

# Performance report 2018





# PERFORMANCE REPORT 2018



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# PART 1 – Executive Summary

## Outline of the Performance Report 2018

The 2018 Performance Report provides a comparison between outcomes and achievements as well as between expected and achieved results, together with the respective outcome indicators and performance indicators. It also provides the threat and risk assessment for 2018. These are specified for each objective and relevant outputs.

### 1 Objective 1: “Foster international cooperation on telecommunication/ICT development issues”

#### 1.1 World Telecommunication Development Conference (WTDC)

- The next World Telecommunication Development Conference (WTDC) will be held in 2021. The final report of the World Telecommunication Development Conference 2017 (WTDC-17), convened in Buenos Aires, Argentina, from 9 to 20 October 2017, has been [made available](#).
- The ITU Telecommunication Development Bureau (BDT) Management Retreat was held from 5 to 9 February 2018 in Geneva. Participants analyzed the current state of play in the ICT industry in light of the outcomes of WTDC-17 and how BDT will fulfil its mandate in a rapidly changing, increasingly complex, and ever-more challenging environment. The key areas discussed during the retreat form the basis for a robust strategy and action plan for BDT to respond to the massive changes occurring in the industry, while at the same time meeting the great expectations of members.

<i>WTDC</i>	Resolutions 1, 2, 5, 30, 33, 37, 50, 53, 59, 81, 82
<i>PP Resolutions</i>	Decisions 5, 13
	Resolutions 25, 71, 72, 77, 111, 131, 133, 135, 139, 140, 151, 154, 165, 167
<i>Council</i>	Resolution 1372
<i>WSIS Action Line</i>	WSIS Action Lines C1 and C11
<i>Contributing to SDG Targets</i>	SDGs: 1, 3, (target 3.d), 5, 10, 16 (targets 16.5, 16.6, 16.8), 17 (targets 17.9, 17.16, 17.17, 17.18, 17.19)

#### 1.2 Regional preparatory meetings (RPMs)

- The next Regional Preparatory Meetings (RPMs) will be held in 2020 and 2021.
- With the aim of facilitating implementation of regional initiatives, a series of Regional Development Forums took place in 2018:
  - ITU Regional Development Forum for Africa - in Accra, Ghana on 19-20 July 2018.
  - ITU Regional Development Forum for the Arab States – in Algiers, Algeria on 12-13 February 2018.
  - ITU Regional Development Forum for the Americas Region - in Lima, Peru on 25 May 2018.
  - ITU Regional Development Forum for the Asia and the Pacific Region - in Bangkok, Thailand on 21-22 May 2018.
  - ITU Regional Development Forum for Europe - in Prague, Czech Republic on 11 June 2018.

<i>WTDC</i>	Resolutions 1, 5, 17, 25, 30, 31, 33, 37, 48, 50, 59, 61, 81
<i>PP Resolutions</i>	PP Decisions 5, 13
	PP Resolutions 25, 71, 111, 135, 140, 165, 167
<i>WSIS Action Line</i>	WSIS Action Lines C1 and C11
<i>Contributing to SDG Targets</i>	SDGs: 1, 3, (target 3.d), 5, 10, 16 (targets 16.5, 16.6, 16.8), 17 (targets 17.9, 17.16, 17.17, 17.18, 17.19)

### 1.3 Telecommunication Development Advisory Group (TDAG)

The 23rd meeting of the Telecommunication Development Advisory Group (TDAG) took place from 9 to 11 April 2018 at ITU headquarters in Geneva.

The 23rd meeting of TDAG had a broad agenda as it marked the first TDAG meeting after the World Telecommunication Development Conference 2017 (WTDC-17). In particular, this meeting discussed the following topics:

- Outcomes of WTDC-17 and their implications on the work of ITU-D, including the TDAG scope of work, collaboration with the other Sectors and financial implications of the approved regional initiatives.
- Implementation of the ITU-D Strategic Plan and Operational Plan 2017 and ITU-D four-year rolling Operational Plan 2019-2022.
- ITU-D contribution to the implementation of the WSIS outcomes and 2030 Agenda for Sustainable Development.
- ITU-D Study Group-related matters.
- Regional Development Forums (RDFs).
- Major ITU-D events and initiatives, including the Global symposium for regulators (GSR), capacity building activities, innovation, and the World Telecommunication/ICT Indicators Symposium (WTIS).
- Membership, partnership and private sector-related matters.
- Calendar of ITU-D events.

<i>WTDC</i>	Resolutions 1, 5, 17, 24, 30, 33, 37, 50, 59, 61, 81
<i>PP Resolutions</i>	PP Decisions 5, 13
	PP Resolutions 25, 71, 111, 135, 140, 151, 154, 165, 166, 167
<i>Council</i>	Resolution 1372
<i>WSIS Action Line</i>	WSIS Action Lines C1 and C11
<i>Contributing to SDG</i>	SDGs: 1, 3, (target 3.d), 5, 10, 16 (targets 16.5, 16.6, 16.8), 17 (targets 17.9, 17.16, 17.17, 17.18, 17.19)
<i>Targets</i>	

### 1.4 Study Groups

- The ITU-D study groups held their first Study Group [1](#) and [2](#) meetings for the 2018-2021 study period from 30 April to 4 May and from 7 to 11 May, respectively. The meetings launched the work on the study 14 Questions, agreed on detailed work plans and prepared preliminary draft outlines for the foreseen deliverables. The meetings appointed 139 new rapporteurs and vice-rapporteurs. In conjunction with the dedicated meeting for Question 5/2 (Utilizing telecommunications/ICTs for disaster risk reduction and management) a panel session on Early Warning Systems (EWS) was also held where experts gathered to share their knowledge and experience on early warning systems, including safety information systems, with ITU-D members. Such sessions were deemed useful in progressing the work on annual deliverables.
- The 2018 ITU-D [SG1](#) and [SG2](#) Rapporteur Group meetings were held from 17 September to 11 October 2018. The meetings refined the outlines of SG1 and SG2 Question deliverables and continued drafting and exchanging on chapters of reports, guidelines and case studies. In conjunction with the meetings, 10 focus sessions/workshops and capacity building sessions were held on topics related to the Questions 1/1, 4/1, 7/1, 1/2, 2/2, 3/2, 4/2, 5/2, 6/2, and 7/2. Insightful and useful information gathered during the sessions will contribute towards the development of possible annual deliverables. The first set of annual deliverables is foreseen for some study Questions for consideration at the March 2019 meeting.
- To facilitate coordination and further strengthen collaboration between the two ITU-D study groups and the study groups in the other sectors, the work on three mapping tables evolved during the SG1 and SG2 Rapporteur Group meetings. The tables include a revised mapping of ITU-D SG1 and SG2 Questions of interest to working items and Questions in ITU-T study groups, a draft matrix of mapping between ITU-R Working Parties and ITU-D SG1 and SG2 Questions, and a draft matrix of relationships and interactions between study Questions in ITU-D SG1 and SG2.
- In addition, in 2018 synergies were explored between study group topics, and workshops and seminars held in the regions. Positive examples can be seen from pilots conducted in Hungary (together with a

regional seminar 5G Implementation in Europe and CIS), Mexico (together with the ITU Regional Economic Dialogue (RED) on Telecommunications/ICTs for Latin America and the Caribbean), and Burkina Faso (together with the 2018 Regional Economic Dialogue (RED) for Africa). The two ITU-D study groups agreed to proceed with the implementation of the Council 2017 initiated a pilot project for participation of SMEs in ITU study groups. In 2018, seven SMEs participated in the work of the ITU-D study groups through the pilot project with the support of their Administrations. Several SMEs also submitted and presented contributions to the ITU-D SG1 and SG2 meetings. Areas such as cloud computing, rural access, cybersecurity, and ICT applications have been of particular interest to these SMEs.

- ITU Regional Economic Dialogue on Telecommunications/ICTs for Latin America and the Caribbean (RED-AMS) was held from 4 to 6 September 2018, in Mexico City, Mexico. During the RED, the ITU-D Study Group 1 Question 4/1 Experts' Knowledge Exchange meeting was also held, with the aim of discussing and gathering information on regional experiences on the topics related to the Terms of Reference of Question 4/1.

<i>WTDC</i>	Resolutions 1, 2, 5, 9, 17, 21, 30, 33, 50, 59, 61, 80, 81
<i>ITU-D</i>	Recommendations 15, 16, 17, 19, 20, 21, 22
<i>PP Resolutions</i>	PP Decisions 5, 13 PP Resolutions 25, 71, 133, 135, 140, 154, 165, 166, 167
<i>Council</i>	1372
<i>WSIS Action Line</i>	WSIS Action Lines C1 and C11
<i>Contributing to SDG Targets</i>	SDGs: 1 (target 1.b), 3 (target 3.d), 5, 10, 16 (targets 16.5, 16.6, 16.10), 17 (targets 17.9, 17.16, 17.17, 17.18)

## 2 Objective 2: “Foster an enabling environment for ICT development and foster the development of telecommunication/ICT networks as well as relevant applications and services, including bridging the standardization gap”

### 2.1 Policy and regulatory frameworks

- ITU-D continues to provide high-quality data, research, analysis, and tools to support the ITU membership in defining, elaborating, implementing and reviewing transparent, coherent and forward-looking strategies, policies, legal and regulatory frameworks as well as in moving towards evidence-based decision-making. The annual questionnaire to ITU-D membership has been sent to gather information on regulatory and policy issues and tariff policy issues. The 2017 regulatory and policy data has been published on the ICT Regulatory Tracker, and made available on the ITU website. Contributions have been made with specific regulatory and policy and tariff/economic information and reports submitted to ITU-D Study Groups and published on the ITU website.
- ITU web portals have been published and are updated regularly with new information on topical regulatory, policy and economic issues. They include portals on International Mobile Roaming (IMR) Resources, Quality of Service, the Digital Ecosystem, Infrastructure Development as well as a Regional Regulatory Associations Portal that brings together regulatory resources and ITU activities on topical issues of interest as well as activities and initiatives by regulatory associations, regional and international organizations and other stakeholders. The portals also highlight key findings from ITU publications, studies, research, ITU Study Groups, and data and analysis from the ITU ICT Eye.
- ITU prepared publications on topical regulatory and market environment issues, including an ITU Report on Setting the stage for 5G: Opportunities and challenges; a Report on Regulatory challenges and opportunities in the new ICT ecosystem; and a series of discussion papers prepared for and presented at GSR-18 on artificial intelligence for development.
- The 18th edition of the Global symposium for regulators (GSR-18), held in Geneva, Switzerland, from 9 to 12 July attracted over 600 participants, including government ministers, heads of regulatory agencies and C-level industry executives from more than 125 countries. The theme of GSR-18 was “New Regulatory Frontiers”. The event culminated with the adoption by ICT regulators of a set of best practice

guidelines on new regulatory frontiers to achieve digital transformation. A series of thematic pre-events took place on such topics as the Global Dialogue on Artificial Intelligence, Internet of Things and Cybersecurity – Policy and regulatory challenges and opportunities. The pre-event day also included the Regional Regulatory Associations Meeting (RA) and the 9th Private Sector Chief Regulatory Officers (CRO)/Industry Advisory Group for Development (IAGDI) Meeting.

- Capacity Building Programme on Quadplay: Costing and Pricing of Infrastructure Access for Arab States region was organized in Rabat, Morocco from 9 to 12 July 2018. The training attracted more than 60 participants from Arab States region representing 18 Member States, including Palestine (based on resolution 99), private sector entities, national organizations, and members of Academia.
- ITU-D assisted Sudan and developed national Spectrum Pricing Framework. The framework aims to promote spectrum efficiency usage in Sudan.
- ITU organized a successful Interactive Session for WSIS Action Line C6 (Enabling Environment) on Sharing Collaborative Regulatory Approaches for Digital Transformation, highlighting cooperation at the international, regional and national levels and sharing experiences, best practices and tools for digital transformation.
- ITU-D is implementing a 3-year project to harness the potential of ICTs to strengthen Digital Financial Services (DFS) and Digital Financial Inclusion (DFI) in China, Egypt, and Mexico. Within this context, ITU-D raised awareness on the enabling environment for financial inclusion in Egypt and Mexico through the preparation of a draft country assessment report on Digital Financial Inclusion and defined priority areas of leveraging ICTs for DFI in China as part of the Financial Inclusion Global Initiative. Enhanced regulatory cooperation for Digital Financial Services in China with bringing in the stakeholders in country for implementation for project in China and a project document was signed between ITU and CAICT.
- More than 40 Arab and African participants were trained on telecommunication numbering planning trends, numbering policies and the impact and implication of National Numbering Plan implementation during the regional workshop on Telecommunication Numbering Planning and Policies for Arab States and Africa regions organized back-to-back with Regional Study Group Meeting of ITU-T SG2. The workshop was organized on 25 April 2018 in collaboration with TSB and kindly hosted by CIFODECOM of Tunis.
- ITU developed and provided a course, in collaboration with the Government of India, on the emerging digital landscape and regulatory framework as digital payments, new market participants and products have disrupted the market. Three training modules on DFS and Digital Payment have been developed for the Government of India through internal expertise in close collaboration between ITU-D and ITU-T. An online training was held from 1 to 15 October that enhanced the capacity of 67 Indian participants in the area of understanding digital payments.
- The following activities were coordinated in relation to the enabling environment for ICT development, regulation and policy for Caribbean countries, including Update of National ICT Plans, Update of Broadband Plans, bSmart Project, and Accessibility and Affordability:
  - Under the HIPCAR project (Enhancing Competitiveness in the Caribbean through the Harmonization of ICT Policies, Legislation and Regulatory Procedures), Jamaica sought and received assistance from ITU to provide a sensitization workshop to introduce the HIPCAR methodology and the HIPCAR model text and to discuss the potential impact of the introduction of Privacy and Data Protection Legislation. Recommendations and amendments were prepared based on the outcomes of the workshop and consultations with the Ministry. A draft of the proposed legislation and Draft Data Protection Act were prepared. Since then, a Data Protection Bill (DPB) was prepared and tabled in the Houses of Parliament. The DPB contemplates the establishment of an Office of the Information Commissioner (OIC) to be responsible of ensuring compliance with the Data Protection Act and the Access to Information Act. An ITU expert is currently working on the OIC.
  - A bSmart project is under preparation for ITU to assist the Government of the Bahamas. Through this project, ITU will provide technical support, advice and guidance to contribute to the country's agenda on diversification, improvement of public services, enhanced security, enhancement of the

tourism industry, developing an advanced ICT infrastructure and improving the quality of citizens' lives.

- ITU is providing support to Antigua and Barbuda in reviewing the Telecommunications Act and identifying priorities supporting Regulations consistent with the Act. Similarly, in collaboration with PAHO, ITU is assisting Guyana with the development of an e-health national strategy. The draft strategy was prepared by ITU, based on expertise and experience, will be introduced into the longer process that Guyana and PAHO will conclude in 2019.
- ITU held a regional workshop on 5G, IoT, m-Payment — Emerging Technologies, Eco-Systems, and Regulatory Aspects in St. John's, Antigua and Barbuda, from 17 to 19 October, 2018.
- A large scale Project Document to assist the Brazil regulatory body with the review of the telecommunications regulatory framework was signed and the first wire transfer for USD 2.7 million dollars has already been made. It foresees to provide ITU recommendations (i) to modernize and update the Brazil General Law of Telecommunications (LGT); (ii) to change the scope of concession contracts with telecommunication service providers, aiming at increasing infrastructure investments and the expansion of broadband access networks; (iii) for the creation of a Strategic Plan of digital transformation; (iv) to build confidence and improve regulator relationship with consumers of telecommunication services; (v) to make the Brazil regulator a reference in the use of data and analytics for decision making, and (vi) to provide training courses to improve the performance and management of the workforce necessary to fulfil the responsibilities and the mandate of the regulator. The first stage of the project implementation is foreseen to commence in the second quarter of 2019.
- A new project document has been prepared to assist and guide the MinTIC in Colombia in matters relating to the administration, maintenance and operation of the registry of country code top-level domain names (ccTLD) of Colombia.co. The implementation is foreseen to start in the first quarter of 2019.
- A case study on the evolution of ICTs considering the economic perspective and the policy and regulatory environment was prepared for Ecuador.
- E-agriculture forum on developing an e-agriculture strategy for the Americas: A Regional Capacity Development Workshop on national e-agriculture strategies in the Caribbean took place from 13 to 17 July 2018.
- Schools on Digital Policies: The School of Digital Policies (EPD) is the result of ITU partnership with the Fundacion Getulio Vargas (Brazil). Its main objective is to deliver short training on the Internet from the governance standpoint and to emphasize the importance of promoting the democratization of ICT access by means of digital public policies. Preparation of instructional material was finalized in July and the course was delivered through the ITU Academy and its e-learning platform. The pilot course targets professionals of the Brazil Public Administration, and the delivery started in September 2018. The online phase of the course was finalized in October 2018, and a face-to-face two-day meeting was held in Rio de Janeiro from 18 to 19 October 2018. The EPD initiative will offer courses to the Caribbean in 2019. The ITU Regional Economic Dialogue on Telecommunications/ICTs for Latin America and the Caribbean (RED-AMS) was organized by the ITU Americas Regional Office, together with the BDT/IEE Regulatory and Market Environment Division (RME) in close collaboration with the Federal Telecommunications Institute (IFT) of Mexico. The RED is a discussion platform for Member States and Sector members in the Latin America and Caribbean countries, bringing new and topical regulatory and economic issues, ideas and innovative solutions to the front, responding to the BaAP mandate. 176 delegates from 14 countries participated in the dialogue. The RED brings together representatives from Regulatory Associations, Regional Consumer Associations and Private Sector Associations, such as the Eastern Caribbean Telecommunications Authority (ECTEL), the Telecommunications Regional Technical Commission - Central America (COMTELCA), la Procuraduría Federal del Consumidor de México (PROFECO), GSMA, the Asociación Interamericana de Empresas de Telecomunicaciones (ASJET), and others. More information is available at the RED Website: <https://www.itu.int/en/ITU-D/Regional-Presence/Americas/Pages/EVENTS/2018/20570.aspx>
- ITU-D Study Group 1 Question 4/1 Experts' Knowledge Exchange - Economic policies and methods of determining the costs of services related to national telecommunication/ICT networks was held on

6 September in Mexico, back to back with the Regional Economic Dialogue of Telecommunications/ICTs for Latin America and the Caribbean (RED), which had a purpose to collect the regional experience on the topics related to the Terms of Reference of Question 4/1.

- Assistance was provided to Brunei Darussalam in the assessment of national market readiness for future IMT-2020 (5G) networks.
- Assisted Philippines in developing the criteria for selecting a new major player to provide broadband services.
- Raised awareness for around 150 policy makers in China on Big Data through ITU-MIIT Seminar (26-27 June, Nanning, China).
- Assistance was provided to Bangladesh Telecommunications Regulatory Commission on reviewing the International Long Distance Telecommunication Policy and carried out stakeholder consultations with recommendations on streamlining the licensing regime and competition safeguards.
- Discussed regulatory and policy aspects of digital economy at the Regional Workshop on "National Strategies of Digital Transformation" held in Issyk-Kul, Kyrgyzstan and attended by 80 participants from 16 countries, including 2 heads of administrations and 1 head of a regulatory agency.
- The ITU Africa Regional Office assisted ARTCA in a meeting organized in Malabo in July to revamp this assembly of Regulators of Central Africa. A new chair and action plan have been approved, including the Roaming Project in the CEMAC (Economic Community of Central African States) countries.
- Workshop on 5G, IoT, m-Payment, Emerging Technologies, Eco-Systems, and Regulatory Aspects, was held in St. John's, Antigua and Barbuda from 17 to 18 October 2018. The aim of this workshop is to give a thorough introduction to the emerging technologies and eco-systems of 5G and Internet of Things (IoT), which are starting to become a reality and expected to be rolled out broadly by 2020.
- Improved management of top level domain name for Maldives while assisting the Communications Regulatory Authority of Maldives and made recommendations on "Governing framework for .mv CCTLD for Maldives" in July 2018 in collaboration with Asia Pacific Top Level Domain Association.
- Improved policy and regulatory capacity and skills of 60 participants from 21 countries for Regulators Roundtable and 50 participants from 21 countries for Industry Roundtable through joint ITU-BTRC Asia-Pacific Regulators' Roundtable on "New Regulatory Frontiers to support Digital Economy" from 6 to 7 August 2018 in Dhaka, Bangladesh.
- ITU-D started assistance to Somalia on the establishment of an effective ICT Strategy and Policy framework and provided clear and transparent procedures & mechanisms to facilitate ICT policy and sectoral strategy framework. The ICT Strategy and Policy framework is expected to be delivered and validated by around March of 2019.
- ITU-D assisted Uganda on finalizing the Digital Uganda Vision document, which was validated during a workshop held in Kampala on 29 November 2018.
- Awareness was raised among diverse audience constituted by policy makers, technical professional and academia, among others, attending the "AFRICA eCommerce Week" in Nairobi, 10 to 14 December 2018. ICT infrastructure policies issues were dealt with through the organization of a three-hour session on "Expanding access to affordable and reliable Infrastructure and services".
- Assessment studies were launched in the Arab States region on enabling environments for Big Data and on digital financial services with a focus on the ICT sector.
- Activities of the Arab Regional Initiative on Digital Financial Inclusion were promoted through the ITU-UNESCO Digital Inclusion Week in the Arab States region organized on 24-28 September 2018.
- Quality of service (QoS) and quality of experience (QoE) framework and guidelines for ECOWAS region were developed and adopted following the second validation workshop held in Abidjan, Côte d'Ivoire on 16-19 July 2018. 71 delegates participated at the workshop. Similarly, the QoS and QoE framework and guidelines for SADC Member States were completed following a validation meeting held from 6 to 7 August in Luanda Angola with 32 participants from eight (8) CRASA Member States, namely Angola, Botswana, Eswatini, Lesotho, Malawi, Namibia, and Zimbabwe. Consumer/QoS and QoE issues related to Digital Financial services discussed were incorporated in the said guidelines and frameworks.

- The ITU Regional Economic Dialogue on Telecommunications/ICTs for Africa (RED-AFR) was organized by the ITU Africa Regional Office, together with the BDT/IEE Regulatory and Market Environment Division (RME), from 8 to 9 October 2018 in Ouagadougou, Burkina Faso. 102 delegates from 23 countries attended the dialogue.
- ITU-D Study Group 1 Question 4/1 and Question 6/1 Experts' Knowledge Exchange for Africa was held on 9 October back-to-back with the Regional Economic Dialogue of Telecommunications/ICTs for Africa (RED), which had a purpose to collect the regional experience on the topics related to the Terms of Reference of Question 4/1 and Question 6/1.
- Capacity Building Programme on Costing and Pricing of digital services and infrastructure for the Africa region was organized in Ouagadougou, Burkina Faso from 10 to 12 October 2018. The training attracted more than 75 participants from Africa region, representing 24 Member States.
- A review of the ICT related policies and Communications Act 2009 for the Government of Namibia was completed, and a draft Act was developed. The process started with a first national stakeholders consultation meetings and training held from 17 to 21 September 2018 in Windhoek Namibia, resulting in a report on policy recommendation for amendment. A second validation meeting was held from 26 to 30 November 2018, which reviewed the draft legal texts for the new communications act.
- In order to better improving the management of the interconnection environment in Comoros, ANRTIC has sought the assistance of the ITU for the development of a telecommunications cost modeling for fixed and mobile networks. Assessment mission has been conducted from 16 to 22 December 2018, in Moroni, where meetings held with the main actors and followed by a training workshop on cost modeling of electronic communications networks attended by 30 professionals. During the workshop, the different approaches for setting interconnection tariffs were presented in addition to the cost modeling methods and their characteristics. A report with the recommendations that would facilitate the development of a coherent, reliable and sustainable cost modeling system has been issued and shared with the beneficiary.

<i>WTDC</i>	Resolutions 1, 9, 17, 21, 23, 30, 32, 43, 48, 62
<i>PP Resolutions</i>	PP Decisions 5, 13, PP Resolutions 25, 71, 102, 135, 138, 154, 165
<i>WCIT</i>	Resolution 3
<i>WSIS Action Line</i>	WSIS Action Line C6 of the Geneva Plan of Action and §§ 112-119 of the Tunis Agenda for the Information Society
<i>Contributing to SDG Targets</i>	SDGs: 1 (targets 1.1, 1.2, 1.3, 1.4, 1.5, 1.a, 1.b), 2 (targets 2.3, 2.4, 2.c), 3 (targets 3.8, 3.d), 4 (targets 4.3, 4.4, 4.5, 4.7, 4.c), 5 (targets 5.1, 5.b), 7 (targets 7.a, 7.b), 8 (targets 8.2, 8.3, 8.9, 8.10), 9 (targets 9.1, 9.3, 9.5, 9.a, 9.c), 10 (targets 10.3, 10.c), 11 (target 11.1), 12 (targets 12.8, 12.b), 13 (target 13.3), 16 (targets 16.6, 16.7, 16.8, 16.10, 16.b), 17 (targets 17.6, 17.8, 17.9, 17.14, 17.16, 17.17)

## 2.2 Telecommunication/ICT networks, including conformance and interoperability and bridging the standardization gap

- Basic National Spectrum Management System Project is to assist developing countries to establish basic structure of spectrum management system. Currently, projects for Comoros, Bolivia, and Kyrgyzstan are ongoing. The results of the assistance will be the work plan for countries for implementing/updating their spectrum management structures and activities.
- Within the framework of the above mentioned project, assistance was provided to support Comoros, as the first beneficiary country for this project, to have a spectrum management regulatory framework, aligned with best practices observed elsewhere. The assistance took place in two phases. The first phase led to the development, in November 2017, of a roadmap for effective and efficient spectrum management. The second phase, which runs from 16 to 20 April 2018, is a series of training on radio spectrum and a workshop on Analogue to Digital Transition (A-D Transition).

- An excellent exchange of opinions and feedback between more than 100 delegates coming from 13 countries, the speakers and the representatives of the local, regional and international companies took place during the Regional Workshop on Emerging Technologies, Algiers, Algeria, on 14 and 15 February 2018. Fruitful discussions addressed the opportunities, benefits and challenges of the emerging technologies in the development of the ICT applications and services and related regulation issues.
- Further developments to Spectrum Management System for Developing Countries (SMS4DC) software is under upgrade process in two parts, including the administrative function and radio communication function. USB installation is available now in addition to a CD format. Eight countries were assisted in operation and installation of the software and on higher resolution map.
- A new SMS4DC training is under organization by PIRRC (Pacific ICT Regulatory Resource Centre) for the new features of the tool and installing higher resolution map.
- Assistance to MACRA in SMS4DC tools and training support. Malawi, Africa, purchased SMS4DC and supported with training. An ITU expert mission to MACRA, Malawi trained 9 MACRA staff, from 10 to 14 December 2018. MACRA is now in possession of SMS4DC tool and after training of 9 staff, they are able to use the tool for analysis of FM Band in broadcasting networks/stations.
- As a part of Technical Assistance to Indonesia on the radio frequency usage for small vessel used for fishing activity, a national workshop was conducted in April 2018 on developing regulations for maritime wireless communication with 75 participants from over 15 organizations.
- Caribbean Spectrum Management Task Force: 31 January to 2 February 2018 for around 30 participants from Caribbean countries provided contributions on the relevant reports of the Task Force (digital broadcasting transition, cross-border frequency coordination, emergency communication, spectrum pricing).
- Spectrum management and digital transition: ITU is in the process of providing assistance to Guyana in relation to the Spectrum Management Technical Assistance Services as well as Spectrum Management Spectrum Management Training Workshop.
- ITU-D and ITU-R have completed the exercise on Frequency Coordination for Central America and the Caribbean that started in 2017. The 4<sup>th</sup> and final meeting took place in September from 11 to 14 2018 in Belize. The achieved average percentages were around 96 per cent for UHF band and 94 per cent for VHF band of assignable digital TV channels, i.e. the percentage of the frequency requirements which are compatible with each other and with operating analogue and other primary services' stations. More detailed information can be found at <https://www.itu.int/en/ITU-R/terrestrial/broadcast/Americas/Pages/default.aspx>
- IPv6 and IoT (Internet of Things) Expertise Centre: BDT and MUST (Malaysia University of Science and Technology) continue working towards the establishment of an ITU IPV6/IoT Expertise Centre for supporting Member States in their transition from IPv4 to IPv6 for IoTs.
- Assistance to Member States is ongoing with the development of a Guide on the implementation of IoT in the Immigration processes for developing countries. Broadband connectivity and developing ICT applications to provide free or low cost digital access for schools and hospitals, and for underserved populations in rural and remote areas in selected countries: In Burundi, the broadband wireless network is fully operational with 437 institutions and users connected to broadband wireless network with USD 110 000 as net revenue per year for the incumbent telecommunication operator ONATEL. The total broadband connectivity Installed is now 622 Mbit/s (4 STM1) paid by ONATEL every month. The Broadband Wireless Network in Burkina Faso is fully installed and operational. In Djibouti, all 5 provinces are connected and the Broadband Network is fully operational. Broadband Network based on Huawei 4GLTE is installed in Eswatini. Broadband wireless network is also installed in Antigua and Barbuda, and Saint Kitts and Nevis, and Rwanda. Procurement for the broadband wireless network in Mali is in progress. The international call for proposals has been done. The technical evaluation is following.
- Analyzing broadband access technology "Li-Fi" (Light Fidelity / Optical access Technology) evaluated for developing countries in particular on GigaHotspots (out / in Door). Li-Fi uses visible light, Ultraviolet and Infrared: The spectrum is very large as compared to the entire radio frequency spectrum.

- ITU-D continues to implement and update the ITU Broadband Maps with information obtained from administrations, regulators operators and public sources (<http://itu.int/go/Maps>). At the time of this reporting, the map presents information from 443 operator networks and 21 806 nodes worldwide. The research on the transmission links has reached 13 726 736 km of routes, representing 3 546 379 km of networks imported to the map.
- As the sole facilitator of WSIS Action Line C2, BDT is leading activities on information and communication infrastructure focusing on the achievements of the SDG 9 (infrastructure, industry and innovation). During the WSIS Forum 2018, 3 presentations were delivered for the Action Line C2 Facilitation Meeting.
- Digital broadcasting transition: A digital switch-over database was updated based on information from around 10 countries (see <http://www.itu.int/en/ITU-D/Spectrum-Broadcasting/Pages/DSO/Default.aspx>).
- Forum on the Conformance and Interoperability (C&I) in Innovation for Youths (25-27 June 2018) and a workshop on Establishing a Mutual Recognition Agreement (MRA) for the Caribbean Countries (28-29 June 2018) were held in Port-of- Spain, Trinidad & Tobago. These events highlighted the importance of C&I for young IoT developers and served as forums for the discussion of the implementation of a MRA for the CARICOM region. Follow-up of the event with the Virtual Testing exercise took place in December 2018.
- Training on Conformance and Interoperability (C&I) for the Americas Region. Coordination is ongoing with countries of the Americas region to achieve a final design on the activity to be implemented.
- Organized online training through ITU Asia-Pacific Centre of Excellence e-learning Programme on Internet of Things: Overview and Applications during 23 April – 20 May 2018 building the capacity of 268 participants in China.
- Developed and delivered training on conformity and interoperability from 10 to 14 September 2018.
- Shenzhen, China resulting in enhanced skillsets of over 50 participants from countries across the Asia-Pacific region and Africa region, and including India, Bangladesh, Philippines, Indonesia, Sri Lanka, Sultanate of Oman, Thailand, China, excluding presenters and secretariat, and built hands on practical capacity in actual testing environment through visit to the Test Lab.
- Project to support and cooperate with the Ministry of Information and Communication Technologies (MinTIC) of Colombia in the development of studies, analyses and proposals related to (i) the diagnosis and updating of National Technical Plans of Radio Broadcasting - PTNRS; (ii) to define the technological strategy for the new AM and FM broadcasting in the Republic of Colombia; (iii) new technologies for broadcasting; (iv) to the proposal of a manual of good practices for assembly of radio stations; (v) to the technical specification of a web tool for management and control of the PTNRS and the radio broadcasting concessionaires; as well as (vi) training and socialization activities.
- Project to contribute to the Ministry of Information and Communication Technologies (MinTIC) of Colombia, in the development of a diagnosis and audit of the Spectrum Allocation by Objective Selection process in order to strengthen the management, analysis, administration, planning and allocation of the radio spectrum within the framework of the integrated management model of the Ministry.
- Project for a strategy design for the implementation of international best practices in the allocation of spectrum attributed to the IMT service in Colombia. The main objective of this project was to combine cooperation and technical assistance efforts to contribute in the validation and improvement of Spectrum Assignment processes for IMT (International Mobile Telecommunications) bands in Colombia.
- A Caribbean Forum on the Conformance and Interoperability (C&I) in Innovation for Youths and a workshop on establishing a Mutual Recognition Agreement (MRA) for the Caribbean Countries, took place on 25-27 June and 28-29 June 2018, respectively, in Port-of- Spain, Trinidad & Tobago.
- Ongoing study on Interconnectivity & Reduction of telecommunication service prices and Internet access cost for South America countries. Ongoing coordination with ASETA (Andean Telecommunication Association) and beneficiary countries for the development of the study, which is focused on the Andean countries: Colombia, Ecuador, Peru and Bolivia. This study is meant to determine the situation of international interconnectivity and to describe the reasons for Internet access cost. Additionally, it will foster international interconnectivity between the countries.

