ITU-D Regional Development Forum for
the EUR and CIS Region
"NGN and Broadband, Opportunities and Challenges"
Chisinau, Moldova, 4-6 May 2010

ITU-D Study Groups activities on NGN and Broadband

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CIS, CEE and Baltic Countries: Mobile Cellular Subscriptions 2008
(Source: ITU World Telecommunication/ICT Indicators Database)

		(k) 2008	*CAGR (%)* 2003-08	*Per 100 inhabitants* 2008	*As % of total telephone subscribers* 2008
1	Albania	3'141	23.4	99.93	90.8
2	Andorra	64	4.3	76.06	63.2
3	Armenia	1'876	101.3	61.07	34.9
4	Austria	10'816	8.3	129.73	76.4
5	Azerbaijan	6'548	44.0	75.00	83.2
6	Belarus	6'960	58.0	71.57	65.5
7	Belgium	11'822	6.6	111.63	72.6
8	Bosnia & Herz.	3'179	24.2	84.26	75.5
9	Bulgaria	10'633	24.9	140.05	82.5
10	Croatia	5'924	18.5	133.95	76.2
11	Cyprus	1'017	13.0	117.89	71.1
12	Czech Rep.	13'780	7.3	133.54	85.8
13	Denmark	6'551	6.6	120.02	72.5
14	Estonia	2'524	19.2	188.20	83.5
15	Finland	6'830	7.5	128.76	80.5
16	**France**	**57'972**	**6.8**	**93.45**	**62.4**
17	Georgia	2'600	38.3	59.66	82.4
18	**Germany**	**107'245**	**10.6**	**130.37**	**67.6**
19	Greece	13'799	9.1	123.90	69.8
20	Hungary	12'224	9.0	122.09	79.8
21	Iceland	328	4.0	106.33	63.7

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CIS, CEE and Baltic Countries: Mobile Cellular Subscriptions 2008

(Source: ITU World Telecommunication/ICT Indicators Database)

		(k) 2008	CAGR (%) 2003-08	Per 100 inhabitants 2008	As % of total telephone subscribers 2008
22	Ireland	5'048	7.6	113.77	69.6
23	Israel	8'982	6.3	127.38	75.6
24	**Italy**	**88'580**	**9.3**	**148.61**	**81.6**
25	Kazakhstan	14'911	62.1	96.06	81.4
26	Kyrgyzstan	2'168	99.0	40.56	81.8
27	Latvia	2'217	16.1	97.72	77.5
28	Liechtenstein	32	6.4	90.58	62.1
29	Lithuania	5'023	19.0	151.24	86.5
30	Luxembourg	707	5.6	147.11	73.1
31	Malta	386	5.9	94.64	61.5
32	Moldova	2'420	38.4	66.60	63.6
33	Monaco	20	7.8	62.54	37.0
34	Montenegro	644	-	103.58	64.6
35	Netherlands	19'927	8.6	120.57	73.1
36	Norway	5'192	6.3	109.98	72.3
37	Poland	41'389	24.2	108.54	80.0
38	Portugal	14'910	8.3	139.64	78.3
39	Romania	24'467	28.03	114.54	82.9
40	**Russia**	**187'500**	**39.0**	**132.61**	**78.7**
41	San Marino	18	0.9	56.76	45.4
42	Serbia	9'619	-	97.76	75.7
43	Slovak Republic	5'520	8.5	102.23	83.4

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CIS, CEE and Baltic Countries: Mobile Cellular Subscriptions 2008

(Source: ITU World Telecommunication/ICT Indicators Database)

		(k) 2008	CAGR (%) 2003-08	Per 100 inhabitants 2008	As % of total telephone subscribers 2008
44	Slovenia	2'055	3.4	101.97	67.1
45	**Spain**	**49'682**	**5.9**	**111.68**	**71.1**
46	Sweden	10'988	4.5	119.38	67.4
47	Switzerland	8'780	7.2	116.43	64.6
48	Tajikistan	2'350	165.0	34.93	87.4
49	TFYR Macedonia	2'502	26.4	122.56	84.6
50	**Turkey**	**65'824**	**18.7**	**89.05**	**79.0**
51	Turkmenistan	348	148.0	6.98	43.2
52	**Ukraine**	**55'694**	**53.7**	**121.09**	**80.9**
53	**United Kingdom**	**75'565**	**6.9**	**123.41**	**69.5**
54	Uzbekistan	12'650	108.5	46.52	86.8

