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| PLENARY MEETING | **Addendum 1 toDocument WTDC-17/42-E** |
|  | **22 September 2017** |
|  | **Original: English** |
| United States of America |
| REVISED STUDY QUESTION 1/1: FIXED BROADBAND NETWORKS |
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| **Priority area:** - Study Group Questions**Summary:**Promoting increased access to broadband may be the single most important goal of the ITU Development Sector. The United States believes that it is essential that the ITU-D study groups include clear, focused studies of broadband deployment. To complement the work of the proposed New Study Question on Last Mile Wireless Broadband Connectivity and Services (proposed in IAP/20A5/1), the United States proposes to revise Study Question 1/1 from the 2014-2017 study period. In the 2018-2021 study cycle, this Question will focus on policies and strategies to deploy fixed broadband networks and their components including the important consideration of middle mile and backhaul deployment. The revised question is intended to facilitate exchange of information, case studies and best practices, allow for more in depth focus on the fixed component of broadband connectivity and deployment and facilitate development of focused outputs.**Expected results:**Revised Question 1/1 focused on fixed broadband networks.**References:**IAP/20A5/1; WTDC-17/34; WTDC-17/42(Add.2) |

**Discussion**

Promoting increased reach of broadband may be the single most important goal of the Development Sector. Increased access to broadband directly is correlated with better standards of living, improved access to information, increased availability (and use) of e-services, and boosts in both national and global GDP. Countries worldwide, particularly developing countries, have been striving to develop and implement strategies to increase acces to broadband.

To increase developing country capacities in the area of broadband network deployment and support implementation of the Buenos Aires Action Plan Objective 2, the United States believes that the ITU-D study groups should include clear, focused studies with clearly defined outputs. Because strategies and policies to expand broadband encompass such a wide range of topics, and responding to experiences from the 2014-2017 study period where it was recognized that the mandate of Question 1/1 was overly broad, the United States proposes to divide the ITU-D Study Group work on broadband deployment into two Study Questions within Study Group 1. Revised Question 1/1 will focus on fixed broadband networks and their network components, while last mile wireless broadband will be addressed in a proposed new Study Question on Last Mile Wireless Broadband Connectivity and Services (IAP/20A5/1). Importantly, this is not to suggest that mobile and fixed wireless access will not be optimal solutions for broadband deployment. Wireline and wireless technologies are converging, and broadband access will increasingly move to untethered wireless connections. But even in these circumstances, there will be need for increased middle mile and backhaul capacity. As a result, a study of “fixed” broadband deployment for middle mile and backhaul networks will be of independent value. Additionally, the United States proposes to further refine and focus Question 1/1 on the core objective of broadband network development by moving elements focused on broadband enabled technologies and services, including cloud computing, m-services and Over-the-Top (OTT) offerings, into a revised Question 3/1 (USA/42A2/1). Moving this discussion will allow for focused outputs and will reduce duplication.

While mobile wireless broadband networks have become a key enabler of broadband connectivity for billions of people all over the world, fixed technologies still play a vital role in supporting connectivity. Moreover, the growth of mobile data actually increases demand for fixed networks. Mobile connections only travel over the air for a short distance, after which they are carried on high-capacity wired connections. The growth of Wi-Fi and other technologies for offloading cellular traffic will place greater demands on wired and backhaul networks. The ‘middle mile,’ including backhaul components, are a critical part of broadband deployment strategies, and one requiring significant investment. The United States believes that a specific focus on technical, policy and regulatory aspects of fixed broadband, including middle mile and backhaul deployment strategies and approaches will allow Members to explore experiences, lessons learned, and best practices to help enhance the implementation of national broadband plans and strategies, incentivize competition and investment, and increase broadband connectivity.

**Proposal: USA/42A1/1**

It is proposed that the following revised Study Question 1/1 on **Fixed Broadband Networks** be considered for the 2018-2021 study cycle.

