

**ITU-D Regional Development Forum for
the ARB Region
“NGN and Broadband, Opportunities and Challenges”
Cairo, Egypt, 13-15 December 2010**

**ITU-D Study Groups activities on
NGN and Broadband**

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Arab Countries: Mobile Cellular Subscriptions 2009

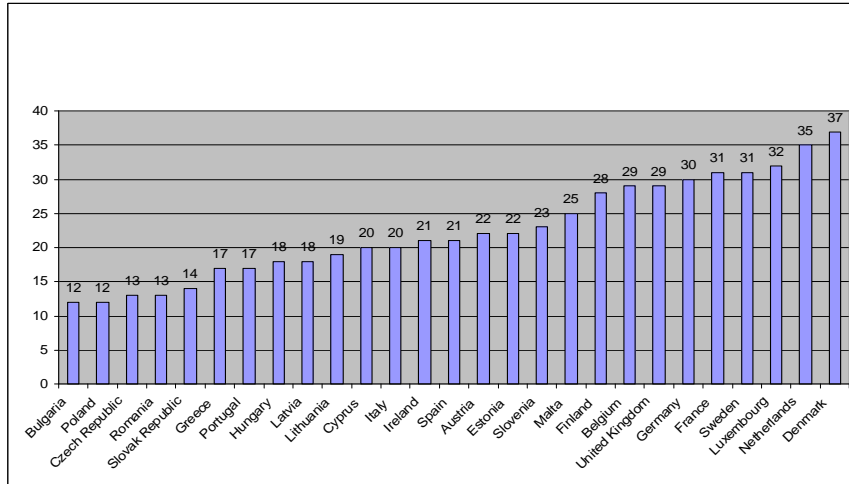
(Source: ITU World Telecommunication/ICT Indicators Database)

		<i>CAGR</i>	<i>Per 100</i>	<i>Mobile cellular</i>	
	<i>(k)</i>	<i>(%)</i>	<i>inhabitants</i>	<i>subscriptions as</i>	
	<i>2009</i>	<i>2004-09</i>	<i>2009</i>	<i>a % of total telephone</i>	
				<i>2009</i>	
1	Algeria	32'729	46.3	93.79	93
2	Bahrain	1'402	16.6	177.13	85
3	Comoros	125	71.7	18.49	85
4	Djibouti	128	30.2	14.90	88
5	Egypt	55'352	48.6	66.69	84
6	Iraq	19'722	102.9	64.14	95
7	Jordan	6'014	29.9	95.22	92
8	Kuwait	3'876	14.1	129.85	88
9	Lebanon	2'390	22.0	56.59	75
10	Libya	5'004	58.5	77.94	82
11	Mauritania	2'182	33.1	66.32	97
12	Morocco	25'310	22.1	79.11	88
13	Oman	3'970	37.6	139.54	93
14	Palestinian Authority	1'224	4.7	28.62	-
15	Qatar	2'472	38.2	175.40	90
16	Saudi Arabia	44'864	37.4	174.43	91
17	Somalia	641	5.1	7.02	87
18	Sudan	15'339	71.0	36.29	98
19	Syria	9'981	33.6	45.57	72
20	Tunisia	9'797	21.3	95.38	88
21	United Arab Emirates	10'671	23.7	232.07	87
22	Yemen	8'313	41.3	35.25	89

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EU Fixed Broadband Penetration - 2009 (per 100 inhab. - %)

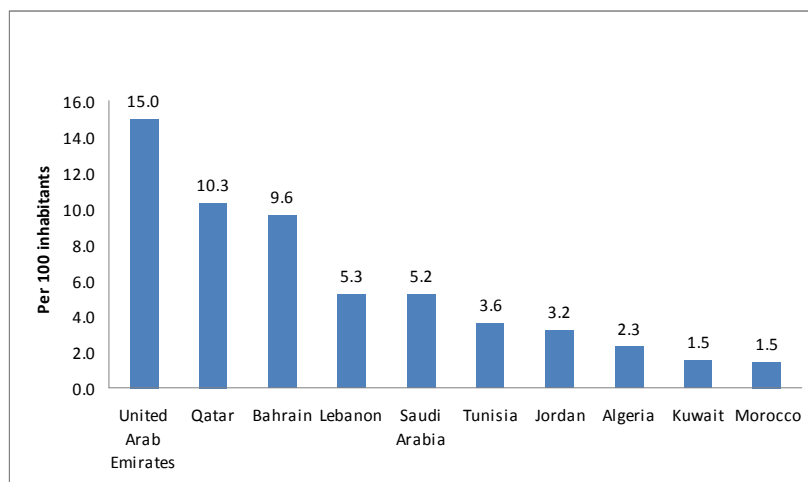
(Source: ITU World Telecommunication/ICT Indicators Database)