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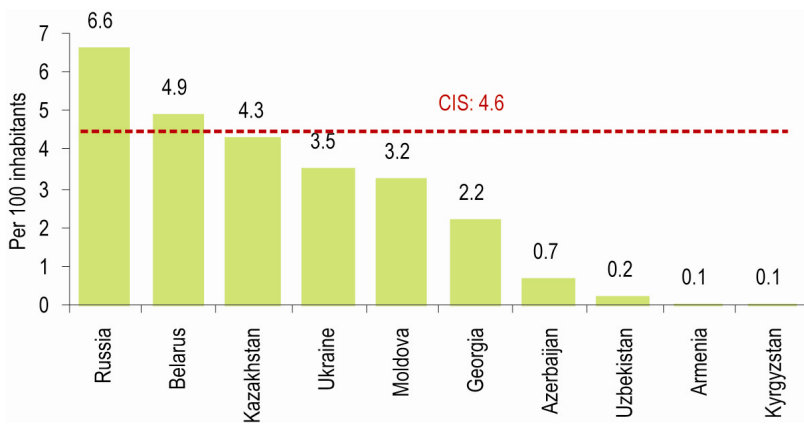**EU Fixed Broadband Penetration - 2008 (per 100 inhab. - %)**
(Source: ITU World Telecommunication/ICT Indicators Database)
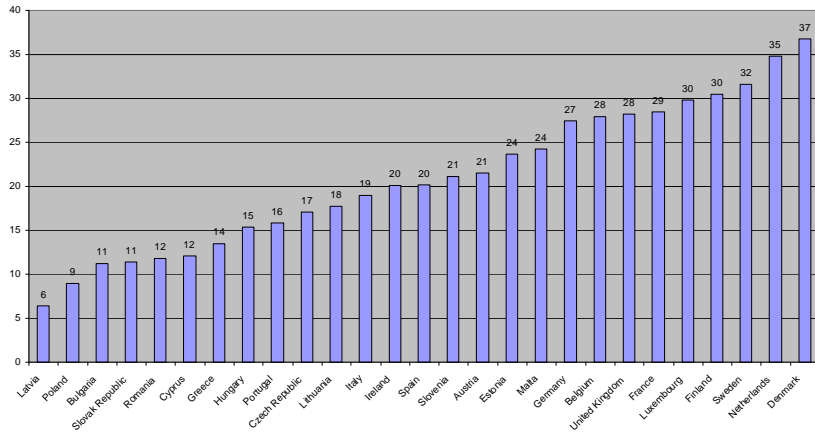
5

Fixed Broadband Subscribers in the CIS, 2008
(Source: ITU World Telecommunication/ICT Indicators Database)
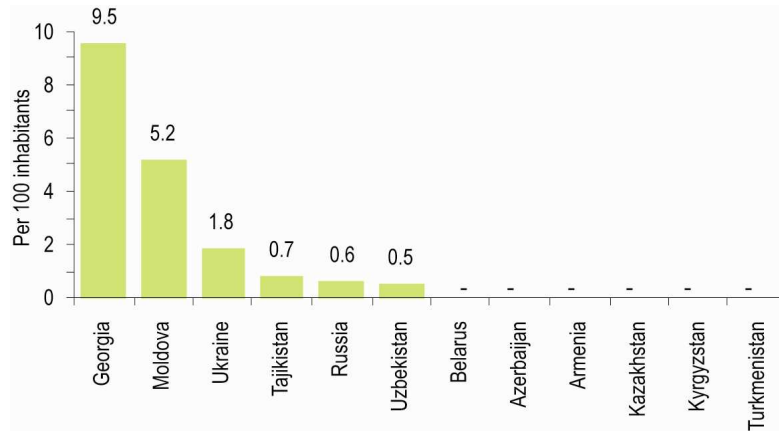
CIS: 4.6

Note: Data on fixed broadband subscribers for Tajikistan and Turkmenistan were not available

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Mobile Broadband Subscriptions in the CIS Countries, 2008
(Source: ITU World Telecommunication/ICT Indicators Database)

