Overview of
Taiwan Broadband Development

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Outline

◆ **Market Status**

◆ **National InfoComm Development Plan**

◆ **Broadband Universal Service**

◆ **Challenges**

◆ **Discussion**

Market Status

Profile of Taiwan

Taipei City

Kaohsiung City

Items	Figures
Population	23 million
No. of Households	7.65 million
Geographic Size	36,188 km^2
GNP Per Capita	US$17,542
Household Broadband Penetration	81%
Major Broadband Service Bandwidth	2 Mbps

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Status of Market (2008)

◆ **Communications related manufacturing: US$21.2 billion**
◆ **Telecom services: US$11.1 billion**

Circuit rented **8.43%**
Local phone **9.98%**
Long-distance phone **2.73%**
Internet & Value-added services **13.16%**
International phone **6.50%**
Mobile **59.20%**
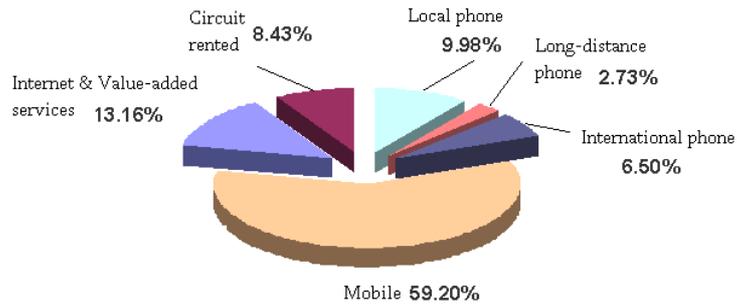
Telecom service market share

Status of Market (2008)

◆ **Media services: US$2.6 billion**

Satellite Broadcasting **32.8%**
Foreign Satellite Broadcasting **2.9%**
Terrestrial TV **11.6%**
Radio **3.8%**
Cable TV **49.0%**
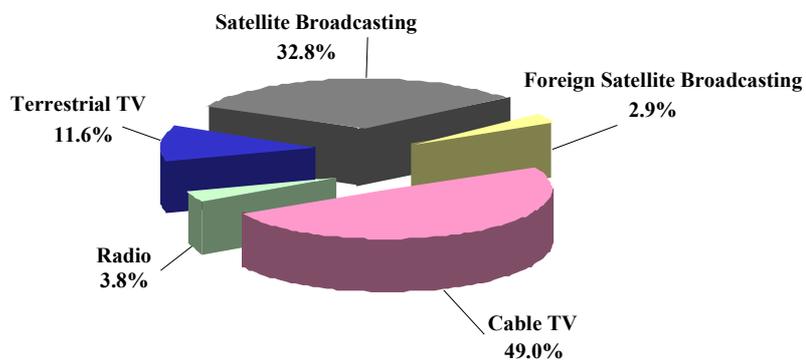
Media service market share

Leading ICT Products

Product	Worldwide Market Share (2008)	Product	Worldwide Market Share (2008)
PC	99.0%	Cable Modem	90.2%
Notebook	92.5%	WLAN NIC	89.0%
Motherboard	92.5%	DSL CPE	77.8%
LCD Monitor	67.2%	VoIP Router	76.1%
Smart Phone	22.4%	IP Phone	69.1%
Cell Phone	8.8%	IP STB	44.3%

Status of Telecom (2008)

Type	Category	No. of Licensees	Total	No. of Operators
I	Fixed Network	75	111	91
	Mobile Network	25		
	Satellite Communications	11		
II	Voice Simple Resale	74	883	497
	Non-E.164 Internet Telephony	71		
	E.164 Internet Telephony	2		
	Circuit Resale	210		
	Intra-corporation Network	30		
	ISP	171		
	OTHERS	325		

Status of Media (2008)