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Top 10 fixed broadband penetration in the Arab States, 2009

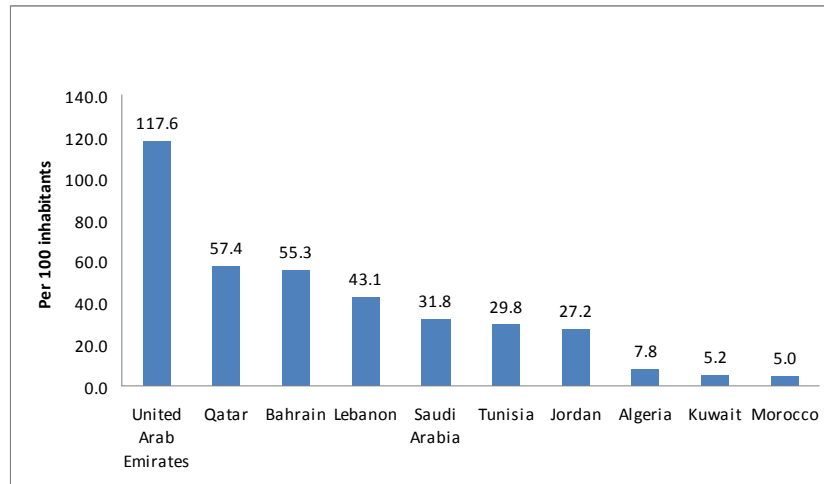
(Source: ITU World Telecommunication/ICT Indicators Database)



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Top 10 mobile broadband penetration in the Arab States, 2009

(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 \(Doha 7-15 March 2006\)](#), [WTDC-10 \(Hyderabad 24 May-4 June 2010\)](#)

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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



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

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 7-3/1: Implementation of **universal access to broadband services**
- Q 10-3/1: The impact of the licensing and authorization regime and other relevant regulatory measures on competition in a converged telecommunication/ICT environment
- Q 12-3/1: **Tariff policies, tariff models and methods of determining the costs** of services on national telecommunication networks, including **next-generation networks**
- Q 18-2/1: Enforcing national policies and regulations on consumer protection notably in a converging environment
- Q 19-2/1: Implementation of IP telecommunication services in developing countries
- Q 20-1/1: Access to telecommunication/ICT services by persons with disabilities and with special needs
- Q 22-1/1: Securing information and communication networks: Best practices for developing a culture of cybersecurity
- Q 23/1: Strategies and policies concerning human exposure to electromagnetic fields
- Q 24/1: Strategies and policies for the proper disposal or reuse of telecommunication/ICT waste material

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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 9-3/2:** Identification of study topics in **the ITU-T and ITU-R study** groups that are of particular interest to developing countries
- **Q 10-3/2:** Telecommunications/ICT for **rural and remote areas**
- **Q 11-3/2:** Examination of terrestrial digital sound and television broadcasting technologies and systems, interoperability of digital terrestrial systems with existing analogue networks, and strategies and methods of migration from analogue terrestrial techniques to digital techniques
- **Q 14-3/2: Information and Telecommunications/ICTs for e-Health**
- **Q 17-3/2:** Progress on e-government activities and identification of areas of application of e-government for the benefit of developing countries
- **Q 22-1/2: Utilization of telecommunications/ICTs for disaster preparedness, mitigation and response**
- **Q 24/2: ICT and climate change**
- **Q.25/2: Access technology for broadband telecommunications including IMT, for developing countries**
- **Q.26/2: Migration from existing networks to next-generation networks for developing countries: technical, regulatory and policy aspects**
- **Resolution 9 (Rev. Hyderabad , 2010):** Participation of countries, particularly developing countries, in **spectrum management**¹⁴