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ITU-D Study Groups
The History

- The ITU-D Study Groups were established in order to deal with specific telecommunication questions of general interest to developing countries, according to Resolution 2 of WTDC-94 that was held in Buenos Aires, 21-29 March 1994

- The terms of reference, the procedures to be applied by the Study Groups, the Questions under Study have been amended through the successive WTDCs: WTDC-98 (Valletta 23 March-1 April 1998), WTDC-2002 (Istanbul 18-27 March 2002), WTDC-06 (Doha 7-15 March 2006)

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ITU-D: Study Groups, TDAG

- **ITU-D:**
  - **Purpose: devise innovative solutions to specific problem areas per WTDC**
  - **No technical standards**
- **SGs focus: telecoms development strategies**
  - **SG 1 - Telecommunication development strategies and policies**
  - **SG 2 - Development and management of telecommunication services and networks and ICT applications**
  http://www.itu.int/ITU-D/study_groups/index.html
  - **TDAG: Advisory Group**

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ITU-D STUDY GROUPS

- **SG 1:** *Telecommunication development strategies and policies*

    National telecommunication policies and regulatory strategies which best enable countries to benefit from the impetus of telecommunications as an engine of economic, social and cultural development.

    Finance and economics, including World Trade Organization (WTO) issues, tariff policies, case studies, application of accounting principles as developed by ITU-T Study Group 3, private-sector development and partnership.

- **SG 2:** *Development and management of telecommunication services and networks and ICT applications*

    Methods, techniques and approaches that are the most suitable and successful for service provision in planning, developing, implementing, operating, maintaining and sustaining telecommunication services which optimize their value to users. This work will include specific emphasis on telecommunication network security, mobile communication and communications for rural and remote areas, with particular focus and emphasis on applications supported by telecommunications

    The implementation and technical application of information and communication technology, using studies by the others Sectors, taking into account the special requirements of the developing countries

    http://www.itu.int/ITU-D/study_groups/index.html

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Structure of ITU-D SGs

- **Chairmen:** *Chairmen and vice-chairmen appointed by WTDC primarily based upon proven competence (technical and management skill)*
- **Vice chairmen:** *Assist the chairman in matters relating to the management of the study group, including substitution for the chairman at official ITU-D meetings or replacement of the chairman.Vice-chairmen may be selected as chairmen of working parties or as rapporteurs.*
- **Rapporteurs for each questions:** *Rapporteurs are appointed by a study group in order to progress the study of a Question and to develop new and revised reports, opinions and recommendations. Rapporteurs may have responsibility for only one Question or topic.*
- **Study Groups management team:** *(chairman, the vice-chairmen of the study group, the chairmen and vice-chairmen of working parties, the rapporteurs and vice-rapporteurs). It should meet prior to the meeting of the study group, in order to properly organize the coming meeting, including the establishment of a time-management plan.*
- **Joint SGs management team:** *(Chaired by the Director of BDT, composed of the ITU-D study group management teams) to coordinate issues common to study groups; to prepare joint proposals to TDAG, to finalize the dates of the study group meetings, to deal with any other issue that may arise.*

MEETINGS

- *The study groups and their subordinate groups shall normally meet at ITU headquarters.*
- *The meetings of the study groups and their subordinate groups studying Questions should take place, to the extent possible, in the ITU-D regions, when invited by Member States or Sector Members, in order to facilitate the attendance of developing countries*
- *Participation in meetings*
  - *Member States, Sector Members, Associates and other entities duly authorized to participate in ITU-D activities shall be represented in the study groups and other groups in whose work they wish to take part by participants registered by name and chosen by them as representatives to make an effective contribution to the study of the Questions entrusted to those study groups. Chairmen of meetings may invite individual experts, as appropriate, to present their specific point of view, without taking part in the decision-making process.*
- *Frequency of meetings*
  - *The study groups shall in principle meet at least once a year during the interval between two WTDCs. However, additional meetings may take place with the approval of the Director of BDT, having regard to the priorities laid down by the preceding WTDC and the resources of ITU-D.*