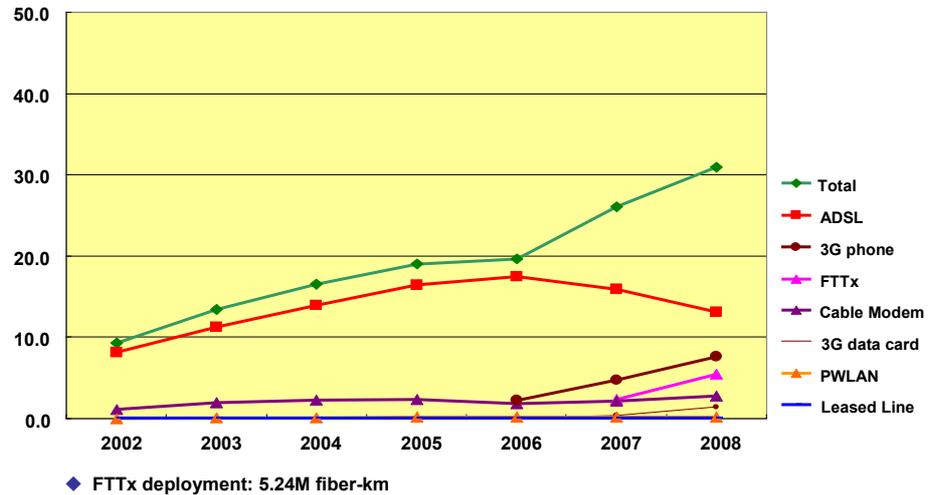| Category	No. of Operators
Terrestrial Television	5
AM & FM Radio	172
Cable Television System	65
Satellite Broadcasting: Direct Satellite Broadcasting	8
Satellite Broadcasting: Satellite Broadcasting Program Supply	99
IPTV	3

Penetration of Major Telecom Services

(Market Penetration, %)
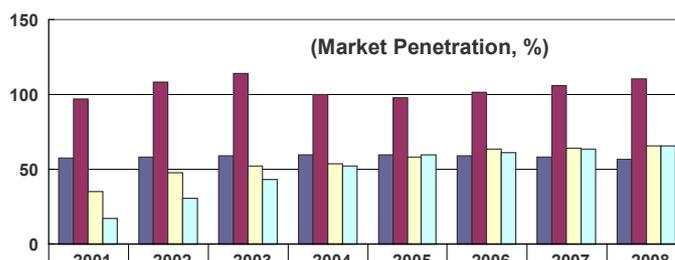
	2001	2002	2003	2004	2005	2006	2007	2008
Local telephone subscribers per 100 inhabitants	57.3	58.2	59.1	59.6	59.8	58.9	57.9	56.8
Mobile subscribers per 100 inhabitants	97.2	108.3	114.1	100.3	97.4	101.6	105.8	110.3
Internet users per 100 inhabitants	34.9	47.6	51.9	53.8	58.0	63.8	64.4	65.8
Fixed broadband household penetration rate	17.0	30.3	43.2	52.2	59.5	60.9	63.8	65.6

◆ CATV household penetration rate: 80 %

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Trend of Broadband Access (2002-2008)

(Market Penetration by population, %)

Legend:
- Total
- ADSL
- 3G phone
- FTTx
- Cable Modem
- 3G data card
- PWLAN
- Leased Line

◆ **FTTx deployment: 5.24M fiber-km**

Status of Broadband Access (2008)

Type		No. of Subscribers	Penetration (%)
Fixed	ADSL	3,026,166	13.1%
	FTTx	1,259,041	5.5%
	Cable Modem	648,910	2.8%
	Leased Line	34,003	0.1%
Mobile	3G Phone	1,772,562	7.7%
	3G Data Card	330,171	1.4%
	PWLAN	56,254	0.2%

Bandwidth of Fixed Broadband Access (2009)

No. of Subscribers

Bandwidth	No. of Subscribers
256K~768Kbps	831,610
1Mbps	438,164
2Mbps	1,454,604
3M~8Mbps	766,284
≧ 10Mbps	1,397,145
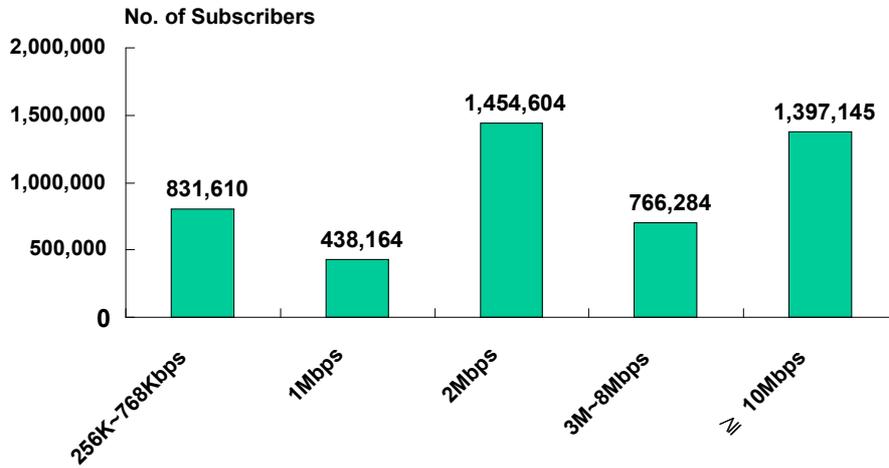
◆ **Total no. of subscribers: 4,887,807**