- Support Surinam to define the National IXP model. This activity is organized with the Telecommunicatie Autoriteit Suriname (TAS). During the first three months of 2018, the study was coordinated with national stakeholders. All stakeholder of Suriname have chosen a non-profit model for the National IXP. The final report has been delivered. By the end of November the operators signed the act to elect the temporary executive committee to start the legal implementation of the National IXP for Suriname. In 2019, they will implement it physically at a local Data Centre as the host.
- Support on cross border frequency coordination for Central America and Caribbean countries.
- Close to 30 Administrations participated in the coordination exercise started on 8 March 2017 where ITU-D fully collaborated with ITU-R. The fourth and final meeting took place in September 2018 in Belize. It was a successful coordination, achieving average percentages of 96 per cent for UHF band and 94 per cent for VHF band of assignable digital TV channels after 40 iterations in UHF and 27 iterations in VHF and 4 meetings. The results and more details on the process can be found at <https://www.itu.int/en/ITU-R/terrestrial/broadcast/Americas/Pages/default.aspx>
- Cyber-security and Disaster Reduction Programme: Further to the post-implementation review of the project on National CIRT Establishment in Barbados, ITU was requested and has agreed to provide support and assistance with the continuation of the project towards full operationalization of the Barbados National CIRT.
- Raised awareness on spectrum policy, spectrum regulation, spectrum pricing methodologies and spectrum management for staff of the Sudan National Telecommunication and Postal Regulatory Authority during a national training workshop organized in Khartoum from 9 to 13 March. The workshop also validated the spectrum-pricing framework.
- More than 170 delegates from the Arab States region participated in the 4th Annual Middle East and North Africa Spectrum Management Conference 2018 organized in collaboration with Forum Global, which followed by the ITU Regional Workshop on the Future Utilization of UHF Band in the Arab States region, Including the 700 MHz Band, held in Marrakech – Morocco, on 12 April 2018. The workshop provided a platform for 70 participants from administrations, regulators, broadcasters, and industry to look at the progress that has been made with the allocation of the 700 and 800 MHz bands across the region and the band plans that are emerging, and then look at the picture in the wider UHF band (including 600MHz) and at the likely future shape of the UHF band as a whole across the region. Increased capacity and facilitated knowledge exchange in the CIS on Mobile Number Portability,
- Conformance and Interoperability, Testing of Telecommunication Equipment at the ITU Regional Workshop, held on 1 and 2 March in Moscow, Russian Federation and attended by 60 participants from 5 countries.
- Discussion paper on the Future of Cable TV has been developed, and the ITU Workshop on The Future of Cable TV was jointly organized by ITU-D and ITU-T on 24 and 25 January 2018 in Geneva, Switzerland.
- The 6<sup>th</sup> Latin American Telecommunications Congress was co-organized in Varadero, Cuba, with GSMA LA, ASIET and the Development Bank of Latin America from 11 to 15 June with an attendance of more than 300 participants from 30 different countries, including representative from 17 international organizations and 32 companies. A Forum on Broadband for Rural Areas was organized on June 11 in that framework (<http://www.clt.lat/2018/eng/>).
- Spectrum management and digital transition for Caribbean countries. ITU direct assistance to Guyana through its National Frequency Management Unit (NFMU) in assessing and reviewing its spectrum assignments as part of its reform process.
- Organized ITU Asia Pacific Centre of Excellence (CoE) Training on Monitoring RF spectrum in modern wireless era from 16 to 20 April 2018 involving 3 participants from 13 countries and 4 exhibitors.
- More than 170 delegates from the Arab States region participated in the 4th Annual Middle East and North Africa Spectrum Management Conference 2018 organized in collaboration with Forum Global, which was followed by the ITU Regional Workshop on the Future Utilization of UHF Band in the Arab States region, Including the 700 MHz Band, held in Marrakech, Morocco, on 12 April 2018. 70 participants discussed the progress that has been made with the allocation of the 700 and 800 MHz bands across the

Arab States region and the band plans that are emerging, and then look at the picture in the wider UHF band (including 600 MHz), and at the likely future shape of the UHF band as a whole across the region.

- As part of the implementation of the Basic national spectrum management project, in which Comoros is one of the beneficiaries, the second phase of the assistance run in Moroni from 16 to 20 April 2018, where a series of training on radio spectrum and a workshop on Analogue to Digital Transition (A-D Transition) have been provided to the ANRTIC staff.
- Spectrum Management Assistance Workshop was held on 23 and 24 July 2018 at Accra, Ghana and assisted regional member countries on spectrum monitoring and cross border issues.
- Supported Ethiopia with technical expertise to investigate and find solutions to the harmful interference between AM broadcaster and fixed line telephone network in the city of Harar, Ethiopia.
- Kyrgyzstan was assisted on the spectrum management for economic and technical side on 6-10 August by two experts, and the final report is under preparation.
- Bolivia was assisted on establishing basic spectrum management system from 17 to 25 May, and the final recommendation was delivered to beneficiary country.
- Workshop in Budapest for Central-Eastern European and CIS countries on 5G implementation, more than 100 participants from 20 countries ([03/07/2018 - 05/07/2018: 5G Implementation in Europe and CIS: Strategies and Policies Enabling New Growth Opportunities, Budapest, Hungary](#)).
- Twinning assistance to Albania from Hungary on spectrum management strategy and procedures.
- 2nd Annual CIS and Central and South-Eastern European Spectrum Management Conference and ITU Regional Workshop - Broadband Development based on 4G and 5G Technologies (Almaty, Kazakhstan, 17 to 20 September 2018). More than 50 participants from 15 countries.
- Raised skillsets of over 50 participants from countries across the Asia-Pacific region and Africa region and built hands-on practical capacity in actual testing environment through visit to the Test Lab of SAICT, Shenzhen under ITU Asia-Pacific centre of excellence training on conformity and interoperability, 10 to 14 September 2018, Shenzhen, China.
- 15 participants from Algeria were trained to C&I Testing Regime and to technical and regulatory requirements for ICT equipment authorization. Different types of C&I Labs, the process for building C&I Lab and cost estimates were presented and discussed.
- Capacity building workshop for Member States in the Africa region in conformity and interoperability of networks and equipment. Improved capacity in conformity and interoperability for about 14 Member States, Angola, Burkina Faso, Ethiopia, Kenya, Lesotho, Mali, Mauritius, Mozambique, Rwanda, Senegal, South Sudan, Tanzania, Togo, and Zambia.
- Regional Workshop for Europe and CIS regions on Digital Future powered by 4G/5G was held in Kiev, Ukraine, from 14 to 16 May resulting in raised capacity of stakeholders and improved regional and interregional cooperation on 4G/5G, spectrum management and broadcasting. The workshop attracted 100 participants from 12 countries.
- Raised capacity of stakeholders on satellite communication and improved cooperation between satellite operators at the ITU Regional Workshop held in Minsk, Belarus from 22 to 23 May. The workshop was attended by 40 participants from 6 countries.
- Improved cooperation on broadband among policy makers, regulators and the private sector in the CIS region at the ITU Regional Workshop held in Dushanbe, Tajikistan on 29 and 30 May. The workshop attracted 30 participants from 6 countries.
- Raised capacity of stakeholders and improved cooperation on IoT-related issues at the ITU Regional Forum on Internet of Things, Telecommunication Networks and Big Data as basic infrastructure for the digital economy, which was organized jointly with ITU-T in Saint Petersburg, Russian Federation from 4 to 6 June attracting 106 participants from 20 countries. The Forum also resulted in concrete project proposals to be implemented within CIS RI5.
- Held Regional Workshop on Broadband Development based on 4G and 5G Technologies, Almaty, Republic of Kazakhstan, 17 and 18 September, attended by 93 participants from 18 countries.

- Co-organized 2<sup>nd</sup> Annual CIS and Central and South-Eastern European Spectrum Management Conference, Almaty, Republic of Kazakhstan, 19 and 20 September 2018, attended by 179 participants from 20 countries.
- The 5<sup>th</sup> Annual Latin America Spectrum Management Conference, and a Workshop on Spectrum and Community Networks were co-organized with the Forum Global. 167 registered participants coming from 16 different countries (12 from Latin America). Both events raised all stakeholder capacity to understand the importance of managing efficiently spectrum resources. Visibility of community networks increased as a feasible alternative to connect the unconnected. A project was drafted to work with Internet Society and the Fundacion Getulio Vargas (Brazil) in the development of a toolkit and the implementation of ad hoc assistance to implement community networks.
- From 10 to 14 September 2018, an ITU-ITSO training on satellite communications was offered in Quito, Ecuador. The event was attended by 44 delegates from Brazil, Ecuador, and Paraguay. The feedback of the course reflected high satisfaction.
- In cooperation with TSB organized Regional Workshop on Deployment of VoLTE/ViLTE Networks based on IMS. From Standardization to Implementation, Samarkand, Uzbekistan, 2 and 3 October, attended by 30 participants from 5 countries.
- Hosted RCC-CEPT Coordination Meeting on WRC-19 preparation Moscow, at the ITU Regional Office for CIS, on 5 and 6 October, attended by 22 participants from 9 countries.
- Enhanced capacity of Arab States region countries and the coordination among satellite members who have had participated in the ITU-ITSO regional workshop on Satellite Communication held in Rabat, Morocco from 26 to 30 November 2018.
- Provided expert assistance to Kyrgyzstan on spectrum conversion for Internet of Things.
- Identified regional challenges that should be addressed by stakeholders in the region as well as highlighted regional opportunities that can be seized, particularly ones that may lead to the implementation of the Sustainable Development Goals via Internet of Things, implementation of Smart Cities and Big Data at the ITU Annual Regional Forum on Internet of Things, Smart Cities and Big Data for countries in the Arab States region held in Kuwait City, Kuwait, 17 December 2018.
- More than 100 participants from administrations, private sector, intergovernmental organizations operating satellite systems, regional and other international organizations, and academia from 8 countries from the Arab States region attended the ITU Arab Regional Workshop on Furthering IMT Development: Policy, Spectrum Valuation and Auctions in the Arab States region, held in Riyadh, Saudi Arabia, from 18 to 19 December 2018. It provided platform to specialists to become familiar with the main economic principles underpinning the efficient SM and to learn about the best practices in spectrum valuation and applying market-based mechanisms for spectrum awards, and learn the specific case studies and share experiences regarding conduct of recent IMT spectrum auctions as well as applying administrative spectrum pricing.
- 17 Participants from Mauritania trained on the development of national programme on conformance and interoperability during the training organized in Nouakchott from 17 to 19 December 2018. Assistance for Cameroon and Sierra Leone implementing an IPv6 test bed that would also serve the neighbouring countries in training a critical mass of actors able to handle IPv4 to IPv6 migration process.

<i>WTDC</i>	Resolutions 1, 9, 10, 11, 13, 17, 18, 20, 21, 22, 23, 25, 30, 32, 35, 37, 39, 43, 47, 48, 50, 51, 52, 57, 62, 63, 77 Recommendations 17, 19, 22
<i>PP Resolutions</i>	PP Decisions 5, 13 PP Resolutions 25, 71, 101, 123, 176, 177, 178, 203
<i>WRC</i>	Resolutions 12, 55, 212, 223, 224, 238, 908 Recommendation 207
<i>WTSA</i>	Resolutions 17, 20, 29, 44, 64, 72
<i>WCIT</i>	Resolution 5

<i>WSIS Action Line</i>	WSIS Action Lines C2, C3, C7 and C9 of the Geneva Plan of Action and the section "Financial mechanism for meeting the challenges of ICT for development" of the Tunis Agenda for the Information Society.
<i>Contributing to SDG Targets</i>	SDGs: 1 (targets 1.a, 1.4), 4 (targets 4.4, 4.6, 4.a, 4.c), 6 (targets 6.5, 6.a, 6.b), 7 (targets 7.1, 7.b), 8 (targets 8.2, 8.5), 9 (targets 9.1, 9.4, 9.5, 9.a, 9.b, 9.c), 11 (targets 11.1, 11.5, 11.a, 11.b), 17 (targets 17.3, 17.5)

## 2.3 Innovation and partnership

- Partnership and resource mobilization enhanced through direct contacts, networking, conference calls, missions and meetings. Between 1 January and 31 December 2018, 38 new partnership agreements have been signed with the following breakdown:
  - Thematic: 13 on enabling environment, 6 on infrastructure, 4 each on capacity building, on cybersecurity, and on multi-thematic, 2 each on emergency, on ICT-applications and on e-waste, and 1 on digital inclusion.
  - Beneficiary regions: 19 Global, 5 each in Americas and in Asia-Pacific, 4 in Africa, 3 in Arab States region and 1 each in Europe and in CIS regions.
- Sponsorship Opportunities: Since January 2018, 4 sponsorship opportunities have been opened for ITU-D Study Group meetings, ICT④SDGs: ITU-Academia Partnership Platform, GSR-18 and ITU-D Study Group Rapporteur Group meetings. They have been posted on the ITU-D interactive sponsorship opportunities platform/webpage launched in 2017. Out of the 38 new partnership agreements signed, 10 are sponsorship agreements.
- ITU-D membership: 8 new Sector Members, 4 Associates and 37 affiliated Academic institutions have joined the work of ITU-D in 2018.
- A special Innovation track was held at WSIS Forum in March 2018, with the aim to share global knowledge and opportunities on ways to accelerate digital transformation through Building Digital Innovation Ecosystems, in four focused sessions, with over 300 participants and 39 expert speakers, including a high level panel, and keynote speakers from industry, bilateral and multilateral development agencies, entrepreneurs, innovation experts, etc.
- To accelerate digital transformation in ITU-D membership, technical assistance was provided to Serbia, and Bosnia and Herzegovina, to assess their digital transformation capabilities. As a result, two publications co-created with the concerned countries were launched during WSIS: Digital innovation profiles for Bosnia and Herzegovina, and Serbia. Digital Innovation Profiles (DIP) are part of the ITU-D new series of information and communication technology (ICT) focused innovation ecosystem snapshots, which offer a quick assessment of the existing capacity to accelerate digital transformation and an overview of opportunities and challenges facing the countries' ecosystems. It helps countries accelerate digital entrepreneurship and the digital innovation ecosystem.
- Technical assistance provided to the Republic of Moldova concluded with the launch of the publication on the ICT-centric innovation ecosystem country review for Republic of Moldova. This publication offers a comprehensive analysis with recommendation on how Moldova can upgrade its ICT policies with innovation and digital entrepreneurship policies, and thus accelerating digital transformation.
- Technical assistance was provided to the Republic of South Africa to develop a digital transformation centre through conducting several workshops with inclusive participations of over 80 national stakeholders across sectors. As a result, a draft Digital Innovation profile was published at ITU Telecom World 2018, as well as the launch of Digital Transformation Centre Initiative, to help South Africa navigate technological changes. The launch initiative was attended by several ministers from South Africa as well as other countries in the Africa region.
- Technical assistance to Montenegro was provided through conducting workshops and qualitative interviews of over 90 stakeholders, to develop digital innovation ecosystem in the country, and in line with the Regional Initiative for Europe on ICT centric innovation ecosystem.

- A high level knowledge sharing of evidence based innovation practices were delivered in collaboration with UNIDO during ITU Telecom World 2018 in a Forum session Digital innovation ecosystems: the key to Industry 4.0.
- An Innovation Power Session on Monitoring ICT centric innovation policies and programmes to build technical knowledge and capacity about measuring ICT centric innovation capabilities, was delivered during ITU Telecom World 2018 with attendance from over 50 participants from policy makers, entrepreneurs, financiers, academia, corporate and SMEs.
- From 4 to 7 September in Busan, Republic of Korea, held the annual Young ICT Leaders Forum as a part of the MoU from PP-2014 between the city of Busan and ITU. In 2018, the theme of the forum was “Nurturing Digital Innovations for sustainable smart cities”, and 71 people from 50 countries were trained and certified on how to build smart cities ecosystem in Busan.
- There is a MoU that has been signed with the Association of the East Asian Nations (ASEAN) in 2015. The same has now been extended until 2021. Under this MOU, activities related to Child Online Protection and Next Generation Universal Service Obligation are being carried out.
- In November 21-23 in Oslo Norway, ITU held the regional innovation forum for Europe, with theme “Fostering Digital Entrepreneurship and Startups Ecosystem” where 15 people from 6 countries in Europe were trained and certified with skills to build ICT centric innovation ecosystems. As a result of the forum, one flagship project on nurturing ICT innovations was conceptualized as outcome by an academic member of ITU, Oslo Metropolitan University.
- Initial technical assistance was provided to Zimbabwe, 3 to 7 December 2018, through conducting initial qualitative assessments of the ICT centric innovation ecosystem, with aim to develop a digital innovation profile for the country.
- Ongoing technical assistance to Thailand on ICT centric innovation ecosystem, was delivered through a Multi-stakeholder Workshop on Bridging the Digital Innovation Divide, co-organized by ONDE, was held on 8 and 9 May 2018 in Bangkok, Thailand. The workshop was attended by 55 national stakeholders representing 25 organizations including ICT policy makers, media, private sector, entrepreneurial support organizations, financiers, and academic; and as a result 13 national stakeholders were trained and certified for skills to build ICT centric innovation ecosystems.
- ITU collaboratively worked with organization on ICT centric innovation and digital transformation through specific events, knowledge sharing or initiative. In 2018, UNIDO partnership led to a joint event on the sideline of the Study groups in September, as well as ITU participating in other UNIDO events including MBR initiative where ITU scope a global challenged to funded and run through the UNIDO-GMIS partnership.
- To share knowledge and enhance membership capabilities to accelerate digital transformation, a new publication on Good practices for developing, driving and accelerating ICT-centric innovation ecosystems in Europe was launched at WSIS Forum. This regional report on innovation aims to provide an overview of the many good practices in Europe, covering startups, government, academia, financing entities and more, towards accelerating digital transformation, which may serve as a basis for better policies in countries where gaps have been identified.
- To accelerate capacity building initiatives on innovation, the publication, Bridging the digital innovation divide: A toolkit for strengthening ICT-centric ecosystems, was made available in all six official UN languages giving ITU-D membership access to the ITU scalable and multi-stakeholder driven framework for assessing, making context specific guidelines and recommendations to foster digital entrepreneurship and ICT innovation ecosystems.
- To facilitate evidence base knowledge sharing on innovation practice, Good practices that accelerate digital transformation in Europe was published during WSIS 2018.
- Project funding was secured for ICT centric innovation capacity building of at least six ITU Member States through funding from the Republic of Korea.
- In order to seek to highlight the importance of conformance and interoperability and to sensitize innovators/developers, and persons who support pre-compliance testing of Internet of Things (IoT) product solutions to matters that necessarily precede the commercial deployment of an IoT product

solution a Caribbean Forum on the Conformance and Interoperability (C&I) in Innovation for Youths was held from 25 to 27 June 2018 where more than 16 developers and other participants from seven countries in the region participated.

- WSIS Panel design and delivery: An insight into “ICT-centric economic growth, innovation and job creation” (19 March 2018) within WSIS session on “Building Vibrant ICT Centric Innovation Ecosystems”. The event served as a platform to further promote the ITU book on ICT4SDGs, showcasing examples of successful PPPs (Public Private Partnerships) and enhanced engagement of Academia in ITU work.
- For internal innovation, BDT innovation organised and delivered a workshop on resource mobilization during the senior BDT retreat, through developing a strategic framework (with five tools) for resource mobilization. As a result, a quick win roadmap was developed with 10 priority actions to strengthen ITU-D resource mobilization. Additionally, a new tool was also developed and tested for smart society question in Study Groups to facilitate new approaches in the study groups.
- In order to continue fostering ITU involvement with the academic community, the [Partnership Platform on ICT\(4\)SDGs](#): ICT-enabled Economic Growth, Innovation and Job Creation for Sustainable Development was held at London School of Economics in London, UK, on 22 and 23 May 2018, with the participation of over 100 leading academicians as well as representatives from the public and the public and private sectors. It provided an opportunity for an interactive dialogue with the stakeholders within the ICT-centric ecosystem and the development community. Moreover, the event provided a forum to share emerging opportunities in the digital world and to discuss how upcoming technologies such as artificial intelligence, big data and others can be further studied to contribute to the Sustainable Development Goals (SDGs).
- Partnership with WHO Zimbabwe enabled local involvement in eHealth Strategy development and facilitate its finalization for Zimbabwe, a component of the telemedicine project.
- In accordance with the outcomes of Resolution 71 approved by WTDC-17, the 1<sup>st</sup> meeting of the Industry Advisory Group for Development Issues (IAGDI), was held at GSR-18 with 9th Private Sector Chief Regulatory Officers’ (CRO) meeting. Attended by over 100 high-level industry executives as well as members from the public sector and academia, the Group agreed that the facilitation of access to connectivity for everyone in a sustainable manner as a key action to advancing inclusiveness towards the achievement of sustainable development. To achieve connectivity for everyone, the group has put forward the adoption of a multi-stakeholder engagement approach, the harnessing of the power of new technologies, and the establishment of an effective cross-sector collaboration – and cooperation framework to enable new business models, as fundamental to addressing the following areas:
  - Ubiquitous infrastructure **deployment**;
  - The drive up of broadband **adoption** and usage rates; and
  - The creation of an environment where **innovation** can flourish.

For each area, the group has further identified a number of [calls for actions](#) that industry in collaboration with regulators and governments are encouraged to adopt and act upon to ensure the advancement of sustainable development.

- Assisted the Arab Incubators and Techno-parks Network (ARTECNET) to reach an agreement on the following projects to be initiated in the Arab States region:
  - Training Project for Incubator managers and entrepreneurs
  - *Soft-landing + Acceleration Programme*
  - ARTECNET Award for Entrepreneurship
- Website Development and online platform for the ARTECNET network 24 managers of ICT incubators and other support structures for entrepreneurs were trained during the Business Incubation Management Training, 30 July to 1 August 2018, in Amman, Jordan.
- With the aim of building partnerships across UN in the implementation of the ICT4SDG projects, ITU contributed to the Regional Forum on Sustainable Development for UN Economic Commission for Europe Region, 1 to 3 June, Geneva, Switzerland, where more than 400 delegates were briefed and encouraged to build partnerships with ITU in the implementation of the projects in Europe.

- With the aim to promoting partnership with academia and engage them in ITU work, the ITU Arab States Regional Office contributed to Egypt Academia event on "Encouraging Egypt's Universities and Research Institutions on ITU works", that held in Cairo, Egypt 22 Nov 2018.

<i>WTDC</i>	Resolutions 1, 5, 30, 33, 50, 59, 71, 157
<i>PP Resolutions</i>	PP Decisions 5, 13 PP Resolutions 25, 71, 72
<i>WSIS Action Line</i>	WSIS Action Lines 3, 4, 5, 6, and 7 of the Geneva Plan of Action and the section "Financial mechanism for meeting the challenges of ICT for development" of the Tunis Agenda for the Information Society.
<i>Contributing to SDG Targets</i>	SDGs: 1 (targets 1.a; 1.b), 2 (targets 2.a, 2.c), 3, 4 (targets 4.a, 4.b, 4.3, 4.7), 5 (targets 5.b, 5.6), 8 (target 8.2, 8.3, 8.6, 8.10, 8.b), 9 (targets 9.5, 9.b, 9.c), 10, 11 (targets 11.1, 11.4), 12, 13 (target 13.3), 16, 17 (targets 17.1, 17.3, 17.9, 17.14, 17.16, 17.17)

### 3 Objective 3: “Enhance confidence and security in the use of telecommunications/ICTs, and roll-out of relevant applications and services”

#### 3.1 Building confidence and security in the use of ICTs

- A coordination meeting was hosted by the World Bank in Washington from 26 to 27 February 2018 in order to set up a road map to finalize the development of the national cybersecurity strategy toolkit that will represent a single resource for any country to gain a clear understanding of the purpose and content of a national cybersecurity strategy and how to develop one. This project is a multistakeholder effort facilitated by ITU and in partnership with the CCI, CTO, GCSP, GCSCC University of Oxford, Deloitte, Microsoft, NATO CCDCOE, Potomac Institute, RAND Europe, UNCTAD and World Bank.
- From 14 to 16 March 2018, ITU undertook technical assessments to evaluate the preparedness for the establishment of Computer Incident Response Teams (CIRTs) for Kyrgyzstan and Malawi. In Malawi, a partnership has already been established to implement the designed CIRT.
- On 15 March 2018, ITU conducted a high-level simulation of cyber-related crisis scenarios for top-level government officers and critical infrastructure operators in Mauritius, the purpose of this simulation was to raise awareness among high-level decision makers and familiarize them with the challenges of dealing with cyber-related crisis scenarios that require their involvement.
- Carried out coordination meetings with representatives from Naïf Arab University for Security Sciences and the Academy of Scientific Research to discuss how to get the academia more involved with cybersecurity and how to develop and integrate academic courses/workshops/handbooks on cybersecurity in the academic programmes of engineering and computer sciences faculties. This is to meet the expected results associated to the Arab regional initiative on confidence and security in the use of telecommunications/ICTs. Concrete actions will be done in the near future.
- Contributed to the conference on promoting cybersecurity culture in Schools in Tunisia on 20 June 2018, and promoted the ITU Arab States regional study on the “Legal framework on child online protection: A guide for the Arab States region and the efforts have been done related to Awareness-raising tools for child online protection. In addition participated and represented the ITU Arab States Regional Office in the Conference on Youth and Citizenship, held in Gammart, Tunisia, 29 and 30 October 2018 and organized by the Presidency of the Republic of Tunisia and DCAF.
- Provided assistance to the Administrations of Kazakhstan and Kyrgyzstan in preparing data for the Global Cybersecurity Index (GCI).
- The regional cybersecurity event on Cybersecurity from La Plata River was held at the University of La Plata from 4 to 8 June 2018. The event included the following parts:
  - Sessions for decision taken level on Critical Infrastructure;
  - 30 deep technical trainings on cybersecurity;
  - One training provided by FIRST;
  - One Child Online Protection session;

- Seven scenarios for the Cyberdrill (hands on exercises).

The event had 117 attendees, representing 10 countries of the region: Argentina, Bahamas, Brazil, Chile, Cuba, Ecuador, El Salvador, Guyana, Paraguay, and Uruguay.

- Technical assessments were carried out from 16 to 20 April 2018 to evaluate the preparedness for the establishment of Computer Incident Response Teams (CIRTs) for Samoa in partnership with APNIC, Global Cyber Security Centre, Oxford University, Oceania Cybersecurity Centre, Australia, supported by the Department of Communications and Arts, Australia and raised awareness of about 50 participants by delivering hands-on training workshops aimed at building and strengthening human capacity in cybersecurity related matters in general and CIRTs in particular.
- Technical assessments were carried out from 4 to 8 June 2018 to evaluate the preparedness of Computer Incident Response Teams (CIRTs) for Tonga in partnership with APNIC, Global Cyber Security Centre, Oxford University, Oceania Cybersecurity Centre, Australia, and supported by the Department of Communications and Arts, Australia.
- Raised awareness of 51 participants from 6 countries through the ITU Asia Pacific Centre of Excellence Training Course on Cybersecurity that was delivered from 12 to 16 May 2018 in Tehran, Iran.
- National IGF forum was organized in Ebolowa, Cameroon, the meeting gathered all bodies and institutions from the country southern region to be acquainted to Internet management and cybersecurity issues.
- Built capacity of 34 participants in the area of Internet and IPv6 Infrastructure Security in Asia-Pacific region through ITU Asia and Pacific region centre of excellence training.
- Regional Workshop for Europe and CIS on Cybersecurity and Child Online Protection was held in Odessa, Ukraine from 4 to 6 April resulting in raised capacity of stakeholders an improved regional and interregional cooperation on combatting cybercrime and child online protection. The workshop attracted 50 participants from 14 countries.
- Conducted ITU Cyber Drill - ALERT for CIS Region (including the training on CIRTs/CSIRTs management on 3 and 4 September and a series of workshops on current cybersecurity issues and cyber drill exercises from 5 to 7 September), Baku, Republic of Azerbaijan, attended by 67 participants from 12 countries and from 1 to 5 October in Grand Bassam attended by more than 100 participants from 12 countries.
- Capacity building workshop organized for Cameroon law enforcement officers and intelligence officers, in Limbe, Cameroon, from 25 June to 3 July, about 40 participants attended.
- Conducted cybersecurity readiness assessment workshops in the Democratic Republic of the Congo, Malawi, and Niger, for cybersecurity preparedness and national CIRT implementation.
- Conducted Malawi CIRT design workshop, in Lilongwe, 5 to 9 November. The workshop attracted more than 70 participants.
- Expertise provided to SADC capacity building workshop on cybersecurity and SADC regional cyberdrill, in Mauritius from 10 to 13 September.
- Launched the National Cybersecurity Strategy Guide during ITU Telecom World 2018, as multistakeholder effort facilitated by ITU.
- Organised a Cybersecurity, CERT. ICANN ecosystem workshop in partnership with ICANN, in Ouagadougou, Burkina Faso, from 15 to 19 October 2018 attended by 45 participants from 10 countries.
- Shared best practices in cybersecurity during Central Africa Internet governance forum held in Brazzaville, Republic of the Congo, 13 and 14 December.
- Built capacity of 47 representatives from the telecommunication and financial sector on cyber threats targeting the critical infrastructure for banking industry, during the ITU Regional Workshop on securing the critical infrastructure for financial industry held in Cairo, Egypt, 14 and 15 October 2018.
- Organized the Regional Cybersecurity Week 2018 for the Arab States region, from 21 to 25 October 2018, in Kuwait in partnership with the ITU Arab Regional Cybersecurity Centre (ARCC). The cybersecurity week consisted of the following activities: Regional Cybersecurity Summit (2 days); ITU Regional Cyber Drill – ALERT (3 days); ITU-T SG 17 ARB second meeting (in parallel with the technical scenarios drill); and 6th Annual Arab Cybersecurity Cooperation Team (ACCT) meeting. The week aimed at discussing and sharing expertise on how to tackle emerging threats to the national and regional security sector, enhancing skills

of the participating Arab States region national CIRTs, and providing a platform to ensure better cooperation and communications among those CIRTs. 18 teams from 15 Arab States region countries participated in the ITU Cyber Drill - ALERT for Arab States region.

- The ITU High Level Regional Meeting for Building Partnership with Academia in the Field of Cybersecurity, was organized on 4 December 2018, in Amman, Jordan. The meeting was a success and it witnessed interactions and discussions from 30 participants from 7 Arab States region countries on the role of academia in promoting the cybersecurity culture and the potential of the active participation of the universities in the work of ITU.
- The ITU Arab States Regional Office in collaboration with Naif Arab University for Security Sciences (NAUSS), organized a training course for the Saudi public prosecutors commission on cybersecurity and data privacy in Cairo from 9 to 13 December 2018. The training attended by 22 trainees.
- Conducted a validation workshop for the draft report of the National Cyber Security Strategy for Mauritania 2019 - 2022 that has been developed by an ITU expert, in collaboration with the Ministry of Higher Education and Scientific Research and ICT in Nouakchott, Mauritania, 18 December 2018.
- Technical assessments were carried out from 19 to 21 December 2018 to evaluate the preparedness of Computer Incident Response Teams (CIRTs) for Mauritania. The report is under revision.
- During 2018, the ITU Arab States Regional Office raised awareness on COP in different for a through participating actively in the regional events, and providing advocacy and sharing information with the governments regarding the child online protection and child digital citizenship.
- ITU Arab States Regional Office discussed with the new chairman of the CWG on COP the possible collaboration between ITU and Aqdar on child online protection in the Arab States region for the coming years.
- Assistance provided to Sudan in developing its national child online protection strategy.
- Carried out CIRT assessment for Samoa in collaboration with APNIC while Oceana Cybersecurity Centre (OCSC) and Global Cybersecurity Centre (GCSC), OXFORD developed Country Maturity Matrix from 16 to 20 April 2018.
- Carried out CIRT assessment for Tonga in collaboration with APNIC while Oceana Cybersecurity Centre (OCSC) and Global Cybersecurity Centre (GCSC), OXFORD developed Country Maturity Matrix from 4 to 8 June 2018.
- Developed national cybersecurity strategies of Bhutan and Kiribati in November 2018.
- Built capacity of 5 participants from Afghanistan on cybersecurity organized in New Delhi, India in December 2018.
- Child Online protection workshop in Myanmar in 2018. The workshop was attended by the Union Minister, Ministry of Transport and Communications, Deputy Minister of Transport and Communications, high level government officials from Ministry of Transport and Communication, Information Technology and Cyber Security Department, Posts and Telecommunications Department, Supreme Court of the Union of Myanmar, Police Department. Attorney General Office, Ministry of Social Welfare, Relief and Resettlement, Children Thailand Foundation, and UNICEF.

<i>WTDC</i>	Resolutions 1, 5, 9, 15, 30, 33, 37, 45, 50, 59, 64, 67, 69, 78, 79
<i>PP Resolutions</i>	PP Decisions 5, 13 PP Resolutions 25, 71, 72, 130, 179, 181
<i>WTSA</i>	Resolutions 50, 52, 58
<i>WSIS Action Line</i>	WSIS Action Line C5
<i>Contributing to SDG</i>	SDGs: 1, 3 (target 3.5), 4 (target 4.a), 5 (targets 5.2, 5.3, 5.b), 7, 8, 9, 10
<i>Targets</i>	(target 10.2), 11, 16, 17

### 3.2 ICT applications and services

- A #HackAgainstHunger was organized in collaboration with the Food and Agriculture Organization (FAO) to identify and support innovative solutions, aiming at addressing challenges in regards of food and agriculture. It included 3 local hackathons in Rwanda (Kigali), and in the Caribbean (one event in Jamaica and another one in Trinidad and Tobago), as well as a Special Track Hackathon in Geneva during the WSIS

Forum 2018. 80 participants coming from 33 different countries forming 13 teams have competed to develop innovative digital services to end hunger. Three teams were awarded based on the feasibility and potential impact of their innovation, the overall winner being the Jamaica Team.

