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|  | | **Document** **WTDC17/6-E** |
| **17 July 2017** |
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| Director, Telecommunication Development Bureau | | |
| ITU-D STUDY GROUP 1 AND 2 QUESTIONS FOR THE NEXT STUDY PERIOD (2018-2021) | | |
|  | | |
| **Summary:**  During their final meetings for the study period from 27 March to 7 April 2017, ITU-D Study Groups (SG) 1 and 2 discussed the future of the Questions in each Study Group. Each Rapporteur Group proposed a way forward for their Questions based on the discussions and brainstorming sessions that had taken place during the past year’s Rapporteur Group and Study Group meetings. In addition, the ITU-D Study Groups could also benefit from inputs received on current and possible future topics to be studied through two surveys that had been submitted to the ITU- D Membership and participants in Rapporteur Group and Study Group meetings.  This document presents an overview of the discussions concerning the current study Questions in ITU-D Study Groups 1 and 2 as well as some food for thought for future study topics and possible approaches to be taken to reach consensus on topics to be studied. It is hoped that the information on the future of study Questions will serve to inform ITU-D Membership, as they prepare for WTDC-17.  **Annexes 1a and 1b** present revised draft text for two study Questions, Q5/1 (Telecommunications/ICTs for rural and remote areas), and Q7/2 (Strategies and policies concerning human exposure to electromagnetic fields) as agreed during the March/April 2017 meetings.  **Annexes 2a and 2b** present the outcomes of the ad hoc meetings concerning the future of study Questions that SG1 and SG2 held during the final March/April 2017 meetings**.**  Detailed information on the feedback received for each Question through the two surveys can be found in documents [1/447](https://www.itu.int/md/D14-SG01-C-0447/en) + Annexes and [1/458](https://www.itu.int/md/D14-SG01-C-0458/en) + Annex.  **Expected results:**  WTDC-17 is invited to note this document and use the content, as deemed appropriate, when considering the study Questions.  **References:**  [1/REP/40](http://www.itu.int/md/D14-SG01-R-0040/en) (ITU-D SG1), [2/REP/43](http://www.itu.int/md/D14-SG02-R-0043/en) (ITU-D SG2), [TDAG17-22/13](https://www.itu.int/md/d14-tdag22-c-0013) (ITU-D SG1), [TDAG17-22/14](https://www.itu.int/md/d14-tdag22-c-0014) (ITU-D SG2) | | |

The results of the discussions concerning the future of study Questions in both ITU-D Study Groups 1 and 2 in preparation for the forthcoming study period are shared below.

2. **Future of ITU-D Study Group 1 Questions**

Discussion on the future of ITU-D Study Group 1 Questions was initiated in 2016. In addition to an open brainstorming session for all participants during a SG1 session on 22 September 2016 to share insights and views on the ITU-D study groups, SG1 also discussed the future of the Questions during individual meetings with the Rapporteurs and Vice-Rapporteurs of each Question and Resolution 9 in September 2016. These discussions continued during the Rapporteur Group meetings in January 2017 as well as the final SG1 meeting for the study period which took place from 27 to 31 March 2017. The SG1 Chairman’s report contains further details ([1/REP/40](https://www.itu.int/md/D14-SG01-R-0040)). **Annex  2a** to this report highlights the agreed way forward for each study Question.

**Question 1/1 – Policy, regulatory and technical aspects of the migration from existing networks to broadband networks in developing countries, including next-generation networks, m-services, OTT services and the implementation of IPv6**

The surveys highlighted the Members’ satisfaction with the work conducted to date and propose some alternative ways forward. Regarding the future of Question 1/1, the results of the two surveys carried out by the ITU-D Study Groups on the current work and the future of the Q1/1 indicate that this Question should continue. However, the current focus is considered too broad. Possible merger of Q1/1 with Q2/1 was also discussed. Two documents presented to ITU-D SG1 for the March 2017 meetings document [1/432](https://www.itu.int/md/D14-SG01-C-0432/en) and document [1/454](http://web.itu.int/md/D14-SG01-C-454/en) with proposals for the future of the study Question were considered. ***No agreed way forward was reached by the Rapporteur Group.***

**Question 2/1 – Broadband access technologies, including IMT, for developing countries**

When discussing the future of Q2/1, one proposal focused on expanding the current Question to policies for allocation and access technologies. Another proposal ([1/463](https://www.itu.int/md/D14-SG01-C-0463/)) asked to reflect the importance of IMT-2020 (5G) and relevant work during the next period. Continuing the work of Q2/1 was considered useful as technologies are constantly evolving. A summary table on the present situation of the all Questions dealing with broadband issues was also presented. ***No agreed way forward was reached by the Rapporteur Group.***

**Question 3/1 – Access to cloud computing: challenges and opportunities for developing countries**

According to the results of the surveys, the topics studied under Question 3/1 were considered relevant for the future and encouraged that Q3/1 continue its work during the next study period. It was noted that the scope of the Question needs to be revised and the focus could be on the following three aspects: 1) Specific applications within cloud computing, including digital and environmental aspects; 2) Cloud computing within states: indicators and country's readiness for cloud implementation; and 3) Economic issues of integrating cloud technologies into existing business models. ***The Rapporteur Group proposed to continue the study Question.***

**Question 4/1 – Economic policies and methods of determining the costs of services related to national telecommunication/ICT networks, including next-generation networks**

When discussing the future of Question 4/1, while the scope would need to change, it was suggested that Q4/1 continue its work. The Question is no longer to compare bottom-up and top-down models but to move on to reflect regulatory aspects: e.g., how to help regulators in applying principles in a new tariffing environment focusing more on contracts and packages. Emphasis should be put on tariff methods and remaining mindful of new costing and tariff methods. Beyond that, it is important to tackle this issue in the context of emerging services and concepts such as OTTs and Internet of Things (IoT). The proposed title for the new study period is *“Policies, economics and tariff methods for applications and services on communication networks.”* Other specific issues proposed were to include spectrum pricing, tax and other fiscal incentives and their impact on telecommunications/ICTs, as well as the needs of people with specific needs. ***The Rapporteur Group proposed to continue the study Question.***