Taiwan World Rankings

2 - **ICT Manufacturing Industry**
2008 survey on global ICT industry competitiveness, published by Economist Intelligence Unit

4 - **Broadband Infrastructure and Usage**
2008 global user penetration rates, released by FTTH Council

5 - **Household Broadband Penetration: 81%***
*Strategy Analytic June 2009 (*including fixed and mobile)*

7 - **Digital Opportunity Index, DOI**
World Information Society Report 2007, published by ITU

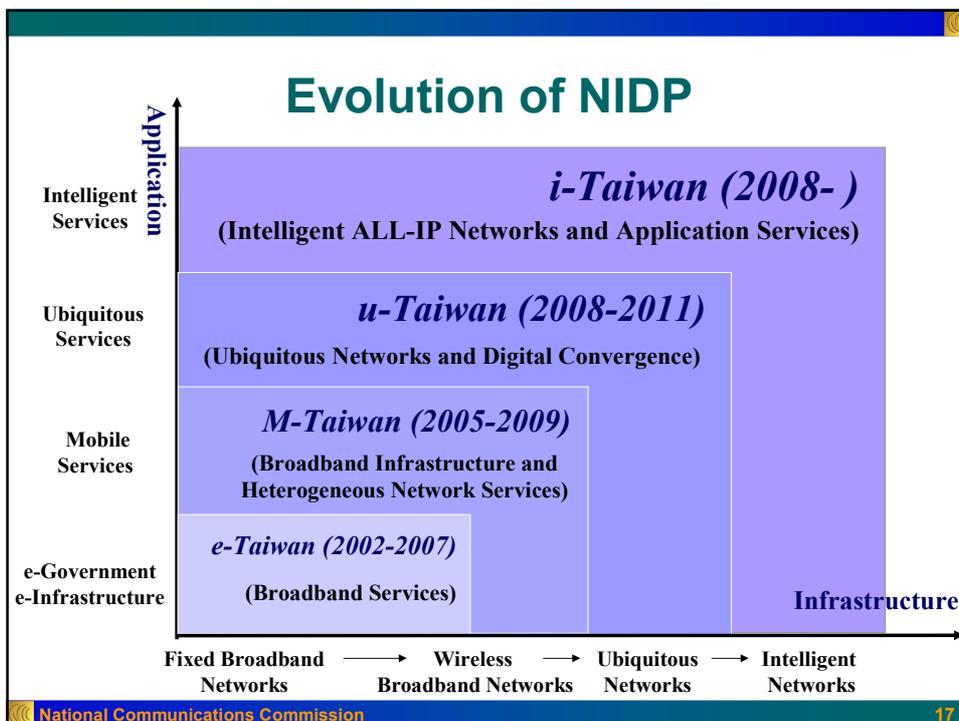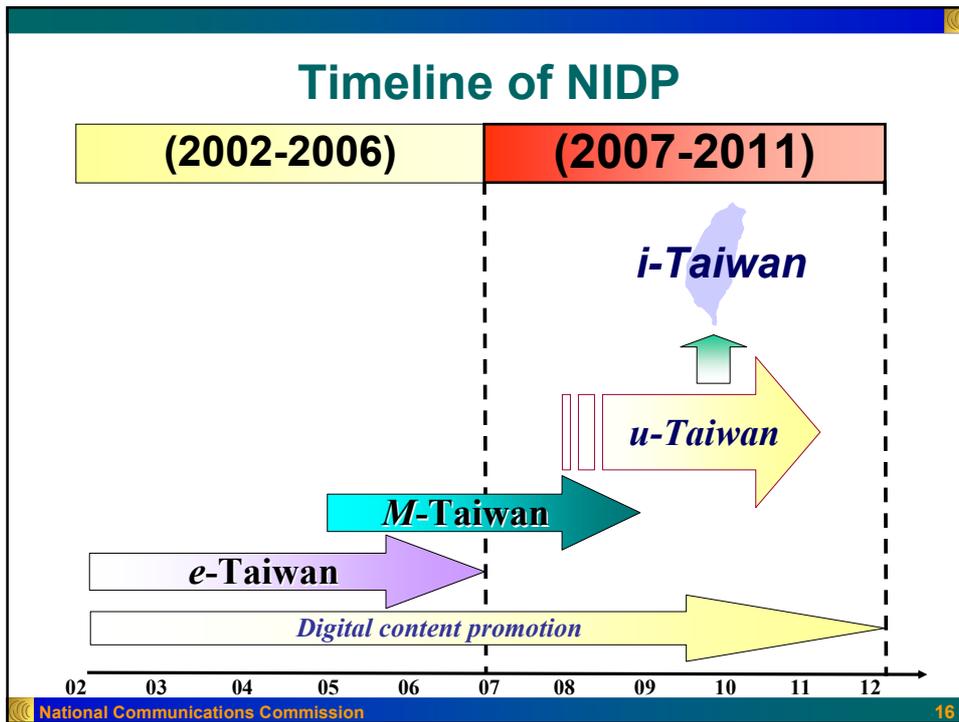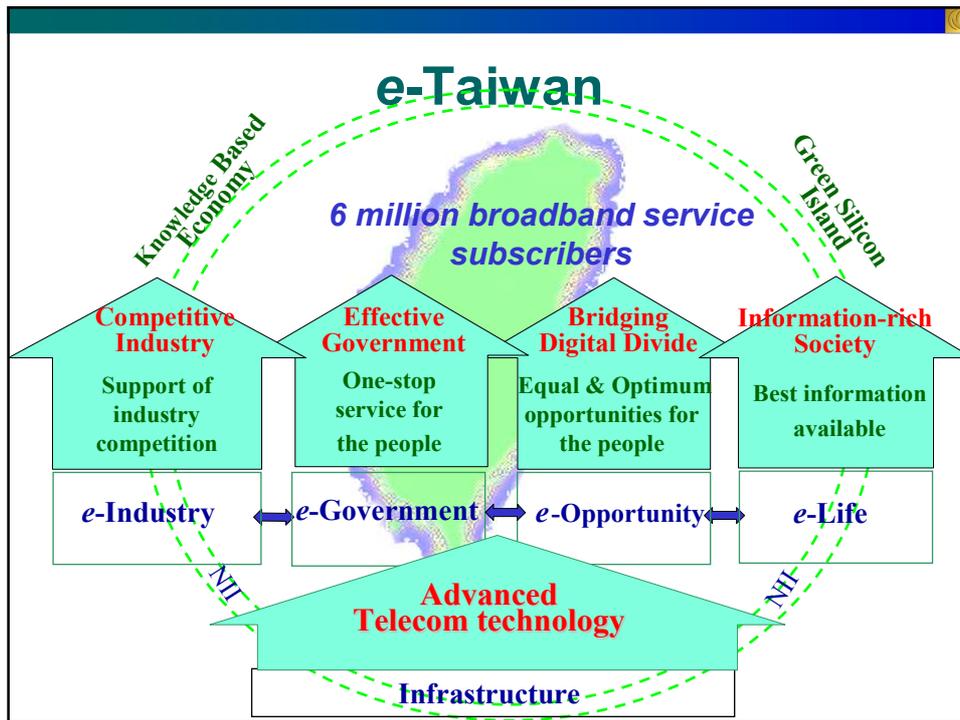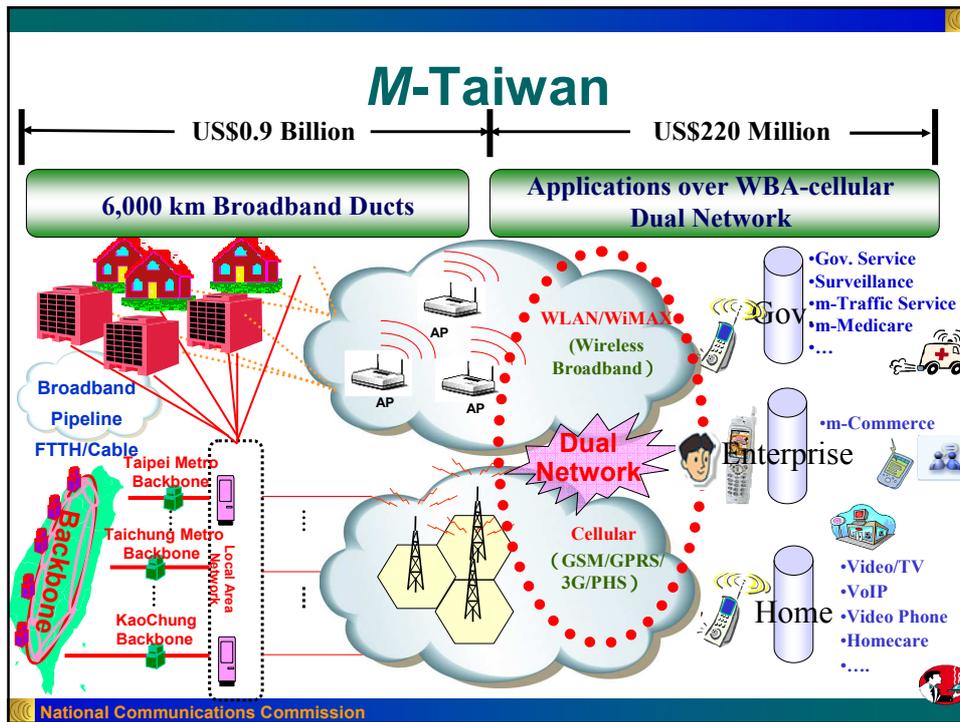# National InfoComm Development Plan (NIDP): Broadband Enabling Strategies

