Computer equipment	Vehicles and Transportation equipment	Office supplies and others	In process activities	Total	Total
Cost value								
Bring forward at the beginning of period	869.33	1,698.99	931.91	185.20	370.98	157.72	4,214.13	3,967.71
Increase during the period	7.53	294.07	26.94	0.14	12.31	211.85	552.84	643.13
Decrease during the period	-	(42.09)	(12.51)	-	(5.87)	(250.63)	(311.10)	(396.71)
Balance at the end of period	876.86	1,950.97	946.34	185.34	377.42	118.94	4,445.87	4,214.13
Accumulated depreciation								
Bring forward at the beginning of period	552.17	1,120.81	815.04	159.87	255.04	-	2,902.93	2,556.13
Increase during the period	28.91	203.99	69.97	6.06	43.89	-	352.82	369.77
Decrease during the period	-	(7.77)	(11.16)	-	(4.46)	-	(23.39)	(22.97)
Balance at the end of period	581.08	1,317.03	873.85	165.93	294.47	-	3,232.36	2,902.93
Book value								
As of 31 December 2018	295.78	633.94	72.49	19.41	82.95	118.94	1,223.51	-
As of 31 December 2017	317.16	578.18	116.87	25.33	115.94	157.72	-	1,311.20

12. Assets under the financial lease contract

	Bring forward	During the period		Balance
	As of 1 Jan 18	Increase	Decrease	As of 31 Dec 18
Capital cost				
Vehicle equipment and transportation	116.99	30.05	71.02	76.02
Computer software	104.20	6.52	50.51	60.21
Total	<u>221.19</u>	<u>36.57</u>	<u>121.53</u>	<u>136.23</u>
Less Accumulated amortization				
Vehicle equipment and transportation	93.48	0.72	69.12	25.08
Computer software	54.39	18.60	50.51	22.48
Total	<u>147.87</u>	<u>19.32</u>	<u>119.63</u>	<u>47.56</u>
Book value	<u>73.32</u>	<u>17.25</u>	<u>1.90</u>	<u>88.67</u>

13. Intangible Asset

	Bring forward	During the period		Balance
	As of 1 Jan 18	Increase	Decrease	As of 31 Dec 18
Computer programs	1,077.07	1,124.86	22.25	2,179.68
<u>Less Accumulated amortization</u>	<u>739.73</u>	<u>179.60</u>	<u>-</u>	<u>919.33</u>
Total	<u>337.34</u>	<u>945.26</u>	<u>22.25</u>	<u>1,260.35</u>

14. Creditors and Notes Payable

	2018	2017
Creditors	828.68	931.13
Credit card payable	0.11	0.12
Cheques not yet cashed	307.29	21.64
Total	<u>1,136.08</u>	<u>952.89</u>

The creditors as of 31 December 2018 and 2017 at the amount of 828.68 and 931.13 million baht respectively are mostly the creditors of the Research and Development Fund for 608.28 and 624.43 million baht respectively, followed by the creditors arising from the payable annual contribution to support the operation of the Safe and Creative Media Development Fund as of 31 December 2018 and 2017 at the amount of 297.00 and 430.00 million baht respectively. It also included the creditors of operators participating in the project to support the public in the transition to the digital terrestrial television, as of 31 December 2018 and 2017 at the amount of 555.03 and 194.43 million baht respectively, have collected coupons received from people in the exchange for purchases or a discount to purchase equipment for receiving digital terrestrial television with a value of 690.00 baht per coupon to reimburse from the Research and Development Fund. The Research and Development Fund will pay for the coupons receiving from each operator after completing the verification of the correctness and completeness of documents supporting the disbursement as well as the expenses for supporting the projects that the people responsible have submitted the work according to the conditions specified in the contract and have already been approved by the work examination committee.

15. Advance Revenues

	<u>2018</u>	<u>2017</u>
Advance remuneration for radiocommunications	72.15	63.21
Advance numbering fee	6.86	4.94
Others	<u>10.25</u>	<u>9.54</u>
Total	<u><u>89.26</u></u>	<u><u>77.69</u></u>

16. Liabilities Estimation for Employee Benefits

	<u>2018</u>	<u>2017</u>
Bring forward	608.19	551.12
<u>Increase</u> Liabilities estimation for employee benefits during the period	52.26	78.28
<u>Less</u> payable of liabilities for employee benefits when resigning from the work	<u>(15.76)</u>	<u>(21.21)</u>
Balance	<u><u>644.69</u></u>	<u><u>608.19</u></u>

17. State Revenue in Transit to the Treasury

	Bring forward	During the period		Balance
	As of 1 Jan 18	Deferred transit Increase/ Decrease	Delivered	As of 31 Dec 18
Current portion				
Radiocommunications equipment rental and violation fees	0.73	0.27	0.36	0.64
Fines	10.13	5.54	5.35	10.32
Revenue from spectrum auction in frequency band of 900 MHz	8,056.18	3,424.22	8,052.81	3,427.59
Revenue from spectrum auction in frequency band of 1800 MHz	20,223.29	10,636.74	10,638.83	20,221.20
Revenue from Digital TV spectrum auction	1,867.56	114.62	1,959.82	22.36
Revenue from the beautiful numbers auction	0.78	108.38	-	109.16
Revenue from state-enterprises according to Section 84	4,777.14	-	4,777.14	-
Revenue from Por Nor 1 Radio Station	82.42	46.09	33.31	95.20
Surplus to be delivered as state revenue in 2016	1,945.13	-	1,945.13	-
Surplus to be delivered as state revenue in 2017	5,854.63	-	3,329.83	2,524.80
Surplus to be delivered as state revenue in 2018	-	<u>3,957.03</u>	-	<u>3,957.03</u>
Total current portion	<u>42,817.99</u>	<u>18,292.89</u>	<u>30,742.5</u>	<u>30,368.30</u>
Current portion of long-term debts				
Revenue from spectrum auction in frequency band of 900 MHz	127,832.00	28,937.40	-	156,769.40
Revenue from spectrum auction in frequency band of 1800 MHz	-	10,634.35	-	10,634.35
Revenue from Digital TV spectrum auction	16,856.60	-	-	16,856.60
Total current portion of long-term debts	<u>144,688.60</u>	<u>39,571.75</u>	<u>-</u>	<u>184,260.35</u>
Total	<u><u>187,506.59</u></u>	<u><u>57,864.64</u></u>	<u><u>30,742.58</u></u>	<u><u>214,628.65</u></u>

18. Spectrum Auction Input Tax in Transit

	<u>2018</u>	<u>2017</u>
Current portion		
Spectrum auction in the frequency band of 900 MHz	562.80	562.80
Spectrum auction in the frequency band of 1800 MHz	-	1,413.61
Spectrum auction for digital TV service	-	69.06
Accrued income-Telecommunications service	301.57	2.37
Accrued income-Broadcasting service	11.22	0.58
Total current portion	<u>875.59</u>	<u>2,048.42</u>
Current portion of long-term debts		
Spectrum auction in the frequency band of 900 MHz	10,768.52	8,948.24
Spectrum auction in the frequency band of 1800 MHz	875.77	-
Digital TV spectrum auction	1,179.96	1,179.96
Total current portion of long-term debts	<u>12,824.25</u>	<u>10,128.20</u>
Total	<u><u>13,699.84</u></u>	<u><u>12,176.62</u></u>

19. Contribution to the Digital Development Fund for Economy and Society

	Bring forward	During the period		Balance
	As of 1 Jan 18	Deferred transit Increase/ Decrease	Delivered	As of 31 Dec 18
Revenue to be delivered according to Section 65	(7.60)	1,391.00	1,235.64	147.76
Spectrum auction in the frequency band of 900 MHz	-	602.63	-	602.63
Spectrum auction in the frequency band of 1800 MHz	-	1,873.27	1,872.60	0.67
Total current portion	<u>(7.60)</u>	<u>3,866.90</u>	<u>3,108.24</u>	<u>751.06</u>
Spectrum auction in the frequency band of 900 MHz	-	5,106.60	-	5,106.60
Spectrum auction in the frequency band of 1800 MHz	-	1,876.65	-	1,876.65
Total current portion of long-term debts	<u>-</u>	<u>6,983.25</u>	<u>-</u>	<u>6,983.25</u>
Total	<u><u>(7.60)</u></u>	<u><u>10,850.15</u></u>	<u><u>3,108.24</u></u>	<u><u>7,734.31</u></u>

The contribution to the Digital Development Fund for Economy and Society as of 31 December 2018 and 2017 at the amount of 7,734.31 and (7.60) million baht is in accordance with the Act on Digital Development for Economy and Society B.E. 2560 (2017) Section 24, in which the Office of the NBTC has allocated from the revenue from the spectrum assignment and the revenue of the Office of the NBTC at the rate of 15 percent starting from 25 January 2017 onwards.