- ITU co-organized the Mobile Learning Week 2018 with UNESCO that focused on the challenges and strategies to offer digital skills development opportunities for all. The annual gathering featured a symposium, workshops on innovative projects and policies, strategy labs, as well as a policy forum on national educational initiatives with ministers of education, technology and communications to prepare for the digital economy.
- A project on Digital Identity for Development was launched to assist countries, particularly low and middle-income countries (LMICs), to deploy digital identity initiatives that can enable value-added services in most digital economy areas, including financial services, health, agriculture, education, etc. The project will take stock of existing digital identity initiatives and develop implementation toolkit to provide a Roadmap to deploy digital identity for Foundational or Functional Identification.
- A special Track within the AI for Good Summit on using artificial intelligence applications as a potential game changer to achieve Universal Health Coverage is organized to identify quick-win areas and types of AI applications that hold high-potential impact on health outcomes. IT also deals with how to address bottlenecks and challenges that prevent society from taking full advantage of them.
- M-health and e-health initiative in the Americas region: ITU and PAHO agreed on the Application of the National eHealth Strategy toolkit to Guyana. The complete draft strategy was finalized and submitted as an ITU contribution into the longer process PAHO and Guyana will continue until July 2019. ([https://www.itu-ilibrary.org/science-and-technology/national-ehealth-strategy-toolkit\\_pub/8069793a-en](https://www.itu-ilibrary.org/science-and-technology/national-ehealth-strategy-toolkit_pub/8069793a-en))
- Within CIS RI1, developed content for the specialized multimedia courses focusing on the use of ICTs in healthcare, including telemedicine and courses for IT specialists on the maintenance of medical information systems (jointly with Odessa National Academy of Telecommunications, Ukraine).
- As a part of its role in disaster risk reduction in the Caribbean, ITU has commissioned the deployment of a mobile multi-hazard early warning and information sharing platform in the region in concert with the regional disaster management agency CDEMA.
- Regional Workshop for CIS and Asia-Pacific on Big Data and Cloud Computing was held in Tashkent, Uzbekistan from 19 to 20 June resulting in raised capacity of stakeholders and improved regional and interregional cooperation on Big Data and Cloud Computing. The workshop attracted 90 participants from 8 countries.
- Assistance was provided to Afghanistan and Pakistan in the development of their e-agriculture strategy in partnership with FAO and national government.
- FAO and ITU published E-agriculture in Action with focus on Drones in Agriculture case studies.
- Raised awareness on digital transformation through ITU booth during the Asia-Pacific Forum for Sustainable Development on ICT for Transformation and Resilience.
- FAO-ITU E-agriculture Solutions Forum 2018 was hosted by the Ministry of Agriculture and Rural Affairs (MARA), China and co-hosted by the Chinese Academy of Agricultural Engineering at Nanjing, China from 15 to 17 November, 2018, which was attended by around 235 participants from about 40 countries. The Forum shared knowledge and information on successful e-agriculture solutions and identifying ways of scaling up implementations at national level.

Awareness raised on Digital Health through a number of events:

- Two presentations were delivered by ITU during the Geneva Health Forum on how to address digital health fragmentation and to achieve Digital Health Integration on 10 and 11 April.
- Presentation delivered on ITU and FAO joint efforts related to E-agriculture Strategy- Sustainable ICTs for Agriculture at the 6<sup>th</sup> International Conference on Oil Palm and the Environment (ICOPE 2018), Bali (Denpasar), Indonesia.
- In June 2018, ITU co-chaired a session with ASEAN Joint working group meeting. During the session ITU and ASEAN decided to continue working on enhancing the existing collaboration on USO 2.0 and Child

Online Protection. It was also decided that more awareness on reporting data for the ITU IDI would be created.

- ITU co-organized with WHO AFRO and Transform Africa Summit a Digital Health Hub at the Transform Africa Summit, 8 and 9 May 2018. The Hub featured a number of policy dialogues and best practices for digital health implementation in Africa.
- An e-Agriculture Strategy Development Regional Workshop for the Caribbean was held in Georgetown Guyana in July 2018 in collaboration with FAO and CTU. As an outcome to this Forum ITU, FAO and Compete Caribbean have concluded an agreement to collaborate on a project to develop a Regional e-Agriculture Strategy for the Caribbean and national e-Agriculture Strategies for 4 countries.
- A needs assessment of Emergency Communication Systems with the objective of implementing a mobile early warning system and communication platform was performed for the following countries: Antigua and Barbuda, Barbados, Nassau Bahamas, Saint Lucia, from 18 September to 19 October 2018. The Virtual Vision platform as a mechanism for real time, inter-agency, national and regional information sharing, reporting and early warning is being introduced to these countries.
- In cooperation with the ITU Office for Europe Organized Regional Workshop for Europe and CIS on eHealth Development Odessa, Ukraine, 17 to 19 October, attended by 40 participants from 12 countries.
- Organized CIS centre of excellence Face-to-face Training on Using Adaptive Technologies to Transmit Multimedia Content over Radio Channels, Odessa, Ukraine, 14 December, completed by 30 participants from 3 countries.
- Built capacities of 30 representatives from the Ministries of Health, Ministries of ICTs and WHO national offices on how to formulate national strategies in e-health in a regional workshop that took place in Beirut, Lebanon from 19 to 21 November 2018 in collaboration with the WHO.
- Scoped that smart learning policies in Sudan as part of an assistance to Sudan to review their national smart learning policies in collaboration with UNESCO in a mission that took place from 18 to 25 September 2018.
- Trained focal points from Malawi and the Eswatini in statistics and indicators to facilitate e-strategy development in all sectors. Focal points were able to understand the importance of statistics and indicators in e-strategy framework development associated to all sectors. They were exposed to capacity and knowledge to assess and analyze e-readiness for the country in order to develop e-strategies in each sector of the economy.
- Trained two focal points in e-health strategy development in Zimbabwe during the Regional Digital Health workshop in Maseru, Lesotho, 21 to 30 November 2018. The focal points understand the importance of ICTs and its application in health and are able to assist in the development of e-health strategy.
- ITU in partnership with WHO supported Senegal in its mDiabete project, as a component of the global “Be Healthy, Be Mobile” programme conducted by the two sister UN agencies.
- ITU, WHO, UNESCO and FAO assisted Niger in organizing a national workshop in August 2018, as a milestone towards implementing their National Niger 2.0 e-strategy aiming at using ICT and particularly e-applications to empower populations and improve their standard of living.

WTDC	Resolutions 1, 5, 30, 54
PP Resolutions	PP Decisions 5, 13 PP Resolutions 25, 71, 72, 139, 140, 183, 202
WSIS Action Line	WSIS Action Line C7 of the Geneva Plan of Action
Contributing to SDG	SDGs: 2, 3, 4 (targets 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7), 6, 7, 8 (targets 8.1, 8.3, 8.8), 9 (targets 9.1, 9.b), 11

#### 4 Objective 4: “Build human and institutional capacity, provide data and statistics, promote digital inclusion and provide concentrated assistance to countries in special need”

##### 4.1 Capacity building

- The 6<sup>th</sup> meeting of the Group on Capacity Building Initiatives (GCBI) was held successfully from 27 to 28 February 2018. The meeting reviewed the strategic capacity building developments that have taken place

in the past year, discussed the capacity building-related outcomes of WTDC-17 and provided guidance on the implementation of the recommendations.

- The Central Evaluation and Accreditation Agency (ZEvA), a member of the European Association for Quality Assurance in Higher Education, has awarded the Spectrum Management Training Programme (SMTP) its quality label for higher education and recognition of the SMTP modules as equivalent to Master's degree modules. With this award, the SMTP can be aligned to Master's degree programmes internationally, making it easier for Universities to adopt the programme.
- All modules that make the basic level certificate of the SMTP have been translated into Spanish.
- The capacity building session for WSIS AL C4 was successfully facilitated on 9 March, under the theme Building ICT skills for social entrepreneurs. The session featured speakers from ILO, government of Mexico and social entrepreneurs. About 50 participants attended the session.
- Co-organized the 2018 Mobile Learning Week 2018 in partnership with UNESCO under the theme Skills for a connected world. The event was held in Paris during the week of 26 to 30 March 2018. Contributions relating to capacity building in the digital economy were made to a number of sessions during the event.
- The Global ICT Capacity Building Symposium (CBS-2018) was successfully conducted in Santo Domingo, Dominican Republic from 18 to 20 June 2018, under the theme Developing skills for the digital economy and society. The symposium attracted 331 participants from 36 countries. The outcomes of the symposium are expected to provide strategic guidance to the national and international community on issues of skills development in the field of ICT and digital technologies.
- The [second issue](#) of the online publication "[Capacity Building in a Changing ICT Environment 2018](#)" was released in June 2018. It features articles that highlight different levels of skills required, from basic digital skills that are aimed at raising ICT awareness and enabling use of simple applications to advanced digital skills targeted at more complex requirements such as network management and data analytics. In addition, the publication present a number of concrete examples in capacity building projects carried out across different regions of the world.
- The development of the ICT and Climate Change Training Programme (ICT&CCTP) has been completed.
- The materials are now ready for delivery.
- The training course on Enabling communication for all through ICT accessibility was converted to self-paced online mode. The course was launched in August with an enrolment of 70 participants.
- The Annual Regional Human Capacity Building Workshop for the Africa region combined with the Regional Training on Internet Governance was organized in Abuja, Nigeria, from 27 to 29 August 2018. The workshop attracted more than 100 participants.
- Training of trainers to use ICT to include people living with disabilities in expanded Community Information Centre in Zimbabwe. Implementation from 8 to 12 October 2018 that attracted 51 participants with sub-Saharan regional representation from Botswana, Cote d'Ivoire, Mali, Uganda, and Zimbabwe. People with disabilities and train of trainers were exposed to the tools available on the market to assist them access computers and they acquired computer skills.
- Eswatini was assisted in finding and arranging for a regulatory tour to one of the top regulators in order to enhance capacity of the newly created regulator.
- The review of the operational processes and procedures (OPP) document of the centres of excellence network has been completed. The revised OPP document is available in all six UN official languages.
- The centres of excellence network delivered 55 courses, training 1 840 participants between January and December 2018.
- In collaboration with other partners, 20 courses were implemented between January and December with a total of 1 883 participants.
- The selection process for the new centres of excellence cycle 2019-2022 was completed. Out of 64 applications received, 31 centres were selected across the six regions delivering training in 16 different priority areas. The new Steering Committees will hold their first meetings in January-February 2019 and operations of the new centres of excellence will start thereafter. A performance evaluation of the centres of excellence cycle 2014-2018 was also completed and a report prepared.

- 24 participants have been enrolled for the online master of communications management (eMCM) course between January and February 2018. 3 participants are now working on their dissertations.
- ITU held a workshop on 5G, IoT, m-Payment, Emerging Technologies, Eco-Systems, and Regulatory aspects, in St. John's, Antigua and Barbuda on October 17 to October 19, 2018, with the participation of 23 participants from 8 countries, and representatives from the government, operators and service providers. As a result of the workshop it is expected that the participants be able to analyse the existing opportunities in these emerging eco- systems, and motivate the shareholders and decision makers about future investments and directions.
- The ITU online indigenous training course on *Communication Innovative Tools for the strengthening of Indigenous Communities of the Americas Region* has received over 600 registrations. ITU accepted enrolment of 150 in each class. Only one class was planned for this year. The other 300 were invited to attend the two classes planned for 2019. See more at <https://www.itu.int/en/ITU-D/Digital-Inclusion/Indigenous-Peoples/Pages/default-bis.aspx>
- ITU-D has also developed instructional material for a Training Programme for Indigenous Technicians on Community Networks. This training will be partially delivered online and it is foreseen to have a 2-week hands-on in-site training. Training delivery shall start in the second quarter of 2019.
- Schools on Digital Policies: The School of Digital Policies (EPD) is the result of ITU partnership with the Getulio Vargas Foundation (Brazil). Its main objective is to deliver short training on the Internet, from the governance standpoint and emphasize the importance of promoting the democratization of ICT access by means of digital public policies. Civil servants from the Brazil Public Administration and a few representatives from the Private Sector (35 in total) benefitted from the course. The EPD Initiative will offer courses to the Caribbean sub region in 2019.
- Capacity building to support ITU members in the definition of global ICT policy & regulation and business & management of technical issues:
  - Online training courses were delivered within the ITU network of centres of excellence within the Americas region in Communication Protocols for IoTs and Satellite Communication, Optical Networks, LTE and 5G, Spectrum Management, Cybersecurity and Climate Change.
  - Online training courses were delivered within the ITU network of centres of excellence for the Africa Region on Emerging Trends in Regulation of ICTs on 5-30 March 2018, on Social Media Content Regulation on 2-27 April 2018 and four courses on SMTP OM1 to OM3 from January to June 2018.
  - An online training course on Smart Sustainable Cities was launched and delivered through the ITU Academy platform. This is an ITU initiative implemented in partnership with CITELOAS benefitting 12 countries (Anguilla, Argentina, the Bahamas, Bolivia, Barbados, Egypt, India, Jamaica, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Yemen).
- An online training course in the field of Digital Economy was delivered through the ITU Academy platform. This is an ITU initiative implemented in partnership with CITELOAS benefitting 13 countries (Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Mexico, Nicaragua, Panama, Peru and Venezuela).
- An online training course on Consumer Protection is under preparation. It will be a self-paced training course to be delivered through the ITU Academy platform. This is a direct assistance requested by ANATEL, the Brazil National Telecommunication Agency.
- An ITU / ITSO Workshop on Satellite Communications was organized in Quito, Ecuador from 10 to 14 September and attended by 44 participants from Brazil, Ecuador, and Paraguay. Participants were formally tested at the end of the workshop with a 100 per cent approval rate. Paraguayan representatives offered to host the workshop in 2019.
- Under the partnership ITU-ITSO, a face-to-face training course hosted by Ecuador was delivered in the field of satellite communication in September 2018.
- Two ITU/ITSO face-to-face training courses were delivered in Dakar, Senegal from 23 to 27 July 2018 for French speaking countries in Africa and in Abuja, Nigeria from 22 to 26 October 2018 for English speaking countries in Africa.

- ITU launched the Strategic Telecommunication Management Programme, which is organized in partnership with UBP and in collaboration with ANTEL, ASETA and COMTELCA. This is continuing education online programme comprised of 9 modules, to be delivered under the ITU Academy platform in 2018 and 2019.
- Under the ITU-Rohde&Schwarz partnership, one capacity building workshop in Munich, Germany, was held in June 2018 and one workshop was held in Singapore, in October 2018, under the umbrella of the ITU Academy. It concerns capacity building workshops on Implementation of radio monitoring systems according to ITU-R recommendations. A total of 35 participants, primarily from developing countries, were trained.
- Participants from Arab States region were trained on the proper design of FTTx point-to-point and point-to multipoint passive optical networks (PON) with home-run, centralized, and distributed topologies in a regional ITU centre of excellence Face to Face Training on FTTx Outside Plant Design organized in Tunis, Tunisia, 12 to 16 March 2018. The training was attended by 9 participants.
- Enhanced skills of participants from Arab States region on Business analysis of ICTs in a regional ITU centre of excellence online course on business analysis of ICT applications and services organized in cooperation with SUDACAD, Khartoum, Sudan, from 12 to 22 March 2018. The course was attended by more than 30 participants.
- Equipped the participants with an advanced understanding of the project management applied to ICT projects in a regional ITU centre of excellence course on project management for ICT applications and services organized in cooperation with SUDACAD, Khartoum, Sudan, from 16 to 18 April 2018. The course was attended by 13 participants.
- Enhanced knowledge and skills on ICTs apps and services business analysis in a regional ITU centre of excellence course on Business analysis for ICT applications and services organized in cooperation with SUDACAD, Khartoum, Sudan, from 23 to 25 April. The course was attended by more than 30 participants. Due to popular demand for this course, another session was organized and attended by more than 30 participants.
- Participants from Arab States region were trained on process to identify the risks that might have an impact on the ICTs apps and services projects during a ITU centre of excellence course on Risk Management for ICT Implementation and Services organized in cooperation with SUDACAD in Khartoum from 1 to 3 May 2018. The course was attended by more than 25 participants.
- Strengthened capacities of the ITU regional membership in the field of technical and policy of Internet governance in a regional ITU centre of excellence course on Internet Governance: Policy and Technical Perspective organized in cooperation with SUDACAD in Khartoum from 15 to 17 July 2018. The course was attended by more than 30 participants.
- Trained the participants from Arab States region on understanding the concept of fiber characterization and the measurement techniques of optical infrastructures in a regional ITU centre of excellence Face to Face Training on Optical Fiber Characterization organized in Tunis, Tunisia from 09 to 13 July 2018. The training was attended by 10 participants.
- Enhanced skills of participants from Arab States region on core concepts of SDN and Open Flow and methods of implementing and configuring SDN environment in a regional ITU centre of excellence course on Software Defined Networking (SDN) and Open flow Protocol Practical Implementation organized in cooperation with SUDACAD in Khartoum from 15 to 17 July 2018. The course was attended by over 30 participants.
- Equipped the participants with knowledge of understanding and implementation of LTE-Advanced and Beyond Networks during a ITU centre of excellence course organized held in Tunis, Tunisia from 12 to 16 November 2018. The course was attended by 8 participants.
- Enhanced skills of participants from Arab States region in the field of Training Needs Analysis and Development of Training Plans for ICT Organizations” organized in Khartoum, Sudan from 21 to 23 October 2018. The training was attended by over 30 participants.
- A needs assessment of Emergency Communication Systems with the objective of implementing a mobile early-warning system and communication platform was performed in Barbados, Nassau, Bahamas,

Antigua and Barbuda, and Saint Lucia from 18 September to 19 October 2019. The Virtual Vision platform is a mechanism for real-time, inter-agency, national and regional information sharing and reporting and is being introduced to these countries.

- A Hands-on Spectrum Management training using the ITU SMS4DC Software for Somalia delayed from December 2018 until February 2019 in Mogadishu, Somalia.
- More than 550 participants have built their capacity through 10 ITU Asia-Pacific ITU centre of excellence training programmes in the areas of mobile broadband, QoS, Internet and IPv6 infrastructure security, monitoring RF spectrum in modern wireless era, cybersecurity, IoT technologies and applications for Smart Cities, conformity and interoperability and 5G Planning, Blockchain ecosystem and decentralization, *competition analysis in digital applications environment*, traffic engineering and advanced wireless network planning, IOT overview and applications.
- Regional Training on The Use of Drones, Satellite Imagery and GIS for Agriculture was held from 4 to 8 June 2018 at the Asian Institute of Technology, Thailand (36 participants) in partnership with FAO and GIC.
- Training on IoT platform and application development in Thailand, co-organized by the National Broadcasting and Telecommunications Commission (Thailand), the National Electronic and Computer Technology Centre (Thailand) and the International Telecommunication Union (ITU) built capacity of around 50 participants in the area of IOT applications.

WTDC	Resolutions 1, 5, 9, 15, 20, 21, 22, 30, 32, 33, 36, 40, 50, 59, 73, 77
PP Resolutions	PP Decisions 5, 13 PP Resolutions 25, 71, 72, 137, 139, 140, 176, 188, 189, 197, 199, 202
Council	Resolution 1143
WTSA	Resolutions 54, 59, 72
WSIS Action Line	WSIS Action Line C4 of the Geneva Plan of Action and §§ 8, 22, 23a, 26g, 49, 51, 65, 72h, 86, 87, 90c, d, f, 95, 114b of the Tunis Agenda for the Information Society.
Contributing to SDG Targets	SDGs: 1 (target 1.b), 2 (target 2.3), 3 (targets 3.7, 3.b, 3.d) , 4 (targets 4.4, 4.7), 5 (targets 5.5, 5.b), 6 (target 6.a), 8 (target 8.2), 9 (targets 9.1, 9.b, 9.c), 12 (targets 12.7, 12.8, 12.a, 12.b), 13 (targets 13.2, 13.3, 13.b), 14 (target 14.a), 16 (target 16.a), 17 (targets 17.9, 17.18)

#### 4.2 Telecommunication/ICT statistics

- ITU enhanced information and knowledge of policy-makers and other stakeholders on current telecommunication/ICT trends and developments based on high-quality, internationally comparable telecommunication/ICT statistics and data analysis via the latest edition of the ITU World Telecommunication/ICT Indicators Database, which was released in July 2018. The data will enable users to take informed decisions in the field of ICT, based on internationally comparable statistics.
- ITU increased capacity and skills of producers of telecommunication/ICT statistics to carry out data collections at the national level based on international standards and methodologies via the following events:
  - Regional Workshop on ICT Statistics for the CIS region held in Almaty, Kazakhstan, on 31 January to 1 February 2018. The workshop was organized jointly by the ICT Data and Statistics Division and the ITU Area Office for CIS, in cooperation with the Ministry of Information and Communication of the Republic of Kazakhstan and with the support of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan. The meeting was attended by 79 participants, including representatives from Azerbaijan, Belarus, India, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan and Uzbekistan. In addition, representatives from RCC attended the meeting. Seven experts participated remotely, including representatives from Armenia, Moldova and Ukraine.
  - Regional Workshop on ICT Statistics for the Asia-Pacific region held in Manila, Philippines, from 14 to 16 March 2018. The workshop was organized by ITU and was hosted by the Department of Information and Communications Technology (DICT) Philippines. It was attended by 91 participants from 10 countries representing national statistics offices, national regulatory authorities and

ministries of Fiji, India, Iran, Malaysia, Mongolia, Papua New Guinea, Philippines, Sri Lanka, Thailand and Vanuatu. Representatives from an operator from India also participated.

- Regional Workshop on ICT Statistics for the Africa region held in Lilongwe, Malawi on 20-21 March 2018. The regional workshop was attended by 69 participants representing 24 countries (Benin, Burkina Faso, Burundi, Botswana, Côte d'Ivoire, Democratic Republic of Congo, Gambia, Ghana, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, South Sudan, Tanzania, Togo, Uganda, Zambia and Zimbabwe) and ITU. The workshop was attended by representatives of communication administrations, regulators, national statistical offices and other interested stakeholders of the countries of the region. The workshop was organized jointly by the ICT Data and Statistics Division and the ITU Area Office for the Africa, in cooperation with the Ministry of Information and Communication Technologies and the National Statistical Office (NSO) of Malawi with the support of the Malawi Communications Regulatory Authority (MACRA).
- National Workshop on ICT Statistics for Malawi held in Lilongwe, Malawi on 22 March 2018. The telecommunication indicators collected by Malawi Communications Regulatory Authority (MACRA) from operators were discussed in detail, focusing on those indicators where MACRA or the operators have difficulties complying with the methodologies. The IDI results for Malawi were presented, as well as measurement of a number of emerging areas, such as M2M subscriptions, cybersecurity, children online and E-waste.
- Other national ICT indicators workshop conducted were conducted in Benin, 23-24 April; Chad 12-15 November and Burundi, 16-20 December, 2018 all aimed at strengthening the capacity of national stakeholders and to discuss in greater detail the methodology to ICTs data and improve national coordination.
- Regional Workshop on ICT Statistics for the Arab States region held in Manama, Bahrain from 26 to 27 March 2018. The workshop was organized jointly by the ICT Data and Statistics Division and the ITU Area Office for the Arab States, in cooperation with the Ministry of Transportation and Telecommunications of Bahrain. The meeting was attended by 27 participants representing eight countries (Bahrain, Djibouti, Egypt, Iraq, Oman, Saudi Arabia, Sudan, and the United Arab Emirates), as well as three regional telecommunication operators (Mobile Company, Saudi Telecom, and Emirates Telecommunication Corporation – Etisalat).
- National ICT indicators workshop for Benin. Held in Cotonou, Benin, on 2 and 3 May 2018, the workshop was attended by 31 participants representing 15 different institutions, including representatives of communication administrations, regulators, operators, national statistical offices and other interested stakeholders, who are responsible for collecting and producing ICT statistics.
- ITU Asia-Pacific Sub-Regional Workshop on ICT Indicators and the IDI held from 22 to 23 November 2018 in Nadi, Fiji. The workshop was held to strengthen the capacities of countries to collect, produce, analyze, and disseminate quality indicators and statistics on telecommunication/ICT in a timely manner with emphasis on the IDI and SDGs. It was attended by 26 participants representing PITA, ministries, operators, national statistical offices and other interested stakeholders, who are responsible for collecting and producing ICT statistics.
- As part of ITU assistance to SADC Secretariat in the implementation of SADC ICT Observatory phase 1 a SADC Regional Capacity Building Workshop on ICT statistics, held in Botswana from 10 to 14 December 2018. The workshop was organized by SADC, while ITU was invited to deliver 10 presentations related to its work on ICT statistics, including the indicators and methodologies used in the data collection, ITU questionnaires, and indicators used to monitor international targets. The presentations were prepared by ITU-D and delivered by a colleague from the ITU Harare Office, as the event was held during WTIS 2018. The materials and support for the workshop was highly appreciated by the SADC secretariat and participants from its member countries. The event was attended by 41 participants from 9 SADC member countries. ITU analyzed information society developments by releasing the Measuring the Information Society Report 2018, which enhanced information and knowledge of policy-makers and other stakeholders on current telecommunication/ICT trends and developments based on high-quality, internationally comparable telecommunication/ICT statistics and data analysis.

- ITU continued to develop internationally agreed standards, definitions and methodologies, through the 9<sup>th</sup> Meeting of the ITU Expert Group on Telecommunication / ICT Indicators (EGTI) and the 6<sup>th</sup> Meeting of the Expert Group on ICT Household Indicators (EGH), which were held back to back in Geneva, from 16 to 19 October 2018. EGTI attracted 127 participants, including experts from regulators, telecommunication operators, ministries and national statistical offices from 54 countries, as well as ITU-D Sector Members, other UN agencies and regional organizations. EGH attracted 124 participants, including experts from national statistical offices, ministries, and regulators from 50 countries, and from ITU-D Sector Members, research institutions, international and regional organizations, and the ICT industry.
- ITU successfully organized the 16th World Telecommunication/ICT Indicators Symposium (WTIS-18), which attracted more than 320 participants from 85 countries, representing public and private organizations including ministries, regulators, national statistical agencies, universities and research institutions, telecommunication operators, ICT firms, and regional and international organizations. WTIS-18 highlighted the important work that ITU is carrying out in terms of ICT statistics and the role of WTIS in bringing together ICT data producers and users, and the opportunities it provides in terms of discussing ICT measurement issues, sharing experiences, and learning from each other. The Symposium highlighted the continued need for high-quality, timely, and disaggregated ICT data to assess the impact of telecommunications, ICTs and emerging technologies on social and economic development. The Symposium addressed the question why data analysis is important for assessing the economic and social impact of ICTs, and how this should feed into policy, noting that data should inform, but not drive policy. The Measuring the Information Society Report 2018 was launched during the Symposium, featuring chapters on ICT trends, ICT skills, revenue and investment, and ICT prices. The reports by the Expert Group on Telecommunication/ICT Indicators (EGTI) and the Expert Group on ICT Household Indicators (EGH) were also presented and endorsed by the Symposium.

<i>WTDC</i>	Resolutions 1, 5, 8, 30, 33, 37, 43, 50, 51, 52, 57, 59, 60
<i>PP Resolutions</i>	PP Decisions 5, 13
<i>WSIS Action Line</i>	PP Resolutions 25, 71, 72, 131, 137, 139, 140, 176, 188, 189, 197, 199, 202 Telecommunication/ICT statistics are relevant to the monitoring of the implementation of all WSIS Action Lines of the Geneva Plan of Action and are referred to in paragraphs 112-119 of the Tunis Agenda for the Information Society, as well as paragraphs 70 of the Outcome Document of the High-Level Meeting of the General Assembly on the Overall Review of the Implementation of WSIS Outcomes
<i>Contributing to SDG Targets</i>	Telecommunication/ICT statistics are relevant to the monitoring of the implementation of all SDGs and are referred to in paragraphs 48, 57, 74-76, 83 of the 2030 Agenda for Sustainable Development

### 4.3 Digital inclusion of people with specific needs

#### Youth

- ITU shared innovative strategies with membership on building their national digital skills development strategies by publishing the ITU Digital Skills Toolkit on the ITU Publications website at <https://www.itu.int/pub/D-PHCB> and ITU-D website at <https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Reports.aspx>. The Digital Skills Toolkit is available in the six ITU official languages along with e-pub and Kindle versions. Awareness on the Digital Skills Toolkit along with the joint ITU-ILO Digital Skills for Jobs Campaign of the global initiative on Decent Jobs for Youth to incentive stakeholders to train 5 million young women and men with job-ready digital skills was shared with 1 250 ITU members and other stakeholders during the WSIS High Level Dialogue on Digital Skills on 21 March, at Mobile Learning Week in Paris from 26 to 30 March, jointly organized by ITU and UNESCO, Digital Skills for Everyone: Accelerating Europe’s Competitiveness and Inclusive Growth, 5 April 2018, Brussels, Belgium; Enabling Digital Entrepreneurship through Better Connectivity and Skills, E-Commerce Week, 16 April 2018,

Geneva, Switzerland; Digital Skills for African Youth, Technical Session 6: Adapting and developing agility through a comprehensive national digital skills for enhanced employability, productivity and innovation capacity, 18 and 19 April 2018, Tunis, Tunisia; Innovations on Decent Jobs for Youth, 2 and 3 May 2018, Geneva, Switzerland; the 21st session of the UN Commission on Science and Technology for Development (CSTD), hosted by UNCTAD in Geneva on 15 May; the Commonwealth ICT Forum 2018, in Port of Spain, Trinidad and Tobago on 1 to 3 October; Women4Mediterranean, organized by Union for the Mediterranean on 10 and 11 October, in Lisbon, Portugal; the Arab Round Table on Youth and Citizenship, 29 and 30 October in Tunis, Tunisia; the Sub regional workshop on digital skills development in the Pacific [ITU-PITA] from 21 to 23 November in Nadi, Fiji; and the Network for Public Service Innovations through South-South Network of the Global South-South Development Expo, 30 November, UN Headquarters, New York.

- In order to attract more partners, a new website for the Digital Skills for Jobs campaign was published on the engagement platform of Decent Jobs for Youth at <https://www.decentjobsforyouth.org/campaign/2> along with the ITU commitment to Decent Jobs for Youth at: <https://www.decentjobsforyouth.org/commitment/58>. One campaign partner, Mariana Costa, the CEO of Laboratoria, an all-women's coding bootcamp in Latin America, presented her work at TedXNations in Geneva on 6 December, while a Laboratoria graduate, a beneficiary of the Digital Skills for Jobs campaign, was featured in ITU News at <https://news.itu.int/laboratoria-world-youth-skills-day/>. New campaign partner, Blossom Academy of Ghana submitted its commitment to the Campaign in the 4th quarter of 2018. Digital Skills for Decent Jobs for Youth project concept notes have been developed for the Arab States, Africa, Asia Pacific, and Europe regions, and partnerships with other entities in implementing these projects, including ILO, UNDP, the Union for the Mediterranean, and the African Development Bank, are under discussion.

### Gender

- 131 countries organized International Girls in ICT Day events in 2018, encouraging 57 748 girls participating in 2 186 events to take up ICT careers and studies. There were events in 20 countries of the African Region, in 31 countries in the Americas region, 10 in the Arab States region, 22 countries in the Asia and Pacific region, 8 countries in the CIS region, and 30 in the Europe region. New countries joining the campaign in 2018 include Mongolia, Solomon Islands, Tajikistan, Timor-Leste, and Uzbekistan. ITU Sector Members, Cisco organized events for 4 349 girls and Microsoft for 3 600. Colombia, Chile, Germany, Guatemala, Italy, Netherlands, Senegal, and Spain attracted the largest numbers of girls.
- The Girls in ICT Day in the Arab States region was promoted and assistance and guidance were provided to organizers from the region when needed. More than 8 events were organized in the region.
- In line with the International Girls in ICT Global Campaign the ITU Americas Regional Office in partnership with UN Women and other local collaborators organized a digital inclusion event for 80 girls attending public schools in Brasilia, Brazil. This event was focused on motivating the girls to embrace technological careers. The event offered workshops on Digital Storytelling, Programming with Scratch and App Inventor and Robotics. During the event, ITU and UN Women also organized several conversation groups that discussed issues such as entrepreneurship and financial independence, violence against women, self-defense, self-analysis and empowerment, among other relevant issues. The event was carried out on 23 and 24 June 2018. The event was a big success and as a result, another TIC TAC event is being organized for the month of November 2018, including UNESCO and other relevant partners. The name TIC TAC stands for: TIC=Information and Communication Technologies (for its acronym in Portuguese); and TAC for transformation, access and knowledge (also considering the first initials of these words in Portuguese).
- Participated remotely in the Girls in ICT Day organized by the University College of Applied Sciences in Gaza, Palestine.
- 25 Girls were trained on digital marketing and social media best practices during the workshop organized under the "Girls in ICT Day" initiative in Aswan, Egypt on 6 and 7 May 2018, as part of the cooperation agreement signed between ITU-ARO and GIZ Egypt.

- Around 50 events were carried out on Girls in ICT Day in the Asia and Pacific region. In Thailand, three trainings on Agritech using ICTs in partnership with MDES (Thailand), FAO, UNESCO, DTAC, CISCO, others were carried out between April and December 2018 to build skills of more than 150 girls.
- There have been 360 500 Girls in ICT Day Portal views, with 185 859 reached by the Girls in ICT Day Facebook posts. #GirlsInICT reached over 93 million accounts for an estimated exposure of 379 million timeline deliveries.
- In the first quarter, outreach was conducted with ITU members and other stakeholders to encourage them
- to organize Girls in ICT Day events as part of the 2018 International Girls in ICT Day Campaign. To incentivize more stakeholders to take action, ITU developed an online map where stakeholders can post information and pictures about their Girls in ICT Day events, and conducted a “Put yourself on the map” campaign that proved to be very successful in incentivizing organizers to share information about their activities.
- ITU also raised awareness among students at the Webster University, Geneva in support of International
- Girls in ICT Day and encouraged young girls during an event organized at Webster University on 6 March to take on a career in ICT during the ITU-D presentation on “Empowering girls through technologies.” ITU raised awareness about International Girls in ICT among some 250 stakeholders participating in Women4Mediterranean organized by Union for the Mediterranean on 10 and 11 October, in Lisbon, Portugal; as well as at the International Day of the Girl Child event at UN Headquarters in New York on 11 October and the ITU Regional Conference on ICT for Women in the Arab States region: ICT for Women’s Empowerment, Beirut, Lebanon on 26 and 27 November 2018.
- Organized the ITU Regional Conference on ICT for Women in the Arab States region: ICT<sup>④</sup> Women's Empowerment under the patronage of the Ministry of Telecommunications of Lebanon, at the kind invitation of OGERO Telecom, and in collaboration with the Arab Women Organization (AWO), Internet Society (ISOC), World Bank Group (WB), and the Lebanese League for Women in Business (LLWB). The Conference held during the period 26 and 27 November 2018, in Beirut, Lebanon. More than 105 representatives from 13 Arab States region countries representing policymakers, business leaders, UN agencies and civil society, attended the event to share information on existing activities and initiatives within the Arab States region countries and define a way forward to consolidate the activities towards a regional framework for cooperation. Furthermore, the conference helped regional stakeholders to further discuss the challenges and opportunities, and evaluate appropriate tools and approaches to empower women. The strong partnership with well-recognized entities witnessed in this conference led to reaching out a wide variety of involved stakeholders and high-level participation.
- Awareness was raised by developing and publishing ITU News stories and sharing them on the Girls in ICT Portal, reflecting actions that countries like Pakistan and Thailand are taking to train girls and young women with digital skills for their economic empowerment.
- ITU also began preparations for the 2019 International Girls in ICT Day, including developing the 2019 Girls in ICT Day visual concept and related resources.