Goals of NIDP

◆ **Create a high-tech and broadband service island**

◆ **Construct a trusty, convenient, cultural and healthy ubiquitous network society**

◆ **Enhance national competitiveness**

Timeline of NIDP

(2002-2006) | (2007-2011)

i-Taiwan

u-Taiwan

M-Taiwan

e-Taiwan

Digital content promotion

02 03 04 05 06 07 08 09 10 11 12

Evolution of NIDP

Application

Intelligent Services

i-Taiwan (2008-)
(Intelligent ALL-IP Networks and Application Services)

Ubiquitous Services

u-Taiwan (2008-2011)
(Ubiquitous Networks and Digital Convergence)

Mobile Services

M-Taiwan (2005-2009)
(Broadband Infrastructure and Heterogeneous Network Services)

e-Government e-Infrastructure

e-Taiwan (2002-2007)
(Broadband Services)

Infrastructure

Fixed Broadband Networks → Wireless Broadband Networks → Ubiquitous Networks → Intelligent Networks

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Broadband Policy in e-Taiwan (2002~2007)

Vision	*Broadband for Every Family*
Goals	**Rise of broadband penetration**
Strategies	1. **Create a competitive market and beneficial environment for broadband services** 2. **Encourage foreign investment** 3. **Remove barriers against broadband infrastructure** 4. **Upgrade current networks to enable new broadband services**
Achievements	1. **Subscribers: 1.1M → 6.09M** 2. **ICT service output: US$4.3B → US$7.3B** 3. **Access bandwidth: 256Kbps → 2Mbps**

M-Taiwan

US$0.9 Billion ←→ US$220 Million

6,000 km Broadband Ducts

Applications over WBA-cellular Dual Network

•Gov. Service
•Surveillance
•m-Traffic Service
•m-Medicare
•…

Gov

Broadband Pipeline

FTTH/Cable

WLAN/WiMAX (Wireless Broadband)

AP

AP

AP

Dual Network

•m-Commerce

Enterprise

Taipei Metro Backbone

Taichung Metro Backbone

KaoChung Backbone

Backbone

Local Area Network

Cellular (GSM/GPRS/ 3G/PHS)

Home

•Video/TV
•VoIP
•Video Phone
•Homecare
•….