20. Financial Lease Liabilities

	31 December 2018		
	Less than 1 year	1 - 5 years	Total
Total minimum amount to be paid under the lease contract	32.88	64.50	97.38
Interest under the deferred lease/financial lease contract	(2.77)	(2.99)	(5.76)
Current value of minimum amount to be paid under the lease contract	<u>30.11</u>	<u>61.51</u>	<u>91.62</u>

	31 December 2018		
	Less than 1 year	1 - 5 years	Total
Total minimum amount to be paid under the lease contract	40.35	42.72	83.07
Interest under the deferred lease/financial lease contract	(2.55)	(3.05)	(5.60)
Current value of minimum amount to be paid under the lease contract	<u>37.80</u>	<u>39.67</u>	<u>77.47</u>

21. Liabilities provisions on the Must Carry project

The accrued expenses for supporting the Must Carry project as of 31 December 2018 and 2017 at the amount of 2,821.54 and 1,629.79 million baht respectively can be divided into the current portion at the amount of 485.62 and 959.47 million baht, and the current portion of long-term debts at the amount of 2,335.92 and 670.32 million baht respectively. The expenses were arisen from the estimation under budget framework which had been approved by the NBTC Resolution in the Meeting No.10/2017 on 23 August 2017 supporting the expenses for the provision of public television service broadcasting through satellite from 10 January 2017 to 9 January 2020 and supporting the expense for the transmission of general television service through satellite for the licensees from 20 December 2016 to 19 December 2019 so that the people are able to view general television service thoroughly according to the NBTC Notification on Criteria for the Broadcast of General Television Service and according to the Order of the Head of National Council for Peace and Order No.76/2016 on 20 December 2016 regarding Measure to Promote the Broadcasting Business for the Public Benefit, Article 6 which prescribing that the NBTC and the Office of the NBTC or the Research and Development Fund, as the case maybe, shall provide the support of expense for the transmission of general television service through satellite according to the NBTC Notification on Criteria for the Broadcast of General Television Service for three years.

To operate under paragraph one, the expenditure of the Research and Development Fund shall be done by taking into account the efficient and economical spending and the utmost benefits to the country and the general public as well as the coverage of public television services broadcasting via satellite, with the objectives to provide Thai people either living in the country or foreign countries with information, news and situations occurring in Thailand thoroughly and continuously.

The Special Meeting of the NBTC No.6/2016 on 28 December 2016, Agenda 5.3, Article 2 had agreed to transfer the revenue and the surplus money in the year 2016 of the Office of the NBTC at the amount of 922.89 million baht which is the first amount to the Research and Development Fund in order to allocate for the expense of general television signals transmission via satellite for the year 2016, according to the NBTC Notification on Criteria for the Broadcast of General Television Service and the Public Television Transmission via Satellite, for three years and the revenue and the surplus money of the year 2016 at the amount of 922.89 million baht shall be further delivered to the Ministry of Finance. The Office of the NBTC had already approved and transferred the revenue and the surplus money of the year 2016 at the amount of 922.89 million baht to the Research and Development Fund on 27 March 2016. In part of the Research and Development Fund, the Office of the NBTC had already disbursed for the operators according to the due payment period from 20 December 2016 onwards.

21. Liabilities provisions on the Must Carry project (Continued)

Besides, the NBTC had its resolution in the Meeting No.10/2017 on 23 August 2017 agreed to support the expense for the public television service broadcasting via satellite to the Royal Thai Army Radio and Television, Program Channel of Thai TV Global Network (TGN) so that the Thai people living in foreign countries are able to receive information thoroughly within the supporting financial framework at the amount of 72.00 million baht per year for 3 years, totally 216 million baht (from 10 January 2017 - 9 January 2020). The support will be provided only for the satellite rental. The NBTC had also approved the guidelines for supporting expenses for the general television signal transmission via satellite at the amount of not exceeding the rights according to the type of definition that the license granted. To enable people to view the general television services thoroughly, the NBTC will support the expenses of the transmission to the licensees in the type of normal definition for 16 television channels (32 satellite channels) and the licensees in the type of high definition for 10 television channels (20 satellite channels) with a financial framework of less than 616.46 million baht per year for 3 years, at the totally amount of 1,679.25 million baht (from 20 December 2016 - 19 December 2019). In overall, the Office of the NBTC has supported the expenses of the general television signals transmission via satellite at the amount of not exceeding the rights according to the type of definition that the license granted for the totally amount of 1,895.25 million baht.

22. Other Current Liabilities

	<u>2018</u>	<u>2017</u>
Accrued expenses	201.52	194.86
Withholding tax payable	6.01	12.61
Creditors - the Revenue Department	1,588.25	1,436.95
Other current liabilities	<u>53.50</u>	<u>53.20</u>
Total	<u><u>1,849.28</u></u>	<u><u>1,697.62</u></u>

23. Deferred Income

	<u>2018</u>	<u>2017</u>
Deferred income from the fee of the provision of universal service	4,976.17	-
Deferred income from the license fee to use spectrum for the provision of digital TV service	1,484.41	3,859.87
Deferred income from administrative fines	199.59	195.82
Deferred income from donation	<u>-</u>	<u>0.30</u>
Balance at the end of period	<u><u>6,660.17</u></u>	<u><u>4,055.99</u></u>

The movement of deferred income in the period of 2018 and 2017 is as follows:

	<u>2018</u>	<u>2017</u>
Bring forward at the beginning of period	4,055.99	4,843.42
<u>Increase</u> deferred income during the period	7,076.52	7.33
<u>Less</u> recognized as revenue during the period	<u>(4,472.34)</u>	<u>(794.76)</u>
Balance at the end of the period	<u><u>6,660.17</u></u>	<u><u>4,055.99</u></u>

23. Deferred Income (Continued)

The deferred income as of 31 December 2018 and 2017 at the amount of 6,660.17 and 4,055.99 million baht in the year 2018 mostly is the deferred income from the fee of the provision of universal service for 4,976.17 million baht, the additional income from the fee of the provision of universal service during the year 2011 - 2012, and in the year 2017 mostly is the deferred income from the spectrum auction for the provision of digital TV service at the amount of 3,859.88 million baht respectively, which is in accordance with the NBTC Notification on Criteria, Methods and Conditions of Spectrum Auction for the Provision of Digital Television Service, in Category of National Commercial Service, B.E. 2556 (2013), Article 10.

The payment of license fee to use the spectrum at the amount of 50,862.00 million baht consisting of the minimum auction price at the amount of 15,190 million baht and the money in excess of the minimum price at the amount of 35,672 million baht in which the payment shall be paid in 6 installments, and for the 1st installment the licensee shall pay 50 percent of the minimum price and pay 10 percent of the money in excess of the minimum price for 11,162.20 million baht by remitting to the Research and Development Fund according to Section 53 (2) of the Act on the Organization B.E. 2553 (2010) on 11 February 2014 to be used for supporting the public for the universal access in digital television services. The Research and Development Fund has recorded those amounts of money as liabilities and will transfer recognition as revenue according to the actual expense of each installment relating to the support to people to be served with universal digital television service.

The deferred income from spectrum auction for the provision of digital TV as of 31 December 2018 and 2017 are as follows:

	<u>2018</u>	<u>2017</u>
Bring forward	3,859.88	4,643.85
<u>Less</u> recognized transfer as revenue for current period	<u>0.96</u>	<u>(783.97)</u>
Total	3,860.84	3,859.88
<u>Less</u> Surplus to be delivered to the Treasury as state revenue	<u>(2,376.43)</u>	<u>-</u>
Balance	<u><u>1,484.41</u></u>	<u><u>3,859.88</u></u>

24. Other Non-Current Liabilities

	<u>2018</u>	<u>2017</u>
Contract guarantee deposits	78.75	69.01
Performance guarantee	75.37	106.14
Security deposit	0.48	0.47
Trust money for the monument construction	0.38	0.37
Other trust money	<u>0.39</u>	<u>0.41</u>
Total	<u><u>155.37</u></u>	<u><u>176.40</u></u>

The most of contract guarantee deposits as of 31 December 2018 and 2017 at the amount of 75.37 and 106.14 million baht respectively is mostly the guarantee deposits of the Research and Development Fund at the amount of 60.09 and 144.36 million baht respectively which charged from the operators participating in the project for supporting the public in the transition to digital terrestrial television for the guarantee of quality of goods and protection of consumers for using the set-top-box for not less than 2 years. The Research and Development Fund will collect the guarantee deposits at 5 percent of the amount of coupon value distributed to the participating operators

25. Revenue from Telecommunications Business

	<u>2018</u>	<u>2017</u>
Revenue from spectrum auction in the frequency band of 900 MHz	38,064.00	-
Revenue from spectrum auction in the frequency band of 1800 MHz	25,022.00	-
Revenue from the state-enterprises according to Section 84 Paragraph Three	-	5,349.64
Revenue from the auction of beautiful numbers	13.70	182.70
Revenue from the radiocommunications frequency remuneration	156.19	134.93
Revenue from license fee under the Radiocommunications Act	278.21	240.65
Revenue from business license fees	4,274.77	4,155.99
Revenue from numbering fee	4,160.57	4,292.22
Revenue from other fees	59.94	33.77
Total	<u>72,029.38</u>	<u>14,389.90</u>

26. Revenue from the Broadcasting and Television Services

	<u>2018</u>	<u>2017</u>
Revenue from spectrum auction for television service provision	2,375.46	783.97
Revenue from broadcasting service (trial operation)	57.73	37.51
Revenue from television business license fee	203.74	253.12
Revenue from license fees under Section 70	42.17	32.86
Revenue from other fees	124.05	23.86
Total	<u>2,803.15</u>	<u>1,131.32</u>

In the year 2018 and 2017, the revenue from spectrum auction for television service provision of the Office of the NBTC was 2,375.46 and 783.97 million baht respectively which had been recognized from the spectrum auction for the provision of digital television service in the category of national commercial service, in the 1st installment of the Research and Development Fund (see Notes No.23) plus interest revenue.