### ICT accessibility

Awareness was raised among over 1 500 ITU Members and stakeholders on ITU-D activities and events, and key resources made available to support our Members in implementation of ICT accessibility as follows:

- Among over 50 UN representatives and relevant participants on ITU-D activities on ICT accessibility that could apply for persons with age-related disabilities during the seminar “Basics on ageism” organized by UN in cooperation with WHO and ILO on 30 January 2018.
- Among 100 representatives from all UN agencies and related stakeholders, including disabled persons organizations, were informed about the activities and resources of ITU-D that contributed to the global implementation of ICT Accessibility under Article 9 of the UN Convention on the Rights of Persons with Disabilities during the UN-CRPD (Committee on the Rights of Persons with Disabilities) held in Geneva on 14 February. The Committee recognized that ICTs cross-cut through all articles of the Convention and that ITU is a key partner in the process of implementation of the Convention.

- Among nearly 700 participants from over 70 countries on the importance of implementing ICT Accessibility and key resources developed by ITU during the ITU Forum on ICT Accessibility organized within the Zero Project Conference in Vienna (Austria) from 21 to 23 February. At the Forum, BDT also announced the First joint ITU-EU Accessible Europe event to take place in December 2018 and positioned ITU-D as a key partner in the implementation process.
- Among key stakeholders in Sudan as part of the assistance to formulate the national ICT Accessibility Policy of Sudan.
- Among over 50 ITU members and other stakeholders participating in the WSIS workshop on 23 March, Practical applications of ICTs supporting digital inclusion and access to information, services and livelihood for people with disabilities, were made aware of ITU-D work and resources to support ITU membership in the implementation process of ICT accessibility in their respective countries and related businesses.
- Among over 500 key thought- leaders, professionals, corporations, service organizations and related representatives of the assistive and accessible technologies market, during an interactive session on Global Accessibility Policy Up-data, at the 2018 M-Enabling Summit, held from 11 to 13 June in Washington DC, United States of America.
- Built capacities and raised awareness of around 120 participants in the High Level Forum on Digital Inclusion organized during ITU-UNESCO Digital Inclusion Week that took place from 24-28 September 2018.
- Assisted Sudan in formulating their national ICT Accessibility Policy.
- Trained 12 web developers on web accessibility for digital financial services in a regional workshop that took place in Cairo, Egypt, on 17 October 2018.

#### **Key resources in ICT accessibility developed**

- A set of 3 self-paced online training courses entitled ICT Accessibility: the key to inclusive communication were developed. These courses aim to provide a good understanding of ICT accessibility among all relevant stakeholders, in particular focusing on related policies, regulations, technology trends and public procurement rules. This course was developed in response to the outcomes of WTDC-17, in particular the ITU Regional Initiative for Europe that calls for building human capacities in field of ICT accessibility. These free online certificate courses consist of three modules as follows:
  - *Module 1: Enabling communication for all through ICT accessibility;*
  - *Module 2: ICT accessibility policy regulations and public procurement standards;*
  - *Module 3: Achieving ICT accessibility through public procurement.*
- 15 video tutorials on how to develop and remediate accessible digital documents (General introduction; Word, Pdf, Excel, and PP) were developed in English, French, and Spanish, and launched during the Study Group on Q7/1 to ITU Members on 28 September.
- Promotional materials were developed (project document, presentation and video) for the ITU-D Programme in web accessibility: Internet for @ll. See more at <https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Reports.aspx>

#### **Training provided in ICT accessibility to over 200 ITU members and related stakeholders**

- Capacity in ICT Accessibility was strengthened to over 70 ITU Members participants to the Rapporteurs Group of Q7/1 on 28 September.
- In support to ARB Regional Initiative: A train the trainers' course was developed and customized for the Arab States region on Accessible Digital Content and Remediation for the stakeholders delivering digital financial services. The training was delivered to over 40 persons from 16 to 18 October 2018 in Cairo, Egypt.
- A Workshop on how to use ICTs for People Living with Disabilities took place from 8 to 12 October in Harare, Zimbabwe.
- Training was also provided during the 5<sup>th</sup> Accessible Americas event (90 trainees obtained ITU certificate).

## Support to Regional Initiatives

- In support of the Americas regional initiative, the regional event, Accessible Americas V: ICTs for ALL, took place in Jamaica from 28 to 30 November 2018. The ITU work in Digital Inclusion and existing key resources were made available to support ITU members and stakeholders in their process of implementing ICT accessibility to create digital inclusive societies in the Americas region was shared with 214 participants. In support to the development of experts in ICT accessibility in the Americas region, a training session certificate, Fundamentals in ICT accessibility, was provided by the ITU-D Focal Point in ICT Accessibility to all participants; 90 trainees successfully achieved the knowledge and obtained ITU certifications.
- In support to Europe regional initiative on implementation in ICT accessibility, at the first regional event Accessible Europe- ICT for ALL, in Austria, from 12 to 14 December, awareness was raised to 150 participants in ITU work and key resources available to support regional implementation. Additionally available resources and existing best practices in purchasing accessible public procurement and developing accessible websites and digital accessible content were shared in this regional forum.
- In support to the Africa region regional initiatives, and assistance, ITU developed the draft policy on ICT Accessibility for ECOWAS that was validated in a workshop held in Nigeria, 3 and 4 December 2018.

## Indigenous Peoples

- The 2017 curriculum of the on-line training course on *Indigenous Radio/Networks – Communication Innovative Tools for the strengthening of Indigenous Communities of the Americas Region*, was revised to up-date the topic with more recent technologies and ensure an overall knowledge of the topic.
- Delivery of the revised online training course on *Communication Innovative Tools for the strengthening of Indigenous Communities of the Americas Region*, has received over 600 registrations (instead of max 100). ITU accepted 150 in each class and will deliver two classes in 2018. The first class was held from July to October, the second class from September to December. See more at (<https://www.itu.int/en/ITU-D/Digital-Inclusion/Indigenous-Peoples/Pages/default-bis.aspx>)
- A second blended training programme for Indigenous people in the Americas region (online and hands-on/face-to-face training) was developed, to build the capacity of indigenous technicians to ensure the self-sustainability of indigenous community-related networks. The course is foreseen to start delivery in 2019.

## Digital Inclusion – general

- 192 digital inclusion programmes and practices were shared on the Digital Inclusion Newslog during 2018, with 6 585 views of the newslog posts. Awareness was raised and these best practices shared among ITU members through the weekly publication of innovative digital inclusion practices and strategies on the ITU-D Digital Inclusion newslog at: <http://digitalinclusionnewslog.itu.int/>.
- ITU raised visibility for and shared its key digital inclusion resources in the G20 Repository of Digital Policies.

WTDC	Resolutions 1, 5, 9, 11, 15, 20, 21, 22, 23, 30, 32, 55, 58, 68, 76, 77
PP Resolutions	PP Decisions 5, 13 PP Resolutions 25, 30, 32, 33, 34, 36, 37, 64, 70, 71, 131, 139, 140, 175, 184, 198, 202
WTSA	Resolution 55, 69
WSIS Action Line	WSIS Action Lines C2, C4 and C7 and C8 of the Geneva Plan of Action and § 90 of Tunis Agenda for the Information Society
Contributing to SDG Targets	SDGs: 1 (targets 1.2, 1.4, 1.a, 1.b), 4 (targets 4.1, 4.2, 4.3, 4.4, 4.5, 4.a, 4.b), 5 (5.1, 5.5, 5.b, 5.c), 8 (targets 8.2, 8.3, 8.5, 8.6, 8.10, 8.b), 9 (target 9.c), 10 (targets 10.2, 10.3), 11 (targets 11.2, 11.7, 11.c), 16 (target 16.b), 17 (targets 17.6, 17.7, 17.8, 17.17)

#### 4.4 Concentrated assistance to LDCs, SIDS and LLDCs

- ITU delivers targeted assistance to countries with specific needs, including LDCs, SIDS, LLDCs and countries with economies in transition in a number of priority areas.
- ITU improved the capacity of LDCs, LLDCs, and SIDS, shared guidelines and best practices, and provided policy guidance through the report on ICTs, LDCs, and the SDGs – Achieving Universal and Affordable Internet in the LDCs. The report, which was produced in cooperation with the UN Office of the High Representative for Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLs), focuses on ICT infrastructure and affordability developments (SDG 9, Target 9c). It offers a new, three-dimensional framework, which classifies LDCs into three categories based on their overall performance across the areas of access, affordability and skills. This will help countries identify areas that are most pressing and where to direct policy and scarce financial and human resources.
- ITU enhanced capacity and expertise in Bolivia and Paraguay, two landlocked developing countries, by sharing guidelines and best practices, and providing policy guidance, through two separate country case study, one on Bolivia and one on Paraguay: Landlocked developing countries (LLDCs) in the Americas: Connectivity challenges and opportunities.
- To improve access to information and best practices and build capacity, ITU, together with UNCTAD and the e-Trade for All initiative, organized the thematic workshop on ICT access and use in the LDCs, LLDCs and SIDS – Opportunities for sustainable development and trade. The event, which was organized during the WSIS-18 Forum, highlighted constraints faced by LDCs, LLDCs and SIDS, and provided insights on how to make effective use of ICTs to foster sustainable development.
- ITU is assisting Jamaica with the establishment of the Office of the Information Commissioner (OIC) which would have responsibility for ensuring compliance with the Data Protection Act and the Access to Information Act.
- ITU is providing support to Antigua and Barbuda in reviewing the Telecommunications Act and to identify priority supporting regulations consistent with the Act. Similarly, in collaboration with PAHO, ITU is assisting Guyana with the development of an e-health national strategy.
- An internal technology assessment revealed that the existing IT infrastructure and platform of Caribbean Telecommunications Union (CTU) are inadequate to sustain the operations of the CTU Secretariat currently and in the future. ITU provided assistance to the CTU in this regard to enhance the technical infrastructure of the CTU Secretariat through procuring the core network, server and connectivity equipment and associated training and installation support, for the IT network upgrade.
- ITU built national expertise in Sudan by developing the new Spectrum Pricing Policy Framework, and by training 15 staff from the Sudan Telecommunications and Postal Regulatory Authority (TPRA) on this new framework.
- ITU developed a Spectrum Pricing Policy Framework for Sudan to optimize and standardize the use of spectrum as national scarce resources. The framework was validated during a national training workshop for Sudan organized in Khartoum, Sudan from 9 to 13 March.
- ITU started developing ICTs Strategy and Policy Framework for Somalia. The goal of this assistance is to establish an effective ICT Strategy and Policy framework and provide clear and transparent procedures and mechanisms to facilitate ICT policy and sectoral strategy framework in Somalia. The product is expected to be delivered by mid-December 2018.
- ITU provided technical assistance to Uganda to finalize the Uganda Digital Vision document and organized the Validation Workshop in Kampala on 29 November 2018. ITU-D also provided the financial support for the final editing and publishing of the document after the validation.
- ITU built national expertise in the National Communications Commission of South Sudan on Market Analysis, Number Plans and Tariff Regulations by providing training to 3 professional from NCA.
- ITU highlighted the importance and potential of ICT infrastructure to foster trade, in particular through e-commerce, in the LLDCs by contributing to the Ministerial Meeting of Landlocked Developing Countries on Trade and Transport in Kazakhstan, on 17 and 18 May 2018.
- ITU awarded between 360 and 380 fellowships to participants from the Least Developed Countries.

- For the year 2018, ITU has allocated a budget of 1 083 000 Swiss Francs (CHF) to the LDCs. Furthermore, ITU has allocated to the LDCs for the decade 2011-2020 a total budget of 13 103 000 CHF.
- ITU published success stories to increase the visibility of ITU work and the role of ICTs for the sustainable development of the LDCs, LLDCs and SIDS.

WTDC	Resolutions 16, 17, 18, 21, 25, 26, 30, 33, 36, 37, 50, 51, 52, 53, 57, 60
PP Resolutions	PP Decisions 5, 13 PP Resolutions 25, 30, 32, 33, 34, 36, 70, 71, 123, 124, 125, 126, 127, 135, 159, 160, 161, 193, 200, 202
WRC	Resolution 12
WCIT	Resolution 1
WSIS Action Line	WSIS action lines C4 and C7 of the Geneva Plan of Action and §§ 9, 23, 26, 49, 59, 87 and 95 of the Tunis Agenda for the Information Society
Contributing to SDG Targets	SDGs: 1 (target 1.4), 3, 4 (targets 4.3, 4.5, 4.6, 4.a, 4.b), 5 (target 5.b), 6, 8 (target 8.5), 9 (targets 9.1, 9.2, 9.5, 9.a, 9.c), 10 (targets 10.2, 10.b), 11 (targets 11.1, 11.2, 11.7), 12 (target 12.b), 13 (target 13.b), 14, 15, 16, 17 (targets 17.7, 17.8, 17.9, 17.18)

## 5 Objective 5: “Enhance environmental protection, climate change adaptation and mitigation and disaster management efforts through telecommunication/ICTs”

### 5.1 ICTs and climate-change adaptation and mitigation

- The Global E-waste Monitor 2017, which was published by the Global E-waste Statistics Partnership (ITU, UNU, ISWA), has been translated into all six official UN languages.
- ITU built capacity on e-waste during a one-day training workshop on e-waste statistics, during the ITU Green Standards Week. The training, which was attended by 80 participants, was organized in collaboration with the Global Partnership on E-waste Statistics. It focused on providing an overview of the current statistics on e-waste and the methods of producing electronic waste statistics at a national level to help more countries generate e-waste data.
- ITU built capacity on Electromagnetic Fields (EMF) considerations in sustainable environment including its measurements methods and related policy in a regional ITU Forum and Training - With ICTs everywhere - How safe is EMF? - organized part of the ITU Green Standard Week events and hosted by Universal Communications Service Access Fund (UCSAF) and Tanzania Communications Regulatory Authority (TCRA). The forum was held on 10 April 2018. The Forum on EMF attended by more than 80 participants.
- ITU raised awareness about the global e-waste challenge and built synergies with UN and private-sector partners by organizing a high-level dialogue session on “Building the E-waste Coalition” during the WSIS Forum 2018 during the WSIS Forum 2018 it organized a high-level dialogue session on Building the E-waste Coalition. This event was organized as part of the ITU role in the Environment Management Group (EMG) and together with UN Environment. A letter of Intent was signed by all participating UN entities to consider concrete action and wide coordination and collaboration on tackling e-waste.
- As part of the process to build an E-waste Coalition, all UN agencies that signed the Letter of Intent during the WSIS Forum 2018, the World Business Council for Sustainable Development (WBCSD), and under the overall leadership of the World Economic Forum (WEF) are preparing a joint report on the vision towards the circular economy, with a focus on e-waste. This report will increase awareness about the need to address the e-waste challenge and provide selected policy guidance to the public and private sector.
- ITU built capacity and raised awareness on the topic of climate change, disaster management and the role of ICTs by organizing a session on E-Environment: Multi-hazard Early Warning Systems and the Role of ICTs. This event, which took place during the World Summit on the Information Society Forum 2018, was organized jointly with WMO. It highlighted the critical role that ICTs play as an integral component of multi-hazard early warning systems (MHEWS) to monitor the environment and to effectively disseminate alerting messages of different type of hazards to those at risk.

- ITU published the Handbook for the development of a policy framework on ICT/e-waste to help build capacity and guide countries in developing e-waste policies. This handbook provides guidance on the key aspects to be taken into account when designing, implementing and improving a legal, regulatory and policy framework on ICT/e-waste. The proposed framework will facilitate the management of ICT/e-waste based on the concepts of sustainable development, green ICT and the circular economy.
- ITU-D published the Developing an E-waste National Policy and Regulatory Framework for Malawi, which outlines a national policy and regulatory framework, including a strategy and action plan for electrical and electronic waste (e-waste) management in Malawi. ITU is finalizing the establishment of the e-waste pilot plan project that is jointly developed by ITU-D and Universidad Nacional de La Plata in Argentina. The project is in its final phase of implementation and the e-waste pilot plant will soon be operational.
- As a part of its role in disaster risk reduction in the Caribbean, ITU has commissioned the deployment of a mobile multi-hazard Early Warning and Information sharing platform in the region in concert with the regional disaster management agency CDEMA. As a first step, a needs assessment of Emergency Communication Systems with the objective of implementing a mobile early warning system and communication platform was performed for the following countries: Antigua and Barbuda, Barbados, Bahamas, Saint Lucia, from 18 September to 19 October 2018. The Virtual Vision platform is a mechanism for real time, inter-agency, national and regional information sharing, reporting and early warning is being introduced to these countries.
- ITU has finalized the implementation of the e-waste Pilot Plant Project that was jointly developed with University of La Plata in Argentina. The aim of the project was to establish a Pilot Plant that will provide concrete responses to the e-Waste problems in cities in line with the Sustainable Development Goals. As part of the implementation review, ITU-D finalized the development of the [promotional video](#) on the implementation of this pilot plant and the development of a report on Successful Electronic Waste Management Initiatives, which provides information of different e-waste management initiatives in 6 different countries around the world.
- Arab States Regional Office finalized the project document and cooperation agreement on a regional e-waste monitor project to be signed with UNU. The objective of this project is to collect and improve e-waste statistics in the Arab States region. The project will improve data availability and quality, availability of policies and regulations and awareness through a capacity building workshops and a Regional E-Waste Monitor for the Arab States region. It will also communicate the data on e-waste to policy makers, the media, and other relevant stakeholders.
- Enhanced cooperation through participation in 50th session of ESCAP/WMO Typhoon committee in Viet Nam in February 2018.

<i>WTDC</i>	Resolutions 17, 21, 30, 32, 37, 50, 52, 53, 66
<i>PP Resolutions</i>	PP Decisions: 5, 13, PP Resolutions: 25, 71, 182
<i>WTSA</i>	Resolution 73
<i>WSIS Action Line</i>	Action Line C7 (e-environment) of the Geneva Action Plan is closely linked to Output D.5.1.
<i>Contributing to SDG Targets</i>	SDGs: 3 (target 3.9), 5 (target 5b), 9, 11 (targets 11b), 13 (targets 13.1, 13.2 and 13.3), 14, 15

## 5.2 Emergency Telecommunications

- ITU built disaster preparedness in Zambia by completing the implementation of two early warning systems (EWS) in Mbeta Island and Kasaya Village in Zambia. The systems are being used to provide early warnings to population on flooding and mudslides. ITU completed the development of a promotional video on the implementation of these two Early Warning Systems (EWS).
- ITU strengthened the ability of countries to coordinate disaster relieve efforts and cope with the immediate effects of disasters by providing emergency telecommunication equipment to Tonga and Papua New Guinea. Emergency disaster response to Tonga followed the destruction caused by Tropical

Cyclone Gita that hit the island in February. ITU also assisted Papua New Guinea after the devastation caused by a 7.5 magnitude earthquake that struck in February.

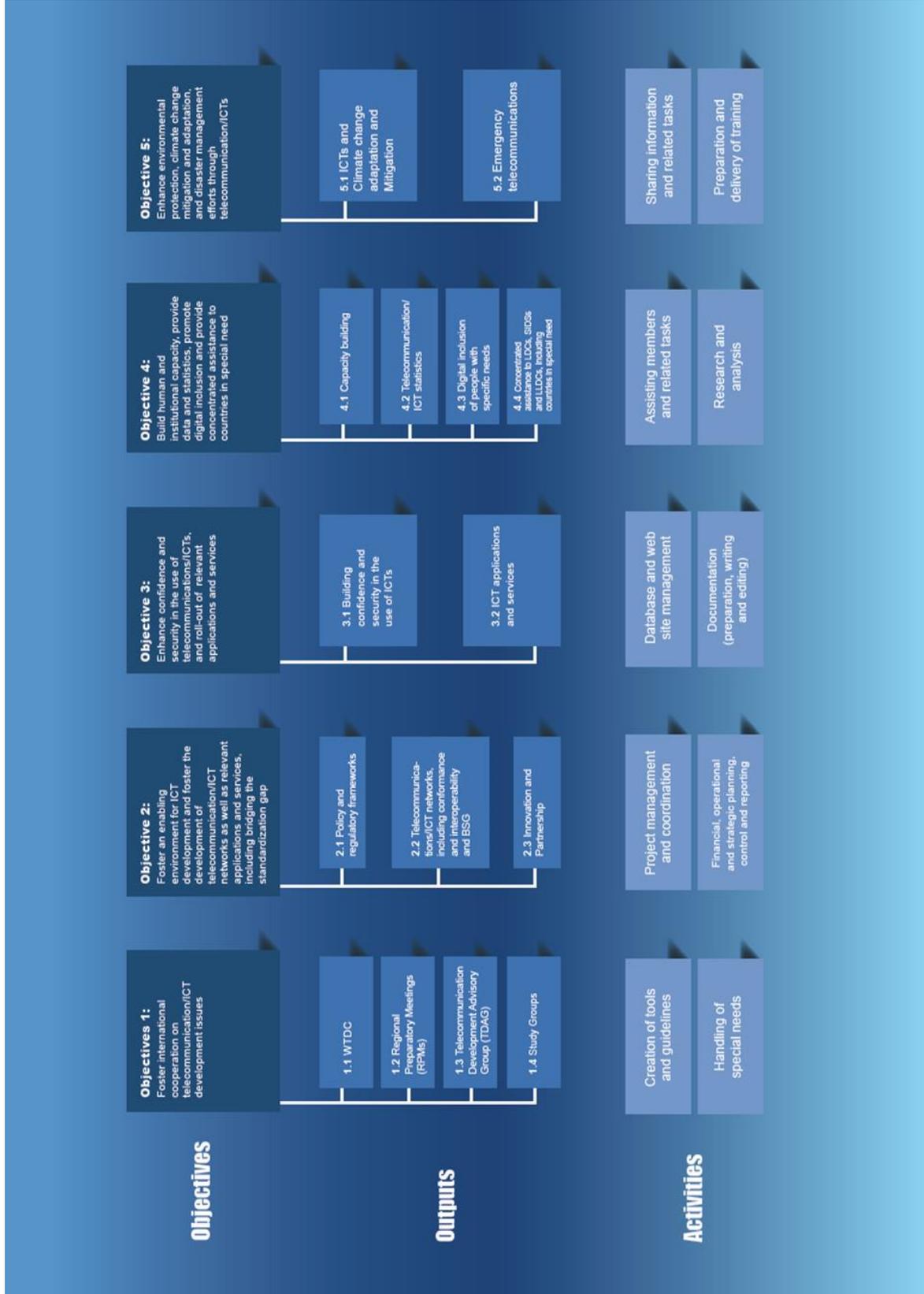
- ITU built capacity and raised awareness on the topic of climate change, disaster management and the role of ICTs by organizing a session on E-Environment: Multi-hazard Early Warning Systems and the Role of ICTs. This event, which took place during the World Summit on the Information Society Forum 2018, was organized jointly with WMO. It highlighted the critical role that ICTs play as an integral component of multi-hazard early warning systems (MHEWS) to monitor the environment and to effectively disseminate alerting messages of different type of hazards to those at risk. Participants had the opportunity to highlight some concrete solutions and discuss the importance of MHEWS checklist for a better collaboration among various stakeholders, including disaster risk management agencies, meteorological and geological services, ICT regulators, NGOs, UN entities and private ICT operators.
- ITU is finalizing the development of the Global Guidelines for Developing National Emergency Telecommunication Plans (NETPs). This will be a guiding document for ITU Member States. ITU is finalizing the development of the NETPs and implementation frameworks for Guatemala, Samoa, and Vanuatu, and preparing technical assistance in the development of NETPs for Papua New Guinea, and the Solomon Islands.
- A panel session on Early Warning Systems was organized jointly with the ITU-D Study Group 2 Question 5/2 on Utilizing telecommunications/ICTs for disaster risk reduction and management. This session took place on 8 May 2018 and focused on disaster prediction and detection, emergency alerting, and safety confirmation and evacuation guidance.
- A workshop on Disaster drills and emerging technologies on disaster management was organized by the ITU-D Study Group 2 Question 5/2 on Utilizing telecommunications/ICTs for disaster risk reduction and management. This session took place on 3 October 2018.
- Emergency Communications for Central America countries, including communications equipment and the development of NEPTs. ITU is currently implementing the project Proyecto piloto para el uso de las TIC para situaciones de emergencia y desastres en la región de las Américas to assist and support Central American countries (Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama) in improving their capabilities of emergency telecommunications and to improve response to emergencies and disasters. Beneficiary countries have received an emergency tool kit that will allow their integration into a regional network of emergency Winlink-based telecommunications. ITU in cooperation with IARU and FMRE and the respective administrations launched operations in 5 countries: On 10 September, HROCOP in Honduras; on 9 October, TIOBCR in Costa Rica; on 6 November, HI8COE in Dominican Republic; on 8 November, TGOOND in Guatemala; and on 28 November, YN1SN in Nicaragua. Preparations are underway to launch operations in El Salvador and Panama in early 2019.
- The International Telecommunication Union (ITU), Caribbean Telecommunication Union (CTU), the Inter-American Communication Commission (CITEL), and the Regional Technical Communication Commission of Central America (COMTELCA) signed a Letter of Intent (LOI) to establish an Agreement on The use of ICTs for emergency and disaster situations in the Americas region.
- ITU is undertaking a study on Assessment of Emergency Telecommunication plans and systems in the Caribbean Region for broadcasters. This is a follow up from the study done earlier for telecommunications in the region. All these activities are congruent to the Emergency Telecommunications WINLINK Project that is under implementation for the Caribbean (see above).
- The III Regional Workshop: Technologies to mitigate effects of Natural Disasters was organized on 1 and 2 August in Quito, Ecuador. The event was attended by more than 200 participants.
- ITU attended The Caribbean Broadcasting Union (CBU) 49th Annual General Assembly in Kingston, Jamaica from 13 to 15 August 2018, and made presentation on the work and support of ITU on disaster management initiatives using ICTs and other initiatives.
- ITU has supported the deployment of a mobile multi-hazard early warning and information sharing platform in the Caribbean region in coordination with the Caribbean Disaster Emergency Management Agency (CDEMA) (to ensure suitability and relevance to the needs of region). This platform allows the public and stakeholder agencies to submit reports and share information in real-time concerning hazards

and disasters. All information is routed to the Disaster Management Office (DMO) and its staff via the application control panel. Once approved by DMO staff, alert notifications, early warning sirens and heat map content are then released to the public via the mobile application.

- ITU is planning participation and contribution at [the Global Platform for Disaster Risk Reduction 2019 \(GP2019\)](#) conference organized by UNISDR and hosted by the Government of Switzerland to be held in Geneva (CICG) from 13 to 17 May 2019. ITU along with other international partners contributes to the organization of the International Conference on Multi-Hazard Early Warning Systems that will be held during the GP2019 led by WMO and in partnership with ITU, UN-SPIDER, UNISDR, UNDP, European Commission, World Bank, WFP, and others.
- ITU has attended and contributed to the Technical Meeting on the Common Alerting Protocol (CAP) (Geneva, 3 and 4 December 2018) organized by WMO in Geneva. The meeting was attended by several national meteorological agencies, part of the WMO Expert Group on Multi-Hazard Impact Based Forecast and Warning services. Common Alerting Protocol (CAP ITU-T X.1303) is an enabler of dissemination of alerting information and ITU and WMO are looking into possibilities of coordinating their work in the area of CAP implementation and monitoring.
- ITU Arab States Regional Office is developing a Model Policy and Regulatory Frameworks on use of telecommunications/ICTs in Emergency and Disaster Management in the ITU Arab States region. The objective of this Model Policy and Regulatory Frameworks is to strengthen the capacity of ICTs policy and regulatory institutions and enhance regional collaboration and knowledge sharing on use of telecommunications/ICTs in emergency and disaster management. The report is expected to be delivered by end of 2018.
- A multi-stakeholder forum on the *Role of Telecommunication/ICTs for Disaster Management and Risk Reduction for the Caribbean Islands* took place from 4 to 6 December 2018 in Roseau, Dominica. The forum is aimed at paving the way for enhancing the use of ICTs for disaster management in the region and addressing key questions related to the best use of ICTs for disaster risk reduction and management. It will also serve as a platform to exchange new experiences and best practices in the use of modern technologies for monitoring and early warning.
- ITU supported WFP on a workshop on Pacific Regional Emergency Telecommunications Cluster (ETC) in Suva, Fiji from 4 to 7 December 2018.

WTDC	Resolutions 1, 5, 17, 21, 30, 32, 34, 37, 50, 52, 53, 69
PP Resolutions	PP Decisions: 5, 13, PP Resolutions: 25, 37, 71, 98, 136, 140, 182, 202
WRC	Resolution 646, 647
WCIT	Resolution 2
WSIS Action Line	Action Line C7
Contributing to SDG Targets	SDGs: 3 (target 3.9), 5 (target 5b), 9, 11 (targets 11b), 13 (targets 13.1, 13.2 and 13.3), 14, 15

ITU-D Result-Based structure



## Overview of objectives and outputs

Chart 1 presents the breakdown of actual human resources among the five ITU-D objectives for 2018

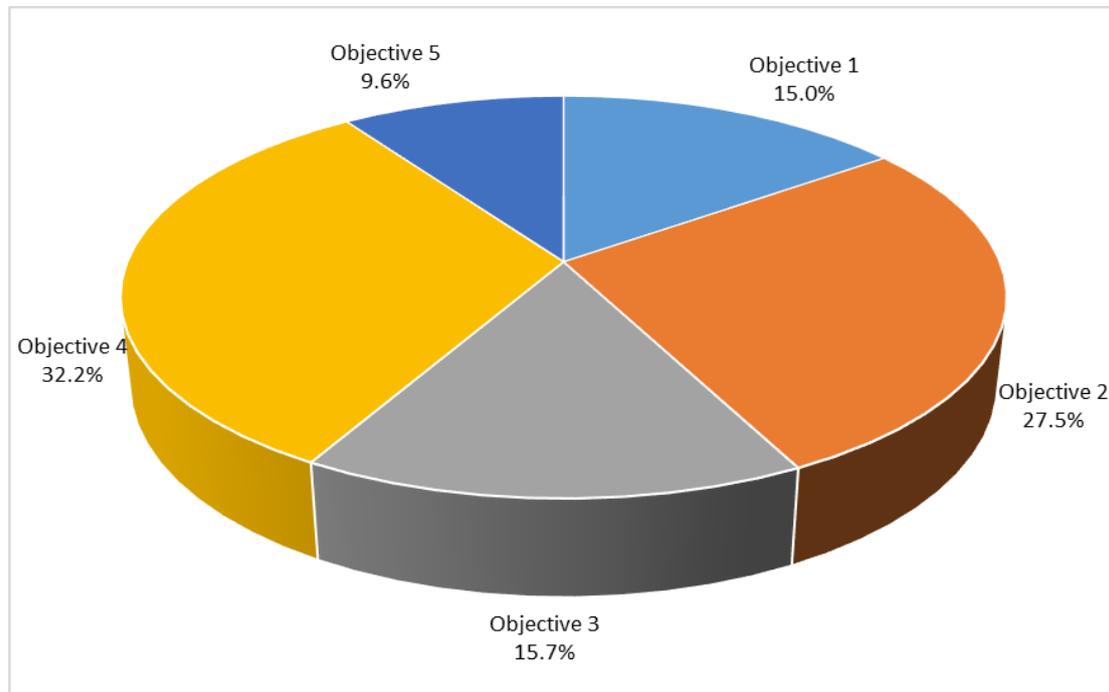
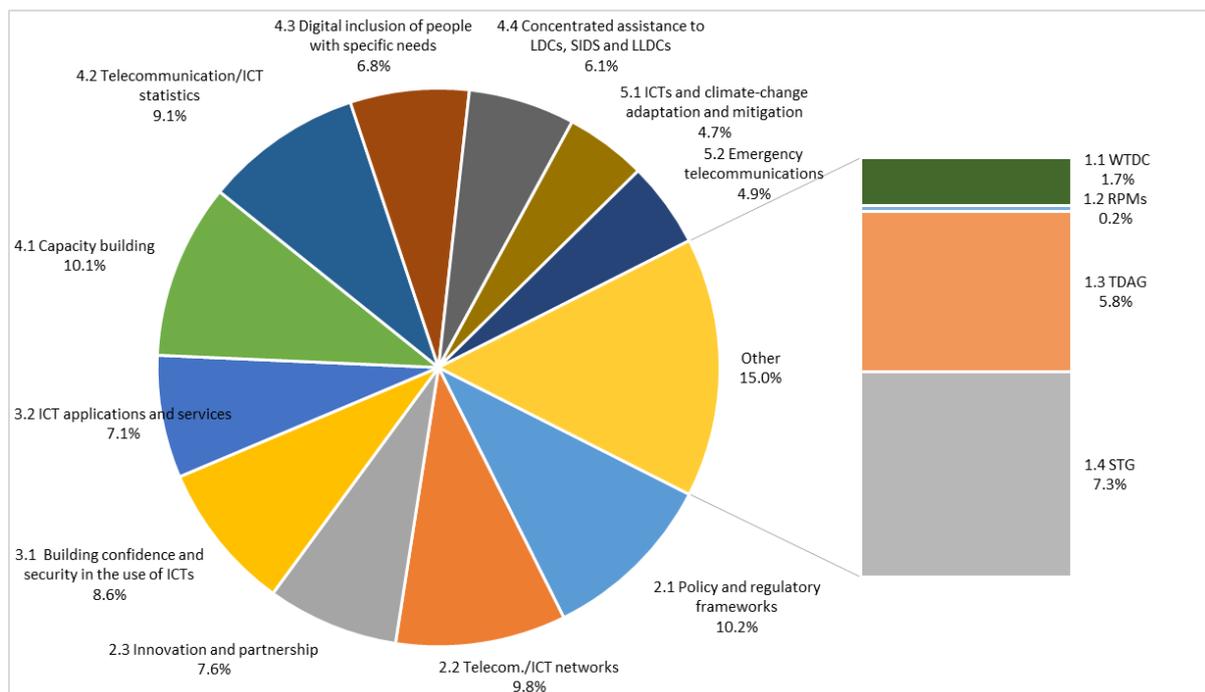


Chart 2 presents the breakdown of actual human resources by outputs of the Telecommunication Development Sector for 2018



## Structure of the Performance Report

The 2018 Performance Report follows the Operational Plan result-based structure and sets forth details for the major objectives, their respective outcomes, achievements, outcome indicators; the outputs as well as the expected and achieved results, and performance indicators.