ITU-D Study Group 1

Telecommunication development strategies and policies

http://www.itu.int/ITU-D/study_groups/index.html

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SG1: QUESTIONS UNDER STUDY

- **Q 6-2/1:** Regulatory impact of **next-generation networks** on interconnection
- **Q 7-2/1:** Regulatory policies on **universal access** to broadband services
- **Q 10-2/1:** Regulation for **licensing** and authorization of converging services
- **Q 12-2/1:** **Tariff policies, tariff models** and methods of determining the costs of services on national telecommunication networks, including next-generation networks
- **Q 18-1/1:** Domestic enforcement of **telecommunication laws**, rules and regulations by national telecommunications regulatory authorities
- **Q 19-1/1:** Implementation of **IP telephony** in developing countries
- **Q 20/1:** Access to telecommunication services for **people with disabilities**
- **Q 21/1:** Impact of telecommunication development on the **creation of employment**
- **Q 22/1:** Securing information and communication networks: Best practices for developing a culture of **cybersecurity**

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6-2/1 Regulatory impact of next generation networks on interconnection

ISSUES FOR STUDY

- *Studies of various issues related to Regulatory impact of next-generation networks on interconnection*

OUTPUT

- *Description of the legislative and regulatory framework that would be needed to implement appropriate interconnection arrangements for new generations networks*
- Report:Issues on NGN Network Architecture Interface and Points of Interconnections (PoI)
- Under discussion: signalling mandated by the regulator or left to the market to determine (ITU-T Q.3401 might be appropriate for regulator to use)

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7-2/1 Regulatory policies on universal access to broadband services

ISSUES FOR STUDY

- *Regulatory policy aspects linked to broadband services and technologies, in particular a summary of the experience acquired by telecom regulators in implementing universal access to broadband services in their countries;*
- *Specific universal access aspects with regard to management of access and interconnection agreements and methods of financing universal service;*
- *Aspects to keep up the technological neutrality principles inserting broadband access services to the universal services package;*
- *Aspects relating to best practices in seeking funding sources and developing innovative financing mechanisms for accelerating universal access/service development in rural communities;*

OUTPUT

- *Questionnaire and Report on best **regulatory** practices from developing and developed countries on how they have promoted Universal service through broadband development, their successes and obstacles*

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12-2/1: Tariff policies, tariff models and methods of determining the costs of services on national telecommunication networks, including next-generation networks

ISSUES FOR STUDY
- *Business-plan models used in developed countries, and adapt them to conditions in developing countries;*
- *Financial and tariff implications of site sharing for terrestrial mobile services;*
- *Economics of NGN investment projects of telecommunication operators and cost models used in setting tariffs for new services offered on NGNs.*

OUTPUT
- *a business strategy document for making the transition from existing service offerings in developing countries to service offerings that combine voice and data, together with a business plan to assure the stability of operators' current revenues in developing countries;*
- *a set of guidelines for promoting growth in data communications in developing countries.*
- Questionnaires on tariffes and policies and on financial and tariff implications of site sharing for terrestrial mobile services
- Case studies on tariff policies, tariff models and methods of determining the cost of services on NGN: experiences of network operators/service providers in implementing new services offering based on IP networks[17] combining voice and data

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ITU-D STUDY GROUP 2

Development and management of telecommunication services and networks and ICT applications

http://www.itu.int/ITU-D/study_groups/index.html

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SG2: QUESTIONS UNDER STUDY

- **Q 9-2/2:** Identification of study topics in **the ITU-T and ITU-R study** groups that are of particular interest to developing countries
- **Q 10-2/2:** Telecommunications for **rural and remote areas**
- **Q 11-2/2:** Examination of terrestrial digital sound and television **broadcasting technologies** and systems, including cost-benefit analyses, interoperability of digital terrestrial systems with existing analogue networks and methods of migration from analogue terrestrial techniques to digital techniques
- **Q 14-2/2:** Telecommunications for **e-health**
- **Q 17-2/2:** Progress on activities for **e-services/applications** in the world
- **Q 18-1/2:** Implementation aspects of IMT-2000 and information-sharing on systems beyond **IMT-2000 for developing countries**
- **Q 19-1/2:** Strategy for migration from existing networks to **next-generation networks** for developing countries
- **Q 20-2/2:** Examination of access technologies for **broadband telecommunications**
- **Q 22/2:** Utilization of ICT for **disaster management** and active and passive space-based sensing systems as they apply to disaster prediction, detection and mitigation
- ***Q 23/2:*** The unique telecommunication/ICT needs of **small island developing states (SIDS)**
- **Resolution 9 (Rev. Doha, 2006):** Participation of countries, particularly developing countries, in **spectrum management**