Broadband Policy in *M*-Taiwan (2005~2009)

| Vision	*Mobile Taiwan, Broadband Everywhere*
Goals	1. Construction of broadband ducts 2. Services over WBA/cellular networks
Strategies	1. Solve "last mile" problem by laying 6000 km common ducts to speed up broadband infrastructure 2. Encourage fixed-line operators to accelerate "FTTH" deployment 3. Create a heterogeneous fault-free mobile wireless Internet service environment
Achievements	1. More than 5,600 km of broadband ducts constructed as of June 2009 2. WBA services launched in April 2009

Wireless Broadband Access (WBA): A Key Enabler for *M*-Taiwan

- **6 WBA licenses were awarded in July, 2007 via a 2-stage licensing procedure: beauty contest / auction**

- **Each operator was granted 30MHz at 2.5GHz band**

- **One operator had launched WiMAX service in April, 2009**

- **Deadline for commercial operation: March, 2010**

- **Dedicated funding was allocated to subsidize R&D on related ICs, CPEs and base station equipments**

i-Taiwan
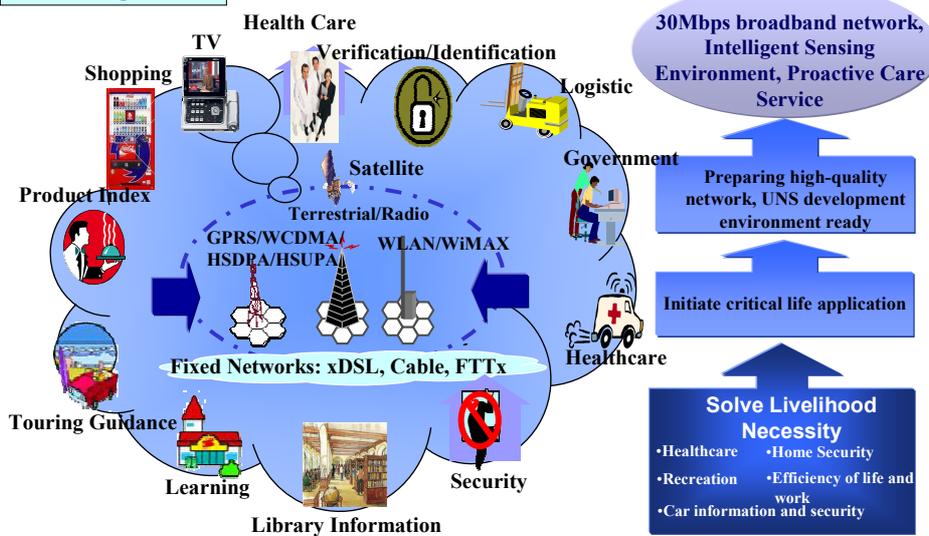
Broadband Policy in *i*-Taiwan (including *u*-Taiwan, 2008~)

Vision	*Intelligent Networked Environment*
Goals	1. Broadband access with 80% coverage and 30Mbps per subscriber by 2011 2. Digital convergence 3. Emerging industries (e.g., green ICT) and e-services for networked society
Strategies	1. Promote NGN and digitized cable networks 2. Promote triple play services over fixed-line, mobile and cable networks 3. Ready regulations on digital convergence 4. Promote digital contents
Achievements	*Ongoing*