**Question 5/1 – Telecommunications/ICTs for rural and remote areas**

Regarding the future of Question 5/1, the participant survey highlighted the importance of continuing to study different aspects of telecommunications/ICTs for rural and remote areas as the majority of people in developing countries still live in these areas and thus access, innovation and capacity building must be ensured. The high number of contributions received for consideration by the group throughout the study period indicates a continued interest in and need for further studies into topics related to telecommunications/ICTs for rural and remote areas. Some suggestions related to IMT 2020 / 5G broadband technologies in rural and remote areas were shared. Drawing on earlier discussion, a contribution (document [1/423](https://www.itu.int/md/D14-SG01-c-0423)) presented some views on the future of Q5/1. A continued interest in and need for further studies into topics related to telecommunications/ICTs for rural and remote areas was indicated. ***The Rapporteur Group proposed to continue the study Question.***

**Question 6/1 – Consumer information, protection and rights: Laws, regulation, economic bases, consumer networks**

Regarding the future of Question 6/1, the participant survey pointed out the cross-cutting nature of consumer protection and also draws attention to the need to revise Q6/1 to take into account changing consumer needs and build on the results of this study period. During the Rapporteur Group meeting, agreement on the need to continue to explore the Question was attained with the understanding that its title and description require refinement to reflect a changing ecosystem. A proposal for the title was: *“Consumer protection, challenges and opportunities in the digital economy/era”.* More emphasis should be put on collaboration mechanisms as well as on capacity building mechanisms through more co-ordination among regulatory organizations, operators and consumer groups. In emphasizing coordination and collaboration, the next study period could address how collaboration mechanisms in the new ecosystem could be improved. Tools for consumers could be addressed to enable them to be better informed of market offers and supply and thus make more informed choices. ***The Rapporteur Group proposed to continue the study Question.***

**Question 7/1 – Access to telecommunication/ICT services by persons with disabilities and with specific needs**

Regarding the future of Question 7/1, the participant survey underscored the role of the ITU-D study groups as a global platform that enables Members to work on ICT accessibility for persons with disabilities (PwD). In the next study period, Q7/1 could work to help Members implement the guidelines that have been developed the 2014-17 cycle. With reference to the future of Q7/1, the meeting agreed on the basis of a contribution ([1/469](https://www.itu.int/md/D14-SG01-C-0469/en)) that Q7/1 should also focus on accessible telecommunication/ ICT access for the aging population. A proposal for the title was: *“ICT accessibility for persons with disabilities, including age related disabilities and with specific needs”.* The group emphasized the importance of inclusiveness related to everything that concerns telecommunications/ICTs and the strategic importance of the topic. ***The Rapporteur Group proposed to continue the study Question.***

**Question 8/1 – Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services**

Regarding the future of Question 8/1, while it was noted in the participant survey that many transition deadlines for analogue to digital terrestrial television had passed, many countries are still in the experimental phase with new digital sound/radio services. New topics proposed during the Rapporteur Group meeting included broadening the scope of Q8/1 to include the evolution of the digital transition in broadcasting and digital radio/sound broadcasting and ways of using the released services and applications and include economic aspects of the deployment of new broadcasting services and applications as well as study the impact of other television distribution platforms. Collecting countries’ experiences on interference migration between broadcasting and new services and the implementation of new services and applications (Community and regional TV on DTV and new Broadcasting services: 3D, 4K, 8K, etc.) were also deemed important. Including relevant issues related to people with disabilities was also supported. ***The Rapporteur Group proposed to continue the study Question.***

**ITU-D/ITU-R Joint Group on WTDC Resolution 9 – Participation of countries, particularly developing countries, in spectrum management**

The discussion on the future of the Resolution 9 addressed both working methods and study topics for the next study period.

* Working methods: Mechanisms to strengthen the collaboration between the ITU-D and ITU-R sectors with appropriate revision of Resolution 1. One suggestion was to hold regular meetings jointly with the ITU-R SG1 meetings to allow for more interaction between experts and attendees of the two sectors with the possibility of holding a series of workshops. Another issue raised was how to envision the outcomes of Resolution 9 in terms of its final report (e.g., best practices and guidelines) .
* Study topics: spectrum fees, software for fees calculations, harmonization of licenses and the role of spectrum management in achieving the 2030 SDGs, effective utilization of spectrum and IoT applications, Short Range Devices, among others. ***The joint group proposed to continue the study during the next study period.***

1. **Future of ITU-D Study Group 2 Questions**

The SG2 Rapporteur Groups shared ideas on the direction that their respective Questions could consider for the next period. During the April 2017 SG2 meeting, ad hoc meetings were held to compile some ideas regarding the future of each SG2 Question. The SG2 Chairman’s report contains further details ([2/REP/43](https://www.itu.int/md/D14-SG02-R-0043)). **Annex  2b** to this report shares the common views of the participants on the titles of the proposed SG2 Questions. The table also includes ideas proposed by some participants for future topics and keywords, although there is no common view on future topics and keywords. It is hoped that this table will assist Members in their preparations for the WTDC-17.