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18-1/2 Implementation aspects of IMT-2000 and information-sharing on systems beyond IMT-2000 for developing countries

ISSUES FOR STUDY

a) Identify ways of implementing IMT-2000, using satellites, as appropriate, for some countries and regions,

b) Identify the key elements to be studied in order to provide efficient and cost effective implementation of IMT-2000 and its evolution in developing countries.

c) Propose useful content for the development of training modules by ITU-D for users of IMT-2000 services and applications,

d) Provide information on the specific impact of the implementation of IMT-2000 on women, youth, indigenous people and people with disabilities,

e) Provide information on systems beyond IMT-2000.

OUTPUT

Last Rapporteur's Group Meeting: Geneva September 2009

➢ *FINAL REPORT OF Q18 2/2 (INCLUDING GUIDELINES WHERE PERTINENT) http://www.itu.int/md/D06-SG02-C-0246/en*

➢ *Supplement to the Guidelines on the Smooth Transition of Existing Mobile Networks to IMT-2000 for Developing Countries (GST) http://www.itu.int/md/D06-SG02-C-0248/en*

FINAL REPORT OF Q18 2/2 (INCLUDING GUIDELINES WHERE PERTINENT)

This Final Report provides facts about the various mobile systems and technologies and it is intended for use of telecom operators, policy-makers and regulators to facilitate their understanding of implementation aspects of IMT-2000 and systems beyond IMT-2000. This Report intends to present an objective and neutral view of the issues to be addressed regarding implementation aspects and has been prepared in response to the specific mandate of Q.18-1/2 from the WTDC.

It contains seven chapters as follow:

1. Definitions
2. Abbreviations / Glossary
3. Introduction
4. Ways of implementing IMT-2000, using satellites, as appropriate, for some countries and regions, taking into consideration ITU-R studies on integrated systems of IMT-2000. (Based on Countries experiences and Contributions)
5. Key elements to be studied in order to provide efficient and cost-effective implementation of IMT-2000 and its evolution in developing countries
    a. key elements for regulators, including licencing aspects, on implementing IMT-2000 networks, services and applications (Based preferably on Developed and Developing Countries contributions)
    b. IMT-2000 services and applications, opportunities for developing countries
    c. Economics of implementation of IMT-2000
        i. Market analysis
        ii. Economies of scale (including terminals)
        iii. Business plans and services
6. Information on the specific impact of the implementation of IMT-2000 on women, youth, indigenous people and people with disabilities
6. bis. Information on the specific impact of the implementation of IMT-2000 on environmental issues
7. Information on IMT-advanced systems
8. Countries' experiences

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Supplement to the Guidelines on the Smooth Transition of Existing Mobile Networks to IMT-2000 for Developing Countries (GST)

It contains eleven chapters as follow:

1. Introduction [Note: include Res. ITU-R 56]
2. Update on "From existing mobile networks to IMT-2000"
3. Update of IMT-2000 Terrestrial Technologies
4. Information on IMT-2000 Satellite Technologies
5. Update to Standards Development Organizations dealing with IMT-2000
6. IMT-2000 Service Offerings
7. Spectrum Requirements
– Update on Spectrum Identification from WRC-07
– Update on Frequency Arrangements
8. Update on "Interoperability with existing networks and among IMT-2000 technologies"
9. Update on "Transition Paths"
10. Miscellaneous Issues
a) Satellite Backhaul
b) Update of Definitions and Abbreviations and Glossary based on content
c) Update Annex 1 to include case studies for IP OFDMA TDD WMAN
11. Introduction to IMT-Advanced

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19-1/2 Strategy for migration from existing networks to next-generation networks for developing countries

ISSUES FOR STUDY

- *Trends of telecommunication networks towards NGN.*
- *Examination of NGN technologies (network management, transport networks, access networks, interworking with existing networks, etc.).*
- *Methodologies for planning, with taking into account the behavior of different existing networks.*
- *Migration solutions to NGN (ITU-T SG13 works on NGN)*

OUTPUT

- **Last Rapporteur's Group Meeting: Geneva September 2009**
- ➢ **Guidelines for migration of Existing Networks to Next-Generation Networks (NGN) for Developing Countries**
  http://www.itu.int/md/D06-SG02-C-0190/en

Guidelines for migration of Existing Networks to Next-Generation Networks (NGN) for Developing Countries

The objective of these guidelines is to offer guidance for developing countries on the technical issues for consideration when envisaging a migration of their existing PSTN/ISDN networks to NGN.