27. Revenue from the Research and Development Fund

In the years 2018 and 2017, the Office of the NBTC had the revenues from the contribution to the Fund - licensees (for the payment in USO projects) at the amount of 7,844.87 and 9,753.69 million baht respectively. Those revenues were collected for being used in the provision of basic telecommunications and social services under Section 50 of the Act on the Organization B.E. 2553 (2010) which stipulated that the NBTC shall set forth a plan for universal basic telecommunications and social services. The NBTC has announced the implementation of the plan on 29 May 2012 according to the NBTC Notification on Plan for the Provision of Universal Basic Telecommunications Service and Social Service (2012 - 2016) as well as the Criteria and Procedures for Revenue Collection for being guidelines for the provision of universal basic telecommunications and social services on the same date that requiring all telecommunications licensees shall have their duties to allocate revenue from the provision of telecommunications services to the Fund for the implementation of the plan, and the NBTC Notification on Plan for the Provision of Universal Basic Telecommunications Service and Social Service (2017 - 2021).

28. Other revenues

	<u>2018</u>	<u>2017</u>
Revenue from Por Nor 1 Radio Station	50.63	54.25
Interest receivable	792.09	758.85
Other revenue	<u>42.83</u>	<u>85.46</u>
Total	<u><u>885.55</u></u>	<u><u>898.56</u></u>

29. Revenue to be delivered to the Treasury

	<u>2018</u>	<u>2017</u>
Revenue from the state-enterprises under Section 84 Paragraph Three	-	5,349.64
Spectrum auction in the frequency band of 900 MHz	32,361.62	3.37
Spectrum auction in the frequency band of 1800 MHz	21,271.09	1.36
Spectrum auction for digital TV service	114.62	11.26
Auction on beautiful numbers	<u>108.38</u>	<u>0.78</u>
Total	<u><u>53,855.71</u></u>	<u><u>5,366.41</u></u>

30. Expense for spectrum auction

	<u>2018</u>	<u>2017</u>
Expenses for the arrangement of spectrum auction in frequency band of 900 MHz	2.32	1.39
Expenses for the arrangement of spectrum auction in frequency band of 1800 MHz	12.21	-
Expenses for the arrangement of beautiful numbers auction	<u>7.06</u>	<u>14.40</u>
Total	<u><u>21.59</u></u>	<u><u>15.79</u></u>

31. Human Resources Expenses

	<u>2018</u>	<u>2017</u>
Employees' salaries	964.25	913.36
Extra remuneration for the employees	137.43	126.00
Remuneration for the NBTC	21.86	26.33
Remuneration according to contract	-	0.19
Monthly remuneration	66.15	81.49
Fringe benefits	127.60	135.45
Provident Fund	77.29	73.38
Retirement pensions	<u>44.78</u>	<u>66.47</u>
Total	<u><u>1,439.36</u></u>	<u><u>1,422.67</u></u>

32. Operating Expenses

	<u>2018</u>	<u>2017</u>
Overtime expense	3.64	4.34
Meeting compensation	38.02	29.12
Other remuneration	2.53	1.18
Expenses for domestic travel	34.88	34.25
Repair cost	60.04	65.78
Rental cost	127.48	120.44
Maintenance cost	260.91	228.44
Payment for contracted services	221.95	239.97
Expenses paid for guests' reception	4.76	3.53
Expense for organizing ceremonious events	3.98	2.74
Taxes and fees	11.22	18.34
Expenses for trainings and seminars	99.05	99.79
Expenses for training registration	16.26	23.31
Expense for public relations activities	202.25	321.94
Expenses for meetings arrangement	57.14	79.18
Expenses for radiocommunications equipment calibration	4.86	3.18
Expenses for hiring consultants	101.01	316.07
Donation and charity	56.54	239.26
Other expenses	1.54	2.52
Substandard supplies	62.57	93.83
Doubtful accounts	-	56.64
Expenses for traveling abroad	45.28	49.93
Miscellaneous expenses	0.01	0.03
Total	<u>1,415.92</u>	<u>2,033.81</u>

33. Public Utilities Expenses

	<u>2018</u>	<u>2017</u>
Electricity	31.22	33.49
Water	1.15	1.27
Office telephone usage	2.23	2.37
Mobile phone usage	18.95	16.09
DSTV service	0.07	0.32
Internet service	28.05	13.40
Postal service	4.30	4.68
Total	<u>85.97</u>	<u>71.62</u>

34. Depreciation and Amortization

	<u>2018</u>	<u>2017</u>
Depreciation-Plat and its addition	28.91	39.37
Depreciation-Electrical and radio equipment	201.45	183.79
Depreciation-Computer equipment	67.86	98.24
Depreciation-Vehicles and transportation	6.06	6.01
Depreciation-Office supplies and others	43.29	42.16
Depreciation-Financial lease contract	<u>47.02</u>	<u>60.31</u>
Total Depreciation	394.59	429.88
Amortization-Computer programs	<u>200.39</u>	<u>246.32</u>
Total Amortization	200.39	246.32
Total Depreciation and Amortization	<u><u>594.98</u></u>	<u><u>676.20</u></u>

35. Financial support for education, research and development in broadcasting, television and telecommunications services

	<u>2018</u>	<u>2017</u>
Financial support for study research and development	81.62	60.99
Expense for the provision of universal basic telecommunications services	-	11.95
Expense for supporting the organization of ITU events	-	2.17
Expense for supporting education scholarship	<u>21.43</u>	<u>28.99</u>
Total	<u><u>103.05</u></u>	<u><u>104.10</u></u>

36. Expenses for promoting and supporting the Research and Development Fund's objectives

	<u>2018</u>	<u>2017</u>
Expense for the provision of universal service	2,523.54	899.97
Expense for research and development	94.64	70.80
Expense for human resource development	9.65	3.16
Expense for consumer protection	10.10	2.82
Expense for the Safe and Creative Media Development Fund	<u>28.32</u>	<u>525.71</u>
Total	<u><u>2,666.25</u></u>	<u><u>1,502.46</u></u>

The expenses for the provision of universal service obligation in the year 2018 and 2017 at the amount of 2,523.54 and 899.97 million baht were used according to the NBTC Notification on Plan for the Provision of Universal Basic Telecommunications Service and Social Service, and had been estimated according to the budget framework approved by the NBTC Resolution No.10/2017 on 23 August 2017 approving to support the expenses for the provision of public television service that having broadcasted TV program through satellite from 1 January 2018 to 9 January 2020, and to support the licensees of the expenses for public television signal transmission through satellite from 1 January 2018 to 19 December 2019 so that the people are able to view the public television service thoroughly according to the NBTC Notification on Criteria of Broadcasting Public Television Service and the Order of the Head of National Council for Peace and Order No.76/2016 on Measures for Supporting Broadcasting, Television and Telecommunications Business Operation for the Public Interest.