**Question 1/2 – Creating the smart society: Social and economic development through ICT applications**

The surveys highlighted the Members’ satisfaction with the work conducted to date and proposed some alternative ways forward. Regarding the future of Question 1/2, the results of the two surveys carried out by the ITU-D Study Groups on the current and future work indicate that this Question should continue. During the Rapporteur Group meeting focusing on specific areas related to the achievement of the SDGs was highlighted. A contribution (document [2/457 (Rev.1)](https://www.itu.int/md/D14-SG02-C-0457/en)) considers the importance of achieving the smart society and indicates that many initiatives and projects for achieving smart society are under progress, thus, Q1/2 should continue in the next study period. While agreeing with the adoption of the principles of SDGs in conducting Q1/2 in the next study period, it was suggested to include the issues on how ICTs shall improve future oriented values such as participation of citizens, collaboration among stakeholders, openness of information, and sharing of resources and fair distribution of benefits during the next study period. ***The Rapporteur Group proposed to continue the study Question.***

**Question 2/2 – Information and telecommunications/ICTs for e-health**

Concerning the future of Question 2/2, the participant survey highlighted the importance of the topic, the need to hold related workshops, and even suggested to merge Q2/2 with Q7/2 (EMF) as a broader Question on using ICTs for attaining a healthy society. The Rapporteur Group agreed that further guidance was required on how to go about implementing e-health solutions and projects in practical and cost effective ways. The importance of platforms for e-health that are interoperable, cost effective, and scalable was noted as were e-health solutions for developing countries which can be easily adapted and integrated. In this regard, some ideas on the continuation of the Q2/2 (document [2/462](https://www.itu.int/md/D14-SG02-C-0462/en)) were presented. While the proposal to include the concept of Internet of Things (IoT) and IMT-2020 applications in Q2/2 gained some support, the proposal to include EMF in Q2/2 was not broadly supported. ***The Rapporteur Group proposed to continue the study Question.***

**Question 3/2 – Securing information and communication networks: Best practices for developing a culture of cybersecurity**

As for the future of Question 3/2, the participant survey emphasized the need to continue the study due to the continuing changes in technology and threats. Cybersecurity continues to be a very challenging matter for everyone. Study on the protection of citizens and national critical information infrastructure protection was suggested. The need for combining the study with the release of annual reports and workshops together with other parties/organizations was highlighted. In discussing the future of the Question, the Rapporteur Group considered how the title of the Question can be revised in order to reflect the evolving nature of cybersecurity and the topics under study. The following title was shared with the SG2 plenary: *“Best practices addressing emerging and evolving threats to cybersecurity”.* ***The Rapporteur Group proposed to continue the study Question.***

**Question 4/2 – Assistance to developing countries for implementing conformance and interoperability programmes**

On the future of Question 4/2, the surveys stressed the importance of the topic and especially assistance to countries in implementing C&I regimes. The existing work within the BDT Programme was highlighted. When discussing the future of Q4/2, the Rapporteur Group considered a contribution (document [2/426](https://www.itu.int/md/D14-SG02-C-0426/en) + Annex) which proposes to continue with the studies under Q4/2 with a revised scope and adapted work methodology. Another contribution (document [2/459](https://www.itu.int/md/D14-SG02-C-0459/en)) shares ideas on how an ITU-D SG Question on C&I could support the Sustainable Development Goals (SDGs) and where IoT with billions of connections will demand knowledge of the equipment in place. Several perspectives were suggested: e.g., technical regulation, national rules, quality, safety, interoperability, interference, sustainability, reliability, resilience, counterfeit, awareness, affordability, (through the economies of scale promoted by C&I) etc. Some Members , while acknowledging the importance of C&I, noted that a specific study Question may not be required. Others voiced their full support for the continuation of the study Question. A table with analysis of the work to be done by the proposed study Question and the work currently undertaken by BDT on C&I was proposed as a useful tool to assist in understanding what study could be undertaken. ***The Rapporteur Group proposed to continue the study Question.***

**Question 5/2 – Utilization of telecommunications/ICTs for disaster preparedness, mitigation and response:**

Regarding the future of Question 5/2, the results of the participant survey revealed the importance of emergency communications particularly for many developing countries, in particular, and to the overall ITU Membership, in general. Some replies noted the need to merge Q5/2 with Q6/2 (climate change). The group noted that the Question had been active for nearly 10 years and that it was important for countries to consider priorities and desired outcomes for the work of the Question with the hope to add a renewed focus to the work. One suggestion was for the Question to focus on developing guidelines for countries on how to conduct a disaster response drill or exercise. This was seen as a useful way to help countries move from developing plans to their implementation. Increasing the consideration of resilience and disaster risk reduction was another aspect that could be added. Thus, a modular approach to the study Question allowing more detailed and substantive discussion on a specific topic (document [2/461](https://www.itu.int/md/D14-SG02-C-0461/en)) was proposed during the Rapporteur Group meeting. This approach was considered as favourable while changes to the different modules were suggested. The meeting expressed a preference to keep Q5/2 separate from Q6/2, so as to allow focus of the work. ***The Rapporteur Group proposed to continue the study Question.***

**Question 6/2 – ICT and climate change**

While it was noted in the participant survey that this Question has been in existence in some form for several study cycles, climate change still remains a priority for most countries. There were suggestions voiced through the survey to merge Q6/2 with Q5/2 (emergency communications) and Q8/2 (e-waste) focusing also on the implementation of standards developed in ITU-T SG5. The Rapporteur Groups discussed a contribution ([2/TD/15](https://www.itu.int/md/D14-SG02-170403-TD-0015/)) which proposed that studies in the next cycle would focus on best practices and guidelines and in line with SDG13 with the title of the Question changed to “*Best practices and guidelines for ICT-enabled climate action*”. It was further agreed to include specific focus on solutions where Small Island Developing States (SIDS), Least Developed Countries (LDCs) and other vulnerable countries will benefit from the work conducted within the Question under study. The need to engage other relevant experts, ministries of environment or organizations on national level to contribute on this topic was also noted. ***The Rapporteur Group proposed to continue the study Question.***