- *It explains the trends of telecommunication that would eventually lead to NGN, it explains the NGN technology and provides guidelines for NGN migration as well as some case examples. The report also provides some considerations regarding the regulatory problems raised by NGN migration.*
- *The document contains seven sections and seven annexes. Sections 1-3 contain a general outline of the technology developments that led to NGN, and what NGN really means both in terms of functionalities and benefits and network architecture. Relevant details that are associated with those sections can be found in Annexes 1 and 2. Section 4 discusses the migration to NGN and can be considered as the core of the report. Associated technical details drawn from ITU-T work on migration (in particular Question 7 of former SG13) are presented in Annex 3.*
- *Section 5 of the report presents some examples of NGN deployments. Section 6 outlines some regulatory challenges raised by NGN migration and finally section 7 presents the status of NGN migration and further work stressing on the importance of the development of Broadband access as a lever for NGN migration in developing countries.*
- *Annexes 4 and 5 contain respectively the questionnaire of Q19 that was sent in April 2008 to administrations and sector members and a summary of the responses received (unfortunately only 9 responses in total). Annex 6 contains the text of Opinion 2 of the last World Telcom Policy Forum (WTPF-09) of Lisbon on the "implications of the advent of NGN and advanced broadband access".[24] Finally section 7 presents a list of relevant ITU standards related to NGN.*

20-2/2 Examination of access technologies for broadband telecommunications

International Telecommunication Union

ISSUES FOR STUDY

- *Identify the technical, economic and development factors influencing the effective deployment of broadband wired and wireless access technologies and their applications, with a focus on technologies and/or standards recognized or under study by the other two ITU Sectors.*

OUTPUT

- *Analysis of the economic, technical, regulatory and development factors influencing the effective deployment of broadband access technologies. This will also include an assessment of the demand for these technologies and applications in developing countries.*
- *A matrix of different broadband access technologies, both wired and wireless, terrestrial high-altitude systems, including stratospheric-based and satellite. Yearly updating of the technology matrices will be necessary, including an update of the output report of the last study period by the year 2009.*
- *Last Rapporteur's Group Meeting: Geneva September 2009*

➤ ***BROADBAND ACCESS TECHNOLOGIES MATRIX** : Wireline Broadband Access Technologies, Fixed Broadband Wireless Access Technologies, Mobile Broadband Wireless Access Technologies (Technology, Standard Name and References)*
  http://www.itu.int/md/D06-SG02-C-0257/en

➤ ***Report on Broadband Access Technologies***
  http://www.itu.int/md/D06-SG02-C-0265/en

Report on Broadband Access Technologies

International Telecommunication Union

This report is intended to inform decision-makers and industry participants from developed countries around the world about the technical, economic, and development factors influencing the effective deployment of broadband access technologies and applications.
The Report is organized as follows:

a) *The main body of the Report includes a brief synopsis of available technologies that can be utilized to provide broadband access to end-users.*

b) The annexes contain information on general broadband matters focusing on the economic and social benefits of broadband, strategies for promoting the deployment and use of broadband access technologies and applications along with an analysis of the Questionnaire (CA 25 / Doc. 004) focusing on economic, technical and development factors affecting broadband deployment. A subsequent questionnaire was distributed to Member States in 2006. The BDT conducted an analysis of the responses which can be found on the ITU-D website. Also included in the Annexes are several country experiences which illustrate the technological, economic and social factors that both affect and are affected by the deployment of broadband access technologies. For the purposes of this Report, country experiences are extremely useful because they provide real-world examples of situations where governments and organizations have had to implement creative and innovative strategies in order to extend broadband services to their constituents. Upon examining the country experiences included in this report, developing countries will be able to save time, money and resources by learning from the examples of other communities that faced similar challenges with broadband deployment and access

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THANK YOU FOR YOUR ATTENTION!

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