37. Other Appropriate Obligations Expenses

	2018	2017
	The Office	The Office
	Section 65 (1-2)	Section 65 (1-2)
Reserved fund for overlapped disbursement in 2016 - period extension	-	47.48
Reserved fund for overlapped disbursement in 2017 - period extension	4.23	582.21
Reserved fund for overlapped disbursement in 2018	1,465.13	-
Creditors and notes payables (excluded the reserved fund in 2017 and 2016)	224.90	328.46
Other current liabilities (excluded from the reserved fund in 2017 and 2016)	1,842.74	1,688.45
Revenue in transit to the Treasury under Section 84	-	4,777.14
Trust money, contract guarantee deposits, security deposits of loss surplus of trusted money payables, and others	106.23	105.21
Total	3,643.23	7,528.95

38. Revenue from Service Provision on behalf of the State

The NBTC Notification on Measure for Protecting Users in Temporary Period in case of the Termination of Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013), Article 7 prescribing that during the protection period, the service providers shall have responsibility to receive payment of revenue from the provision of services on behalf of the state by having separated accounts of payment receipt specifically, and reporting the amount of revenue and its incurred interests which have already been deducted the cost of network usage and telecommunications numbering fees, the expense cost of management, and other necessary costs to service provision, the rest amount of revenue shall be audited by the Office of the NBTC before further delivering as state revenue. Those consists of the revenue of spectrum in the frequency band of 1800 MHz which the concession ended on 15 September 2013 was divided into 3 periods. The first period was during 16 September 2013 - 17 July 2014 at the amount of 1,697 million baht which the Telecommunication Commission (TC) had its resolution to approve that the revenue from the provision of service in the period of protecting users in the frequency band of 1800 MHz shall be delivered as state revenue. The second period was during 18 July 2014 - 17 July 2015, the same period of having the Announcement of the NCPO, which the TC had assigned a working group to audit the money to be delivered as state revenue from the provision of service in the period of protecting users in the frequency band of 1800 MHz, and the third period started from 18 July 2015 onwards until the new service provider has been chosen. Besides, the TC had considered in TC Meeting No.30/2015 on 16 November 2015 Agenda 5.2 the termination date of mobile phone service provision in the period of protecting users and agreed that while the Office of the NBTC has not yet received the decision judgement from the Head of NCPO plus the mobile phone service provision in the frequency band of 1800 MHz will be ended on 18 November 2015, therefore, to avoid the contrary to the intention of the order of the Head of the NCPO, the TC had its

38. Revenue from Service Provision on behalf of the State (Continued)

resolution to postpone the termination date of the users protection from 18 November 2015 until the NCPO make its decision judgement or the TC has already granted a license to use spectrum in the frequency band of 1800 MHz to any winning bidder. However, the TC had granted licenses to the winning bidders to use spectrum in the frequency band of 1800 MHz on 25 November 2015 and 3 December 2015 and assigned the Office of the NBTC to inform the relevant parties of the result including operating guidelines in case of the provision of mobile phone service in the frequency band of 900 MHz. The Office of the NBTC has issued the licenses to use spectrum for telecommunications service in the frequency band of 1800 MHz which have been effective since 26 November 2015. For the frequency band of 900 MHz which the concession ended on 30 September 2015, it was in process of the auction fee payment by the winning bidders within 90 days as from the date of receiving the written document informing of being the winning bidder according to the NBTC Notification regarding Criteria and Procedure for the Licensing of Spectrum for Telecommunications Service in the Frequency Band of 895-915 MHz/940-960 MHz and the Order of the Head of National Council for Peace and Order No.16/2016 on Spectrum Auction for Telecommunications

Service assigning the NBTC to arrange the spectrum auction in the frequency band of 900 MHz, frequency range of 895-905 MHz pair with 940-950 MHz and protect users for temporary period to ensure that the users have received benefits and used the services continuously until 30 June 2016 or until the NBTC has already granted a license to use spectrum to the winning bidder as the case may be. Later on, the NBTC has already granted licenses to the winning bidders since 30 June 2016.

39. Contingent Liability

The provision of the Act on the Organization B.E. 2553 (2010) Section 27(12) and Section 50 stipulates that the office of the NBTC shall set forth a plan for universal basic telecommunications and social services. When the Office of the NBTC has already drafted the plan and issued on 29 May 2012 for the enforcement according to the NBTC Notification the Plan for Universal Basic Telecommunications and Social Services (2012 - 2016) as well as the issuance of Criteria and Procedure for Revenue Collection to be used for the provision of universal basic telecommunications service and social service dated 29 May 2012 and has become effective since 30 May 2012 onwards. The Notification contains timeframe for the implementation in the period of 2012 - 2016 with the operating budget of 20,468.30 million baht.

On 11 June 2013, the Fund Management Committee had its Resolution in the Meeting No.8/2013 approved the project and the Fund allocation to support the projects under the USO Action Plan on telecommunications for the year 2013 consisting of 5 projects and a workplan in the total amount of 1,028.91 million baht.

On 19 June 2013, The NBTC has its Resolution in the NBTC Meeting No.6/2013 approved the consideration of the budget under the expenditure framework in 2013 for only 1,028.91 million baht. The MOUs had been made with the grantees from the year 2013 to 2015 for the amount of 547.29 million baht, in which the fund had already been disbursed until 31 December 2016 at the amount of 376.08 million baht and in 2016 the TC Meeting No.21/2016 on 13 September 2016 had its Resolution to reduce the contractual financial amount of 1 project at the amount of 13.50 million baht and the rest of 157.71 million baht had been committed over the year under the MOU.

39. Contingent Liability (Continued)

On 5 June 2014 the Fund Management Committee had considered in the Meeting No.6/2014 to support the project under the USO Action Plan on Telecommunications for the year 2014 consisting of 15 projects within the budget framework of 1,432.25 million baht and the Resolution was to allocate money from the Fund to the support the project on network expansion for the provision of universal basic telecommunications service and social service in Phitsanulok and Nong Kai provinces (Technical Audit) for an urgent implementation within the total budget framework of 25.00 million baht. For the remaining 14 projects at the amount of totally 1,407.25 million baht, the Fund Management Committee Meeting, at the same time, had its Resolution to appoint a working group to scrutinize the projects to be completed by 2 weeks and presented to the Fund Management Committee Meeting for consideration before presenting to the NBTC Meeting for further consideration and approval. However, on 17 June 2014, the National Council for Peace and Order had its order that the NBTC postponed the implementation of all projects and the fund allocation for the support of the projects under the USO Action Plan on Telecommunications in 2014.

On 25 August 2016, the Head of National Council for Peace and Order had the command at the end of the confidential and the most urgent letter of the Secretariat Office of the National Council for Peace and Order (NCPO) No.237 dated 22 August 2016 regarding the provision of universal basic telecommunications services and social services (USO) approving that the Office of the NBTC shall implement the USO mission in cooperation with Ministry of Technology and Communications to be in accordance with the plan as agreed.

The budget for project implementation must be used worthily, efficiently, and utmost benefit to the people, and the project shall begin in 2016 and the timeframe of the plan implementation should be reduced so that the urgent plan can be implemented immediately.

Later, on 7 December 2016, the Cabinet had its resolution to acknowledge the proposal proposed by Ministry of Digital Economic and Society (MDES) and assigned the MDES to implement the network expansion of broadband internet to cover 24,700 villages by using budget the expenditure for fiscal year 2016 as well as assigned the Office of the NBTC to implement the network expansion of broadband internet in the rest of 15,732 villages by using the budget of the project for the provision of basic telecommunication services and social services (USO), in accordance with the government policy and the draft (s) Constitution of the Kingdom of Thailand B.E. 2559 (2016), mandatory referendum version, Section 56 which stipulating that "In respect of the basic structure or network of basic public utility services of the State which are essential for the people's subsistence or for security of the State, the State shall not conduct any act which renders the ownership to be under the private sector or the ownership of the State to be less than fifty-one percent".

In 2017, the Office of the NBTC has carried out the project to improve telecommunication infrastructure in order to drive national economy in Zone C+ for 3,920 villages under the project on the provision of mobile phone service and a broadband service in the border villages by using the budget from collecting fees from the service providers according to the USO Plan (2012 - 2016) in which 10 contracts had been signed on 29 September 2017 for the total amount of 12,989.69 million baht as follows:

1. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 1 (Northern Region 1), Part 1, provision of broadband internet service, True Internet Corporation Company Limited was the winning bidder through e-Auction, for the total amount of 2,812.01 million baht.

2. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 2 (Northern Region 2) Part 1, provision of broadband internet service, TOT Public Company Limited was the winning bidder through e-Auction, for the total amount of 2,103.80 million baht.

39. Contingent Liability (Continued)

3. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 3 (North Eastern Region) Part 1, provision of broadband internet service, TOT Public Company Limited was the winning bidder through e-Auction, for the total amount of 2,492.60 million baht.

4. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 4 (Central-Southern Region) Part 1, provision of broadband internet service, Interlink Telecom Public Company Limited was the winning bidder through e-Auction, for the total amount of 1,707.35 million baht.

5. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 5 (3 Southern border provinces, including 4 Sub-districts in Song Khla province), Part 1, provision of broadband internet service, Interlink Telecom Public Company Limited was the winning bidder through e-Auction, for the total amount of 160.89 million baht.

6. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 1 (Northern Region 1), Part 2, provision of mobile service, TOT Public Company Limited was the winning bidder through e-Auction, for the total amount of 1,890.00 million baht

7. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 2 (Northern Region 2), Part 2, provision of mobile service, True Move H Universal Communication Company Limited was the winning bidder through e-Auction, for the total amount of 786.55 million baht.

8. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 3 (North Eastern Region), Part 2, provision of mobile service, True Move H Universal Communication Company Limited was the winning bidder through e-Auction, for the total amount of 532.07 million baht.

9. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 4 (Central-Southern Region), Part 2, provision of Mobile Service, CAT Telecom Public Company Limited was the winning bidder through e-Auction, for the total amount of 443.94 million baht.