**Question 7/2 – Strategies and policies concerning human exposure to electromagnetic fields**

On the future of Question 7/2, while unanimous on the importance of the topic, the respondents to the participant survey were divided as to what the future of the Question would look like. Some noted the importance of promoting policies that support deployment of wireless technologies complying with international standards, whilst others indicated a need to merge Q7/2 with Q2/2 (e-health). The collaboration with WHO was praised. Contributions to the Rapporteur Group ([2/410](https://www.itu.int/md/D14-SG02-C-0410/en), [2/434](https://www.itu.int/md/D14-SG02-C-0434/en)) propose a revised Question justified by increased cellular penetration, traffic growth, increased use of data services, network coverage and capacity extension. A suggestion to revise WTDC Resolution 62 was also shared. The proposal to include EMF in Q2/2 was not broadly supported. ***The Rapporteur Group proposed to continue the study Question.***

**Question 8/2 – Strategies and policies for the proper disposal or reuse of telecommunication/ICT waste material**

Concerning the future of Question 8/2, the participant survey observed the need to align Q8/2 with ITU-T SG 5 work, while proposing to merge Q8/2 with Q6/2 (climate change) and a revised Q7/2 (EMF). When discussing the future of Q8/2, while the scope would need to change, it was suggested that Q8/2 continue its work. A contribution ([2/432](https://www.itu.int/md/D14-SG02-C-0432/en)) proposes various alternatives for the next study period aligning Q8/2 with the SDGs associated with electronic and electric waste: Objective 1 (Poverty reduction) encouraging the creation of programs that incorporate recyclers into formal WEEE management schemes; Objective 3 (Good health and well-being) creating management WEEE programs that define, create and publish standardized guides/manuals for handling electronic waste; Objective 12 (Responsible consumption and production) generating strategies for encouraging consumers and producers to return used EEE; Objective 13 (Climate action) developing WEEE management programs that ensure a positive impact on the environment. ***The Rapporteur Group proposed to continue the study Question.***

**Question 9/2 – Identification of study topics in the ITU‑T and ITU‑R study groups which are of particular interest to developing countries**

In considering the future of Question 9/2, the surveys agreed on the importance of the topic and the need for strengthening inter-sectoral collaboration. As the Question had not received many contributions for consideration during the study period, it was agreed that other appropriate mechanisms should be created: e.g., inviting representatives from the other Sectors and the General Secretariat to share and present updates on their activities at the opening plenaries of the two ITU-D study groups, which then can be produced as a report on a regular basis, as these presentations and reports were deemed useful not only for developing countries but also for developed countries.

It was also noted that close coordination with the Inter-Sector Coordination Team should be encouraged to coordinate the work of study groups from all Sectors, as appropriate. ***The Rapporteur Group proposed to explore other* *alternative mechanisms, should the study Question not be adopted, as the report is considered useful for Membership.***

1. **Additional information about the two surveys**

Initiated by ITU-D Study Group 2 Question 9/2, the “**Global survey on the work of ITU-D Study Groups**”, which had been sent to ITU Member States, Sector Members, Associates, and Academia through a Circular letter in November 2016, aimed primarily to gather feedback on the usefulness of the outputs of ITU-D Study Groups 1 and 2, understand the relevance of the topics under study, and seek inputs for future priority areas. The results of the survey will be submitted by the ITU-D Study Group 2 Chairman to the 2017 World Telecommunication Development Conference (WTDC-17) to prepare for the next study period. Full details of the survey can be found in document[1/447](https://www.itu.int/md/D14-SG01-C-0447/en) + Annexes.

Initiated by ITU-D Study Group 1, the “**Survey on ITU-D Study Group Questions, procedures, and proposals on future activities**” aimed to seek the views of ITU-D Study Group 1 and 2 participants on the groups’ activities and outputs for the 2014 – 2017 study period, and on future activities for the next study period. This also intended to gather information in order to benefit and inform those who may seek to formulate proposals on these issues at Regional Preparatory Meetings (RPMs) and at WTDC-17. This was to complement the feedback obtained from Membership through the survey initiated by ITU-D Study Group 2 Question 9/2 on these issues. Full details of the survey can be found in document[1/458](https://www.itu.int/md/D14-SG01-C-0458/en) + Annex.

**Annex 1a: Proposed revision of Question 5/1**

Question 5/1 (REVISED)

**Telecommunications/ICTs for rural and remote areas**

**1 Statement of the situation or problem**

There is a strong gap in the levels of ICT access, ICT skills and telecommunication infrastructure between urban and rural communities. Provision of telecommunication/ICT services such as basic voice, short message, video-conference and Internet services is not lucrative in sparsely populated rural areas of developing countries. So, development of telecommunications/ICTs in rural and remote areas of developing countries is slow unless effective government policy and initiatives are implemented.

Most of the time, existing network systems are primarily designed for urban areas, where the necessary support infrastructure (adequate power, building/shelter, accessibility, skilled manpower to operate, etc.) for setting up a telecommunication network is assumed to exist. Hence, current systems need to be more adequately adapted to specific rural requirements in order to be widely deployed.

There are still many challenges in rural and remote areas as follows:

1) Shortage of power

2) Expense of maintaining power backup - usually diesel - and environmental hazards thereof

3) Difficult terrain

4) Difficult access and transportation

5) Lack of skilled manpower

6) Installation and maintenance of networks is quite challenging and difficult

7) Very high operating cost

8) Low potential ARPU

9) Sparsely populated areas and scattered population clusters.

More detailed studies addressing the challenges of deploying cost-effective and sustainable ICT infrastructure in rural and remote areas are expected to be undertaken within the ITU‑D study groups, taking into account the global perspective.

The General Assembly adopted the outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society (WSIS):

*We further express concern that digital divides remain between developed and developing countries, and that many developing countries lack affordable access to ICTs. By 2015, only 34 per cent of households in developing countries have internet access, with significant variations by country, compared with more than 80 per cent in developed countries. This means that two-thirds of the population residing in developing countries remains offline.*

There are UN Sustainable Development Goals (SDGs) concerning this Question, such as; Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, and Goal 10: Reduce inequality within and among countries.