Reports from the former Study Period



- **SG1:**

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

- **SG2:**

- *Question 18-1/2: Implementation aspects of IMT-2000 and information-sharing on systems beyond IMT-2000 for developing countries*
- *Question 19-1/2: Strategy for migration from existing networks to next-generation networks for developing countries*
- *Question 20-2/2: Examination of access technologies for broadband telecommunications*

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Output of Q.6-2/1: Regulatory impact of next generation networks on interconnection



ISSUES FOR STUDY

- *Regulatory impact of next-generation networks on interconnection*
- *legislative and regulatory framework that would be needed to implement appropriate interconnection arrangements for new generations networks.*

OUTPUT

- <http://www.itu.int/publ/D-STG-SG01.06.2-2010/en>
- *The document contains the Report on Question 6-2/1. The report contains a brief discussion on the main issues and potential challenges to NGN interconnection*

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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 Telecom Policy Forum (WTPF-09) of Lisbon on the "implications of the advent of NGN and advanced broadband access". Finally section 7 presents a list of relevant ITU standards related to NGN.*

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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 1/2 (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**

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



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



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 access²³

New ITU-D Study Period



- **Q.25/2: Access technology for broadband telecommunications including IMT, for developing countries** (merging former Question 18-1/2 Implementation aspects of IMT-2000 and information-sharing on systems beyond IMT-2000 for developing countries and Question 20-2/2 Examination of access technologies for broadband telecommunications)
- **Q.26/2: Migration from existing networks to next-generation networks for developing countries: technical, regulatory and policy aspects** (merging former Question 6-2/1 Regulatory impact of next generation networks on interconnection and Question 19-1/2 Strategy for migration from existing networks to next-generation networks for developing countries)

Q.25/2: Access technology for broadband telecommunications including IMT, for developing countries



ISSUES FOR STUDY

- a) Examine **wired and wireless broadband access technologies** and their future trends;
- b) Identify methodologies for **migration planning and implementation of broadband wired and wireless technologies**, taking into account existing networks, as appropriate;
- c) Consider trends of broadband access technologies; **deployments, services offered and regulatory considerations**;
- d) Continue to identify ways and means of implementing **IMT, using terrestrial links and satellites**;
- e) Identify key elements to be studied in order to facilitate the possible **deployment of systems integrating satellite and the terrestrial component of IMT** (see Recommendation 206 (WRC-07));
- f) Provide information on the specific **impact of the implementation of broadband wired and wireless means, including IMT**, on underserved populations, including persons with disabilities;
- g) Provide information on **IMT-Advanced** systems based on the advice of Working Party 5D of ITU-R Study Group 5.

OUTPUT

- a) **Yearly progress report on the above study items including a matrix of different broadband access technologies, both wired and wireless, terrestrial and satellite, with yearly updates**;
 - b) **Analysis of the factors influencing the effective deployment of broadband access core technologies**;
 - c) **A set of guidelines for broadband access deployment that could be delivered inter alia through training seminars in accordance with the BDT Programme 4**;
 - d) **A handbook on IMT deployment in developing countries to replace the Handbook on Deployment of IMT-2000 systems (2003)**. This handbook will be the result of study group collaboration between ITU-R Study Groups 4 and 5, ITU-T Study Group 13 and the Rapporteur's Group dealing with this Question as part of ITU-D Study Group 2;
 - e) **Draft Recommendation(s), as appropriate and if justified**.
- **First Rapporteur's Group Meeting: Geneva 15 September 2010**
- **Work program for Question 25/2 <http://www.itu.int/md/D10-SG02-C-0042/en>**

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Q.26/2: Migration from existing networks to next-generation networks for developing countries: technical, regulatory and policy aspects



ISSUES FOR STUDY

- **Trends of telecommunication networks towards NGN**.
- **Examination of NGN technologies, Migration solutions to NGN (ITU-T SG13 works on NGN)**
- **Interconnection for NGN, technical and regulatory aspects**

OUTPUT

- Report on studies of various issues related to migration from existing networks to next-generation networks and among others the description of the technical, legislative and regulatory framework that would be needed to implement appropriate interconnection arrangements for new generation networks. Economic impact to implement these interconnection arrangements are also to be reported.**
- **First Rapporteur's Group Meeting: Geneva 15 September 2010**
- **Work program for Question 26/2 <http://www.itu.int/md/D10-SG02-C-0042/en>**

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***THANK YOU FOR YOUR
ATTENTION!***

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