10. The project on the provision of mobile phone service and a broadband internet service in border villages (Zone C+), Group 5 (3 Southern border provinces, including 4 Sub-districts in Song Khla province), Part 2, provision of mobile service, CAT Telecom Public Company Limited was the winning bidder through e-Auction, for the total amount of 60.48 million baht.

For the expenses of the project on the provision of mobile phone service and a broadband internet service in border villages relating to the work control, monitoring, analysis and reporting of project implementation, supply of property control and telecommunication network management, supply of monitoring system and supervising the use of computer equipment and centralized peripherals, supply of quality of internet service provision regulating system from the head quarters, supply of internet hotspot authentication system, supply of log collection system, property insurance of public internet service centers for the amount of 829.96 million baht has been in process of procurement of the Office of the NBTC. However, according to the provisions of the contract, the change of the number of equipments or service provision venues may be applied, therefore the Office of the NBTC is unable to evaluate the obligations under the contract reliably. For the remaining 15,732 villages, the Office of the NBTC will carry out the operation under the Action Plan on the Provision of Universal Basic Telecommunications Service and Social Service (2017 - 2021) which includes the preparation of project expenditure under the USO Action Plan, which is subjected to facts and situation which may change in the future. In addition, the Office of the NBTC may improve plans and expenditures to be in accordance with the future facts. Therefore, the Fund is unable to prepare the certain budget expenditure at present.

40. Major Events, Disputes and Lawsuits

1. Disputes and Lawsuits that the Office of the NBTC was the plaintiff consisted of

1.1 The Office of the NBTC was the plaintiff for the offence of breach of contract for the radio broadcasting station rental in the frequency of 98.5 MHz and demanded a payment for damages for 40.94 million baht according to the Undecided Case No.4800/2010 and Decided Case No.4067/2011 which is reliable that the Office of the NBTC will receive some payment of debts.

1.2 The Office of the NBTC was the plaintiff for the offence of breach of contract for Por Nor 1 radio broadcasting station rental, and demanded a payment for damages with capital of 47.90 million baht according to the Undecided Case No.6024/2009 and Decided Case No.1935/2011 which is reliable that the Office of the NBTC will not receive the payment of debts as the debtor has no assets to be seized for an execution of debts payment.

1.3 The Office of the NBTC was the plaintiff for the offence of the delivery of revenue from the provision of mobile phone service in the frequency band of 1800 MHz in the consumer protection period starting from the effective date of the Measure for Protecting Users in Temporary Period in Case of the Termination of Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013) until the ending date of service provision according to the Undecided Case No.1228/2016 with capital of 3,381.96 million baht. The case is in the process of the defendant's preparation of an appeal requesting for additional amendment to the Administration Court and according to the Undecided Case No.1441/2016, with capital of 875.18 million baht, which is in the process of additional testimony preparation of the defendant to the Administrative Court.

1.4 The Office of the NBTC had requested for the settlement of the bankruptcy case for 9.20 million baht according to the Undecided. Cases No. 811/2002 and the Decided Case No.755/2002 in which the Office of the NBTC will not be distributed of the assets.

1.5 The Office of the NBTC was the plaintiff for the offence of breach of contract for radiocommunications device rental according to the Undecided Case No.2618/2006 and the Decided Case No. 646/2007 with capital of 11.17 million baht, which is reliable that the Office of the NBTC will not receive the payment of debts as the debtor has no assets to be seized for an execution of debts payment.

2. Disputes and Lawsuits that the Office of the NBTC was the defendant consisted of

2.1 The Office of the NBTC was the defendant for the offence in relations to the dispute on administrative contract according to the Undecided Case No.1370/2015 with capital of 9.32 million baht which is reliable that the Supreme Administrative Court will uphold the judge that the Office of the NBTC lose a lawsuit in some part.

2.2 The Office of NBTC was the defendant for the offence in relations to placing an order for setting the daily administrative fine at 80,000 baht due to the plaintiff failed to collect data and details of prepaid mobile phone users which is considered a violation of the NTC Notification on Criteria for Telecommunications Numbers Allocation and Management B.E. 2551 (2008), Articles 38 and 96 according to the Undecided Cases No.1867/2011 with capital of 34.96 million baht in which the case is in the process of determination of ending date of fact findings of the Supreme Administrative Court, and according to the Undecided Case No.818/2013 with capital of 21.20 million baht which is in the process of determination of the trial date of the Supreme Administrative Court, and according to the Undecided Case 3117/2012 with capital of 94.56 million baht which is in the process of determination of ending date of fact findings of the Supreme Administrative Court.

2.3 The Office of the NBTC was the defendant for the offence in relations to the issuance of the order for setting the daily administrative fine at 100,000.00 baht due to the plaintiff has defined the usage duration for prepaid mobile phone services which is considered a violation of the NTC Notification on

40. Major Events, Disputes and Lawsuits (Continued)

Standard of Contract for the Provision of Telecommunications Service B.E. 2549 (2006), Article 11, according to the Undecided Case No.75/2013 with capital of 24.40 million baht which is in the process of determination of ending date of fact findings from the plaintiff's appeal of the Administrative Court according to the Undecided Case No.56/2013 with capital of 24.00 million baht, which is in the process of determination of ending date of fact findings from the plaintiff's appeal which is in the process of determination of ending date of fact findings of the Administrative Court and the Decided Case No.55/2013 with capital of 23.30 million baht which is in the process of determination of ending date of fact findings of the Administrative Court.

2.4 The Office of the NBTC was the defendant for the offence in relations to the issuance of the Order of the Secretary-General of the NBTC for setting the daily administrative fine at 140,000.00 baht and according to the TC's Resolution in the Meeting No.13/2015 on 30 June 2015 and the pronouncement on the Undecided Case No.1927/2015 with capital of 58.94 million baht which is in the process of determination of ending date of fact findings of the Administrative Court, and according to the Undecided Case No.1933/2015 with capital of 62.72 million baht which is in the process of determination of ending date of fact findings of the Administrative Court.

2.5 The Office of the NBTC was the defendant for the offence in relations to exercising power under the law on the rights to use spectrum in the frequency band of 1800 MHz and requesting for the withdrawal of the NBTC Notification on Measure for Protecting Users in Temporary Period in Case of the Termination of Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013), according to the Undecided Case No.2128/2013 with capital of 275,658.36 million baht which is in the process of determination of ending date of fact findings from plea and explanation of the Administrative Court.

2.6 The Office of the NBTC was the defendant for the offence in relations to unlawful conduct by a state administrative agency or state officials in case of issuance of the NBTC Notification on Measure for Protecting Users in Temporary Period in Case of the Termination of Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013), and the NBTC Notification on Users Protection in Temporary Period in Case of the Termination of Concession or Contract for Mobile Phone Service Provision according to the Order of the NCPO No.94/2014 regarding the Suspension of Operation under the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services. The plaintiff has demanded the defendants to share liabilities or cover for a payment of 24,291.86 million baht with interest at the rate of 7.5 percent per year to the plaintiff according to the Undecided Case No. 1651/2015 which the defendant has already submitted additional testimony to the Central Administrative Court and being in the process of determination of ending date of fact findings of the Administrative Court.

2.7 The Office of the NBTC was the defendant for the offence in relations to the request for damages payment caused by the operation of the plaintiff under the NBTC Notification on Measure for Protecting Users in Temporary Period in Case of the Termination of Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013), in which the cost of expenditure is higher than income and demanding for the reimbursement of telecommunications numbering fees that the plaintiff has already paid according to the Undecided Case No.2013/2015 with capital of 16,265.06 million baht which is in the process of determination of ending date of fact findings from the defendant's additional testimony of the Administrative Court.

2.8 The Office of the NBTC was the defendant for the offence in relations to the issuance of the order to the plaintiff to deliver the revenue from the provision of service according to the Measure for Protecting Users in Temporary Period according to the Undecided Case No.1997/2015 with capital of 627.64 million baht, which is in the process of determination of ending date of fact findings of the Administrative Court.

40. Major Events, Disputes and Lawsuits (Continued)

2.9 The Office of the NBTC was the defendant for the offence in relations to the issuance of the order for setting the daily administrative fine at 210,000 baht on the plaintiff until the plaintiff has already submitted the completed report of accounting separation in telecommunications services in 2012 according to the NBTC Notification on Criteria and Methods for the Preparation of the Report of Accounting Separation in Telecommunications Services according to the Undecided Case No.59/2016 with capital of 22.89 million baht, which is in the process of preparing the appeal against the plaintiff to the Administrative Court.

2.10 The Office of the NBTC was the defendant for the offence in relations to the disputes on revenue and expenditure in the temporary period for users Protection according to the NBTC Notification on Measure for Protecting Users in Temporary Period in Case of the Termination of Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013) and the Order of the National Council for Peace and Order No.94/2014 regarding the Suspension of Operation under the Act on the Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunications Services according to the Undecided Case No. 741/2016 with capital of 5,778 million baht, which is in the process of determination of ending date of fact findings from the defendant's additional testimony off the Administrative Court.