As the facilitator of WSIS Action Lines, ITU has played its role, contributing to attain the relevant SDGs through the matrix to WSIS Action Lines. The ITU 19th Plenipotentiary Conference (PP-14) resolved Resolution 200, which describes “Connect 2020 Agenda for Global Telecommunication/ICT Development”. The annex to the Resolution lists four goals and 17 targets. Among these targets, the followings are related to Telecommunications/ICTs for rural and remote areas.

* **Target 1.1:** Worldwide, 55 per cent of households should have access to the Internet by 2020.
* **Target 2.1.A:** In the developing world, 50 per cent of households should have access to the Internet by 2020.
* **Target 2.1.B:** In the least developed countries (LDCs), 15 per cent of households should have access to the Internet by 2020.
* **Target 2.4:** Worldwide, 90 per cent of the rural population should be covered by broadband services by 2020.

In order to implement the Connect 2020 Agenda successfully, ITU-D should continue the study of Telecommunications/ICTs for rural and remote areas.

**2 Question or issue for study**

There are a variety of several (new and old) issues that members will be interested in addressing within the four coming years of this Question. It is proposed that the main issue for study continue to be the range and scope of techniques and solutions that are expected to play a significant role in the provision of e‑application services for rural and remote areas, with particular attention to the provision of broadband access through sustainable networks including interoperable International Mobile Telecommunications (IMT) in suitable frequency bands, such as 450-470 MHz and other frequency bands identified for IMT. It is further proposed that the study should progress in stages, to cover a four-year cycle in the following manner:

– Step 1: Continue identification of the full range of potential techniques and sustainable solutions that can significantly impact on the provision of telecommunication/ICT applications in rural and remote areas, with emphasis on those that employ the latest broadband technologies designed to lower infrastructure capital and operating costs, assisting convergence between services and applications, taking into considerations reducing greenhouse gas emissions.Here, rapid change of technologies, such as LTE and new satellite communication technologies, should be taken into account. Also, we need coordination and avoid duplication with Question 2/1.

Step 2: Continue to investigate and report on how the techniques identified above can be used to best deliver the range of services and applications required by rural and remote communities and adapted to the needs of their users.Here, localization of content of services and applications should be considered.

– Step 3: Identify, assess and consolidate the challenges faced by developing countries in setting up or upgrading telecommunication infrastructure in rural areas, including those aimed at providing enhanced broadband connectivity through networks based on suitable interoperable IMT frequency bands, such as 450-470 MHz and other frequency bands identified for IMT.

– Step 4: Report on the public policies and regulatory measures carried out by developing countries to overcome or mitigate the above-mentioned challenges.

Here, we need coordination and avoid duplication with Question 1/1.

– Step 5: Describe the evolution of system requirements for rural network systems specifically addressing such identified challenges of rural deployment.

Here, we need Liaison and avoid duplication with ITU-T SG5 Question 14/5“Setting up a low-cost sustainable telecommunication infrastructure for rural communications in developing countries”.

– Step 6: Continue consideration of the quality of the services provided, and the cost effectiveness, degree of suitability in different geographies and sustainability of the techniques and solutions identified in the above‑mentioned steps.

– Step 7: Augment the report on the set of case studies that clearly demonstrate how a range of techniques, based on new technology aimed at providing reduced capital and operating cost solutions, reducing GHG emissions and enhancing community participation, can maximize the benefits of broadband telecommunication/ICT infrastructure in rural and remote areas.

Case studies should be analysed as case study analysis reports.

– Step 8: Identify business models for sustainable deployment of networks and services in rural and remote areas, taking into consideration priorities based on economic and social indicators.

During the study carried out in each of the steps, the following matters should also be studied and reflected in the outputs of the Question:

* –environmental sustainability in deploying the infrastructure and necessary robustness of telecom infrastructure;
* –maintenance and operational aspects to provide a quality and continuous service;
* –demand-side factors and practices to generate and increase the usage of ICT devices and services;
* –efforts to build ICT skill sets for the deployment of broadband services;
* –relevant localization of content;
* –affordability of services/devices for rural users to adopt so as to fulfil their development needs.

In dealing with the above studies, the work under way in response to other Questions being dealt with in ITU‑D, and close coordination with relevant activities under those Questions, in particular Questions 1/1, 2/1, 4/1 and Questions 2/2, 4/2 and 5/2, are highly relevant. In the same way, the studies shall take into account cases related to indigenous communities, isolated and poorly served areas, least developed countries (LDCs), small island developing states (SIDS) and landlocked developing countries (LLDCs), and highlight their particular needs and other particular situations which need to be considered in developing telecommunication/ICT facilities for these areas.

**3 Expected output**

The output will be a report on the results of the work conducted for each step above, together with a handbook, case study analysis reports, and one or more recommendations at appropriate times, either during the course of or at the conclusion of the cycle.

**4 Timing**

The output will be generated on a yearly basis. The output from the first year will be analysed and assessed in order to update the work plan for the next year, and so on.

**5 Proposers/sponsors**

The Question was originally approved by WTDC-94, and subsequently revised by WTDC-98, WTDC-02, WTDC-06, WTDC‑10 and WTDC‑14. Brazil, India and Japan.

**6 Sources of input**

Contributions are expected from Member States, Sector Members, Associates and Academia, as well as inputs from relevant BDT programmes, particularly those that have successfully implemented telecommunication/ICT projects in rural and remote areas. These contributions will enable those responsible for work on this Question to develop the most appropriate conclusions, recommendations and outputs. The intensive use of correspondence and online exchange of information and experiences is encouraged for additional sources of inputs.