The structure of the Performance Report is as follows:

This **Part 1** contains the executive summary of the report.

**Part 2** sets forth details on the five major objectives and their related outcomes and outputs.

**Part 3** provides detailed information concerning the Bureau activities/actions.

**Part 4** presents a set of tables and charts that provide all relevant details on the planned/actual resource allocations for 2018.

For each output, the following information is provided:

- Description of the output and major trends/policy issues relating to the output.
- Detailed statement of expected and achieved results and performance indicators for 2018 as well as measurement of the results.
- Threat and risk assessment of the output.

For each outcome, the following information is provided:

- Detailed statement of the 2018 achievement and the 2018 measurement of the outcome indicators.

**Part 5** sets out the implementation of regional initiatives during 2018.

PART 1 .....EXECUTIVE SUMMARY

**PART 2 ..... THE FIVE OBJECTIVES OF THE  
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PART 3 ..... THE TELECOMMUNICATION  
DEVELOPMENT BUREAU

PART 4..... THE RESOURCE

PART 5..... IMPLEMENTATION  
OF REGIONAL INITIATIVES DURING 2018



## **PART 2 – The five objectives of the Telecommunication Development Sector**

This section presents the five objectives of the Telecommunication Development Sector, the respective outputs, as well as the expected and achieved results and description and measurement of performance indicators for 2018; the outcomes related to the outputs as well as the outcome indicators and achievement, and description and measurement of the performance indicators for 2018.

## Objective 1

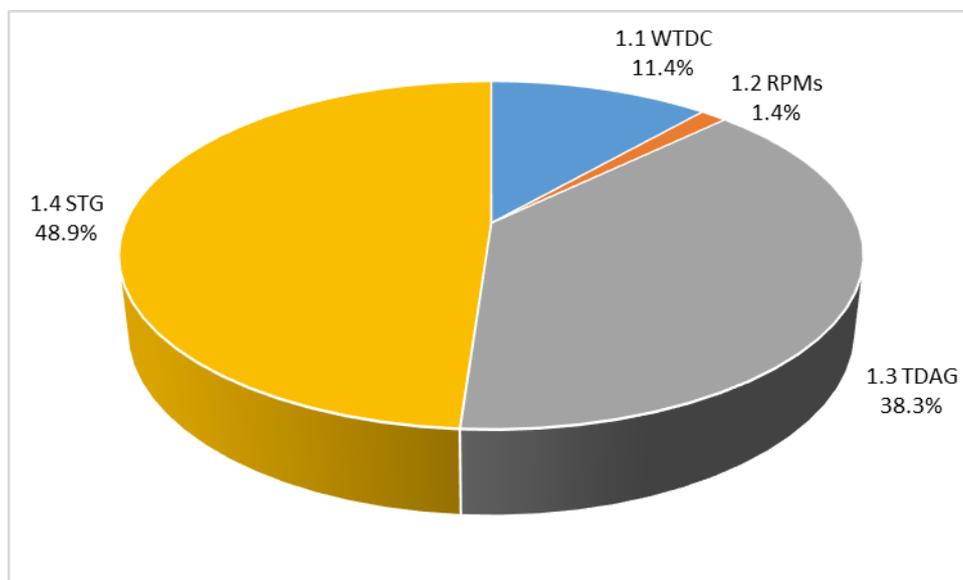
### Foster international cooperation on telecommunication/ICT development issues

Objective 1 includes the following outputs:

- World Telecommunication Development Conference (WTDC)
- Regional Preparatory Meetings (RPMs)
- Telecommunications Development Advisory Group (TDAG)
- Telecommunications Development Study Groups

For 2018, the actual human resources allocated to objective 1 represent **15 per cent** of the total human resources of the Telecommunication Development Bureau.

Chart 3 illustrates the breakdown of the actual allocation of human resources among the four outputs of objective 1.



## Output 1.1

### World Telecommunication Development Conference (WTDC)

The International Telecommunication Union, through the Telecommunication Development Bureau (BDT), organizes a World Telecommunication Development Conference (WTDC) every four years.

The World Telecommunication Development Conferences serves as a forum for free discussion by all concerned with the ITU Telecommunication Development Sector.

In addition, they review the numerous programmes and projects of the ITU-D Sector and BDT.

Results are reported and new projects are launched. The WTDC sets the work programme and priorities for the following four-year cycle.

## 2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
D1-1 Draft strategic plan for ITU-D.	<ul style="list-style-type: none"> <li>ITU-D contribution to the strategic plan of ITU for 2020-2023, to be considered at the next plenipotentiary conference.</li> <li>WTDC declaration approved by WTDC-17.</li> </ul>	<ul style="list-style-type: none"> <li>2020-2023 input to the draft strategic plan to be approved at the plenipotentiary conference.</li> <li>WTDC declaration approved by WTDC-17.</li> </ul>	<ul style="list-style-type: none"> <li>ITU-D input to the ITU strategic plan agreed on by WTDC.</li> <li>WTDC Declaration, highlighting the main conclusions and priorities established by the Conference, and reinforcing the political support towards the ITU development mission and strategic objectives, adopted by WTDC.</li> </ul>	<ul style="list-style-type: none"> <li>Done.</li> <li>Done.</li> </ul>
D.1-3: WTDC Action Plan.	<ul style="list-style-type: none"> <li>WTDC-17 action plan Approved.</li> </ul>		<ul style="list-style-type: none"> <li>Action Plan, aligning the work of ITU-D with the strategic objectives of ITU, prepared and adopted by WTDC.</li> </ul>	<ul style="list-style-type: none"> <li>Done.</li> </ul>
D.1-4: Resolutions and recommendations.	<ul style="list-style-type: none"> <li>New and revised Resolutions and Recommendations adopted by WTDC-17.</li> </ul>		<ul style="list-style-type: none"> <li>New and revised Resolutions and Recommendations adopted by WTDC and in between Conferences, as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>Done.</li> </ul>
D.1-5: New and revised Questions for study groups.	<ul style="list-style-type: none"> <li>New and revised Questions, reflecting the needs of the membership adopted by WTDC-17.</li> </ul>		<ul style="list-style-type: none"> <li>New and revised Questions, reflecting the needs of the membership adopted by WTDC, and in between Conferences, as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>Done.</li> </ul>

**RESULTS ASSESSMENT**

<b>Expected results</b>	<b>2018 achieved results</b>	<b>Performance Indicators</b>	<b>2018 Performance data</b>
<ul style="list-style-type: none"> <li>30% action plan implementation rate.</li> </ul>	<ul style="list-style-type: none"> <li>30% action plan implementation rate.</li> </ul>	<ul style="list-style-type: none"> <li>Action plan implementation rate.</li> </ul>	<ul style="list-style-type: none"> <li>30% action plan implementation rate.</li> </ul>

Threat and risk assessment

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Finance</b>	Insufficient financial resources	High	<ul style="list-style-type: none"> <li>• Appropriate budget forecast prepared</li> <li>• Mobilize additional resources, if necessary</li> <li>• Appropriate host country agreement negotiated</li> </ul>
<b>2. Organizational matters</b>	Inaccurate forecasts	High	<ul style="list-style-type: none"> <li>• Appropriate forecasts prepared based on coordination and communication with the members</li> <li>• Lessons taken from historical data and experiences gained during similar events in the past</li> </ul>
<b>3. Organizational matters</b>	Failure to secure host country	High	<ul style="list-style-type: none"> <li>• Member States more engaged</li> <li>• Member States were encouraged to announce the host for the WTDC at the previous WTDC</li> </ul>
<b>4. Stakeholders/ Partners</b>	Delays in determining and agreeing on the dates and the venue, and the specification of requirements and/or programmes	Medium	<ul style="list-style-type: none"> <li>• Cooperation with regional telecommunication organizations ensured and improved, and members determined dates and venue well in advance of WTDC</li> </ul>
<b>5. Stakeholders/ Partners</b>	Low participation and contributions by countries in preparatory activities organized by ITU for the WTDC	Medium	<ul style="list-style-type: none"> <li>• Communication with regional telecommunication organizations improved and members ensured their participation in the preparatory activities for WTDC</li> </ul>

## Output 1.2

### Regional preparatory meetings (RPMs)

Resolution 31 (rev. Dubai, 2010) calls for the organization of one development conference or regional preparatory meeting per region to coordinate, at the regional level, the preparation for the World Telecommunication Development Conference (WTDC).

The main purpose of the Regional Preparatory Meeting (RPM) is to engage the ITU members in the WTDC process early on and to consider, at the regional level, appropriate ICT development strategies. To this end, they seek to identify priority areas and related initiatives, projects, Study Group Questions that need to be addressed to foster the development of telecommunications and of information technologies.

Each Regional Preparatory Meeting brings together the countries in its region to explore and discuss their needs and the present and future projects of the Sector.

- The next Regional Preparatory Meetings (RPMs) will be held in 2020 and 2021.
- With the aim of facilitating implementation of regional initiatives, a series of Regional Development Forums took place in 2018 as follows:
  - ITU Regional Development Forum for Africa took place on 19-20 July 2018 in Accra, Ghana.
  - ITU Regional Development Forum for the Arab States was held in Algiers, Algeria from 12 - 13 February 2018.
  - ITU Regional Development Forum for the Americas Region, took place on 25 May 2018 in Lima, Peru.
  - ITU Regional Development Forum for the Asia and the Pacific Region took place on 21-22 May 2018 in Bangkok, Thailand.
  - ITU Regional Development Forum for Europe took place on 11 June 2018 in Prague, Czech Republic.

2018 implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
D.1-6: Increased level of agreement on priority areas.	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A (RPMs are only dedicated to the preparation of WTDCs).</li> </ul>	<ul style="list-style-type: none"> <li>Level of agreement and consensus achieved on priority areas at the RPMs in preparation for WTDC.</li> </ul>	<ul style="list-style-type: none"> <li>One development conference or regional preparatory meeting per region to coordinate, at the regional level, the preparation for the World Telecommunication Development Conference (WTDC).</li> <li>Each Regional Preparatory Meeting brings together the countries in its region to explore and discuss their needs and the present and future projects of the Sector. The next Regional Preparatory Meetings (RPMs) will be held in 2020 and 2021.</li> </ul>
D.1-7: Assessment of the implementation of the Action Plan and of the WSIS Plan of Action.	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A (RPMs are only dedicated to the preparation of WTDCs).</li> </ul>	<ul style="list-style-type: none"> <li>Level of implementation for items in the Action Plan and the WSIS Plan of Action Level assessed (percentage) and reported on to the membership at the RPMs in preparation for WTDC.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen the platforms for regional coordination. RPFs hold a role as both a framework for implementation and as a contributor to the implementation of the WSIS Action Lines and SDGs.</li> <li>A series of ITU Regional Development Forums to facilitate implementation of Regional Initiatives, specific regional WSIS-SDG events fostering implementation and alignment of both processes, and contributions to UN Regional Forums on Sustainable Development.</li> <li>“ITU-D contribution to the implementation of the WSIS Outcomes and the 2030 Agenda for Sustainable Development,” introduced on behalf of the BDT Director, updated ITU-D activities in this area, taking into account the outcomes of WTDC-17 that agreed on</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
D.1-8: Identification of regional initiatives.	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A (RPMs are only dedicated to the preparation of WTDCs).</li> </ul>	<ul style="list-style-type: none"> <li>Number of regional initiatives, identified during RPMs for submission to WTDC.</li> </ul>	<p>ITU-D objectives, outcomes and outputs, and on ways these activities could contribute to achieving the Sustainable Development Goals (SDGs) and WSIS Action Lines (WSIS AL).</p> <ul style="list-style-type: none"> <li>The main purpose of the Regional Preparatory Meeting (RPM) is to engage the ITU members in the WTDC process early on and to consider, at the regional level, appropriate ICT development strategies.</li> </ul>
D.1-9: Increased number of contributions and proposals for the Action Plan.	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Number of contributions and proposals for the Action Plan received by the RPMs and WTDC, and percentage of countries in the region involved in the preparatory process.</li> </ul>	<ul style="list-style-type: none"> <li>Regional Preparatory Meetings (RPMs) seek to identify priority areas and related initiatives, projects, Study Group Questions that need to be addressed to foster the development of telecommunications and of information technologies.</li> </ul>

**RESULTS ASSESSMENT**

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Implementation of WTDC-17 decisions linked to RPMs outcomes for the 2018-2021 period.</li> </ul>	<p>N/A</p>	<ul style="list-style-type: none"> <li>Percentage of regional initiatives implemented in a timely manner and within available resources.</li> </ul>	<p>N/A</p>

**Threat and risk assessment**

Perspective	Risk reported	Impact reported	Mitigation implemented measures
<b>1. Finance</b>	Insufficient financial resources	High	<ul style="list-style-type: none"> <li>• Appropriate budget forecast prepared</li> <li>• Mobilize additional resources, if necessary</li> <li>• Appropriate host country agreement negotiated</li> </ul>
<b>2. Organizational matters</b>	Inaccurate forecasts	High	<ul style="list-style-type: none"> <li>• Appropriate forecasts prepared based on coordination and communication with the members</li> <li>• Lessons taken from historical data and experiences gained during similar events in the past</li> </ul>
<b>3. Organizational matters</b>	Failure to secure host country	High	<ul style="list-style-type: none"> <li>• Member States more engaged</li> <li>• Member States were encouraged to announce the host for the WTDC at the previous WTDC</li> </ul>
<b>4. Stakeholders/ Partners</b>	Delays in determining and agreeing on the dates and the venue, and the specification of requirements and/or programmes	Medium	<ul style="list-style-type: none"> <li>• Cooperation with regional telecommunication organizations ensured and improved, and members determined dates and venue well in advance of WTDC</li> </ul>

## Output 1.3

### Telecommunications Development Advisory Group (TDAG)

The role of the TDAG is to advise the Director of the Telecommunication Development Bureau (BDT) on the implementation of the WTDC Action Plan, including issues relating to the budget and the operational plan of the Telecommunication Development Bureau.

One TDAG meeting is held annually to maintain and strengthen cooperation among all ITU Member States and Telecommunication Development (ITU-D) Sector Members.

2018 implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
D.1-10: Enhanced review of priorities, programmes, operations, financial matters and strategies.	<ul style="list-style-type: none"> <li>TDAG, at its 2018 meeting, reviewed priorities, programmes, operations and other related questions.</li> </ul>	<ul style="list-style-type: none"> <li>TDAG meeting to review priorities, programmes, operations and other related questions.</li> </ul>	<ul style="list-style-type: none"> <li>Review of ITU-D priorities, programmes, operations, financial matters and strategies by TDAG implemented.</li> </ul>	<ul style="list-style-type: none"> <li>TDAG reviewed and provided advice to the Director, BDT on ITU-D priorities, programmes, operations, financial matters and strategies.</li> <li>A platform to review and implement the four-year rolling operational plan, the work of ITU-D Study Groups, Regional Initiatives, ITU-D led projects and other related activities.</li> </ul>
D.1-11: Work programme.	<ul style="list-style-type: none"> <li>TDAG, at its 2018 meeting, reviewed progress in the implementation of the established work programme/plan adopted by WTDC.</li> </ul>	<ul style="list-style-type: none"> <li>TDAG meeting to review progress in the implementation of the established work programme/plan adopted by WTDC.</li> </ul>	<ul style="list-style-type: none"> <li>Regular review by TDAG of progress in the implementation of the established work programme/plan adopted by WTDC conducted.</li> </ul>	<ul style="list-style-type: none"> <li>TDAG reviewed and provided advice to the Director, BDT on the progress in the implementation of the established work programme/plan adopted by WTDC.</li> <li>TDAG provides feedback on the World Telecommunication Development Conference (WTDC), including on the high level policy statements and the workload of the various committees</li> </ul>
D.1-12: Comprehensive preparation of progress report to the Director of BDT on the implementation of the work programme.	<ul style="list-style-type: none"> <li>Final report of 2018 TDAG meeting was prepared.</li> </ul>	<ul style="list-style-type: none"> <li>Report is prepared after each TDAG meeting.</li> <li>Report of TDAG to WTDC-21 is prepared in 2021.</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports to the BDT Director with advice on corrective action to be taken by BDT were delivered.</li> </ul>	<ul style="list-style-type: none"> <li>TDAG prepared the final report of its 2018 meeting with advice on action to be taken by BDT.</li> <li>TDAG called upon BDT to continue highlighting member's existing needs and circumstances, including infrastructure requirements, and how such needs could be addressed to strengthen ICTs as a cross-cutting tool to achieve the SDGs. Discussions also highlighted the need for continued reporting on BDT activities and participation in relevant forums related to the WSIS and SDG implementation, and the need to illustrate more explicitly the relevant links between outputs and</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
				<p>outcomes of BDT work with WSIS AL and SDGs as defined by WTDC-17. TDAG also underlined the importance of partnerships and collaboration with all stakeholders to achieve the objectives of the WSIS AL and to leverage ICTs for SDGs, while taking note of several activities of BDT undertaken in the regions, including a series of ITU Regional Development Forums to facilitate implementation of Regional Initiatives, specific regional WSIS-SDG events fostering implementation and alignment of both processes, and contributions to UN Regional Forums on Sustainable Development. TDAG noted the document with the various clarifications and additions provided.</p>

## RESULTS ASSESSMENT

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Preparation and organization of the 23rd meeting of TDAG and implementation of the recommendations and advice.</li> <li>Efficient support to the TDAG activities, including the TDAG meeting.</li> <li>Regional support to the TDAG activities, mainly the TDAG meetings.</li> </ul>	<ul style="list-style-type: none"> <li>TDAG Document (refer to PERFORMANCE REPORT 2018)</li> </ul>	<ul style="list-style-type: none"> <li>Number of BDT submissions timely prepared and distributed.</li> <li>Number of contributions from members, including their posting on the web timely processed.</li> <li>Dissemination of the final summary of the TDAG meeting within 30 days following completion of the meeting.</li> <li>Relevance of the contributions Received.</li> <li>Number of participants.</li> </ul>	<ul style="list-style-type: none"> <li>TDAG Document (refer to PERFORMANCE REPORT 2018)</li> </ul>

**Threat and risk assessment**

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1.Organizational matters</b>	Inaccurate forecasts	High	<ul style="list-style-type: none"> <li>• Appropriate budget forecast prepared</li> <li>• Mobilize additional resources, if necessary</li> <li>• Appropriate host country agreement negotiated</li> </ul>
<b>2. Stakeholders/ Partners</b>	Delayed contributions and inputs to the TDAG meetings	High	<ul style="list-style-type: none"> <li>• Information shared on the upcoming meetings and deadlines (as per Resolution 1 (Rev. Dubai, 2014) in a timely manner</li> <li>• Support provided to the members in order for them to prepare for the meetings and submit their contributions on time</li> </ul>
<b>3. Stakeholders/ Partners</b>	Low participation by members	High	<ul style="list-style-type: none"> <li>• Communication improved with regional telecommunication organizations and members to ensure their participation</li> </ul>

## Output 1.4

### Telecommunication Development Study Group Meetings

ITU-D study groups provide an opportunity for all Member States and Sector Members, Associates and Academia, to share experiences, present ideas, exchange views and achieve consensus on appropriate strategies to address ICT priorities. ITU-D study groups are responsible for developing reports, guidelines and Recommendations based on input received from the membership. Information is gathered through surveys, contributions and case studies, and is made available for easy access by the membership using content-management and web-publication tools.

Pursuant to WTDC Resolution 2 (Rev. Dubai, 2014), the scope of work for Study Group 1 is to study “Enabling environment for the development of telecommunications/ICTs”, and of Study Group 2 to study “ICT applications, cybersecurity, emergency telecommunications and climate-change adaptation”. The working procedures to be followed by the ITU-D study groups are set out in WTDC Resolution 1 (Rev. Dubai, 2014). Continuous efforts are made to mainstream gender equality and accessibility into the ITU-D Study Groups.

2018 implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.1-13: Enhanced knowledge-sharing and dialogue among Member States and Sector Members (including Associates and Academia) on emerging telecommunication/ICT issues for sustainable growth.</p>	<ul style="list-style-type: none"> <li>ITU-D Study Group work programmes executed in accordance with schedules, and information dissemination accomplished in a timely manner.</li> <li>ITU-D Study Group 1 and 2 initiated their work programmes for the 2018-2021 study period and held their first meetings following WTDC-17.</li> <li>The groups are well prepared and are on track to achieve the expected results.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive knowledge-sharing and dialogue among Member States and Sector Members, Associates and Academia on emerging telecommunication/ICT issues for sustainable growth.</li> </ul>	<ul style="list-style-type: none"> <li>Number of participants in ITU-D Study Group meetings and related activities.</li> <li>Number of contributions to ITU-D Study Groups received.</li> </ul>	<ul style="list-style-type: none"> <li>The annual ITU-D SG1 and ITU-D SG2 meetings each welcomed around 130 participants each from close to 60 countries. In addition, each of the rapporteur group meetings attracted between 50 and 80 participants, including remote participants.</li> <li>The study group meetings received close to 100 contributions each. Each block of rapporteur group meetings also received 100 contributions.</li> </ul>

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.1-14: Strengthened capacity of members to develop and implement ICT strategies and policies as well as to identify methods and approaches for the development and deployment of infrastructure and applications.</p>	<ul style="list-style-type: none"> <li>In addition to the regular study group and rapporteur group meetings in Geneva, synergies have been explored between study group topics, and workshops and seminars that were held in the regions.               <ul style="list-style-type: none"> <li>New collaborative platforms have been introduced, existing tools have been improved and new ways of working introduced to facilitate the work of the membership</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Provision of useful and value added services to the membership and strengthened capacity of members to develop and implement ICT strategies and policies.</li> </ul>	<ul style="list-style-type: none"> <li>Membership with strengthened capacity to develop and implement ICT strategies and policies and deploy infrastructure and applications.</li> </ul>	<ul style="list-style-type: none"> <li>11 focus sessions/workshops and capacity building sessions have been held on topics related to the Questions Insightful and useful information gathered during the sessions will contribute towards the development of possible annual deliverables.               <ul style="list-style-type: none"> <li>In 2018 synergies have been explored between study group topics, and workshops and seminars that were held in the regions. Positive examples can be seen from pilots conducted in Hungary, Mexico and Burkina Faso.                   <ul style="list-style-type: none"> <li>Sponsorship opportunities and other activities linked to the SG1 and SG2 work programmes have been organized to meet the diverse needs expressed by the members.</li> </ul> </li> </ul> </li> </ul>

**RESULTS ASSESSMENT**

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Expertise shared at Study Group meetings and Rapporteur Group meetings.</li> <li>Every region represented by at least 10 members (including remote participation).</li> <li>Work programmes prepared in response to Resolution 2 reviewed.</li> <li>Increased use of electronic tools to progress the work.</li> <li>Reports, guidelines, Recommendations agreed on.</li> </ul>	<ul style="list-style-type: none"> <li>41 distinct meetings were organized in Geneva and in the regions. The two ITU-D study groups successfully held their first meetings for the 2018-21 study period in April and May 2018 to launch the work items agreed by WTDC-17. Rapporteur group meetings were held in September and October 2018 together with 10 sessions/workshop on diverse topics.</li> <li>Workshops in the regions incorporated aspects of study groups to ensure the exchange of experiences and knowledge.</li> <li>Members face-to-face and remote participation in meetings and their contributions to the activities have been adequate to launch the work of the 14 study Questions.</li> <li>Existing electronic tools, like the collaborative exchange platform, CRM, remote participation platform, events desktop and mobile apps have been enhanced which facilitate active collaboration during and between meetings to progress the work.</li> <li>Associated events, sessions/workshops, exhibition, sponsorship opportunities, and other activities linked to the SG1 and SG2 work programmes have been organized to meet members' evolving needs.</li> </ul>	<ul style="list-style-type: none"> <li>Number of relevant contributions submitted to Study Group meetings and Rapporteur Group meetings.</li> <li>Level of participation of members (all regions represented)</li> <li>Relevant and timely review of work programmes undertaken in response to Resolution 2.</li> <li>Number of downloads/remote participants/use of online discussion fora compared to previous period.</li> <li>Timely and efficient production of deliverables with appropriate quality.</li> <li>Timely and efficient preparation of proposals to the new study period.</li> </ul>	<ul style="list-style-type: none"> <li>The annual ITU-D SG1 and ITU-D SG2 meetings each welcomed around 130 participants each from close to 60 countries. In addition, each of the rapporteur group meetings attracted between 50 and 80 participants, including remote participants, to their meetings.</li> <li>The study group meetings received close to 100 contributions each. The blocks of rapporteur group meetings also received around 100 contributions each.</li> <li>The use of collaborative tools to advance the work in between meetings has come to a good start in the new study period.</li> </ul>

Expected results (Ctn'd)	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>• Rapporteurs and vice-rapporteurs appointed for the new study Questions.</li> <li>• Work plans developed based on WTDC-17 decisions and made available.</li> <li>• Initial outlines of deliverables for the study period developed and agreed on.</li> </ul>	<ul style="list-style-type: none"> <li>• The first SG1 and SG2 meetings appointed rapporteurs and vice-rapporteurs for the new study Questions for the 2018-2021 study period.</li> <li>• The groups have initiated their work, developed and agreed on work plans, and have outlines/tables of content available for their draft deliverables for the study period. This includes plans for possible annual deliverables.</li> </ul>	<ul style="list-style-type: none"> <li>• Appointment of management team members.</li> <li>• Timely preparation of Work Plans.</li> </ul>	<ul style="list-style-type: none"> <li>• 139 rapporteurs and vice-rapporteurs appointed.</li> <li>• The first SG1 and SG2 meetings agreed on detailed work plans for the 14 study Questions and prepared preliminary draft outlines for the deliverables.</li> </ul>

**Threat and risk assessment**

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Finance</b>	Insufficient financial resources	High	<ul style="list-style-type: none"> <li>As the necessary financial resources were made available, the activities could be undertaken effectively</li> <li>Due to high demand, efficient allocation of limited resources for fellowships could enable further participation by LDCs and LICs</li> </ul>
<b>2. Organizational matters</b>	Inadequate level of support for processing documents, facilitating the Study Group process and the running of meetings	High	<ul style="list-style-type: none"> <li>As the necessary level of resources/support was made available for the meetings, the processing of documents, and the smooth running of the meetings could be ensured</li> </ul>
<b>3. Stakeholders/ Partners</b>	Limited number of contributions from the members to progress the work of the related Study Group Questions	High	<ul style="list-style-type: none"> <li>2018 saw an adequate level of contributions from the membership to initiate the work of the related Study Group Questions and topics under study for the 2018-2021 study period</li> </ul>
<b>4. Stakeholders/ Partners</b>	Low or limited participation by the membership in the work of the related Study Group Questions	High	<ul style="list-style-type: none"> <li>Adequate participation in the meetings, including by remote participants and using online tools in between meetings allowed the groups to initiate their work for the study cycle</li> </ul>

## Objective 2

### Foster an enabling environment for ICT development and foster the development of telecommunication/ICT networks as well as relevant applications and services, including bridging the standardization gap

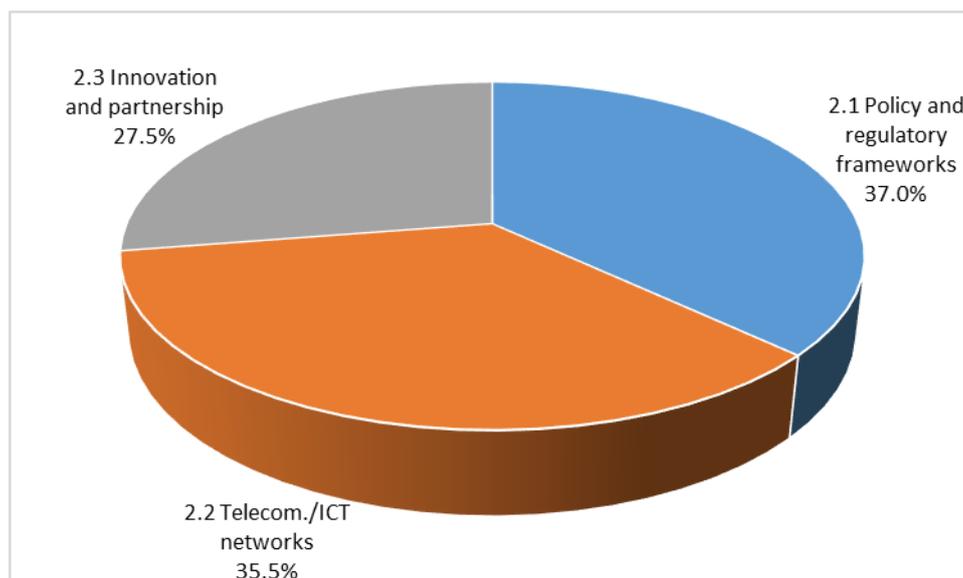
#### Summary

Objective 2 includes the following outputs:

- Policy and regulatory frameworks.
- Telecommunication/ICT networks, including conformance and interoperability and bridging the standardization gap.
- Innovation and partnership.

For 2018, the actual human resources allocated to objective 2 represent **27.5 per cent** of the total human resources of the Telecommunication Development Bureau.

Chart 4 illustrates the breakdown of the actual allocation of human resources among the three outputs of objective 2.



## Output 2.1

### Policy and regulatory frameworks

The ICT sector is experiencing tremendous change. With the ever-escalating global demand for ubiquitous, always-on, rapid and easy access to data and applications, led by the deployment of broadband networks that facilitate convergence of information, communications and broadcasting, the way in which services are delivered to and accessed by consumers has radically changed. Communications no longer just connect people: the Internet of Things (IoT) is fast becoming a reality.

In evolving towards a digital economy, ICTs, and in particular broadband, are increasingly recognized as critical to social and economic growth and competitiveness of countries. Therefore, a sound and clear policy and regulatory environment is needed to ensure that all can benefit from ICT services.

An enabling environment must take into consideration all areas that have an impact on the spread and uptake of ICTs, including the elaboration, implementation and review of national ICT policies, plans and guidelines. Regulators need to continue to be kept informed of current costing issues, as well as financial mechanisms and economic modelling, in order to be able to measure the impact and implications for a national competitive environment. In the midst of the profusion of services and platforms, regulators and policy-makers need to continue to pay attention to fostering infrastructure development, investment in high-speed networks, innovation and efficient use of scarce resources, while at the same time focusing increasingly on consumer protection (privacy, data protection, etc.) and ensuring affordable access for all to ICTs and the digital economy.