2.11 The Office of the NBTC was the defendant for the offence in relations to unlawful conduct by a state administrative agency or state officials in case that the TC Meeting No.32/2015 on 2 December 2015 had its Resolution to assign the universal service obligation on the plaintiff based on the revenue from telecommunications business operation (after cost deduction) of telecommunications licensees at the rate of 4 percent per year according to the Undecided Case No.1545/2016 with capital of 86.96 million baht, which the defendant has already submitted additional testimony to the Administrative Court.

2.12 The Office of the NBTC was the defendant for the offence in relations to placing an order for setting compulsory administrative measures due to the plaintiffs was unable to have the Mobile Number Portability service registered within the specified period according to the Undecided Case No.792/2011 with capital of 13.50 million baht which is in the process of determination of ending date of fact findings from the plaintiff's appeal of the Administrative Court.

2.13 The Office of the NBTC was the defendant for the offence in relations to the disputes of unlawful conduct by a state administrative agency or state officials (the order to pay unpaid telecommunications service fees with interest and surcharge) according to the Undecided Case No.439/2008 with capital of 747.42 million baht, which is in the process of determination of ending date of fact findings from the plaintiff's appeal of the Administrative Court.

2.14 The Office of the NBTC was the defendant for the offence in relations to the disputes of unlawful conduct by a state administrative agency or state officials (the order to pay the special telecommunications number fees unlawfully) according to the Undecided Case No.397/2011 with capital of 656.51 million baht which is in the process of determination of ending date of fact findings from the plaintiff's appeal of the Administrative Court.

2.15 The Office of the NBTC was the defendant for the offence in relations to unlawful conduct by a state administrative agency or state officials (requesting for the revoke of the NTC Notification on Criteria for Mobile Number Portability Service, the Order of the Secretary-General of the NTC prescribing that the plaintiff must provide the mobile number portability service, and the Order for setting the administrative fine in case that the plaintiff failed to carry out the provision of mobile number portability service) according to the Undecided Case No.777/2011 with capital of 13.50 million baht which is in the process of determination of ending date of fact findings of the Administrative Court, and according to Undecided Case No.778/2011 with capital of 13.50 million baht which is in the process of determination of ending date of fact findings from the plaintiff's appeal of the Administrative Court.

40. Major Events, Disputes and Lawsuits (Continued)

2.16 The Office of the NBTC was the defendant for the offence in relations to the disputes of unlawful conduct by a state agency or state officials and the violation of the administrative authorities or government officials resulting from the execution of legal power (requesting for the revoke of the Resolution of the NBTC Meeting No.8/2010 on 2 April 2010 revoking the order for setting daily compulsory administrative measures at 166,666.67 baht) according to the Undecided Case No.894/2014 with capital of 13.50 million baht which is in the process of determination of ending date of fact findings from the plaintiff's appeal of the Administrative Court.

2.17 The Office of the NBTC was the defendant for the offence in relations to placing an order for setting the daily administrative fine at 20,000 baht due to the plaintiffs failed to sign the telecommunications network access contract which is considered a violation of the Telecommunications Business Act B.E. 2544 (2001) Section 26 and Section 64 according to the Undecided Case No.1033/2010 with capital of 43.60 million baht, which is in the process of determination of ending date of fact findings from the plaintiff's appeal of the Administrative Court.

2.18 The Office of the NBTC was the defendant for the offence of the remuneration of use of telecommunications equipment and telecommunications network in the users protection temporary period under the NBTC Notification on Measure for Protecting Users in Temporary Period in Case of the Termination of Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013) according to the Undecided Case No.918/2015 with capital of 24,117.04 million baht, which is in the process of testimony preparation from the defendant's additional testimony.

2.19 The Office of the NBTC was the defendant for the offence in relations to the TC Meeting No.32/2015 on 2 December 2015 that had its resolution to approve the assignment of the universal service obligation (USO) on the telecommunications licensees type 2 with having own network, and type 3 according to the Undecided Case No.1524/2016, 1522/2016, 1523/2016, 1549/2016, 1540/2016, 1551/2016, 1459/2016, 1550/2016, 1484/2016 with capital of 4 percent of the revenue from telecommunications business in which the defendant has already submitted additional testimony to the Administrative Court and the Administrative Court has sentenced to withdraw the order in the excess of 3.75 percent per year, which the defendant has already submitted an appeal to the Administrative Court, and the disputes regarding the issuance of orders on the plaintiff to allocate revenues from telecommunication business operation (from 1 January 2012 - 30 May 2012) at the rate of 4 percent per year to the USO Fund. The NBTC has its resolution in the Meeting No.13/2017 on 4 October 2017, Agenda 5.2.13 (resolution on disputes) agreed to uphold with the Order of Secretary-General of the NBTC and the letter No.5011/35609 dated 24 October 2017 issuing under the Resolution of the Meeting No.13/2017 on 4 October 2017 according to the Undecided Case No.182/2018, 183/2017, 119/2018, 174/2018, 175/2018, 161/2018, 270/2018, 176/2018 and 181/2018 with capital of 4 percent of the revenue from telecommunications business operation (1 January 2011 - 30 May 2012) with an additional amount equal to the sum of the unpaid amount multiply by the loan interest rate of MLR+2, which is in the process of fact finding of the Administrative Court and the defendant submits the testimony.

2.20 The Office of the NBTC was the defendant for the offence in relations to the request for the delivery of the revenue from the provision of mobile phone service in the frequency band of 900 MHz in the temporary period of users protection under the NBTC Notification on Measure for Protecting Users in Temporary Period in Case of the Termination of Concession or Contract for Mobile Phone Service Provision B.E. 2556 (2013) and its amendment according to the Undecided Case No.661/2017 with capital of 7,221.00 million baht, which is in the process of fact finding of the Administrative Court.

40. Major Events, Disputes and Lawsuits (Continued)

2.21 The Office of the NBTC was the defendant for the offence in relations to placing a resolution and/or an order for setting the daily administrative fine at 1,239,538.88 baht due to the violation or failure to comply with the NTC Notification on Criteria of Mobile Number Portability and the practical guideline condition on the portability of mobile phone service providers according to the Undecided Case No.1361/2017 with capital of 21.07 million baht, which is in the process of fact finding of the Administrative Court.

2.22 The Office of the NBTC was the defendant for the offence in relations to placing a resolution and/or an order for setting the daily administrative fine at 169,244.00 baht due to the violation or failure to comply with the NTC Notification on Criteria of Mobile Number Portability and the practical guideline condition on the portability of mobile phone service providers according to the Undecided Case No.1370/2017 with capital of 7.33 million baht, in which the defendant is in the process of additional testimony preparation.

2.23 The Office of the NBTC was the defendant for the offence in relations to placing a resolution and/or an order for setting the daily administrative fine at 5,400,591.64 baht due to the violation or failure to comply with the NTC Notification on Criteria of Mobile Number Portability and the practical guideline condition on the portability of mobile phone service providers according to the Undecided Case No.1358/2017 with capital of 221.42 million baht, in which the defendant is in the process of additional testimony preparation.

2.24 The Office of the NBTC was the defendant for the offence in relations to the breach of duty or delay on duty in the transition to digital TV according to the Undecided Case No.574/2016 with capital of 321.77 million baht, the Undecided Case No.1290/2016 with capital of 2,618.26 million baht, the Undecided Case No.1539/2015 with capital of 1,875.86 million baht, the Undecided Case No.1291/2016 with capital of 4,195.40 million baht, the Undecided Case No.1961/2015 with capital of 3,015.67 million baht, the Undecided Case No.1962/2015 with capital of 941.35 million baht, the Undecided Case No.1963/2015 with capital of 255.79 million baht, the Undecided Case No. 1960/2015 with capital of 3,461.47 million baht, the Undecided Case No.2041/2015 with capital of 1,958.91 million baht, and the Undecided Case No. 2042/2015 with capital of 1,003.89 million baht, which are in the consideration of the Court.

2.25 The Office of the NBTC was the defendant for the offence in relations to the request of supporting money for the broadcasting of the final round of 2014 World Cup according to the Undecided Case No.1654/2016 with capital of 57.14 million baht as the NBTC in the Special Meeting No.9/2014 on 17 September 2014 had approved to encourage and support Thai people including the Disabled, the low income people, and the Disadvantaged people to be able to access the general television services in “the Final Round of 2014 World Cup “at the amount of 369.86 million baht according to comments of the Sub-committee to consider the study to support people to view the final round of 2014 World Cup which decreased from the budget framework approved by the NBTC Special Meeting No.1/2014 on 12 June 2014 that support the budget framework of 427.01 million baht and this had made those who received compensation for the damage from being the copyright owner of the live broadcast of the Final Round of 2014 World Cup (RS International Broadcasting and Sports Management Company Limited) filed a lawsuit to the Administrative Court requesting for the reduced money at the amount of 57.14 million baht, and the Central Administrative Court has made a decision to dismiss the charge with the view that the compensation received has already covered all damages. However, the company has further appealed to the Supreme Administrative Court, which is in the process of consideration of the Supreme Administrative Court.