**7 Target audience**

| **Target audience** | **Developed countries** | **Developing countries**[[1]](#footnote-1)1 |
| --- | --- | --- |
| Relevant policy-makers | Yes | Yes |
| Telecom regulators | Yes | Yes |
| Rural authorities | Yes | Yes |
| Service providers/operators | Yes | Yes |
| Manufacturers, including software developers | Yes | Yes |
| Vendors | Yes | Yes |

**a) Target audience**

Depending on the nature of the output, upper- to middle‑level managers in operators and regulators in developing countries, including relevant rural authorities, are the predominant users of the output. The study outcomes will ensure adequate attention of vendors to focus on their development efforts to meet the needs of developing countries.

**b) Proposed methods for implementation of the results**

To be decided during the study period.

**8 Proposed methods of handling the Question**

Within Study Group 1.

**9 Coordination**

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

– Focal points of the relevant Questions in BDT

– Coordinators of relevant project and programme activities in BDT

– Regional and scientific organizations with mandates covering the subject matter of the Question

– Other relevant stakeholders (see Recommendation ITU-D 20).

As may become apparent within the life of this Question.

**10 BDT programme link**

WTDC Resolution 11 (Rev. Dubai, 2014), Resolution 37 (Rev. Dubai, 2014), Resolution 68 (Rev. Dubai, 2014) and Recommendation ITU-D 19.

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 this Question.

**Annex 1b: Proposed revision of Question 7/2**

Question 7/2 (REVISED)

**Strategies and policies concerning   
human exposure to electromagnetic fields**

1. **Statement of the situation or problem**

The deployment of different sources of electromagnetic fields to cater for the telecommunication and ICT needs of urban and rural communities has developed very rapidly over the past ten years. This has been due to strong competition, ongoing cellular penetration and traffic growth, increased usage of data services, quality-of-service requirements, network coverage and capacity extension and the introduction of new technologies.

It has prompted concern on the possible effects of prolonged exposure to emissions on people's health.

This concern on the part of populations is growing, aggravated by the feeling that they are not being well kept informed in regard to the process for deploying these installations; hence many complaints received by operators and government bodies responsible for radiocommunications/ICTs.

This led to the revision or introduction of imposition of new legislation and/or regulations, to ensure protection of the public health. Possible health hazards due to continued exposure to EMF radiation has become significant health and safety issues to regulators and service providers.

Thus, since the continued development of radiocommunications requires trust on the part of populations, the work carried out in ITU‑R Study Groups specifically new Question [1/239](http://www.itu.int/pub/R-QUE-SG01.239) and in ITU‑T Study Group 5 under Resolution 72 of the World Telecommunication Standardization Assembly, on measurement and assessment concerns related to human exposure to electromagnetic fields, should be complemented by studies on the different regulatory and communication mechanisms developed by countries to increase the knowledge of and information to populations and facilitate the deployment and operation of radiocommunication systems.

1. **Question or issue for study**

The following subjects should be studied:

1. ompilation and analysis of the regulatory policies concerning human exposure to electromagnetic fields that are being considered or implemented for authorizing the installation of radiocommunication sites and the monitoring.
2. Description of the strategies or methods for raising the awareness of populations and increasing information to populations regarding the effects of human exposure to electromagnetic fields due to radiocommunication systems.
3. Proposed guidelines and best practices on this matter.
4. What are the international (mainly in WHO, ICNIRP and IEEE) activities to provide updated limits of exposure levels.
5. **Expected outcome**
6. A report to the membership presenting guidelines to assist Member States and Sector Members in resolving similar problems faced by regulatory bodies.
7. The report will provide regulatory authorities with guidelines on methods for raising the awareness of populations along with best practices based on countries' experience in the matter.
8. **Timing**

A provisional report is to be presented to the study group in 2019. It is proposed that the study be completed in 2021, at which date a final report containing guidelines will be submitted.

1. **Proposers/sponsors**

Member States,Sector Members, and Associates and Academia.

1. **Sources of input**

* Member States, Sector Members, Associates and Academia
* Regional organizations
* ITU Sectors
* World Health Organization (WHO)
* International Commission on Non-Ionizing Radiation Protection (ICNIRP)
* Institute of Electrical and Electronics Engineers (IEEE)
* BDT focal points.

1. **Target audience**
   1. **Target audience - Who specifically will use the input?**

| **Target audience** | **Developed countries** | **Developing countries**[[2]](#footnote-2)1 |
| --- | --- | --- |
| Telecom/ICT decision-makers, local authorities | Yes | Yes |
| Telecom/ICT regulators | Yes | Yes |
| Service providers/operators | Yes | Yes |
| Constructors/equipment provider | Yes | Yes |

* 1. **Proposed methods for implementation of the results**

The results of the Question are to be distributed through ITU‑D reports, or as agreed during the study period in order to address the Question for study.

1. **Proposed methods of handling the Question or issue**

lose coordination is essential with ITU‑D programmes, as well as with other relevant ITU‑D study Questions ，and ITU‑R SG1, SG3, SG4, SG5, SG6, and their relevant Working Parties, and ITU‑T Study Group 5.

* 1. **How?**

1. Within a study group:

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

1. Within regular BDT activity:

* Programmes ☑
* Projects ☑
* Expert consultants ☑

1. In other ways – describe (e.g. regional, within other   
   organizations, jointly with other organizations, etc.) □
   1. **Why?**

To ensure that the work and output of this study Question is not duplicated and that there is better collaboration among BDT, the other ITU Sectors, Sector Members, other United Nations agencies and other International Organizations.

1. **Coordination and collaboration**

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

* •Relevant ITU‑D Question(s)
* •Relevant BDT programme(s)
* •Regional offices
* •Relevant ITU‑R and ITU‑T study groups
* •Working Group on Emergency Telecommunications (WGET)
* •Relevant international, regional and scientific organizations with mandates relevant to this Question.