## 2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.2-1: Enhanced dialogue and cooperation among national regulators, policy-makers and other telecommunication/ICT stakeholders on topical policy, legal and regulatory issues to help countries achieve their goals of creating a more inclusive information society.</p>	<ul style="list-style-type: none"> <li>Successful 18th edition of the Global symposium for regulators (GSR-18) was held in Geneva from 9 to 12 July. The theme of GSR-18 was: New Regulatory Frontiers.</li> <li>Regional Economic Dialogues (RED) were held to enhance strategic dialogue on economic and financial issues across the sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Successful GSR to enhance regulatory collaboration across the sectors and provide membership with the platform to discuss upcoming regulatory and policy issues – target 600 participants.</li> <li>Enhanced Regional Economic Dialogues to enhance strategic dialogue on economic and financial issues across the sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Number of participants in face-to-face events on economic, policy, legal and regulatory issues, including the Global symposium for regulators (GSR).</li> </ul>	<ul style="list-style-type: none"> <li>GSR-18 attracted over 600 participants including government ministers, heads of regulatory agencies and C-level industry executives from more than 125 countries.</li> <li>176 delegates from 14 countries participated in the RED in the Americas.</li> <li>176 delegates from 14 countries participated in the RED in Africa.</li> <li>75 delegates from 23 countries, consumer associations, regional and international organizations, attended RED-AFR.</li> </ul>

<p><b>Outcomes</b></p> <p>D.2-2: Improved decision-making on policy and regulatory issues and conducive policy, legal and regulatory environment for the ICT sector.</p>	<p><b>2018 achievements</b></p> <ul style="list-style-type: none"> <li>Improved tools for evidence-based decision-making made available to Membership including ITU web portals on <a href="#">International Mobile Roaming (IMR) Resources</a>, <a href="#">Quality of Service</a>, <a href="#">the Digital Ecosystem</a>, <a href="#">Infrastructure Development</a> and a <a href="#">Regional Regulatory Associations Portal</a> as well as publications on topical regulatory and market environment issues, including on 5G; <a href="#">Regulatory challenges and opportunities in the new ICT ecosystem</a>; Digital Identity Roadmap and Paper; Empowering the Digital Economy; <a href="#">Maximizing Availability of international connectivity in the Pacific</a>, <a href="#">global and regional studies on the economic contribution of broadband</a>, <a href="#">digitization and ICT regulation</a> and a series of <a href="#">discussion papers on AI for Development</a>.</li> </ul> <p>Key regulatory and tariff data gathered, analyzed and published to facilitate evidence-based decision making through ICT Regulatory Tracker, ICT Eye, and relevant reports</p>	<p><b>Target 2020</b></p> <ul style="list-style-type: none"> <li>Improved collaboration and tools for evidence-based decision-making made available to Membership by sharing data, research, and analysis and publications on cutting-edge policy, regulatory, and economic issues. <ul style="list-style-type: none"> <li>Enhanced Knowledge-exchange tools and platforms to facilitate access to data.</li> <li>Gathering and Publishing key regulatory and tariff data to facilitate evidence-based decision-making.</li> </ul> </li> </ul>	<p><b>Outcome indicators</b></p> <ul style="list-style-type: none"> <li>Number of countries with improved capacity to take policy and regulatory decisions to create an enabling environment for ICT development <ul style="list-style-type: none"> <li>Number of active users benefitting from online platforms for knowledge and information exchange on policy, legal and regulatory issues..</li> </ul> </li> </ul>	<p><b>2018 measurement of the outcome indicators</b></p> <ul style="list-style-type: none"> <li>Timely update and publication of ICT Regulatory Tracker.</li> <li>Successful consultation and adoption of GSR Best Practice Guidelines.</li> <li>Timely publication of topical GSR discussion papers, as well as regulatory and economic reports. ICT Eye pages viewed, 2018: 541 612.</li> <li>ITU World Telecommunication/ICT Regulatory Survey 2018 response rate: 69%.</li> </ul>
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## RESULTS ASSESSMENT

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>At least 10% additional Member States to have institutional, policy, legal and regulatory framework in place for the ICT sector so as to foster affordable access, inclusion, and trust in a smart connected society.</li> <li>At least 10% additional Member States have guidelines in place to build the foundation for collaborative regulation at national, regional and global level.</li> <li>Situation analysis conducted awareness increased, dialogue fostered, and guidelines prepared on specific topics to foster digital empowerment of institutions, business and consumers in a smart connected society.</li> <li>Countries supported on Specific topics.</li> </ul>	<ul style="list-style-type: none"> <li>GSR Best Practice Guidelines adopted.</li> <li>Capacity Building Programme on Quadplay: Costing and Pricing of Infrastructure Access for the Arab States region organized in Morocco attracting.</li> <li>Interactive Session for WSIS Action Line C6 (Enabling Environment) held on Sharing Collaborative Regulatory Approaches for Digital Transformation, highlighting cooperation at the international, regional and national level, and sharing experiences, best practices and tools for digital transformation.</li> <li>Project to harness the potential of Information and Communication Technologies (ICTs) to strengthen Digital Financial Services (DFS) and Digital Financial Inclusion (DFI) initiated in China, Egypt and Mexico.</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of Member States supported over the 4-year period.</li> <li>Response rate to the annual questionnaires to members.</li> <li>Publications, reports, studies prepared, guidelines adopted, and events organized on specific topics.</li> </ul>	<ul style="list-style-type: none"> <li>More than 60 participants representing 18 Member States and private sector entities and other national organizations, and members of Academia trained on Quadplay costing.</li> <li>Successful Interactive Session for WSIS Action Line C6 held on Sharing Collaborative Regulatory Approaches for Digital Transformation.</li> <li>More than 40 Arab and African participants were trained on telecommunication numbering planning trends, numbering policies and the impact and implication of National Numbering Plan implementation.</li> <li>Presentation on collaborative regulation provided at annual FRATEL meeting addressing more than 160 participants representing 32 members of the francophone network of telecommunications regulation, international institutions, Governments and other stakeholders.</li> </ul>

Expected results (Ctn'd)		2018 achieved results	<ul style="list-style-type: none"> <li>• Training on telecom numbering planning trends, numbering policies and the impact and implication of National Numbering Plan implementation for Arab and Africa states.</li> <li>• Training provided in collaboration with the Government of India about the emerging digital landscape and regulatory framework in which digital payments operate as well as the new market participants and products that have disrupted the market.</li> <li>• Assistance provided to Comoros on cost modeling.</li> </ul>	Performance Indicators		2018 Performance data
		<ul style="list-style-type: none"> <li>• Training on telecom numbering planning trends, numbering policies and the impact and implication of National Numbering Plan implementation for Arab and Africa states.</li> <li>• Training provided in collaboration with the Government of India about the emerging digital landscape and regulatory framework in which digital payments operate as well as the new market participants and products that have disrupted the market.</li> <li>• Assistance provided to Comoros on cost modeling.</li> </ul>				<ul style="list-style-type: none"> <li>• 75 delegates from 23 countries, consumer associations, regional and international organizations, attended RED-AFR and the associated training on price and costing of digital/quadplay services in Burkina Faso.</li> <li>• 30 participants benefited from the training workshop held in Comoros, in which the different approaches for setting interconnection tariffs were presented in addition to the cost modeling methods and their characteristics.</li> </ul>

## Threat and risk assessment

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Finance</b>	Lack of resources to provide the appropriate support level in case of high demand from countries	Medium	<ul style="list-style-type: none"> <li>Prepared an appropriate budget forecast and sought additional resources</li> </ul>
<b>2. Competency/ Knowledge</b>	Lack of qualified experts in the domains concerned	Medium	<ul style="list-style-type: none"> <li>Anticipated the resources requirements and initiated recruitment procedures as soon as possible</li> <li>Kept up-to-date and expanded the roster of experts</li> </ul>
<b>3. Stakeholders/ Partners</b>	Insufficient commitment of countries and/or at local level	Medium	<ul style="list-style-type: none"> <li>Ensured and constantly improved cooperation with countries so as to guarantee appropriate level of involvement by countries and/or at the local level</li> </ul>

### Output 2.2

#### Telecommunication/ICT networks, including conformance and interoperability and bridging the standardization gap

Infrastructure is central for enabling universal, sustainable, ubiquitous and affordable access to ICTs and services for all.

The ICT sector is characterized by rapid technological change, and by convergence of technological platforms for telecommunications, information delivery, broadcasting and computing. The deployment of common broadband technology and network infrastructures for multiple telecommunication services and applications and the evolution to all IP-based wireless and wired next-generation networks (NGNs) and their evolutions open up opportunities but also imply significant challenges for developing countries.

The rapid deployment of wireless and mobile technologies indicates the growing importance of radio spectrum management and the role it plays in the socio-economic development of countries.

Also notable is the worldwide transition from analogue to digital broadcasting, enabling more efficient use of spectrum and higher quality audio and video delivery.

Conformity with international standards and interoperability, i.e. the ability of equipment from different vendors to successfully communicate between them, can help avoid costly market battles over different technologies. Availability of high-performing and interoperable products accelerates widespread deployment of infrastructure, technologies and associated services, granting people access to the information society regardless of location or choice of device. Increasing the knowledge and capacity of developing countries for the effective application/implementation of standards (Recommendations) developed in ITU T and ITU R is fundamental for bridging the standardization gap.

## 2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.2-3 Enhanced awareness and capability of countries to enable planning, deployment, operation and maintenance of sustainable, accessible and resilient ICT networks and services, including broadband infrastructure, and improved knowledge of available broadband transmission infrastructure worldwide.</p>	<ul style="list-style-type: none"> <li>IPv6 and IoT (Internet of Things) Expertise Centre: The Project document signed with MUST (Malaysia University of Science and Technology) to assist developing countries.</li> <li>Development of a Guide on the implementation of IoT in the Immigration processes for developing countries.</li> <li>Broadband Wireless Network for Djibouti completed for Phase 2 and the maintenance contract finalized and signed by Djibouti Telecom.</li> <li>Procurement for the Broadband Wireless Network in Mali is in progress. The international call for Proposals has been done. The technical evaluation is following.</li> </ul>	<ul style="list-style-type: none"> <li>Providing and maintaining ITU interactive Terrestrial Transmission Maps through the ITU web.</li> <li>Support provided to developing countries to plan, deploy, operate and maintain sustainable, accessible and resilient ICT networks and services, including broadband wireless and wire-line infrastructure, especially to Rural and Remote areas.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries with improved capability of planning and operating ICT networks and services.</li> <li>Number of countries with Broadband Master Plan developed.</li> </ul>	<ul style="list-style-type: none"> <li>More than 50 countries participated in capacity building workshops, trainings.</li> <li>Five (5) countries were assisted in Broadband development.</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<ul style="list-style-type: none"> <li>Analyzing the new access technology “Li-Fi” (Light Fidelity / Optical access Technology) evaluated for developing countries in particular on GigaHotspots (out / in Door). Li-Fi uses visible light, Ultraviolet and Infrared: The spectrum is very large as compared to the entire radio frequency spectrum.</li> <li>Implementation and update the ITU Broadband Maps with information obtained from administrations, regulators, operators, and public sources (<a href="http://itu.int/go/Maps">http://itu.int/go/Maps</a>). At the time of this reporting, the map presents information from 443 operator networks and 22 413 nodes worldwide. The research on the transmission links has reached 13 726 736 km of routes, representing 3 546 379 km of networks imported to the map.</li> <li>Graphical interface improvement is ongoing.</li> <li>Support Suriname to define the National IXP model. This activity is organized with the Telecommunicatie Autoriteit Suriname (TAS).</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<p>All stakeholder of Suriname have chosen a non-profit model for the national IXP. The final report has been delivered. Act to elect the temporary executive committee to be signed in order to start the legal implementation of the national IXP for Suriname. In 2019, they will implement it physically at a local Data Centre as the host.</p> <ul style="list-style-type: none"> <li>● Held Regional Workshop “Broadband Development based on 4G and 5G Technologies”, Almaty, Republic of Kazakhstan, 17 and 18 September, attended by 93 participants from 18 countries.</li> <li>● Burkina Faso: Proposals evaluation in process for e-school.</li> <li>● Eswatini: Installation the supplied equipment in Eswatini by Huawei.</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.2-4 Enhanced awareness and capability of countries to participate in and contribute to the development and deployment of ITU Recommendations and put in place sustainable and appropriate conformance and interoperability programmes, on the basis of ITU Recommendations, at national, regional and subregional levels by promoting the establishment of mutual recognition agreement (MRA) regimes and/or building testing labs, as appropriate.</p>	<ul style="list-style-type: none"> <li>Forum on the Conformance and Interoperability (C&amp;I) in Innovation for Youths (25-27 June 2018) and a workshop on Establishing a Mutual Recognition Agreement (MRA) for the Caribbean Countries (28-29 June 2018) were held in Port-of- Spain, Trinidad and Tobago. These events highlighted the importance of C&amp;I for young IoT developers and served as forums for the discussion of the implementation of a MRA for the CARICOM region. Follow-up of the event is ongoing with the Virtual Testing exercise took place in December 2018.</li> <li>Training on Conformance and Interoperability (C&amp;I) for the Americas Region. Coordination is ongoing with countries of the Americas region to achieve a final design on the activity to be implemented.</li> </ul>		<ul style="list-style-type: none"> <li>Number of countries that implement projects for establishing Conformance and Interoperability (C&amp;I) national, regional, and subregional programmes</li> </ul>	<ul style="list-style-type: none"> <li>More than 30 countries are involved in projects, regional and subregional programmes for C&amp;I.</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<ul style="list-style-type: none"> <li>● Ongoing study on</li> <li>● "Interconnectivity &amp; Reduction of telecommunication service prices and Internet access cost" for South America countries. Ongoing coordination with ASETA and beneficiary countries for the development of the study, which is focused on the sub-region of Andean countries: Colombia, Ecuador, Peru and Bolivia. This study is meant to determine the situation of international interconnectivity and to describe the reasons for the Internet access cost in the sub-region. Additionally, it will foster international interconnectivity between the countries.</li> <li>● Increased capacity and facilitated knowledge</li> <li>● exchange in the CIS on Mobile Number Portability, Conformance and Interoperability Testing of</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<ul style="list-style-type: none"> <li>● Telecommunication Equipment at the ITU Regional Workshop, held on 1-2 March in Moscow, Russian Federation and attended by 60 participants from 5 countries.</li> <li>● Raised skill sets of over 50 participants from countries across the Asia-Pacific and Africa and built hands on practical capacity in actual testing environment through visit to the Test Lab of SAICT, Shenzhen under ITU Asia-Pacific centre of excellence training on conformity and interoperability 10 to 14 September 2018, Shenzhen, China.</li> <li>● 15 participants from Algeria trained to C&amp;I Testing Regime and to technical and regulatory requirements for ICT equipment authorization. Different types of C&amp;I Labs, the process for building C&amp;I Lab and cost estimates presented and discussed.</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.2-5 Enhanced awareness and capability of countries in the fields of frequency planning and assignment, spectrum management and radio monitoring, in efficient utilization of tools for managing the spectrum and in measurement and regulation related to human exposure to electromagnetic fields (EMF).</p>	<ul style="list-style-type: none"> <li>• C&amp;I and EMF Assessment Study for ECOWAS is on going. Assistance provided to Bahrain on type approval issues.</li> <li>• Within the “Basic National spectrum management Project”, to assist developing countries to establish basic structure of spectrum management system. Comoros, Bolivia and Kyrgyzstan were assisted. The results of the assistance is workplan for countries for implementing/updating their spectrum management structures and activities.</li> <li>• As a part of Technical assistance to Indonesia on The Radio Frequency usage for Small Vessel used for fishing activity, a national workshop was conducted in April 2018 on developing regulations for Maritime wireless communication with 75</li> </ul>	<ul style="list-style-type: none"> <li>• Most of the Member States have NTFA, have spectrum management strategy or masterplan or using SMS4DC and 70% of the ITU Member States have regional cross-border frequency coordination agreement.</li> <li>• Awareness increased and guidelines prepared on broadcasting and spectrum.</li> <li>• Countries supported on spectrum management and broadcasting topics</li> </ul>	<ul style="list-style-type: none"> <li>• Number of countries with increased capacity in the area of frequency planning and spectrum management and measurement and regulation related to human exposure to (EMF).</li> <li>• Number of countries with Spectrum management Master Plans finalized.</li> </ul>	<ul style="list-style-type: none"> <li>• 8 countries were assisted in operation and installation of the SMS4DC software and on higher resolution map.</li> <li>• More than 70 countries participated in capacity building workshops, trainings.</li> <li>• 3 countries were assisted in developing workplan for implementing/updating their spectrum management structures and activities.</li> <li>• Enhanced capacity of more than 200 professionals on issues related to spectrum management and valuation in the Arab States region.</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<p>participants from over 15 organizations.</p> <ul style="list-style-type: none"> <li>Caribbean Spectrum Management Task Force: 31 January to 2 February 2018 for around 30 participants from Caribbean countries provided contributions on the relevant reports of the Task Force (digital broadcasting transition, cross-border frequency coordination, emergency communication, spectrum pricing).</li> <li>Spectrum management and digital transition: ITU provided assistance to Guyana in relation to the Spectrum Management Technical Assistance Services as well as Spectrum Management Spectrum Management Training Workshop.</li> <li>Project to contribute to the MinTIC in the development of a diagnosis and audit of the Spectrum Allocation by Objective Selection process in order to strengthen the</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<p>management, analysis, administration, planning and allocation of the radio spectrum within the framework of the integrated management model of the ICT Ministry.</p> <ul style="list-style-type: none"> <li>• Project for technical assistance for the validation and improvement of Spectrum Assignment processes for IMT (International Mobile Telecommunications) bands in Colombia.</li> <li>• Raised awareness on spectrum policy, spectrum regulation, spectrum pricing methodologies and spectrum management for staff of the Sudan National Telecommunication and Postal Regulatory Authority during a national training workshop organized in Khartoum 9-13 of March. The workshop also validated the spectrum-pricing framework.</li> <li>• Organized "ITU Asia</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<p>Pacific Centre of Excellence (CoE) Training on Monitoring RF spectrum in modern Wireless era from 16 to 20 April 2018 involving 3 participants from 13 countries and 4 exhibitors.</p> <ul style="list-style-type: none"> <li>The 4th Annual Middle East and North Africa Spectrum Management Conference 2018 and the ITU Regional Workshop on the Future Utilization of UHF Band in the Arab States region, held in Marrakech, Morocco, on 12 April 2018.</li> <li>Workshop in Budapest for Central-Eastern European and CIS countries on 5G implementation, more than 100 participants from around 20 countries (03/07/2018-05/07/2018: 5G Implementation in Europe and CIS: Strategies and Policies Enabling New Growth Opportunities.</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<ul style="list-style-type: none"> <li>● Twinning assistance to Albania from Hungary on spectrum management strategy and procedures.</li> <li>● 2nd Annual CIS and Central and South-Eastern European Spectrum Management Conference and ITU Regional Workshop “Broadband Development based on 4G and 5G Technologies” (Almaty, Kazakhstan, 17-20 September 2018). More than 50 participants from around 15 countries.</li> <li>● Regional Workshop for Europe and CIS on Digital Future powered by 4G/5G was held in Kiev, Ukraine from 14 to 16 May resulting in raised capacity of stakeholders and improved regional and interregional cooperation on 4G/5G, spectrum management and broadcasting. The workshop attracted 100 participants from 12 countries.</li> <li>● Raised capacity of</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
	<p>stakeholders on satellite communication. Improved cooperation between satellite operators at the ITU Regional Workshop held in Minsk, Belarus from 22 to 23 May. The workshop was attended by 40 participants from 6 countries.</p> <ul style="list-style-type: none"> <li>The "5th Annual Latin America Spectrum Management Conference" &amp; a "Workshop on Spectrum and Community Networks" with Forum Global. 167 registered participants coming from 16 different countries (12 from Latin America). Both events raised all stakeholder capacity to understand the importance of managing efficiently spectrum resources. Visibility of community networks increased as a feasible alternative to connect the unconnected.</li> <li>Further developments to Spectrum Management System for Developing Countries (SMS4DC) software is under upgrade process in two parts, administrative function and radio communication function. Installation USB is</li> </ul>			

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
D.2-6 Enhanced awareness and capability of countries in the transition from analogue to digital broadcasting and in post-transition activities, and effectiveness of	<p>available now for replacing/adding to CD.</p> <ul style="list-style-type: none"> <li>• C&amp;I and EMF Assessment Study for ECOWAS is on going.</li> <li>• Digital Dividend report is updated in cooperation with BR.</li> <li>• The ITU Arab Regional Workshop on “Furthering IMT Development: Policy, Spectrum Valuation and Auctions” in the Arab States region, held in Riyadh, Saudi Arabia, from 18 to 19 December 2018 enhanced on the best practices in spectrum valuation and applying market-based mechanisms for spectrum awards, and shared the specific case studies and experiences regarding conduct of recent IMT spectrum auctions as well as applying administrative spectrum pricing.</li> <li>• ITU-D and ITU-R have completed the exercise on Frequency Coordination for Central America and Caribbean Region.</li> <li>• Digital broadcasting transition: A digital switch-over database was updated based on</li> </ul>	<ul style="list-style-type: none"> <li>• Most of the ITU Member States have switched off analogue terrestrial television broadcasting and 5% of the countries started the implementation of digital radio.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of countries that implemented projects on the transition from analogue to digital broadcasting.</li> </ul>	<ul style="list-style-type: none"> <li>• More than 15 countries were assisted in frequency replanning and in the partial implementation</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>implementation of the guidelines prepared.</p>	<p>information from around 10 countries.</p> <ul style="list-style-type: none"> <li>● Project to support and cooperate with the Ministry of Communications and Transportation MinTIC – Colombia: (i) updating of National Technical Plans of Radio Broadcasting; (ii) to define the technological strategy for the new AM and FM broadcasting (iii) new technologies for broadcasting; (iv) manual of good practices for assembly of radio stations; (v) to the technical specification of a web tool for management and control of the PTNRS and the radio broadcasting concessionaires; as well as (vi) training and socialization activities.</li> <li>● ITU Workshop on The Future of Cable TV was jointly organized by ITU-D and ITU-T on 24-25 January 2018 in Geneva, Switzerland. Discussion paper prepared.</li> </ul>	<ul style="list-style-type: none"> <li>● Countries supported on spectrum management and broadcasting topics.</li> </ul>		

Outcomes (Ctn'd)		2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
		<ul style="list-style-type: none"> <li>In Comoros, the second phase of the assistance run in Moroni on 16-20 April 2018, where a series of training on radio spectrum and a workshop on Analogue to Digital Transition (A-D Transition).</li> <li>Digital Dividend report is updated in cooperation with BR.</li> </ul>			

**RESULTS ASSESSMENT**

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Assessment study on C&amp;I conducted at regional/subregional level.</li> <li>Providing and maintaining ITU Interactive Terrestrial Transmission Maps through the ITU web.</li> <li>Improvement of the capacity of developing countries to put in place a sustainable and appropriate Conformance and Interoperability Regime at national, Regional and Sub-regional levels, through implementation of training activities in the premises of Testing Labs, direct assistance promoting the establishment of MIRAs regimes and/or building Testing labs as appropriate, Regional Forums and Seminars, implementation of projects and development of guideline and tools.</li> <li>Support provided to developing Countries to plan, deploy, operate and maintain sustainable, accessible and resilient ICT networks and services, including broadband wireless and wire-line infrastructure, especially to Rural and Remote areas.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing study on "interconnectivity &amp; Reduction of telecommunication service prices and Internet access cost" for South America country/countries.</li> <li>Implementation and update the ITU Broadband Maps.</li> <li>More than 30 countries are involved in projects, regional and subregional programmes for C&amp;I.</li> <li>More than 50 countries participated in capacity building workshops, trainings.</li> <li>Five (5) countries were assisted in Broadband development.</li> </ul>	<ul style="list-style-type: none"> <li>Studies conducted for assessing the status of implementation of the C&amp;I programmes and testing laboratories in place in all Regions.</li> <li>Training Activities on C&amp;I conducted for all Regions.</li> <li>Number of countries supported for implementing C&amp;I programmes</li> <li>Number of publications, reports, studies prepared on specific topics.</li> <li>ITU Interactive (Optical Fibers Microwaves and Satellite) Transmission Maps covering all Regions and made available through the ITU web.</li> <li>Number of communities, and disadvantaged groups, in developing countries connected to broadband.</li> <li>Number of countries without Digital terrestrial television broadcasting.</li> <li>Number of countries without NTFA.</li> <li>Roadmaps, case studies, guidelines and reports prepared for digital broadcasting implementation and spectrum management related topics.</li> <li>Percentage of Member States Supported.</li> </ul>	<ul style="list-style-type: none"> <li>More than 30 countries are involved in projects, regional and subregional programmes for C&amp;I.</li> <li>Implementation and update the ITU Broadband Maps with information obtained from administrations, regulators, operators, and public sources (<a href="http://itu.int/go/Maps">http://itu.int/go/Maps</a>). At the time of this reporting, the map presents information from 443 operator networks and 21 806 nodes worldwide. The research on the transmission links has reached 13 726 736 km of routes, representing 3 546 379 km of networks imported to the map.</li> <li>Around 40 countries have not started yet the transition to digital terrestrial television broadcasting.</li> <li>More than 50 countries were assisted on spectrum management, broadcasting, broadband, IPv6, IXP, C&amp;I issues.</li> <li>More than 50 countries are using SMS4DC.</li> <li>Training workshop provided on Analogue to Digital Transition (A-D Transition) to Comoros.</li> </ul>

Expected results (Ctn'd)	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Enhancement of knowledge and Effective application of ITU Recommendations in developing countries, including conformance and interoperability (C&amp;I) testing of systems manufactured on the basis of ITU Recommendations.</li> <li>Most of the ITU Member States Have digital terrestrial television broadcasting.</li> <li>Most of the Member States have NTFA, have spectrum management strategy or masterplan or using SMS4DC.</li> <li>Awareness increased and Guidelines prepared on broadcasting and spectrum management topics.</li> <li>Countries supported on Spectrum management and broadcasting topics.</li> </ul>	<ul style="list-style-type: none"> <li>More than 150 countries implemented or started to implement Digital television.</li> <li>More than 70 countries participated in capacity building workshops, trainings on spectrum management.</li> <li>Three (3) countries were assisted in developing workplan for implementing/updating their spectrum management structures and activities.</li> <li>C&amp;I and EMF Assessment Study for ECOWAS is on going.</li> <li>Digital Dividend report is updated in cooperation with BR.</li> <li>More than 15 countries were assisted in frequency replanning and in the partial implementation.</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of Member States using SMS4DC.</li> </ul>	

### Threat and risk assessment

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Assistance to members</b>	Lack of funding to assist members	Medium	<ul style="list-style-type: none"> <li>Discussions with members, administrations for resources mobilization</li> </ul>
<b>2. Finance</b>	Lack of resources to provide the appropriate support level in case of high demand from countries	Medium	<ul style="list-style-type: none"> <li>Appropriate budget forecast to be prepared</li> <li>Mobilization of additional/extra-budgetary resources when required</li> </ul>
<b>3. Competency/ Knowledge</b>	Lack of qualified experts in the field of activity	High	<ul style="list-style-type: none"> <li>Anticipate the resources requirements and initiate recruitment procedures as soon as possible</li> <li>Create and keep up-to-date a roster for experts</li> </ul>
<b>4. Stakeholders/ Partners</b>	Insufficient commitment by countries	High	<ul style="list-style-type: none"> <li>Ensure and improve cooperation with countries so as to guarantee appropriate level of involvement by countries</li> </ul>

## Output 2.3 Innovation and partnership

The national ability of rapid innovation is seen as the key factor for facilitating the overall competitiveness of countries in a globally interconnected world of ICT-based services especially through strategic partnerships including public-private partnership (PPP) particularly with engagement of ITU-D membership in order to mobilize resources and roll out capital-intensive telecommunication/ICT environment from policy-regulatory frameworks, infrastructure, to various innovative applications.

Thus, there are strong needs to support both the Objectives with Outputs of ITU-D Sector adopted at the WTDC-14 as well as the ITU-D membership through innovation and partnerships in, *inter alia*, a) developing policy-coherent approaches and

guidelines to ICT innovation, based on best practices, to be integrated into national development agendas; b) developing internationally comparable measurement of ICT innovation capabilities at national levels; c) fostering ICT innovation in the public sector at all levels of government to enhance the delivery of public services, improve efficiency, coverage and equity, and create positive externalities in the rest of the economy; d) undertaking initiatives that support entrepreneurship and the start-up and expansion of new ICT firms; and e) developing cooperation and partnerships among developed and developing countries and other organizations, to encourage and support innovation and creativity methodologies, mobilize resources, and adopt cost-effective ICT solutions.

2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.2-7 Strengthened capacity of members to integrate telecommunication/ICT innovation in national development agendas.</p>	<ul style="list-style-type: none"> <li>One (1) regional innovation forum held in Oslo, Norway.</li> <li>One (1) Young ICT leaders Forum held in Busan, Republic of Korea.</li> <li>Three (3) digital innovation profiles published (Bosnia and Herzegovina, Serbia, South Africa).</li> <li>Four (4) draft innovation assessments under review by concerned countries.</li> <li>Seven (7) national workshop held to evaluate innovation ecosystems in four countries (Zimbabwe, Thailand, Montenegro, and South Africa).</li> <li>One good practice report published for Europe.</li> <li>Six (6) innovation dialogues for knowledge sharing held at WSIS and ITU telecom.</li> <li>Two (2) high level panels On ICT centric innovation and digital transformation held at WSIS and ITU telecom.</li> <li>Two (2) partnerships further strengthened with GMIS and UNIDO via key joint activities in Vienna and at ITU Telecom.</li> <li>One (1) toolkit revised and published in six languages of the UN.</li> </ul>	<ul style="list-style-type: none"> <li>Increase the number of countries with strengthened capacity on telecommunication/ICT innovation.</li> <li>Increase the number of initiatives and projects fostering innovation signed and implemented.</li> <li>Increase the number of stakeholders trained and certified on skills to build ICT centric innovation ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries with strengthened capacity on telecommunication/ICT innovation.</li> <li>Number of initiatives and projects fostering innovation signed and implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Technical assistance on innovation assessments provided to Serbia, Bosnia and Herzegovina, the Former Yugoslav Republic of Macedonia, Thailand, South Africa, Zimbabwe, Republic of Moldova, Montenegro.</li> <li>Innovation capacity building delivered where over 100 participations from over 54 countries were trained and certified with skills to build ICT centric innovation ecosystems.</li> <li>Two (2) innovation projects worth over USD 390 000 secured to build innovation capacity of eight countries, and develop an innovation centre for south Africa secured.</li> </ul>

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.2-8 Enhanced public-private partnership to foster the development of telecommunications /ICTs.</p>	<ul style="list-style-type: none"> <li>Partnership to foster the development of telecommunications/ICTs enhanced.</li> <li>New partnership agreements signed with various stakeholders from the ICT ecosystem.</li> <li>Sponsorship opportunities opened for side and social events at the occasion of BDT organized events (ITU-D Study Group meetings, ICT 4SDGs: ITU-Academia Partnership Platform, GSR-18 and ITU-D Study Group Rapporteur Group meetings).</li> </ul>	<ul style="list-style-type: none"> <li>New partnerships agreements signed with various stakeholders from the ICT ecosystem to foster telecommunications/ICTs development.</li> </ul>	<ul style="list-style-type: none"> <li>Number of strategic partnerships including PPP signed and implemented to foster the development of telecommunication/ICT networks as well as relevant applications and services.</li> <li>Number of projects to foster the development of telecommunications/ICT signed and implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Thirty-eight (38) new partnership agreements signed with various stakeholders from the ICT ecosystem; on enabling environment (13), on infrastructure (6), on capacity building, cybersecurity and multi-thematic (4 each), on emergency, ICT-applications and e-waste (2 each) and on digital inclusion (1). Beneficiary regions are Global (19), Americas and Asia-Pacific (5 each), Africa (4), Arab States (3) and Europe and CIS region (1 each).</li> </ul>

**RESULTS ASSESSMENT**

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Enhanced toolkits to build and increase countries innovation capacity.</li> <li>Assessments and guidelines Provided to strengthen ICT-centric innovation ecosystem.</li> <li>Enhanced tools for partnerships, resource mobilization and membership (e.g. partnership and sponsorship opportunities websites, membershipportal etc.).</li> <li>New partners in various ITU-D Activities.</li> <li>At least 30 new partnerships signed to implement initiatives and/projects.</li> </ul>	<ul style="list-style-type: none"> <li>Toolkit revised and published in six languages of the UN.</li> <li>Digital innovation profiles published (Bosnia and Herzegovina, Serbia, South Africa) and Four draft innovation assessments under review by concerned countries.</li> <li>Three (3) draft toolkit on ICT centric innovation developed for publication in 2019.</li> <li>Two (2) partnership with UNIDO and GMIS was further strengthened through key events.</li> <li>Partnership and resource mobilization tools enhanced: e.g. partnership agreements, sponsorship platform, partner websites.</li> <li>New sponsorship opportunities opened for side and social events at the occasion of various meetings.</li> <li>New partnership agreements signed with various stakeholders from the ICT ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>Number of ITU members to have the assessments and guidelines on ICT innovation.</li> <li>Publications, reports, studies prepared, guidelines adopted, and events organized on specific topics</li> <li>Number of new partners in various ITU-D activities.</li> <li>Number of new partnership Signed and/or implemented.</li> </ul>	<ul style="list-style-type: none"> <li>One (1) toolkit revised and re-published in six languages of the UN.</li> <li>Published assessments and guidelines for published for Bosnia and Herzegovina, Serbia, and South Africa published.</li> <li>One (1) good practice report published was published for Europe.</li> <li>Stakeholders from 54 countries were trained and certified on guideline to assess their ICT centric ecosystems.</li> <li>Six (6) innovation dialogues for knowledge sharing held at WSIS and ITU telecom.</li> <li>Two (2) high level panels On ICT centric innovation and digital transformation held at WSIS and ITU telecom.</li> <li>Seven (7) national workshop held to evaluate innovation ecosystems in four countries.</li> <li>One (1) regional innovation forum was held in Oslo, Norway.</li> <li>One (1) Young ICT leaders Forum held in Busan, Republic of Korea.</li> <li>Thirty-eight (38) new partnership agreements signed with various stakeholders from the ICT ecosystem.</li> </ul>

## THREAT AND RISK ASSESSMENT

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Stakeholders/ Partners</b>	Lack of confidence of potential new members in the benefits gained from ITU	Lack of interest of new members in ITU membership	<ul style="list-style-type: none"> <li>Brainstorm and propose new services to members; periodically visit members</li> </ul>
<b>2. Stakeholders/ Partners</b>	Difficult to identify interested beneficiaries for development project	Lack of interest	<ul style="list-style-type: none"> <li>Agreements or project documents signed with Administrations</li> </ul>
<b>3. Resources mobilization</b>	Lack of funding due to the global financial crisis	Restriction in action plan implementation	<ul style="list-style-type: none"> <li>Brainstorming on resources mobilization to implement action plans</li> </ul>
<b>4. Finance</b>	Difficult to identify sponsors	Lack of interest	<ul style="list-style-type: none"> <li>Partners/Sponsors identified, including through the Administrations</li> </ul>

## 2018 On-going projects by region

The table below provides the list of the current on-going projects for **Objective 2** by region

Project N.	Title	Region
9RAF18089	PRIDA-ITU Delegation Agreement for Action	Africa
7MAG17004	Réseau hertzien large bande de Madagascar	Africa
7RAF08073-01	Broadband Wireless Network in Africa	Africa
7RAF08073-04	Broadband Wireless Network - Mali	Africa
7RAF08073-05	Broadband Wireless Network - Burkina Faso	Africa
7RAF08073-07	Broadband Wireless Network in the Kingdom of Lesotho	Africa
7RAF08073-08	Broadband Wireless Network - Eswatini	Africa
9BRA98006	Support the Implementation of National Telecommunications Agency (ANATEL, Brazil)	America
9COS17018	Desarrollo del conocimiento en tecnologías, para especialistas del ICE	America
9DOM17002	Reforma a la Ley General de Telecomunicaciones de la Republica Dominicana (INDOTEL)	America
7CUB18004	Monitoreo del Espectro Radioelectrico	America
9COL17038	Diseño de estrategia para la implementación de mejores prácticas internacionales en la asignación de espectro atribuido al servicio móvil IMT en Colombia	America
9SAU17007	Advisory Services to Saudi Arabia's Communication and Information Technology Commission (CITC)	Arab States
7PLS14004	Connect a School, Connect a Community Initiative in the State of Palestine Project II	Arab States
7RAF08073-03	Broadband Wireless Network - Djibouti	Arab States
9RAS18060	Enabling policy and regulatory environment in Asia-Pacific	Asia & Pacific
9RAS18060	Enabling policy and regulatory environment in Asia-Pacific	Asia & Pacific
9RAS16055	Master Plans for Spectrum Management and Country Assistance in Spectrum Management	Asia & Pacific
9THA18037	ITU-NBTC Training Programme 2018	Asia & Pacific
9GLO17084	Development of a toolkit for ICT innovation policy/governance and ICT innovation ecosystem-II	World or Multi-Regional
9GLO18091	Development of a toolkit for ICT innovation policy/governance and ICT innovation ecosystem	World or Multi-Regional
9GLO17085	Basic National Spectrum Management System	World or Multi-Regional
9GLO17086	Further developments to Spectrum Management System for Developing Countries (SMS4DC) software	World or Multi-Regional
9GLO18090	National Spectrum Management Assistance Workshop	World or Multi-Regional
2GLO18092	Development of collaboration platform to foster affordable access to international optical fiber infrastructure	World or Multi-Regional
7GLO18096	SET-UP IPv6 and IoT Expertise centre	World or Multi-Regional

## Objective 3

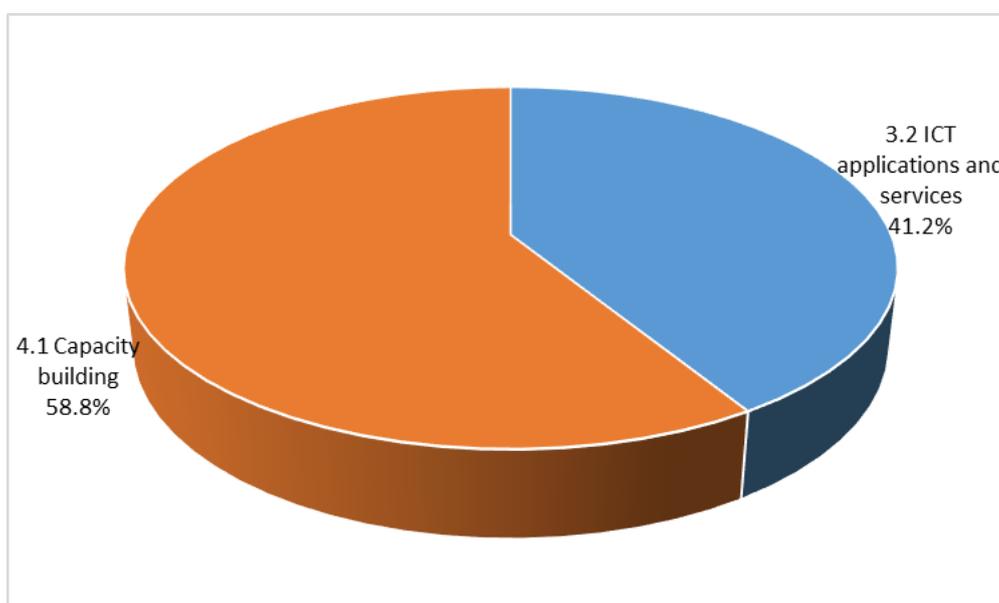
### Enhance confidence and security in the use of telecommunications/ICTs, and roll-out of relevant applications and services

Objective 3 includes the following output:

- Building confidence and security in the use of ICTs
- ICT applications and services

For 2018, the actual human resources allocated to objective 3 represent **15.7 per cent** of the total human resources of the Telecommunication Development Bureau.