Private Sector Broadband Development

◆ **FTTx: 1M fiber-km under deployment**

◆ **Cable: upgrading to DOCSIS 3.0**

◆ **Cellular: offering nation-wide HSPA services with more than 90% coverage**

◆ **WiMAX: six networks under construction**

◆ **PWLAN: offering Wi-Fi services in major metro areas**

Broadband Universal Service

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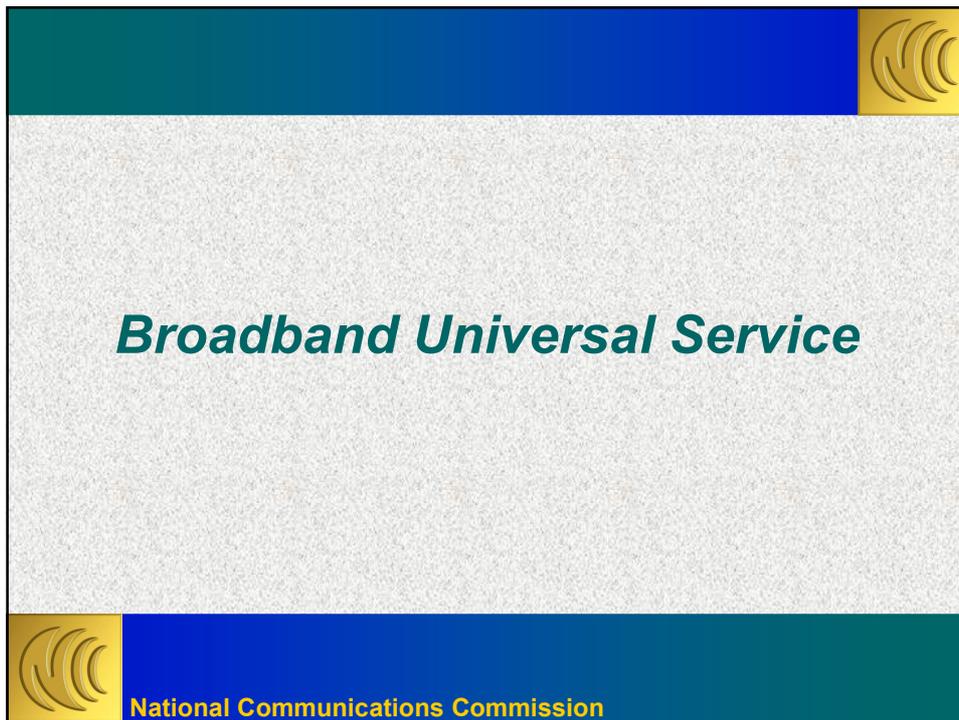
Overview of Broadband Universal Service

◆ **Ensure citizen's right of access to telecom services at remote areas**

◆ **Governed by "Regulations on Telecommunications Universal Service" under "Telecommunications Act"**

◆ **Encompass both voice and broadband data (for high schools, primary schools and libraries) services**

◆ **Funded by "Universal Service Fund" through dedicated projects on an annual basis**

Universal Service Fund

◆ **A virtual fund dedicated to universal telecom services**

◆ **Telecom operators whose annual turnover exceeds US$3m must share the deficit of universal service providers by a proportional ratio**

◆ **Has an average size of US$27M**

◆ **There is also another fund for CATV, having an average size of US$10M**

Major Achievements

◆ **Project "*Broadband for Villages*" completed in 2007**
◆ **Project "*Broadband for Tribes*" launched in 2007**

Year	2007	2008	2009
Budget	US$2.76M	US$2.22M	U$2.35M
Length of fiber deployed	145.8km	122.1km	Ongoing
Speed	> 2Mbps	> 2Mbps	> 2Mbps
Coverage	**100%** (715 villages)	**85%** (620 tribes)	**92%** (670 tribes)
Household penetration of broadband access	11.71%	21.64%	Ongoing

Challenges to Broadband Development in Taiwan

National Communications Commission

Challenges to Broadband Policy

◆ **Like many other countries, Taiwan has a dominant telecom player who owns more than 90% of wired infrastructure**

◆ **NGN and FTTx deployment are facing slowdown**

◆ **Mobile base station deployment is facing severe resistance from civilians due to health concern**

◆ **Value added contents often incur disputes between consumers and operators**

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What We Can Do

◆ **Prompt FTTx deployment of major telecom operators by promoting intermodal competition**

◆ **Promote digitization of CATV to allow for new broadband services**

◆ **Continue universal service provisioning for telecom and CATV**

◆ **Prepare migration plan for 2G cellular networks**

◆ **Prepare for 700MHz band clearance**

◆ **Prepare for revision of Telecommunications Act to create a friendly environment for digital contents**

Discussion

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What We Need to Find Out About Next Generation Broadband (NGB)

◆ **Who is more responsible for NGB, government or private sector?**

◆ **How do we motivate dominant telecom operator to accelerate NGB deployment?**

◆ **What is the better regulation policy for NGB?**

◆ **How much bandwidth per user do we need for NGB?**

◆ **What contents do we expect to deliver over NGB?**

Thank You for Your Attention

**For more information, please visit our website
http://www.ncc.gov.tw**