STUDY GROUP 1

**MOD** USA/42A1/1

QUESTION 1/1

Fixed broadband networks

# 1 Statement of the situation or problem

Increased access to broadband is widely credited with improving development outcomes, fostering economic growth and increasing competitiveness. Broadband is a key input to achieving a people‑centred, inclusive and development-oriented information society, including the objectives set by Action Line C7 of the Tunis Agenda and the World Summit on the Information Society (WSIS) and (through them) the ITU’s role in achieving the SDGs.

Despite impressive gains in access to telecommunication/ICT infrastructure, services and applications, many developing countries, particularly least developed countries (LDCs), still lack sufficient access to broadband connectivity. Further, the cost of access to broadband service remains high in many developing countries owing to a variety of factors, including a lack of infrastructure investment and the need to develop, implement and enforce enabling policies and regulations, in particular those that would promote effective competition.

While mobile wireless broadband networks have become a key enabler of broadband connectivity for billions of people all over the world, fixed technologies still play a vital role in supporting connectivity. Moreover, the increased use of mobile technologies and the growth of mobile data do not diminish the importance of fixed networks. Mobile connections only travel over the air for a short distance, after which they are carried on fixed broadband networks. In addition, the growth of Wi-Fi and other technologies for offloading cellular traffic will place greater demands on wired and backhaul networks. Middle mile, including backhaul capacity, is a critical component of broadband deployment strategies and requires significant investment.

ITU‑D, with active participation from Member States and Sector Members, should endeavour to increase the availability of affordable broadband services during the 2018-2022 study period by carefully analysing the policy and technical issues related to fixed broadband network deployment, including consideration of middle mile and backhaul solutions and fixed wireless “last mile” solutions.. In particular, ITU members and BDT must identify, elevate and address the stated needs of the LDCs and others in improving broadband deployment and use. Members will benefit from analysing the technical, policy and regulatory issues involved in deploying fixed broadband technologies, including integration of access network solutions with existing or future network infrastructure.

A specific focus on technical, policy and regulatory aspects of fixed broadband networks, including middle mile and backhaul deployment strategies and approaches will allow Members to explore experiences, lessons learned, and best practices to help enhance the implementation of national broadband plans and strategies, incentivize competition and investment, and increase broadband connectivity.

# 2 Question or issue for study

a) Technical means to provide affordable and sustainable fixed broadband networks, including network components such as wireline and fixed wireless ‘last mile’ access, middle mile and backhaul capacity, including consideration of the transition from narrowband networks and interconnection and interoperability features.

b) Policies and regulations that promote broadband deployment, focusing on fixed networks and network components, including middle mile and backhaul capacity.

 c) The regulatory and market conditions necessary to promote deployment of broadband networks and services, including organizational options for national regulatory authorities resulting from convergence

d) Success stories and lessons learned.

e) Ways to remove practical and regulatory barriers to fixed broadband infrastructure deployment and investment, and best practices for improving cross-border connectivity and small island developing states' connectivity challenges.

f)

f) Promoting incentives and an enabling regulatory environment for the investment required to meet the growing demand for fixed access to the Internet generally, and last and middle mile fixed infrastructure requirements in particular, for delivering affordable broadband services to meet development needs, including consideration of public, private and public-private partnerships for investment.

a) Success stories and lessons learned, including experiences gained in developing and implementing major fixed broadband delivery iniatives.

b) Study of the policy and technological aspects of a) the transition from IPv4 to IPv6 and, separately, b) ways to manage access to networks, balancing network performance, competition and consumer benefits.

# 3 Expected output

Reports, best-practice guidelines, workshops, case studies and recommendations, as appropriate, that take into account the issues for study and the following expected outputs:

i) Best practices to promote fixed broadband network deployment, including last mile, middle mile and backhaul, through effective competition, public and private investment, inter-platform competition, private‑public partnerships and identification of the range of alternative successful business arrangements that have been used to meet growing demand and other changes in the market.. Expected output could include a survey of technology options available for supporting fixed broadband and backhaul capacity.

ii) Best practices for encouraging regional policies and practices that promote and address cross-border connectivity and small island developing state connectivity.

iii) Best practices to develop technology-neutral and service-neutral policies and to identify and remove practical and regulatory barriers to broadband infrastructure development.

 iv) Best practices for infrastructure sharing and access to networks to promote market entry, where appropriate.

v) Guidelines for making the transition from narrowband to broadband networks, taking into account in particular the potential challenges, benefits and opportunities that developing countries may encounter when implementing broadband networks, services and associated applications.