2.26 The Office of the NBTC was the defendant for the offence in relations to the request of supporting money for the broadcasting of the final round of 2014 World Cup according to the Undecided Case No.1163/2015 with capital of 15.00 million baht, which is in the consideration of the Court.

Internal Audit Report of the Office of the NBTC in the Fiscal Year 2018

According to the Order of the National Broadcasting and Telecommunications Commission (NBTC) No. 41/2015, dated 6 May 2015, appointing the Internal Audit Committee for 5 persons consisting of:

(1) General Kamol Saenissara	Chairman
(2) Mr.Wallop Nitatkanchananon	Committee
(3) Mr.Somyos Sriwanich	Committee
(4) Mr.Atthawut Vikitsreth	Committee
(5) Mr.Weerapong Kriengsinyos	Committee

However, Mr.Weerapong Kriengsinyos had resigned from the post on 27 May 2015 and it therefore made the committees remained of 4 members at present.

The Internal Audit Committee has operated under its powers and duties under Section 3 of the NBTC Regulation regarding the Internal Audit B.E. 2554 (2011) with its policy focusing on the operation based on the good governance principle, good internal auditing system, and independent operation under its powers and duties without intervention from the NBTC, the Office of the NBTC, or any other departments.

The operation under its powers and duties and responsibilities of the Internal Audit Committee in 2018 had been focused on the preventive audit and providing advice for the improvement of a systematic working under the good governance including giving the importance on the follow-up of issues found at risk and having impacts on the performance of the NBTC and the Office of the NBTC regularly. The Internal Audit had organized 13 meetings in which the executives, officials of the relevant bureaus, and the auditors were invited to attend the meetings as appropriate.

The main operation can be summarized as follows:

1. Having reviewed the risk management plan of the Office of the NBTC that might have some significant impacts on the Office of the NBTC and evaluated the adequacy and effectiveness of the risk management plan to cover important internal and external risk factors that can control or reduce the impact that may have on the achievement of the operational objectives of the Office of the NBTC to be at an acceptable level. The committee had also continuously followed up the appliance to the risk management plan, as well as proposing suggestions for the most efficient risk management.

2. Having evaluated the adequacy and effectiveness of the Internal Control System of the Office of the NBTC including the efficiency and effectiveness of the functional operation of each bureau of the Office of the NBTC, as well as proposing suggestions for the improvement constantly.

3. Having reviewed the operating system in all areas under the good governance to ensure of the compliance with the laws, regulations, rules, orders prescribed by the NBTC, and the operational standard that can make the operation achieve targets, objectives and be in line with the NBTC's policies including the prevention of fraud that may occur. In addition, the Committee has examine and followed-up the progress of operation concerning complaints received regularly.

4. Having reviewed the correctness and accountability of the financial report of the Office of the NBTC by reviewing accounting entry, financial statement, as well as the operation on accounting, finance, and procurement with the officers of the Office of the Auditor General of Thailand (auditor) and relevant officials.

5. Having reviewed and evaluated the performance of the Office of the NBTC in areas of accounting, finance and procurement, as well as proposing recommendations for the improvement on weaknesses and the development for the most efficient. This includes the follow-up of the progress of the improvement of each bureau according to the suggestion on the flaws found.

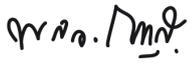
6. Analyzing and evaluating the efficiency, cost savings, and worthiness of resources usage by verifying the implementation and evaluation of the projects expenditure of the Office of the NBTC as well as providing recommendations for improvement for the future project implementation.

7. Reviewing the strategic plan of the Internal Audit Bureau, annual audit plan and long-term audit, the compliance with the plan, and the inspection results, as well as proposing recommendations and following up the improvement according to the internal audit report in the significant issues in order to encourage the good governance and the sufficient internal controls. The performance review has focused on the independence and integrity of operation in which the audit officer has no conflict of interest in the work but supported and developed the work by bringing the information technology system to help increase the effectiveness of the audit work.

The Internal Audit Committee is of the view that the overall operation of the Office of the NBTC in the year 2018 had been in line with the good governance, transparency, risk management and internal controls without any weakness or significant irregularities. In addition, the preparation process of financial reports had been complied with the generally accepted accounting standards with the appropriateness, reliability and sufficiency of the disclosure of adequate information on financial reports.

The committee had focused its operation on the oversight and proposed observations and recommendations to the Management and the operating units in a frank and fair manner, and the report of auditing and recommendations had been prepared and submitted to the NBTC in every 180 days for the improvement of the Office of the NBTC, as well as followed-up the result of the improvement upon the recommendations for the most efficient of the performance.

However, since the current environment has changed a lot especially the application of digital to manage and operate. The Internal Audit Committee therefore is of the view that the Office of the NBTC should consider the development and integration of existing management systems to be more appropriate and in accordance with the current situation, by taking the automation system and artificial intelligence to enhance the effectiveness and efficiency of the organization.

General 
(Kamol Saenissara)

Chairman of Internal Audit Committee



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-97.35

EXPERIENCE
POSITION TITLE for company
Present
Short description of the position and the responsibilities you had in this position.

POSITION TITLE for company tid
2013 - 2016
Short description of the position and the responsibilities you had in this position.

ADDRESS
1251
Town / Country
State / Country
Postcode
PHONE
0028 01
EMAIL
info@samablaq.com
WEBSITE
www.mypage.com
HOBBIES
creating websites
swimming
photography
body building
SKYPE
skype: sambqak



PROFESSIONAL STATEMENT

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suscipit efficitur lectus, Fusce iaculis, leo nec vulputate efficitur, lorem interdum elit, ut vestibulum nisi metus non mi.

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● Receipts ● Sales ● Orders



6

Workplan and Budget Expenditure Plan in the Year 2019



Workplan in 2019

The NBTC and the Office of the NBTC has announced the direction, policies and operational plans in the year 2019 to drive 5 key goals to be used as guidelines for implementing government's policies along with taking into account the concerns of the members of the National Legislative Assembly in the acceleration of important operation/projects that may have affected the public in wider area as well as the integration of cooperation among organizations with regard to public benefits and the nation as a whole.

1. Supporting government's policies to drive the National Strategy on 5G on the following action:

1.1 Reviewing the spectrum evaluation (Set Zero on telecommunications) that reflects the spectrum requirements which is reasonable and suitable for the industrial context and promoting the development of digital economy.

1.2 Reviewing term of payment of the spectrum auction fee either the spectrum that has already been auctioned or the spectrum that will be auctioned in the future in order to create incentives for the investment of private sector in developing network systems and innovation to support the digital economy.

1.3 Revising criteria of the spectrum auction for the new 5G system to be suitable for the business model in the 5G era by having divided the licensing method into 2 models; that is, the license for the provision of services nationwide and the license for the provision of services in specific area such as in the manufacturing and industrial area, etc.

1.4 Setting criteria of the multiband spectrum auction for the extension of driving national economy (the frequency bands of 700 MHz/ 2.6 GHz, 3.5 GHz/ 26 GHz, 28 GHz).

1.5 Establishing the 5G Testing Center in Bangkok area to raise awareness of people in the transition to such technology including the spectrum refarming according to the Notification which has come into force on 27 November 2018. The Office of the NBTC has set up a working group to proceed under the said Notification since December 2018 with refarming spectrum in the first priority.

2. Resolving problems on digital TV in long term by taking 4 ways as follows:

2.1 Accelerating the improvement of the use of spectrum in the frequency band of 700 MHz to be used for the most efficient telecommunications business operation as well as providing the remedy for those who have been affected by such frequency improvement such as the digital terrestrial television operators, digital terrestrial television network service providers, etc.

2.2 Supporting the operation of digital TV operators for the burden costs arising from the appliance to the Must Carry Notification until the year 2022.

2.3 Supporting the cost of broadcasting through the digital terrestrial television network (MUX) for the digital TV service providers at 50 percent of the network rental fee until the year 2022.

2.4 Supporting the rating survey of digital television service providers who broadcast over the internet network so that the data of the rating survey can be used as a reference for earning revenues fairly.

3. Formulating a licensing plan and criteria for the right to access the satellite orbit to support Section 60 of the Constitution of the Kingdom of Thailand B.E. 2560 (2017) which stipulating that "the state shall maintain the frequencies and the right to access a satellite orbit, which are national treasures, in order to utilise them for the benefit of the country and the people". It is currently in the process of revising the Act on Organization B.E. ... to define the NBTC to have power to regulate all matters concerning satellite orbits.