**Chart 5 illustrates the breakdown of the actual allocation of human resources among the two outputs of objective 3.**



### Output 3.1

#### Building confidence and security in the use of ICTs

ICTs are integral to the economic and social development of all nations as well as to the development of the information society. Security is an essential element of the operation and use of ICTs, and requires that all persons involved be aware of security and take action appropriate to their role.

As the use of ICT continues to grow, cybersecurity and combating the transmission of e-mail spam continues to be a priority among members. During the last four years, ITU D continued to work in this area.

BDT undertook many activities that offer development assistance to members and encourage cooperation among members, while under Question 22/1 products and materials were elaborated to support countries in developing national cybersecurity capabilities, to convene experts and to contribute to ongoing information-sharing on best practices. The Question also identified key areas of common concern, as well as gaps, based on contributions to a compendium and a survey, respectively.

## 2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.3-1: Strengthened capacity of Member States to incorporate and implement cybersecurity policies and strategies into nationwide ICT plans, as well as appropriate legislation.</p>	<ul style="list-style-type: none"> <li>Cybersecurity readiness assessment workshops conducted for Niger and DR Congo in July and October respectively to enhance their preparedness for national cybersecurity policy elaboration and to implement their national CIRTS.</li> <li>Enhanced capacity in Cybersecurity policies and strategies has been achieved in the Arab States region through the implementation of a number of assistance, training and capacity building activities at the regional level. Namely:                             <ul style="list-style-type: none"> <li>Assistance provided to Mauritania for the development of its national cybersecurity strategy. A validation workshop for the strategy followed.</li> <li>Cybersecurity readiness assessment workshop conducted for Mauritania in December to enhance its preparedness for national cybersecurity policy elaboration and to implement its national CIRT.</li> <li>Assistance provided to Sudan to develop the national COP Strategy.</li> <li>Workshop on securing the critical infrastructure for financial sector.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Use of the Guide and of an assessment tool for implementing or reviewing National Cybersecurity Strategies in all countries making requests.</li> <li>A practice guide for Critical Information Infrastructure protection.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries with national strategies and policies related to cybersecurity.</li> <li>Number of countries with cybersecurity legal frameworks in place.</li> </ul>	<ul style="list-style-type: none"> <li>To date, more than 30 countries in Africa have benefited from cybersecurity readiness assessment training workshops.</li> <li>To date, more than 6 countries in the Arab States region have benefited from cybersecurity readiness assessment training workshops.</li> <li>The regional capacity building events in the Arab States region were attended by 230 participants from around 14 countries.</li> </ul>

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.3-2 Enhanced ability of Member States to respond to cyber threats in a timely manner.</p>	<ul style="list-style-type: none"> <li>Improved knowledge and skills to respond to cybersecurity attacks in the Arab States region was achieved through the implementation of training and capacity building activities in the identified priority areas. Namely, the Regional Cybersecurity Summit, the Regional Cyber Drill, and the Annual Arab Cybersecurity Cooperation Team Meetings.</li> </ul>	<ul style="list-style-type: none"> <li>ITU CIRT Framework fully integrated with internationally recognized CIRT affiliation processes (e.g. FIRST, TF-CSIRT, regional CSIRT associations).</li> <li>CIRT assessments, establishments and improvements continued for countries requesting assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Number of CIRTs established and affiliated to international associations and/or fora.</li> <li>Number of countries establishing CIRT-to-CIRT cooperation.</li> </ul>	<ul style="list-style-type: none"> <li>At least one country is assisting in the implementation of the national CIRT in the Arab States region (Palestine).</li> <li>At least 14 Arab countries have CIRTs and a mechanism to ensure coordination between the Ara CIRTs established.</li> </ul>
<p>D.3-3 Enhanced cooperation, information exchange and know-how transfer among Member States and with relevant players.</p>	<ul style="list-style-type: none"> <li>Enhanced cooperation and information sharing Among relevant players was achieved through the implementation of regional workshops, training, and events.</li> </ul>	<ul style="list-style-type: none"> <li>Information dissemination approach and outcome reviewed.</li> <li>A scalable online data sharing facility for GCI and NCS partners.</li> <li>An enhanced set of partners for information dissemination and for technical information dissemination through an online approach.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States involved in global initiatives related to cybersecurity.</li> <li>Number of Member States participating in international dialogues and debates related to cybersecurity, as well as in the work of technical organizations and associations.</li> </ul>	<ul style="list-style-type: none"> <li>Most Arab countries are involved in the cybersecurity regional initiatives and participated actively in the GCI practice and the regional events.</li> </ul>

## RESULTS ASSESSMENT

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>50% of Member States have cybersecurity strategies and policies in place.</li> </ul>	<ul style="list-style-type: none"> <li>Mauritania assisted in formulating the national Cybersecurity Strategy for 2019-2022.</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of Member States assisted by BDT.</li> </ul>	
<ul style="list-style-type: none"> <li>65% of Member States have CIRT established and cooperating with each other.</li> <li>Facilitated regional and Subregional cooperation among CIRTs.</li> <li>Needs assessment performed in 10 countries.</li> </ul>	<ul style="list-style-type: none"> <li>The annual CYBER Drill for the Arab States region ensured a proper cooperation among the Arab CIRTs.</li> <li>The Annual Arab Cybersecurity Cooperation Team meeting (ACCT).</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States assisted in establishing the CIRT.</li> <li>Number of Regional Meetings / Cyber Drills involving national CIRTs.</li> <li>Needs assessment performed.</li> </ul>	<ul style="list-style-type: none"> <li>Thirteen (13) Arab countries have CIRT established.</li> <li>CIRT Readiness Assessment performed for Mauritania.</li> </ul>
<ul style="list-style-type: none"> <li>Increased ITU-D Sector Membership.</li> <li>Collaboration agreements formalized with cybersecurity stakeholder organizations.</li> <li>Annual Interactive Global Cybersecurity Index (GCI) &amp; country profiles produced.</li> <li>140 Member States participate in GCI.</li> </ul>	<ul style="list-style-type: none"> <li>The Arab Regional Cybersecurity Innovation Centre (ARCC) project has been extended until September 2030.</li> <li>Attracted Naif Arab University for Security Sciences (NAUSS) as new academia member, and strengthened the collaboration between NAUSS and ITU.</li> <li>NAUSS became a centre of excellence for cybersecurity in the Arab States region. Training organized in partnership with NAUSS.</li> </ul>	<ul style="list-style-type: none"> <li>Number of new Sector Members.</li> <li>Number of agreements Established.</li> <li>Number of Member States participate in GCI.</li> </ul>	<ul style="list-style-type: none"> <li>Regional events organized in collaboration with the ARCC with increasing number of participation and partners.</li> <li>More than 30 participants from the Saudi public prosecutors commission trained on cybersecurity and data privacy.</li> </ul>

**THREAT AND RISK ASSESSMENT**

<b>Perspective</b>	<b>Risk reported</b>	<b>Impact reported</b>	<b>Mitigation measures implemented</b>
<b>1. Finance</b>	Budget constraints	Negotiation with sponsors	• Cost of events shared with sponsors
<b>2. Competency/ Knowledge</b>	Lack of information provided by the countries	Low commitment of countries	• Close follow up
<b>3. Stakeholders/ Partners</b>	Lack of interest	Delays in decision of partners	• Close follow up

## Output 3.2

### ICT applications and service

The proven contribution of ICTs to national socio-economic development has been the subject of numerous studies. ICTs and associated applications, including mobile applications, which have come to be known as "e-government", "e-agriculture", "e-education", "e-health", "e-entrepreneurship", etc., contribute to development by enabling access to and exchange of information and services anywhere and anytime, by supporting the rapid processing and storage of information and by improving the provision of public and private services, including education and professional development, health, transport, industry, human rights, environmental protection, trade, road safety, urban management, transfer of information for social welfare, agriculture information and services, government services, entertainment, information services, and commerce in general, making them much more effective, efficient, accessible and affordable, especially for poor and marginalized populations. ICTs also enhance access to markets, and increasingly facilitate direct democratic participation. They provide more cost-efficient and effective ways to preserve and promote local culture. They not only bring down the costs of economic and social activities, for example by replacing transport and postal services, but open up entirely new business opportunities.

ICT applications and services are an important demand-side driver that can encourage the adoption of broadband services and can create a virtuous circle for broadband infrastructure development, where new types of content and applications drive an ever-increasing need for more bandwidth. It is well recognized that access to broadband networks and services is critical to

countries' economic growth. Broadband is essential for generating new skills and fueling economic growth and technological change across all sectors and for opening up a whole range of new applications and opportunities to better serve citizens' needs. In order to associate broadband with sustainable development, it is necessary to promote both ICT infrastructure development and ICT utilization and application in parallel.

The added value of ICT applications and services is also greatly increasing due to several technological advances that have been achieved in the field of telecommunication/ICT infrastructure, including cloud computing, the Internet of things (IoT), high-volume data exchange, and machine to-machine (M2M) communications in addition to spectacular developments in the field of public consumer applications such as social network media.

For ICT for Development initiatives, however, there has long been a realization that building information societies requires an ecosystem approach, supporting elements of which include an enabling environment, infrastructure build-out, capacity building and broad availability of ICT applications and services.

In order to take advantage of the potential benefits of the progress that has been made, developing countries need capacity and information on strategies, best practices, sources of expertise and financial support, as well as on the types of applications and technological platforms for e applications that would provide the most benefits to their citizens, based on the country's needs and current capabilities.

2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.3-4 Improved capacity of countries for the planning of national sectoral e-strategies to foster the enabling environment for upscaling ICT applications.</p>	<ul style="list-style-type: none"> <li>• ITU in collaboration with WHO organized a regional Digital Health Training Workshops in Africa in Lesotho in November 2019 to build capacity on scaling up integrated digital health applications.</li> <li>• A regional e-Agriculture Strategy Development Regional Workshop for the Caribbean was organized with FAO in Georgetown, Guyana, 9-12 July 2018.</li> <li>• A Call for Action was launched during a side event at the UN General Assembly in September 2019 that called for a whole-of-government approach for SDG digital investment.</li> <li>• Assistance provided to Pakistan to develop their e-agriculture Strategy.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 10 countries have developed/updated their national e-sectoral strategies.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of countries that developed/updated their national e-sectoral strategies (e.g. eHealth, eAgriculture).</li> </ul>	<ul style="list-style-type: none"> <li>• Sixty (60) participants from 12 countries participated at the Digital Health Training workshop in Lesotho.</li> <li>• Fifty (50) participants from 10 countries participated in the regional e-Agriculture Strategy workshop in the Caribbean.</li> <li>• More than 10 countries developed their e-agriculture and e-health strategies.</li> </ul>

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.3-5 Improved capacity of countries to leverage ICT/mobile applications to improve the delivery of value-added services in high-priority areas (e.g. health, governance, education, payments, etc.) in order to provide effective solutions for various challenges in sustainable development through public-private collaboration.</p>	<ul style="list-style-type: none"> <li>Assistance to Niger in organizing a national workshop on Niger 2.0, aiming at empowering the population with ICT-applications and therefore improving their standard of living.</li> <li>In the context of the joint "ITU-WHO mHealth Innovation and Knowledge Hub in EU" project, a call for Expression of Interest and Request for Proposals were launched to host the Hub. The contracting with the Hub host is undergoing. The Hub is expected to be launched Q1/2019.</li> <li>The mHealth for NCD joint ITU-WHO initiative continues to provide support to 10 countries to run mHealth projects for Tobacco Cessation, Diabetes, Cervical Cancer and Respiratory diseases.</li> <li>MHealth for NCD implementation handbooks were published for mDiabetes, mCancer, mTobacco, mAgeing, mBreathefreely.</li> <li>Mobile Learning Week 2018 with UNESCO that focused on the challenges and strategies to offer digital skills development opportunities for all.</li> </ul>	<ul style="list-style-type: none"> <li>At least ten (10) countries have launched value-added services for ICT/mobile services for development.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries that launched value-added ICT/mobile services for development.</li> </ul>	<ul style="list-style-type: none"> <li>Workshop successfully organized in Niamey, attended by national stakeholders and the diaspora. The workshop was co-organized with WHO, FAO and UNESCO.</li> <li>Twelve (12) EOIs and 5 RFP were received to host the mHealth Hub in Europe.</li> <li>Ten (10) countries supported for mHealth projects.</li> </ul>

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.3-6 Enhanced innovation, knowledge and skills of national institutions to use ICT and broadband for development.</p>	<ul style="list-style-type: none"> <li>An implementation toolkit was developed to provide a Roadmap to deploy digital identity for development. A launch of the Roadmap took place during ITU Telecom World, Durban, South Africa from 10 to 13 September 2018.</li> <li>A special Track within the AI for Good Summit on using Artificial Intelligence applications for Health was organized to share experiences about types of AI applications for Universal Health Coverage.</li> <li>A #HackAgainstHunger was organized in collaboration with the Food and Agriculture Organisation (FAO) to identify and support innovative solutions to address challenges around food and agriculture.</li> <li>ITU co-organized the Mobile Learning Week 2018 with UNESCO that focused on the challenges and strategies to offer digital skills development opportunities for all.</li> <li>A Digital Health Hub was held in Kigali from 8th to 9th May 2018 under the umbrella of the Transform Africa Summit 2018 to discuss challenges facing the scaling up of Digital Health and to propose the way forward for rapid, cost-effective and sustainable deployment of digital health in Africa.</li> <li>A report on the use of Drones in Agriculture was co-published with FAO.</li> <li>An e-Agriculture Solutions Forum was organized with FAO in China, 15-17 November 2018, Nanjing.</li> <li>FAO-ITU-GIC (AIT) training on the use of drones, satellite imagery and GIS for agriculture, 4-8 June 2018, AIT, Thailand.</li> </ul>	<ul style="list-style-type: none"> <li>At least 50 institutions with enhanced knowledge on ICT-for-development issues.</li> <li>At least 100 countries participating in international/regional ICT-for-development events.</li> </ul>	<ul style="list-style-type: none"> <li>Number of institutions with enhanced knowledge on ICT-for-development issues.</li> <li>Number of countries and other stakeholders participating in international/regional ICT-for-development events.</li> </ul>	<ul style="list-style-type: none"> <li>Eighty (80) participants Coming from 33 different countries formed 13 teams have competed to develop innovative digital services to end hunger.</li> <li>More than 1 000 people participated in events organized during the AI Summit, Smart Africa, WSIS Forum, Mobile Learning Week, ITU Telecom.</li> </ul>

## RESULTS ASSESSMENT

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>• Technical assistance provided to e-sectoral strategies development.</li> <li>• Toolkit made available in UN Languages.</li> </ul>	<ul style="list-style-type: none"> <li>• Technical assistance was provided for Digital health and e-agriculture strategy development.</li> <li>• Two regional capacity development workshops were organized for Digital health and e-agriculture strategy development.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 4 countries assisted.</li> <li>• Toolkit translated to UN Languages.</li> </ul>	<ul style="list-style-type: none"> <li>• Four (4) countries received technical assistance.</li> </ul>
<ul style="list-style-type: none"> <li>• Partnership agreements Signed with key relevant partners.</li> <li>• Project proposals developed For new emerging innovative ICT Applications areas.</li> </ul>	<ul style="list-style-type: none"> <li>• New partnerships agreements were signed with Digital Square, Sanofi, Expertise France, FAO and USAID.</li> <li>• Several project proposals were developed for Digital Identity and Smart Villages, Regional Strategy Development for the Caribbean.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 1 partnership agreement signed.</li> <li>• At least 2 countries project Proposals developed and funded.</li> </ul>	<ul style="list-style-type: none"> <li>• Five (5) partnerships Agreement were finalized.</li> <li>• Two (2) countries project Proposals were developed and funded.</li> </ul>
<ul style="list-style-type: none"> <li>• ICT Applications best practices report published.</li> <li>• Knowledge sharing events held for ICT for Development.</li> <li>• Increased number of ITU-D Study Groups ICT Applications related contributions.</li> </ul>	<ul style="list-style-type: none"> <li>• Several Reports and Handbooks were published in the areas of mHealth, e-agriculture and SDG.</li> <li>• Several events were successfully organized.</li> <li>• Increased number of Study groups contributions.</li> </ul>	<ul style="list-style-type: none"> <li>• At least 1 report published and promoted on Innovative ICT Applications for Development.</li> <li>• At least 1 global/regional event ICT for Development held with more than 100 participants.</li> <li>• At least 5 new contributions received for each question per meeting.</li> </ul>	<ul style="list-style-type: none"> <li>• Five (5) reports and Handbooks were published.</li> <li>• Ten (10) events were organized at ITU Telecom, AI Summit, WSIS Forum, UN General Assembly, Transform Africa among others.</li> <li>• More than 5 contributions were received for each Study Group questions.</li> </ul>

**Threat and risk assessment**

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Finance</b>	Lack of funding to sustain mHealth projects in countries	Strong impact was well document through rigorous evaluation	· Additional resources mobilization

## 2018 On-going projects by region

The table below provides the list of the current on-going Projects for **Objective 3** by Region

Project N.	Title	Region
2GAM16002	National CIRT Establishment in The Gambia	Africa
9BDI12011	National CIRT Establishment in Burundi	Africa
9BOT18006	Communications CIRT Establishment	Africa
7ZIM15007	Extension of Telemedicine to cover remote Areas in Zimbabwe	Africa
9ARG18014	Universidades argentinas en la UIT	America
2PLS18005	CIRT Implementation of CIRT Services and related capabilities	Arab States
7OMA13005	Establishment of a Cybersecurity Innovation Centre for the Arab Region	Arab States
2EGY16002	Smart Groundwater Management	Arab States
9GLO13072-04	m Health for Strengthening National Diabetes Prevention and control in Tunisia	Arab States
9RAS17059	Cybersecurity in Pacific Island Countries	Asia & Pacific
9RAS18061	Harnessing ICTs to support the digital economy and an inclusive digital society	Asia & Pacific
9RAS18062	Fostering development of infrastructure to enhance digital connectivity in Asia-Pacific	Asia & Pacific
9RER17024	European mHealth Knowledge and Innovation Hub	Europe
9GLO13072	mHealth for NCDs Joint Programme	World or Multi-Regional
9GLO17087	Mainstreaming ICT Applications for SDG	World or Multi-Regional
9GLO17088	Financial Inclusion Global Initiative (FIGI)	World or Multi-Regional
9GLO18091	Development of a toolkit for ICT innovation policy/governance and ICT innovation ecosystem	World or Multi-Regional

## Objective 4

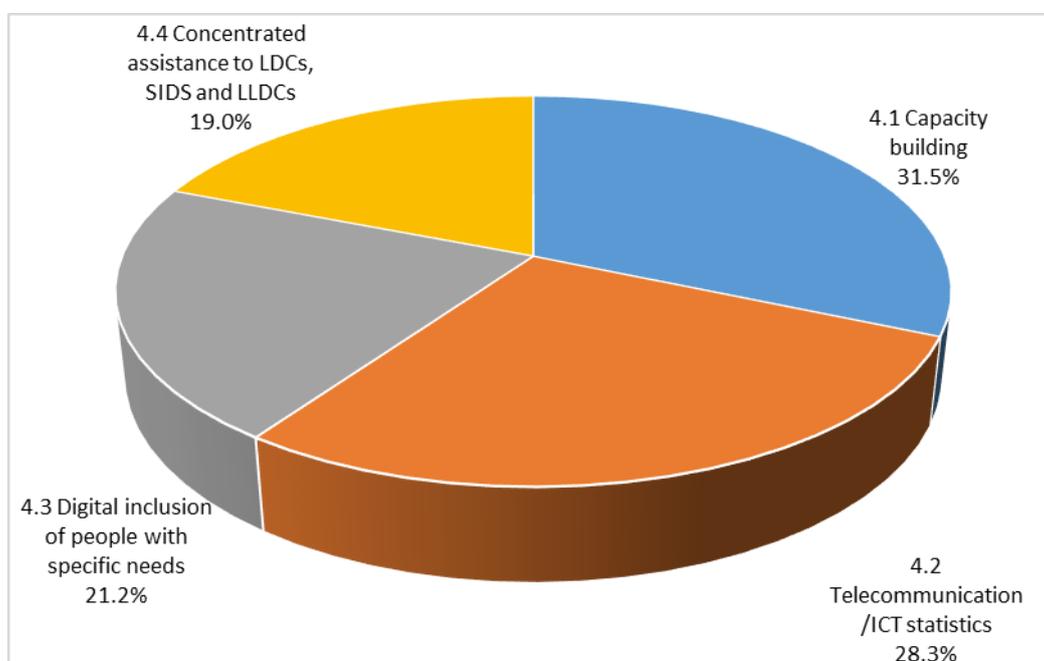
### Build human and institutional capacity, provide data and statistics, promote digital inclusion, and provide concentrated assistance to countries in special need

Objective 4 includes the following outputs:

- Capacity building
- Telecommunication/ICT statistics
- Digital inclusion of people with specific needs
- Concentrated assistance to LDCs, SIDS and LLDC

For 2018, the actual human resources allocated to objective 4 represent **32.2 per cent** of the total human resources of the Telecommunication Development Bureau.

**Chart 6 illustrates the breakdown of the actual allocation of human resources among the four outputs of objective 4.**



## Output 4.1

### Capacity building

ITU, as the lead United Nations agency for telecommunication/ICT issues, is an important source of information, education and training in this field. This ITU leadership position carries with it a responsibility to ensure that human and institutional capacity building is of the utmost quality, is available worldwide, and represents the cutting edge of rapidly emerging technologies and changes taking place in the sector. It is thus important to provide opportunities for all, and especially developing countries, to acquire the specialized knowledge and skills they need to engage in and benefit from the telecommunication/ICT sector. This requires the promotion of an enabling environment and supporting the implementation of telecommunication/ICT initiatives.

Capacity building continues to be a cross-cutting issue that informs and enhances the overall ITU D mission. Therefore, it requires cooperation and partnerships between countries and broad stakeholder participation. These partnerships should include, among others, academia, experienced professionals and experts, as well as organizations with relevant expertise in the capacity-building activities.

Telecommunication/ICT-based education and training is particularly fundamental for developing countries. It will help them to improve skills and enable them to establish and develop their national e strategies for sustainable development. Therefore, research undertakings and the development of specialized training programmes in priority areas for the membership are required. Furthermore, the introduction of telecommunications/ICTs into education and human resources development for all groups is needed.

It is also essential to enhance human potential through the use of distance-learning technologies and other developments in telecommunications/ICTs.

To facilitate coordination of its capacity-building support to the membership, ITU has established the ITU Academy, an online platform that integrates all ITU capacity-building activities. The ITU Academy is also enhancing human potential through provision of distance-learning solutions.

Centres of excellence (CoEs) are important platforms for education and information-sharing, which therefore fulfil an important role in ITU capacity-building activities under the ITU Academy.

A new strategy for CoEs has been developed under WTDC 10 Resolution 73. Through this strategy, there is alignment between the training provided and the priorities of the membership as decided at various WTDCs. The strategy takes effect after WTDC 14. ITU has also intensified the development of high-level training materials that will be available to CoEs, academia and other stakeholders. These training programmes are designed in such a manner that they can be delivered by accrediting institutions, leading to certification as part of degree programmes.

Regional, subregional and global forums and other capacity-building events remain important platforms for exchanging and sharing information among all stakeholders. These events provide developing countries with practical skills and hands-on learning, as well as offering opportunities for networking and creation of partnerships.

2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.4-1: Enhanced capacity building of membership in international Internet governance.</p>	<ul style="list-style-type: none"> <li>Enhanced capacity in international Internet governance has been achieved through the implementation of a number of training and capacity building activities in Internet governance related topics at the regional level.</li> </ul>	<ul style="list-style-type: none"> <li>Capacity on international Internet governance enhanced in ITU Member States.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries with enhanced capacity in international Internet Governance.</li> </ul>	<ul style="list-style-type: none"> <li>The regional capacity building events were attended by 264 participants from around 46 countries.</li> </ul>
<p>D.4-2: Improved knowledge and skills of ITU membership in the use of Telecommunications /ICTs.</p>	<ul style="list-style-type: none"> <li>Improved knowledge and skills was achieved through the implementation of training and capacity building activities in the identified priority areas.</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge and skills enhanced in ITU Member States in identified priority areas.</li> </ul>	<ul style="list-style-type: none"> <li>Number of participants with improved knowledge and skills in the use of telecommunications / ICTs.</li> </ul>	<ul style="list-style-type: none"> <li>More than 3 700 participants were trained in ICT-related topics.</li> </ul>
<p>D.4-3: Enhanced awareness of the role of human and institutional capacity building for telecommunications/ICTs and development for the ITU membership.</p>	<ul style="list-style-type: none"> <li>Enhanced awareness of the role of capacity building was achieved through the implementation of regional workshops and the organization of the ITU Global ICT Capacity Building Symposium.</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of the role of human and institutional capacity building enhanced in ITU Member States.</li> </ul>	<ul style="list-style-type: none"> <li>Number of participants made aware of the importance of human and institutional capacity building in their national agenda.</li> </ul>	<ul style="list-style-type: none"> <li>At least 1 capacity building workshop was held in each region. The ITU Global ICT Capacity Building Symposium was attended by around 330 participants.</li> </ul>

## RESULTS ASSESSMENT

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Awareness on international Internet governance enhanced in ITU Member States.</li> <li>At least 2 training activities or workshops on Internet governance per region delivered.</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced awareness on Internet governance related issues was achieved in ITU Member States.</li> <li>One (1) regional workshop and several training activities were delivered on Internet governance related topics.</li> </ul>	<ul style="list-style-type: none"> <li>Number of workshops or training delivered.</li> <li>Satisfaction level with the workshops or training delivered.</li> </ul>	<ul style="list-style-type: none"> <li>One (1) regional workshop in Africa was organized (attended by more than 100 participants from 16 countries) and three training courses were delivered on Internet governance (attended by 164 participants from around 30 countries).</li> </ul> <p>The overall satisfaction level of the courses was between 88-92%.</p>
<ul style="list-style-type: none"> <li>ICT knowledge and skills Improved in ITU Member States in priority areas.</li> <li>At least 2 training courses developed / updated</li> <li>At least 50 training courses Delivered.</li> </ul>	<ul style="list-style-type: none"> <li>ICT knowledge and skills was improved in Member States in priority areas.</li> <li>At least 5 new training courses were developed or updated.</li> <li>More than 90 training courses were delivered.</li> </ul>	<ul style="list-style-type: none"> <li>Number of participants trained.</li> <li>Number of training courses developed /updated.</li> <li>Number of training courses delivered.</li> </ul>	<ul style="list-style-type: none"> <li>Fifty-five (55) training courses were delivered through the ITU centre of excellence network.</li> <li>Thirty-seven (37) courses were delivered with other partners.</li> <li>A total of more than 3 700 people were trained.</li> </ul>
<ul style="list-style-type: none"> <li>Awareness on the role of human and institutional capacity building for Telecommunications/ICTs and development for the ITU membership enhanced ITU Member States.</li> <li>At least one regional event organized.</li> <li>Global ICT Capacity Building Symposium implemented successfully.</li> </ul>	<ul style="list-style-type: none"> <li>Awareness on the role of human and institutional capacity building for Telecommunications/ICTs and development for the ITU membership was enhanced in Member States.</li> <li>At least one capacity building event was organized in each region.</li> <li>The Global ICT Capacity Building Symposium was successfully implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Number of regional and Subregional events organized.</li> <li>Number and diversity of countries and participants that attended regional and subregional events.</li> <li>Number of participants in Global ICT Capacity Building Symposium.</li> </ul>	<ul style="list-style-type: none"> <li>At least one capacity building event was organized in each region.</li> <li>Around 330 participants attended the Global ICT Capacity Building Symposium 2018.</li> </ul>

**Threat and risk assessment**

<b>Perspective</b>	<b>Risk reported</b>	<b>Impact reported</b>	<b>Mitigation measures implemented</b>
<b>1. Stakeholders/ Partners</b>	Low level of partnerships in capacity building Low participation level by partners in capacity-building activities Low partner resource allocation	High	<ul style="list-style-type: none"> <li>Stakeholder involvement in capacity building programme design</li> <li>Increased partner value proposition in capacity-building programmes</li> </ul>
<b>2. Finance</b>	Inadequate budget for desired actions	Medium	<ul style="list-style-type: none"> <li>Actions consolidated and focus on those with the highest impact</li> <li>Mobilization of extra budgetary funding from projects and partnership contributions</li> </ul>
<b>3. Human resources</b>	Inadequate staff against expected deliverables	High	<ul style="list-style-type: none"> <li>Focus on strategic inputs with high impact</li> </ul>
<b>4. Environment</b>	Delays in country activities due to unforeseen local events	Medium	<ul style="list-style-type: none"> <li>Enhancement of a responsive implementation mechanisms and improved communication with partners and donors</li> </ul>

## Output 4.2

### Telecommunication/ICT statistics

With the growing recognition of ICTs as a driver for social development and economic growth, and as more and more people join the global information society and high-speed communication networks become an indispensable infrastructure, the tracking and measurement of developments in telecommunications/ICTs remain as relevant as ever. While there will be almost 7 billion mobile cellular subscriptions globally and close to 3 billion people using the Internet worldwide by the end of 2014, there are still more than 4 billion people who are not yet connected to the Internet, mostly those living in rural areas of developing countries, for whom broadband Internet services are still unavailable or unaffordable.

ITU is recognized all over the world as the main source of internationally comparable data and statistics on telecommunications/ICTs. The statistical standards, definitions and methodologies developed by ITU are widely used by countries in their production of telecommunication/ICT statistics. Reliable, comprehensive and comparable statistics are indispensable to identify progress and gaps, track

information-society developments at the national and global levels and support government and industry in making informed and strategic decisions to ensure equal access, use and impact of telecommunications/ICTs.

While the availability of comparable telecommunication/ICT statistics has considerably improved in recent years, major data gaps remain, in particular in developing countries, and in covering important areas such as measuring broadband speed and quality, international Internet bandwidth, investment and revenue in the ICT sector, household access to ICTs, individuals' use of ICTs, or gender equality in access and use of ICTs and access to ICTs by persons with disabilities. Countries are therefore encouraged to produce high-quality data based on internationally agreed standards and methodologies, which illustrate national digital divides as well as the efforts made through various programmes to close the gap, showing, as much as possible, the social and economic impact.