1. **BDT programme link**

Objective 5, Output 5.1

1. **Other relevant information**

To be defined in the work plan.

**Annex 2a: Proposal for study topics in ITU-D Study Group 1 as result of an ad hoc group meeting held on 28 March 2017**

ITU-D Study Group 1 received several proposals concerning revisions to the existing Questions. Four of these proposals were assigned to the Plenary, as they proposed cross-cutting changes applicable to more than one Question, to the [working methods/structure of the study groups], as well as a proposal for a new Question for the next study period. To progress the discussions on these proposals beyond their brief presentation in the plenary meeting, the Plenary established an ad-hoc group which met in room Popov on Tuesday, 28 March, from 18:00 to 19:30.

The group agreed to focus on a general overview of the Questions proposed for the new study period; a summary of the discussion follows:

* **Questions 1/1 and 2/1 (Migration to broadband and broadband technology)**: The group extensively discussed the proposal to merge existing Questions 1/1, 2/1, and 5/1 (broadband migration, broadband technology, and rural communications respectively) and the proposal regarding the merger of Q1/1 and Q2/1.***There was no opposition to merge Questions 1/1 and 2/1 in the next study period***, however two administrations expressed concerns for example, with regard to the impact on the terms of reference and whether once merged such a Question would be too cumbersome or otherwise difficult in practice. Several administrations opposed the merger of Question 5/1 on rural communications into this new Questions, and consequently there was no agreement or consensus on this point.
* **Question 3/1 (Cloud Computing):** The group agreed with the proposal to keep the Question. There was some discussion on the topics to be added to the study of the Question, e.g., open data IoT,. ***The group agreed to continue Question 3/1 in the next study period and to include big data in the scope of the Question***.
* **Question 4/1:** The group agreed to the proposal~~s~~ to continue the Question and there was some support to enhance coordination with ITU-T Study Group 3. ***There was agreement to continue Question 4/1 in the next study period.***
* **Question 5/1:** ***The group agreed to continue Question 5/1 in the next study period****.*
* **Question 6/1:**  There was wide support for the proposal to continue the Question, and ***the group agreed to continue Question 6/1 in the next study period.***
* **Question 7/1:** The group supported the proposal~~s~~ to continue the Question, and to include people with age-related disabilities and those with specific needs in its scope. Therefore, **t*here was agreement to continue Question 7/1 in the next study period and include in its scope accessibility of* people with age related disabilities and specific needs*.***
* **Question 8/1:**  The group supported the proposal to continue the Question and include other related issues. The group agreed to discuss the topics to be included in the next study period at the Rapporteur Group meeting on 28 March ***The group agreed to continue Question 8/1 in the next study period and to include additional issues in its mandate.***
* **Resolution 9:** The meeting supported the proposal. There was some support for the proposal regarding working methods. ***The group agreed to continue the study in the next study period.***

Finally, a contribution contribution (document [1/431](https://www.itu.int/md/D14-SG01-c-0431)) proposing a new Question for the next study period on Internet of Things was also presented. Due to time constraints, the group could not discuss this proposal. Similarly, contributions on working methods (documents [1/434](https://www.itu.int/md/D14-SG01-c-0434), [1/454](https://www.itu.int/md/D14-SG01-c-0454), [1/447 + Annex](https://www.itu.int/md/D14-SG01-c-0447) and [1/458](https://www.itu.int/md/D14-SG01-c-0458)) and a temporary document ([1/TD/11](https://www.itu.int/md/D14-SG01-170327-TD-0011/)) mapping the Questions, SDGs and ITU goals were presented, but due to time constraints could not be discussed.

**Annex 2b: Proposal for study topics in ITU-D Study Group 2 as result of the ad hoc group meetings held from 3 to 6 April 2017**