4. Accelerating and having collaboration with the Royal Thai Police for the use of telephone number 191 as a National Single Emergency Number. In the event of an incident Staff will be able to know the location. In case of emergency, the officer will be able to identify the location and the situation of events occurred because of the integration with various organizations including the access to CCTV cameras which have been installed throughout the country. This can help suspending and managing such events

efficiently, quickly and in time including reducing the loss of life and property of people effectively.

5. Accelerating, supporting and cooperating with government agencies such as the Food and

Drug Administration (FDA), Royal Thai Police, Department of Intellectual Property, Ministry of Digital Economy and Society (DE) for the suspension of illegal content dissemination on online media.

Budget Expenditure in 2019

The Office of the NBTC has allocated the budget expenditure in the year 2019 by taking into account the importance and necessity of the implementation of the key missions of the organization in order to drive the strategies under the Spectrum Management Master Plan, Broadcasting Master Plan, and Telecommunications Master Plan which are in line with the 20-Year Plan of National Strategy, and Development Plan for Digital Economy and Society, by having aligned to the 2nd Strategic Plan of the Office of the NBTC under 4 strategic issues, 19 strategies including urgent crucial missions that comply with the NBTC's policies and the Office of the NBTC

which have announced directions, policies and operational plan in 2019 to drive the 5 important goals for being as guidelines for operating missions in driving the government's policies. The NBTC Meeting No.21/2018 on 22 November 2018 had approved the budget expenditure in 2019 at the amount of 5,311.002 million baht consisting of the operational expenses of the NBTC and the Office of the NBTC, the project expenses, central budget of the Office of the NBTC and the budget allocation to the Fund which had already been approved by the Digital Committee for Economy and Society, details are as shown in Table 23.

Details	Amount (million baht)
1. Operational expenses of the NBTC and the Office of the NBTC	3,536.929
1.1 Personnel expenses	1,391.240
1.2 Expenses for organization management and administration	1,516.725
1.3 Expenses for durable articles, land and construction	138.926
1.4 Other expenses	490.039
2. Project expenses	778.324
3. Central budget	100.000
4. Project on the construction of new building of the Office of the NBTC	685.750
Total (1 - 4)	5,101.002
5. Budget allocation to the Fund	210.000
5.1 The Broadcasting and Telecommunications Research and Development Fund for the Public Interest	200.000
5.2 The Technology Development Fund for Education under the National Education Act	10.000
Total (1 - 5)	5,311.002

In 2018, the Office of the NBTC had undertaken important tasks to drive the urgent policies of the NBTC and support the National Strategy and National Policy on Digital Economy as well as the NBTC's policies and plans to achieve concrete outcome. In the preparation of the budget, the Office of the NBTC has appointed a Sub-committee to consider the budget of the Office of the NBTC,

consisting of experts from the Bureau of the Budget, to consider and scrutinize the budget to be appropriate and in line with the legal missions. In 2019, the budget allocation for the operation, which will be in accordance with the criteria for budget allocation of the Office of the NBTC, will be focused on economical and efficient basis, the consideration of the readiness of bureaus for

the operation, budget expenditure within the fiscal year requested, and the ability to spend the budget of the bureaus in the past years, as well as the worthiness and benefits of the

project so that the budget expenditure will bring about the utmost benefits to both the nation and the people. Details are as shown in Table 24

Table 24 : Comparison of the budget expenditure plans of the Office of the NBTC from 2017 to 2019

Unit : Million baht

Detail	2017	2018	2019	Comparing 2018 and 2019	
				Increase (Decrease)	percentage
1. Operational expenses of the NBTC and the Office of the NBTC	3,425.151	3,624.355	3,536.929	(87.426)	(2.41)
1.1 Personnel expenses	1,453.730	1,585.950	1,391.240	(194.71)	(12.28)
1.2 Expenses for organization management and administration	1,450.619	1,432.686	1,516.725	84.039	5.87
1.3 Expenses for durable articles, land and construction	248.099	209.385	138.926	(70.460)	(33.65)
1.4 Other expenses	272.703	396.334	490.039	93.705	23.64
2. Project expenses	1,185.657	1,484.475	778.324	(706.152)	(47.57)
3. Central budget	50.000	70.949	100.000	29.051	40.95
4. Project on the construction of new building of the office of the NBTC	314.495	641.581	685.750	44.169	6.88
Total (1 - 4)	4,975.303	5,821.360	5,101.002	(720.358)	(12.374)
5. Budget allocation to the Fund	510.000	55.000	210.000	155.000	281.82
5.1 The Broadcasting and Telecommunications Research and Development Fund for the Public Interest	500.000	45.000	200.000	155.000	344.44
5.2 The Technology Development Fund for Education under the National Education Act	10.000	10.000	10.000	-	-
Total (1 - 5)	5,485.303	5,876.360	5,311.002	(565.358)	(9.62)

The budget expenditure in 2019 can be categorized according to the Strategic Plan of the Office of the NBTC No.2 (2018 - 2021) as follows:

Strategy 1 Improving the organization to ensure good governance and become a high performance organization in sustainable fashion. This strategy is supported by 35 projects / 17 jobs with the total budget of 1,065.090 million baht.

Strategy 2 Urging the mobilization of relevant Master Plans to achieve their desirable outcomes in accordance with national development. This strategy is supported by 57 projects / 12 jobs with the total budget of 543.009 million baht.

Strategy 3 Strengthening digitalization for sustainable national development. This strategy is supported by 10 projects / 21 jobs with the total budget of 541.123 million baht.

Strategy 4 Enhancing strategic management which is supported by 6 workplans with the total budget of 54.420 million baht.

The expenditure budget under the strategies is 2,201.741 million baht, budget expenditure for supporting the operation and central budget of the Office of the NBTC is 3,099.261 million baht, and budget allocation to the Technology Development Fund for Education is 10.000 million baht, totally 5,311.002 million baht.

7 **Obstacles and Problems in Broadcasting and Telecommunications Businesses which are important to the People**



Broadcasting service

The advancement of technology and the access to internet through comprehensive network (Disruptive Technology) have created changes in several dimensions, both economic and social, continuously. The business models in many industries have inevitably changed from the original model gradually, especially the broadcasting and television media that have been affected by the convergence of telecommunications and broadcasting businesses. At present, the number of content producers has increased sharply. People have more choices of selection and opportunities for the consumption of program contents, either local or international production. Also, the behaviour of consumers in listening to radio and watching television programs have been changed, as a result, the number of viewers of traditional television programs and in come from business operation decreased accordingly.

The NBTC and the parties concerned have realized of the impacts and challenges of managing changes and thus, conducted the study and tried to find appropriate approaches to mitigate the impacts on business operators who have been affected by the changing environment of technology. Moreover, the various actions have continuously been taken to support broadcasting and television business operations, either the frequency-used service or the subscription service. For example, the reduction of annual business license fees, the support on the cost of public satellite television transmissions (Must Carry), the support on the cost of network rental for digital terrestrial television as well as the extension of duration and suspension of license fees for the use of spectrum for the provision of digital terrestrial television services.

In the year 2019, the NBTC will solve the problem of the digital terrestrial television in long term by aiming at the most efficient management of the spectrum resources that are national communication resource and the determination of measures to promote the digital terrestrial television operation such as the additional support on the cost of broadcasting via digital terrestrial television system. All operation will be done to create a balance between business and citizen sectors under the context of Thai society, on the basis of fair competition, to support the sustainable growth of national economy including the citizen sector and society will have a variety of quality programs to watch.

Telecommunications service

All existing overhead telecom and broadcast cables that have laid disorganized on electrical poles or messed up across the road in a manner that may cause harm to life and property to passers-by on the road is a mission of the NBTC and the organizations concerned have collaborated the operation for a constant improvement. In 2018, the Office of the NBTC received complaints about the disorganized overhead telecom and broadcast cables from people in many cases; for example, the overhead telecom and broadcast cables ragged, dropped, lowered, obstructed traffic of cars or people, and caused of harm to life, body and property or risks an accident. For the case of overhead telecom and broadcast cables that are disorganized on electric poles, the Office of the NBTC had held a meeting with operators on 13 June 2018 to discuss the resolution of the complaint regarding the disorganized overhead telecom and broadcast cables and the meeting has agreed to set up practical guidelines for solving complaints of disorganized overhead telecom and broadcast cables and assigned the Office of the NBTC to circulate a letter to the operators requesting for their cooperation to comply with the said practical guidelines for the orderliness and the safety of life and property of the people. All broadcasting, television and telecommunications operators must lay overhead telecom and broadcast cables on electrical poles in accordance with the standards having agreed with the Provincial Electricity Authority including the criteria on the right to setting up poles or laying lines or ducts or installing component devices or the principle of rights of ways of the Office of the NBTC. The standard of laying lines prescribes that in case of the main road or national highway, the cables shall not lay cross the road but having installed underground through ducts only. In case of secondary roads or lanes, the cables shall be at the height 5.5 - 5.9 meters above the traffic surface, and all types of overhead telecom and broadcast cables must have the colour and name of the owner specified clearly for identification.



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