Best practices on transition to IPv6, which may address the following issues:

1) Transition to IPv6 for telecommunication operators:

1.1) stages in the transition, including best practices for top-level domain operators and application service providers in migration efforts;

1.2) transition for network backbones;

1.3) transition for access networks;

1.4) collecting best practices for routing;

1.5) network service;

1.6) quality-of-service issues;

1.7) issues of network security throughout the transition process.

2) Combined use of IPv6 and IPv4.

3) Participation required of the regulator.

# 4 Timing

Annual progress reports. This study is expected to last four years.

Within two years, a draft report on the subjects should be submitted to Study Group 1.

A final report and guidelines or Recommendation(s) are to be submitted to Study Group 1 within four years.

The rapporteur's group will work in collaboration with BDT to implement the lessons learned from study of the Question through training seminars.

The activities of the rapporteur's group will end within four years.

# 5 Proposers/sponsors

United States.

# 6 Sources of input

The major source of input will be the experiences of those Member States and Sector Members that have deployed broadband networks. Contributions from Member States and Sector Members will be essential to the successful study of the issue.

Interviews, existing reports and surveys should also be used to gather data and information for the finalization of a comprehensive set of best-practice guidelines.

Material from regional telecommunication organizations, telecommunication research centres, manufacturers and working groups should also be used, in order to avoid duplication of work.

Close cooperation with ITU‑T study groups, in particular Study Group 13 and the Global Standards Initiative (GSI‑NGN), other standards groups involved in the activities discussed in the study Question and other activities within ITU‑D will also be essential.

Contributions are expected from Member States, Sector Members and Associates, and from relevant ITU‑R, ITU‑T and ITU‑D study groups, and other stakeholders.

# 7 Target audience

| Target audience | Developed countries | Developing countries[[1]](#footnote-1)1 |
| --- | --- | --- |
| Telecom policy-makers | Yes | Yes |
| Telecom regulators | Yes | Yes |
| Service providers/operators | Yes | Yes |
| Manufacturers | Yes | Yes |
| Consumers/end users | Yes | Yes |
| Standards-development organizations, including consortia | Yes | Yes |

a) Target audience

All national telecom policy‑makers, regulators, service providers and operators, especially those in developing countries, as well as manufacturers of broadband technologies.

b) Proposed methods for implementation of the results

The results of the Question are to be distributed through ITU‑D interim and final reports. This will provide a means for the audience to have periodic updates of the work carried out and to provide input and/or seek clarification/more information from ITU‑D Study Group 1 should they need it.

# 8 Proposed methods of handling the Question or issue

a) How?

1) Within a study group:

– Question (over a multi-year study period) ☑

2) Within regular BDT activity (indicate which programmes, activities,
projects, etc., will be involved in the work of the Study Question):

– Programmes ☑

– Projects ☑

– Expert consultants ☑

– Regional offices ☑

3) In other ways – describe (e.g. regional, within other organizations
with expertise, jointly with other organizations, etc.) □

b) Why?

The Question will be addressed within a study group over a four-year study period (with submission of interim results), and will be managed by a rapporteur and vice‑rapporteurs. This will enable Member States and Sector Members to contribute their experiences and lessons learned with respect to policy, regulatory and technical aspects of the migration from existing networks to broadband networks.

# 9 Coordination and collaboration

The ITU‑D study group dealing with this Question will need to coordinate with:

– Relevant ITU‑T study groups, particularly Study Group 13

– Relevant focal points in BDT and ITU regional offices

– Coordinators of relevant project activities in BDT

– Standards-development organizations (SDOs)

– Experts and experienced organizations in this field.

# 10 BDT programme link

WTDC Resolution 77 (Dubai, 2014).

Links to BDT programmes aimed at fostering the development of telecommunication/ICT networks as well as relevant applications and services, including bridging the standardization gap.

# 11 Other relevant information

As may become apparent within the life of the Question.

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1. 1These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition. [↑](#footnote-ref-1)