The common views of the participants on the titles of the proposed Questions are reflected in the table below. The table also includes ideas proposed by some participants for future topics and keywords, although there is no common view on future topics and keywords It is hoped that this table will assist Administrations in their preparations for the forthcoming WTDC.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Existing ITU-D Study Group 2 Question** | **Proposal from the Rapporteur Group** | **Future topics as per the surveys** | **Proposals** | **Proposed future ITU-D SG2 Question** | |
| **Keywords and topics** | **Titles** |
| QUESTION 1/2  “Creating the smart society: Social and economic development through ICT applications” | Continue Question and revise content.  Artificial intelligence (AI), big data, social engagement, health, agriculture were mentioned as associated topics. | Internet of Things (IoT) | New study topic proposed on IoT ([2/423](https://www.itu.int/md/d14-sg02-c-0423)).  AI, Big data ([2/427](https://www.itu.int/md/d14-sg02-c-0427)).  Participation of citizens, openness of information ([2/457R1](https://www.itu.int/md/d14-sg02-c-0457)). | * implementation guidelines * IoT * Artificial intelligence (AI) * big data * smart society * smart cities and communities * SDGs * cloud computing * data analytics * open data | **Continue** Question but revise title and content.  **“Best practices and guidelines for smart sustainable societies through ICT”** |
| QUESTION 2/2 “Information and telecommunications for e‑health” | Continue Question and revise title to “Speedy implementation of eHealth in developing countries” | Merge Questions 2/2 and 7/2. | Merge Questions 2/2 and 7/2 under Q2/2 entitled “Information and telecommunications for e-health, including human exposure to electromagnetic fields” ([2/451](https://www.itu.int/md/d14-sg02-c-0451)).  New e-Health area using big data and AI ([2/462](https://www.itu.int/md/d14-sg02-c-0462)). | * best practices * e-health * accelerated implementation * standardization * mobile eHealth * medical big data | **Continue** Question but revise title and content.  **“Best practices and guidelines for rapid implementation of eHealth”** |
| QUESTION 3/2 “Securing information and communication networks: Best practices for developing a culture of cybersecurity” | Focus on evolving and emerging (technical) threats and capacity building. | Continue study | Security of creating “smart” cities ([2/451](https://www.itu.int/md/d14-sg02-c-0451)).  Improving GCI Index ([2/458](https://www.itu.int/md/d14-sg02-c-0458)). | * best practices * emergingcyberthreats * smart society * IoT * security challenges * SMS spam * SIM box card * awareness survey * COP * spam/malware * capacity building/workshops * GCI | **Continue** Question but revise title and content.  **“Best practices for addressing emerging and evolving threats to cybersecurity”** |
| QUESTION 4/2 “Assistance to developing countries for implementing conformance and interoperability programmes” | Diverging views. | Further work on C&I can be handled by the Programme (not as study Question) |  | * conformance * interoperability * sustainable industrialization * resilient infrastructure * virtual Lab * virtual testing * policy and regulation | **The topic is very important. Providing assistance to developing countries is critical.**  **Continue the Question**  **[“Strategies, policies and innovative solutions for implementation of conformance and interoperability (C&I) programmes and combatting counterfeit ICT equipment in developing countries”]**  **Discontinue the Question** (Continue work within the BDT and TSB Programmes (not as a study Question)). |
| QUESTION 5/2 “Utilization of telecommunications/ICTs for disaster preparedness, mitigation and response” | Continue the Question but revise title and content. Different topics each year, e.g. early warning, policy and regulatory barriers to implementation, disaster communication drills. | Merge with Q6/2. Develop new method. | Merge Q5/2 with Q6/2 entitled “Use of telecommunication/ICT for climate change, management of natural disasters and emergency situations” ([2/424](https://www.itu.int/md/d14-sg02-c-0424)). | * implementation guidelines * enabling policy environment * early warning systems * emergency communication * exercises and drills * technology trends * safety confirmation | **Continue** the Question but revise title and content. Different topics each year, e.g. early warning, policy and regulatory barriers to implementation, disaster communication drills.  **“Best practices and implementation guidelines for use of telecommunication/ICT for disaster management”** |
| QUESTION 6/2 “ICT and climate change” | Continue the Question without merging with other Questions. Future study to focus on innovations and new country projects. | Merge 6/2 with Q5/2. Already under study in ITU-T SG5. Merge Q6/2 with Q8/2. | Continue by merge Questions 6/2 and 8/2 under Q6/2 entitled “ICT and climate change, including issues related to the proper disposal or reuse of telecommunication/ICT waste material” ([2/451](https://www.itu.int/md/d14-sg02-c-0451)).  Discontinue by merging Questions 5/2 and 6/2 under Q5/2 ([2/424](https://www.itu.int/md/d14-sg02-c-0424)). | * climate change * technology trends * climate action * adaptation * mitigation * policies * SDG 13 * involve stakeholders external to telecommunication/ ICT | **Continue** the Question but revise title and content.  **“Best practices and guidelines for ICT- enabled climate action”** |
| QUESTION 7/2 “Strategies and policies concerning human exposure to electromagnetic fields” | Continue the Question and revise content. Focus on measurement and assessment, etc. | Merge with Q2/2.  Merge with Q6/1 (end user protection).  Merge with Q8/2 (e-waste).  Measurements needed. | Discontinue the Question by merging of Questions 2/2 and 7/2 under Q2/2 ([2/451](https://www.itu.int/md/d14-sg02-c-0451)).  Merge Question 7/2 with 8/2 entitled “Strategies and policies for the human protection against electromagnetic fields for the disposal or adequate recycling of waste resulting from the use of telecommunications / ICT ([2/424](https://www.itu.int/md/d14-sg02-c-0424)).  Provide implementation guidelines ([2/410](https://www.itu.int/md/d14-sg02-c-0410)) and ([2/434](https://www.itu.int/md/d14-sg02-c-0434)). | * guidelines * measurement and assessment * human exposure to electromagnetic fields * technology trends | **Continue** the Question but revise title and content.  **“Best practices and guidelines for measurement and assessment of human exposure to electromagnetic fields”** |
| QUESTION 8/2 “Strategies and policies for the proper disposal or reuse of telecommunication/ICT waste material” | Continue Question. | Emerging issue. Merge Q8/2 with Q6/2. Merge Q8/2 with Q7/2. | Discontinue by merging Question 8/2 into Question 6/2 ([2/451](https://www.itu.int/md/d14-sg02-c-0451)).  Merge Question 7/2 and Question 8/2 ([2/424](https://www.itu.int/md/d14-sg02-c-0424)).  Strategies for implementation ([2/432](https://www.itu.int/md/d14-sg02-c-0432)). | * guidelines * e-waste * recycling * protection of environment * cost efficient procedures | **Continue** the Question but revise title and content. **“Implementation guidelines for management of e-waste and protection of the environment in a cost-effective manner”** |
| QUESTION 9/2 “Identification of study topics in the ITU‑T and ITU‑R study groups which are of particular interest to developing countries” | ? | Important topics. Relevant to both SG1 and SG2. Inter-sectoral in nature. | Discontinue and include scope of the inter-sectoral coordinating group with Telecommunication Development Advisory Group (TDAG) on issues of mutual interest ([2/451](https://www.itu.int/md/d14-sg02-c-0451)). | * ITU-R * ITU-T * General Secretariat | **Discontinue** the Question but implement an alternative mechanism to share information with developing countries on the activities of ITU-R/ITU-T/General Secretariat throughout the study period.  Invite ITU-R/ITU-T/General Secretariat to present updates to SG1 and SG2 plenaries.  Inter-sectoral collaboration should furthermore be strengthened. |

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1. [↑](#footnote-ref-1)
2. [↑](#footnote-ref-2)