2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.4-4: Enhanced information and knowledge of policy-makers and other stakeholders on current telecommunication/ICT trends and developments based on high-quality, internationally comparable telecommunication/ICT statistics and data analysis.</p>	<ul style="list-style-type: none"> <li>Enhanced information and knowledge has been achieved through the release of the World Telecommunication/ICT Indicators Database, the Measuring the Information Society Report 2018, the Yearbook of Statistics, and other statistical products.</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced information and knowledge of policy-makers and other stakeholders on current telecommunication/ICT trends and developments based on high-quality, internationally comparable telecommunication/ICT statistics and data analysis.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries and other stakeholders using internationally comparable telecommunication/ICT statistics for policy making and analysis.</li> </ul>	<ul style="list-style-type: none"> <li>The landing page of the statistics website received 550 000 views in 2018.</li> <li>Almost 47 000 times (different editions).</li> </ul>
<p>D.4-5: Enhanced dialogue between telecommunication/ICT data producers and users and increased capacity and skills of producers of telecommunication/ICT statistics to carry out data collections at the national level based on international standards and methodologies.</p>	<ul style="list-style-type: none"> <li>Enhanced dialogue has been achieved through:                             <ul style="list-style-type: none"> <li>The work of the Expert Group on ICT Household Indicators (EGH) and the Expert Group on Telecommunication/ICT Indicators (EGTI).</li> <li>The organization of the 16th World Telecommunication/ICT Indicators Symposium (WTIS-18).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Enhanced dialogue between telecommunication/ICT data producers and users and increased capacity and skills of producers of telecommunication/ICT statistics to carry out data collections at the national level based on international standards and methodologies.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries participating in ITU ICT measurement events, including the World Telecommunication/ICT Indicators Symposium (WTIS).</li> <li>Number of countries Producing telecommunication/ICT statistics based on international standards and methodologies.</li> </ul>	<ul style="list-style-type: none"> <li>The 16th WTIS was attended by more than 320 participants from 85 countries.</li> <li>The meetings of the two Expert Groups (EGTI/EGH) were attended by around 130 participants from 54 countries.</li> <li>More than 160 countries produced at least some ICT statistics based on international standards.</li> </ul>

## RESULTS ASSESSMENT

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Enhanced availability of internationally comparable, timely ICT statistical databases.</li> <li>Accurate analysis of information society developments available.</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced availability of ICT statistics by releasing the updated WTI database in July 2018 and December 2018, and regularly updated online statistics (including on ICT Eye).</li> <li>Yearbook of Statistics and the Little Data Book on ICT released December in 2018.</li> <li>Enhanced knowledge and analysis was achieved by producing and publishing the Measuring the Information Society Report 2018.</li> </ul>	<ul style="list-style-type: none"> <li>Timely release of ITU WTI Database.</li> <li>Number of country-level data points and indicators available in ITU WTI database.</li> <li>Number of downloads, citations, website hits and/or purchases of BDT statistical and research products and online resources.</li> </ul>	<ul style="list-style-type: none"> <li>WTI database released as scheduled in June 2018 and December 2018.</li> <li>Around 700 000 data points included in the 2018 version of the database, and about 200 indicators.</li> <li>Around 137 copies were sold in 2018.</li> <li>The landing page of the statistics website received 550 000 views in 2018.</li> <li>In 2018, the Measuring the Information Society Report (MISR) has been downloaded almost 47 (different editions)</li> <li>MISR 2018 widely covered by the media.</li> </ul>
<ul style="list-style-type: none"> <li>World Telecommunication/ICT Indicators Symposium and work of the statistical Expert Groups implemented successfully</li> <li>Capacity of countries on telecommunication/ICT statistics based on international standards and methodologies provided to countries</li> <li>ITU Manual on statistics updated</li> </ul>	<ul style="list-style-type: none"> <li>Face-to-face meetings of the two Expert Groups were held (October 2018).</li> <li>The 16th WTIS successfully held in Geneva (December 2018)</li> <li>Regional Workshop on ICT Statistics for the CIS region held in Almaty, Kazakhstan, on 31 January-1 February 2018.</li> <li>Regional Workshop on ICT Statistics for the Asia-Pacific region held in Manila, Philippines, from 14 to 16 March 2018.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries trained or Advised on telecommunication/ICT statistics.</li> <li>Number of participants in the ITU World Telecommunication/ICT Indicators Symposium and in statistical Expert Groups.</li> <li>Updated ITU statistical manuals and guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>The 16th WTIS was attended by more than 320 participants from 85 countries.</li> <li>The meetings of the two Expert Groups (EGTI/EGH) were attended by around 130 participants from 54 countries.</li> <li>Regional Workshop on ICT Statistics for the CIS region in Almaty, Kazakhstan attended by 79 participants from 11 countries. Regional Workshop on ICT Statistics for the Asia-Pacific region in Manila, Philippines attended by 91 participants from 10 countries.</li> </ul>

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
	<ul style="list-style-type: none"> <li>Regional Workshop on ICT Statistics for the Africa region held in Lilongwe, Malawi on 20-21 March 2018.</li> <li>National Workshop on ICT Statistics for Malawi held in Lilongwe, Malawi on 22 March 2018.</li> <li>Regional Workshop on ICT Statistics for the Arab States held in Manama, Bahrain on 26 and 27 March 2018.</li> <li>National ICT indicators workshop for Benin held in Cotonou, Benin, on 2-3 May 2018.</li> <li>ITU Asia-Pacific Sub-Regional Workshop on ICT Indicators and the IDI held from 22 to 23 November 2018 in Nadi, Fiji.</li> <li>SADC Regional Capacity Building Workshop on ICT statistics, held in Botswana from 10-14 December 2018.</li> <li>Updates on the ITU Manual for Measuring ICT Access and Use by Households and Individuals and the ITU Handbook for the collection of Administrative Data on Telecommunications/ICT posted on the website.</li> </ul>		<ul style="list-style-type: none"> <li>Regional Workshop on ICT Statistics for the Africa region held in Lilongwe, Malawi attended by 69 participants representing 24 countries.</li> <li>National Workshop on ICT Statistics for Malawi held in Lilongwe, Malawi on 22 March 2018 attended by 25 participants.</li> <li>Regional Workshop on ICT Statistics for the Arab States held in Manama, Bahrain attended by 27 participants representing eight countries.</li> <li>National ICT indicators workshop for Benin, held in Cotonou, Benin, attended by 31 participants representing 15 different institutions.</li> <li>ITU Asia-Pacific Sub-Regional Workshop on ICT Indicators and the IDI held in Nadi, Fiji attended by 26 participants representing 7 Pacific Islands Member States.</li> <li>SADC Regional Capacity Building Workshop on ICT statistics, held in Botswana, organized by SADC, while ITU was invited to deliver 10 presentations related to its work on ICT statistics. The event was attended by 30 participants from 9 SADC member countries.</li> <li>Updates on the ITU Manual for Measuring ICT Access and Use by Households and Individuals and the ITU Handbook for the collection of Administrative Data on Telecommunications/ICT posted on the website.</li> </ul>

## Threat and risk assessment

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Finance</b>	Lack of resources to provide the appropriate support level in case of high demand from countries	Medium	<ul style="list-style-type: none"> <li>· Appropriate budget forecast prepared</li> <li>· Mobilize additional resources, if necessary</li> <li>· Appropriate host country agreement negotiated</li> </ul>
<b>2. Human resources</b>	Insufficient human resources to cope with demand. Lack of qualified experts in the domains concerned	High	<ul style="list-style-type: none"> <li>· Resource requirements anticipated and recruitment procedures initiated as soon as possible</li> </ul>
<b>3. Stakeholders / Partners</b>	Insufficient commitment of countries and partners	High	<ul style="list-style-type: none"> <li>· Cooperation with countries and partners ensured to guarantee appropriate level of involvement</li> </ul>

## Output 4.3

### Digital inclusion of people with specific needs

Digital inclusion means ensuring the accessibility of telecommunications/ICTs and the use of telecommunications/ICTs for the social and economic development of people with specific needs.

Despite the increasing deployment of telecommunication/ICT networks, equipment and applications, many people remain excluded from the information society. Furthermore, telecommunications/ICTs are not exploited to promote economic and social development of women and girls, persons with disabilities, including age-related disabilities, youth, children and indigenous peoples, who have specific needs that must be addressed to enable them to use telecommunications/ICTs. Special measures are required to ensure the inclusion of people with specific needs in the information society and to promote their social and economic development through telecommunications/ICTs.

Globally, fewer women than men have access to telecommunications/ICTs, in particular access to the Internet and broadband services. This gender divide is more apparent in developing countries. There is a need for national strategies to ensure that women and men enjoy equal access to telecommunications/ICTs, and that telecommunications/ICTs can be used for the social and economic empowerment of women and girls.

People with specific needs often face barriers to using telecommunications/ICTs. Persons with disabilities, including age-related disabilities, require accessible telecommunications/ICTs (including mobile phones, tablets, computers, websites and TVs) that they can perceive and understand and on which they can input commands. Legal, policy, regulatory and business practices can be implemented to ensure that accessible telecommunications/ICTs are widely available and affordable for persons with disabilities in ITU Member States.

Youth, women, persons with disabilities, including age-related disabilities, and indigenous peoples

often require training in both basic and advanced digital literacy skills in order to participate actively in the information society. Despite the rise of digital natives in developing countries, the majority of youth worldwide are not currently digital natives. Once equipped with telecommunication/ICT skills, people with specific needs can harness the power of telecommunications/ICTs for their empowerment, including employment, entrepreneurship and lifelong learning. This is especially timely in the face of global youth unemployment and the skills mismatch between what youth learn in school and the telecommunication/ICT skills sought by employers, as well as the gender divide in telecommunication/ICT skills development. Young people can develop these skills where they are incorporated into national education plans and where schools are connected to the Internet, equipped with ICTs and possess teachers trained to impart such skills.

Such skills can also be developed in community ICT centres, including those funded by universal service/access funds. Community access strategies are at a crossroads, moving from mere provision of Internet access and basic digital literacy training to development of innovation hubs, where members of the community create their own telecommunication/ICT solutions to social and economic challenges. Likewise, universal access/service mandates and funds require updating to ensure they are used to promote accessibility and digital inclusion of people with specific needs. Using telecommunications/ICTs to ensure the digital inclusion of all peoples for social and economic development requires comprehensive national digital inclusion policies, strategies and guidelines, as well as national broadband plans that promote accessibility and digital inclusion of people with specific needs.

## 2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.4-6: Strengthened capacity of Member States to develop and implement digital inclusion policies, strategies and guidelines to ensure telecommunication/ICT accessibility for people with specific needs and the use of telecommunications/ICTs for the social and economic empowerment of people with specific ds.</p>	<ul style="list-style-type: none"> <li>Enhanced capacity of Members States in ICT accessibility achieved through the thematic trainings provided during Rapporateurs Group Meeting in Q7/1; Regional Events and meetings in Americas, Arab and Europe; Enhanced several key resources in ICT Accessibility, developed by BDT to support ITU Members in their countries' implementation of policies, strategies and guidelines on Digital Inclusion.</li> </ul>	<ul style="list-style-type: none"> <li>New Outcome for 2020 based on WTDC-17 is: Number of members aware of trained in or advised on digital inclusion policies, strategies and guidelines.</li> <li>Target 2020: 100 ITU Members.</li> </ul>	<ul style="list-style-type: none"> <li>Number of members and related stakeholders with strengthened capacity to develop and implement digital inclusion policies and strategies.</li> </ul>	<ul style="list-style-type: none"> <li>One thousand five hundred (1 500) ITU members and related stakeholders have strengthened their capacity in ICT accessibility services , polices and regulation due to presentations delivered, information provided and best practices shared through over 20 thematic, regional and global events and meetings.</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.4-7: Improved capacity of members to provide people with specific needs with digital literacy training and training on the use of telecommunications/ICTs for social and economic development through provision of key resources in Digital Inclusion.</p>	<ul style="list-style-type: none"> <li>Guidelines and key resources in digital inclusion were made available to ITU Members including:                             <ul style="list-style-type: none"> <li>Three (3) self-paced training courses in ICT accessibility topics;</li> <li>Fifteen (15) video tutorials in English, French and Spanish on “How to develop accessible digital content”;</li> <li>Guidelines in developing national digital skills strategies.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>New Outcome for 2020 based on WTDC-17 is: Number of resources, trainings and/or guidelines developed and made available to ITU members to support them in the implementation process of digital inclusion in their countries.</li> <li>Number of ITU Members made aware and/or benefited from these resources.</li> <li>Target 2020: 10 resources 100 ITU Members.</li> </ul>	<ul style="list-style-type: none"> <li>Number of digital inclusion resources developed and made available to ITU Members to improve their capacity to provide people with specific needs digital literacy training and training on the use of telecommunications/ICTs for social and economic development.</li> </ul>	<ul style="list-style-type: none"> <li>All ITU Members States were made aware through the thematic, regional and/or global meetings and events on the Digital Inclusion key resources made available in ICT accessibility topics or on how to build their national strategies in digital skills.</li> </ul>
<p>D.4-8: Improved capacity of members in using telecommunications/ICTs for the social and economic development of people with specific needs, including telecommunication/ICT programmes to promote youth employment and entrepreneurship.</p>	<p>ITU actively participated in the UN Global Initiative on Decent Jobs for Youth and co-lead with ILO the Digital Skills for Decent Jobs Campaigns BDT developed and shared guidelines and innovative strategies with all ITU members on how to build their national digital skills development strategies by publishing the ITU Digital Skills Toolkit on the ITU Publications website at <a href="https://www.itu.int/pub/D-PHCB">https://www.itu.int/pub/D-PHCB</a> and ITU-D website.</p>	<ul style="list-style-type: none"> <li>New Outcome for 2020 based on WTDC-17 is: Number of members aware of trained in or advised on digital inclusion policies, strategies and guidelines.</li> <li>Target 2020: 100 ITU Members.</li> </ul>	<ul style="list-style-type: none"> <li>Number of members and related stakeholders with improved capacity in using telecommunications/ICTs for the social and economic development of people with specific needs, including telecommunication/ICT programmes to promote youth employment and entrepreneurship.</li> </ul>	<ul style="list-style-type: none"> <li>1 250 ITU members and stakeholders were made aware of the joint ITU-ILO Digital Skills for Jobs Campaign aiming to incentivize stakeholders to train 5 million young women and men in job-ready digital skills. These ITU members and stakeholders also improved their capacity in the developing of national digital skills strategies to promote youth employment and entrepreneurship.</li> </ul>

## RESULTS ASSESSMENT

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Capacity of ITU Member States and other stakeholders strengthened on ICT accessibility services, policies and regulations.</li> </ul>	<ul style="list-style-type: none"> <li>Capacity was build and awareness was raised in ICT accessibility during:               <ul style="list-style-type: none"> <li>- “Basics on ageism,” UN Seminar organized on 30 January 2018 (over 50 U.N. Member States participants).</li> <li>- ITU Forum on ICT accessibility organized as part of the Zero Project Conference in Vienna (Austria) on 21-23 February (nearly 700 participants from over 70 countries)</li> <li>- UN-CRPD (Committee on the Rights of Persons with Disabilities) held in Geneva on 14 February (96 UN members)</li> <li>- WSIS workshop on 23 March on Practical applications of ICTs supporting digital inclusion and access to information, services and livelihood for persons with disabilities (57 ITU members and stakeholders)</li> <li>- M-Enabling Summit held on 11-13 June in Washington DC, United States (over 500 members and stakeholders in ICT accessibility);</li> <li>- Global Disability Forum, United Kingdom on 24 and 25 July (nearly 1000 participants globally);</li> </ul> </li> <li>ITU regional event- the 5th Accessible Americas – ICT for ALL” Jamaica on 28-30 November (214 participants);</li> <li>ITU Regional event - the 1st Accessible Europe - ICT for ALL Austria 12-14 December, (150 participants).</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States and other stakeholders’ capacity on developing and implementing ICT accessibility services, policies and regulations strengthened.</li> </ul>	<ul style="list-style-type: none"> <li>1 500 ITU members and related stakeholders have strengthened their capacity in ICT accessibility services , polices and regulation due to presentations delivered, information provided and best practices shared through over 20 thematic, regional and global events and meetings.</li> </ul>

<p><b>Expected results</b></p> <ul style="list-style-type: none"> <li>Resources made available and training provided on Development of accessible ICTs for persons with Disabilities</li> </ul>	<p><b>2018 achieved results</b></p> <ul style="list-style-type: none"> <li>Developed and enhanced resources, developed and delivered trainings to support ITU Members in the ICT accessibility implementation process in their countries:             <ul style="list-style-type: none"> <li>A set of three (3) free <a href="#">self-paced online certificate training courses</a> entitled “<a href="#">ICT Accessibility: the key to inclusive communication</a>”, were developed and made available to members. Almost 150 participants successfully achieved one, two or all three modules of the training;</li> <li>Fifteen (15) <a href="#">video tutorials on how to develop and remediate accessible digital documents</a> (e.g., Word, Pdf, Excel, PP, etc.) were developed in Spanish, English, and French. The tutorials registered over 250 views.</li> <li>Capacity in ICT Accessibility of over 70 ITU Members participants was built during the Rapporteurs Group of Q7/1 on 28 September. In support of the ARB Regional Initiative: A train the trainers course was developed and customized for the Arab States region on “Accessible Digital Content and Remediation for the stakeholders delivering digital financial services”. The training was delivered to over 40 persons on 16-18 October 2018 in Cairo, Egypt.</li> <li>A workshop on how to use ICTs for People Living with Disabilities took place from 8 to 12 October in Harare, Zimbabwe.</li> <li>An <a href="#">executive training</a> was also provided in <a href="#">V<sup>th</sup> Accessible Americas-ICT for ALL</a> (90 trainees obtained the ITU certificate).</li> </ul> </li> </ul>	<p><b>Performance Indicators</b></p> <ul style="list-style-type: none"> <li>Number of resources made available to ITU members, trainings and members trained.</li> </ul>	<p><b>2018 Performance data</b></p> <ul style="list-style-type: none"> <li>Three (3) self-paced training courses in ICT Accessibility topics</li> <li>15 video tutorials in developing accessible digital content.</li> <li>Over 500 ITU members obtained ITU certifications in ICT accessibility topics further their participation in face-to face trainings delivered during regional events or through the on-line trainings made available for them through ITU Academy.</li> </ul>
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Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>Capacity of ITU Member States strengthened on building digital inclusion programmes.</li> <li>Girls and young women encouraged to prepare for and enter ICT careers.</li> <li>Information shared with telecommunication/ICT stakeholders on the use of telecommunications/ICTs to promote economic and social development of people with specific needs</li> </ul>	<ul style="list-style-type: none"> <li>BDT shared innovative strategies with all ITU Members on how to build their national digital skills development strategies by publishing the ITU Digital Skills Toolkit, available in the six ITU official languages along with e-pub and Kindle versions.</li> <li>The Digital Inclusion also led the Global Campaign of International Girls in ICT Day.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States capacity built or strengthened.</li> <li>Number of participants in Capacity building/training events.</li> <li>Number of girls and young Women encouraged to prepare for and enter ICT careers.</li> <li>Number of digital inclusion programmes and practices shared.</li> <li>Number of website hits.</li> </ul>	<ul style="list-style-type: none"> <li>One thousand two hundred and fifty (1 250) ITU members and stakeholders were made aware of the joint ITU-ILO Digital Skills for Jobs Campaign aiming to incentivize stakeholders to train 5 million young women and men in job-ready digital skills</li> <li>One hundred and thirty-one (131) countries organized International Girls in ICT Day events in 2018, encouraging 57 748 girls participating in 2 186 events to take up ICT careers and studies. There were events in 20 countries of the African Region, in 31 countries in the Americas region, 10 in the Arab States region, 22 countries in the Asia and Pacific region, 8 countries in the CIS region, and 30 in the Europe region.</li> <li>There have been 360 500 Girls in ICT Day Portal views, with 185 859 reached by the Girls in ICT Day</li> <li>Facebook posts. #GirlsinICT reached over 93 million accounts for an estimated exposure of 379 million timeline deliveries.</li> <li>192 digital inclusion programmes and practices were shared on the Digital Inclusion Newslog during 2018, with 6 585 views of the newslog posts. Awareness was raised and these best practices shared among ITU members through the weekly publication of innovative digital inclusion practices and strategies on the ITU-D Digital Inclusion newslog at: <a href="http://digitalinclusionnewslog.itu.int/">http://digitalinclusionnewslog.itu.int/</a>.</li> <li>BDT raised visibility for and shared its key digital inclusion resources in the G20 Repository of Digital Policies.</li> </ul>

**Threat and risk assessment**

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Finance</b>	Lack of resources to provide the appropriate support level in case of high demand from countries	Medium	<ul style="list-style-type: none"> <li>• Appropriate budget forecast prepared</li> <li>• Mobilize additional resources, if necessary</li> <li>• Appropriate host country agreement negotiated</li> </ul>
<b>2. Human resources</b>	Insufficient human resources to cope with demand. Lack of qualified experts in the domains concerned	High	<ul style="list-style-type: none"> <li>• Resource requirements anticipated and recruitment procedures initiated as soon as possible</li> </ul>
<b>3. Stakeholders /Partners</b>	Insufficient commitment of countries and partners	High	<ul style="list-style-type: none"> <li>• Cooperation with countries and partners ensured to guarantee appropriate level of involvement</li> </ul>

## Output 4.4

### Concentrated assistance to LDCs, SIDS and LLDCs including countries in special need

ITU assistance to the least developed countries (LDCs) goes back to 1971, when the Union accorded special assistance to LDCs through the implementation of relevant plenipotentiary conference resolutions. In 2002, direct assistance to LDCs was delivered for the first time to a small group of countries on a biennial basis. This assistance facilitated monitoring and evaluation of the impact made by the concentrated assistance to beneficiary countries. In 2006, the programme was expanded to include small island developing states (SIDS) and emergency telecommunications. In 2010, WTDC (Hyderabad, 2010) approved the inclusion of landlocked developing countries (LLDCs) and countries with economies in transition in this programme. Every decade, the United Nations holds a special conference on LDCs, SIDS and LLDCs. For the decade 2004-2014, the Fourth United Nations Conference on LDCs was held in Turkey in 2011, and adopted the Istanbul Programme of Action (IPoA). The High Level Midterm Review of the Istanbul Programme of Action (IPoA) co-organized by the Office of the High Representative for Least Developed Countries, Landlocked Developing Countries and Small Island Developing States and the Government of the Republic of Turkey took place in Antalya from 25-29 May 2016 to assess progress made as set out in the implementation of the IPoA for the Decade 2011-2020 by the LDCs and their development partners.

In 2014, the Third International Conference on Small Island Developing States held from 1 to 4 September 2014 in Apia, Samoa endorsed "The Small Island Developing States Accelerated Modalities of Action" (Samoa Pathway).

The United Nations Conference on the Landlocked developing countries (LLDCs) took place in Vienna Austria on 3-5 November 2014. The conference adopted the Vienna Programme of Action for the LLDCs.

The 2030 Agenda for Sustainable Development-SDG 9c sets the target to significantly increase access to ICT and to provide universal and affordable access to the Internet in LDCs by 2020.

Output 4.4 delivers targeted and highly assistance to countries with specific needs, including LDCs, SIDS, LLDCs and countries with economies in transition, in a number of priority areas.

WTDC Res. 16 (Rev. Buenos Aires, 2017) of the World Telecommunication Conference on Special actions and measures for the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition as well as Resolution 30 (Rev. Dubai 2018) of the Plenipotentiary Conference on Special measures for the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition highlight the role of ICTs as enablers of national socio-economic development.

The ITU 2018 Plenipotentiary Conference, the Connect 2030 Agenda, Resolution 200 (Rev. Dubai, 2018) was adopted as a continuation of the Connect 2020 Agenda for global telecommunication/ICT development. According to Goal 2 of the 2020 agenda, which highlighted the importance of inclusiveness in the LDCs, 15 per cent of households should have access to the Internet by 2020 (Target 2.1. B), and 20 per cent of individuals should be using the Internet by 2020 (Target 2.1. B)." The resolutions provide BDT with a mandate to pay special attention to these categories of countries through concentrated assistance.

Outcomes	2018 achievements	Target 2020	Outcome Indicators	2018 measurement of the outcome indicators
<p>D.4-9: Improved access to and use of telecommunications/ICTs in LDCs, SIDS, LLDCs and countries with economies in transition.</p>	<ul style="list-style-type: none"> <li>Reviewed International Long-Distance Telecommunication Policy project in Bangladesh to help the country to continue the use of new technologies and creativity driven by innovation.                             <ul style="list-style-type: none"> <li>ITU implemented concentrated assistance to South Sudan. Launched a global report on ICTs, LDCs and the SDGs: Achieving universal and affordable Internet in the least developed countries.</li> <li>Country case studies were finalized for the American LLDCs: Bolivia and Paraguay.</li> <li>ITU has allocated a budget of 1 083 000 Swiss Francs (CHF) to the LDCs.</li> <li>ITU awarded between 360 and 380 fellowships to the LDCs.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>At least 30% of LDCs, SIDS, LLDCs and economies in transition received concentrated assistance with improved access to and use of telecommunications/ICTs.</li> </ul>	<ul style="list-style-type: none"> <li>Number of concerned countries with improved access to and use of telecommunications/ICTs.</li> </ul>	<ul style="list-style-type: none"> <li>A number of countries received concentrated assistance: Afghanistan, Bolivia, Burundi, Guinea-Bissau, Eswatini, Haiti, Kiribati, Malawi, Mongolia, Myanmar, Paraguay, Sao Tome and Principe, Samoa, Solomon Islands, Somalia, South Sudan, Sudan, Suriname, Timor-Leste, Tonga, Uganda, Uzbekistan, Vanuatu. Number of guidelines and best practices developed for use of telecommunications and ICTs for socio-economic development in Bangladesh.</li> <li>Capacity building provided to the National Communications Authority of South Sudan on Market Regulations.</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome Indicators	2018 measurement of the outcome indicators
<p>D.4-10: Enhanced capacity of LDCs, SIDS and LLDCs on telecommunication/ICT development.</p>	<ul style="list-style-type: none"> <li>Development of online training course on ICT Role for Smart Sustainable Cities in Haiti.</li> <li>Enhanced knowledge in addition, skills on adoption and use of new technologies through regional workshop on emerging technologies.</li> <li>Implemented regional training in digital broadcasting technologies, and in spectrum monitoring.</li> <li>Development of Spectrum Pricing Policy Framework for NTC-Sudan.</li> </ul> <p>ITU provided a Forum and Training on With ICTs everywhere - How safe is EMF, and also a training on E-waste statistics in Comoros, Djibouti, Mauritania, Somalia, Sudan, and Yemen.</p> <p>ITU trained 60 people in Internet Protocol Version 6 in six Arab LDCs: Comoros, Djibouti, Somalia, Sudan, Mauritania, and Yemen through a regional training programme.</p>	<ul style="list-style-type: none"> <li>At least 40% of Ministries of ICTs and offices of regulators in LDCs, SIDS, LLDCs and countries with economies in transition have enhanced capacity on telecommunication/ICT development.</li> </ul>	<ul style="list-style-type: none"> <li>Number of concerned countries with improved telecommunication/ICT development.</li> </ul>	<ul style="list-style-type: none"> <li>Haiti capacity was increased in regard to the role ICT for Smart Sustainable Cities.</li> <li>Five (5) LDCs benefited: Comoros, Djibouti, Mauritania, Somalia, Sudan and Yemen.</li> <li>Enhanced capacity of 27 countries; Angola, Benin, Burkina Faso, Burundi, Central African Republic, Chad, Democratic Republic of Congo, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, South Sudan, Tanzania, Togo, Uganda, and Zambia, that benefited from this training.</li> <li>South Sudan received concentrated assistance.</li> <li>EMF considerations in sustainable environment and e-waste statistics were provided.</li> </ul>

**RESULTS ASSESSMENT**

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>At least 30% of LDCs, SIDS, LLDCs and economies in transition received concentrated assistance with improved access to and use of telecommunications/ICTs</li> </ul>	<ul style="list-style-type: none"> <li>Improved decision-making on policy and regulatory issues and conducive policy, legal and regulatory environment for the ICT sector.</li> <li>Enhanced ICT regulation and policy related issues in Sudan.</li> <li>Supported South Sudan on specific need on jointly identified area.</li> <li>Supported Guinea Bissau, in the framework of Concentrated Assistance, in updating their national legislation, taking into account cybersecurity legal framework and personal data protection among others.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States that received concentrated assistance on their priority needs</li> </ul>	<ul style="list-style-type: none"> <li>Twenty-three (23) countries received concentrated assistance.</li> <li>Drafted two papers for long term project for reforming the licensing regime and competition rules in Bangladesh.</li> <li>Developed the Spectrum Pricing Policy Framework - Trained the Sudan Telecommunications and Postal Regulatory Authority.</li> <li>Concentrated assistance to South Sudan.</li> </ul>
<ul style="list-style-type: none"> <li>At least 40% of ministries of ICTs and offices of regulators in LDCs, SIDS, LLDCs, and countries with economies in transition with enhanced capacity on telecommunication/ICT development.</li> </ul>	<ul style="list-style-type: none"> <li>Supported Member States by strengthening capacity to develop national and regional policies to boost Smart Cities.</li> <li>Enhancement of knowledge and skills on adoption and use of new Technologies.</li> <li>Raised awareness on the importance of the legal framework for the environmentally sound management for ICT generated e-waste.</li> <li>Implemented ITU Asia –Pacific Regulators Roundtable and International Training Programme.</li> </ul>	<ul style="list-style-type: none"> <li>Number of individuals from concerned countries trained in telecommunication/ICT development.</li> </ul>	<ul style="list-style-type: none"> <li>Online training course was successfully implemented.</li> <li>More than 100 participants including six LDCs: Comoros, Djibouti, Mauritania, Somalia, Sudan, and Yemen.</li> <li>More than 150 attended the events.</li> <li>Regulatory knowledge and skills of participating countries have been improved.</li> </ul>

## Threat and risk assessment

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Stakeholders/ Partners</b>	Lack of partners on the field of the topic	High	<ul style="list-style-type: none"> <li>Engagement improved with various partners dealing with ICT related projects and activities for LDCs, SIDS, LLDCs</li> </ul>
<b>2. Finance</b>	Lack of resources to provide the appropriate support to Member States	High	<ul style="list-style-type: none"> <li>Improvement of partner involvement to implement projects when required in order to meet the needs of the country</li> </ul>
<b>3. Human resources</b>	Lack of staff exposure to issues related to the topic	Medium	<ul style="list-style-type: none"> <li>Support of staff participation to various events and discussions related to the topic in order to enhance capacity of the division and engagement of external consultants and partners</li> </ul>

## 2018 On-going projects by region

The table below provides the list of the current on-going projects for **Objective 4** by region

Project N.	Title	Region
9ARG18014	Universidades argentinas en la UIT	America
7RAB16025	Regional Center ICT Accessibility for Persons with Disabilities	Arab States
9RAS17056	Capacity Building for Countering Misappropriation of Telephone Numbers in Pacific Island Countries	Asia & Pacific
9RAS18061	Harnessing ICTs to support the digital economy and an inclusive digital society	Asia & Pacific
9THA18037	ITU-NBTC Training Programme 2018	Asia & Pacific
9GLO17088-02	National Implementation of the Financial Inclusion Global Initiative (FIGI) in China	Asia & Pacific
9RAS18061	Harnessing ICTs to support the digital economy and an inclusive digital society	Asia & Pacific
9RAS18062	Fostering development of infrastructure to enhance digital connectivity in Asia-Pacific	Asia & Pacific
9GLO15077	eMCM Master of Communications Management	World or Multi-Regional
9GLO15078	Delivery of the Spectrum Management Training Program (SMTP)	World or Multi-Regional
9GLO16080	Delivery of the Spectrum Management Training Program (SMTP)	World or Multi-Regional
COEGLO001	Capacity Building through Centres of Excellence (CoEs)	World or Multi-Regional
2GLO18093	Digital Identity for Development	World or Multi-Regional
2GLO16079	ICT-Eye: keeping an eye on ICT data	World or Multi-Regional
2GLO18094	Enhancement of National Emergency Telecommunication Plans and Coordination to Save Lives	World or Multi-Regional

## Objective 5

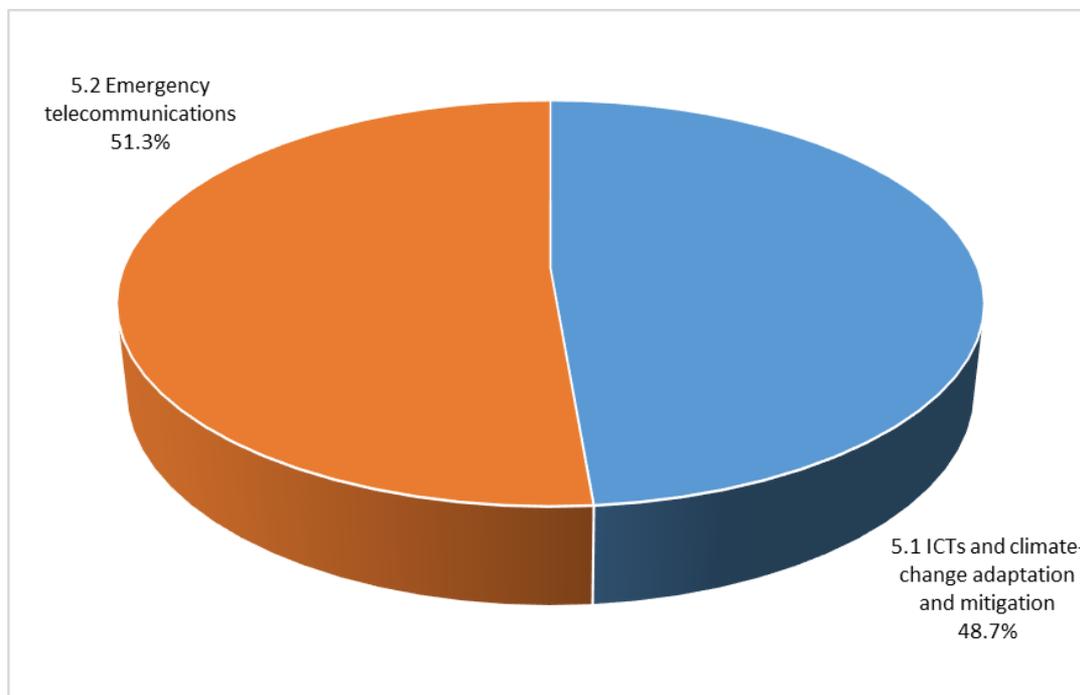
### Enhance environmental protection, climate-change adaptation and mitigation and disaster-management efforts through telecommunications/ICT

Objective 5 includes the following output:

- ICTs and climate-change adaptation and mitigation
- Emergency telecommunications

For 2018, the actual human resources allocated to objective 5 represent **9.6 per cent** of the total human resources of the Telecommunication Development Bureau.

**Chart 7 illustrates the breakdown of the actual allocation of human resources among the two outputs of objective 5.**



### Output 5.1

#### ICTs and climate-change adaptation and mitigation

The process established by the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) and the ongoing negotiations of its Intergovernmental Negotiating Committee are important international actions aimed at addressing the threat of climate change, mitigating its adverse impacts and assisting all ITU Member States. Climate change will see climate/weather-related events occurring more frequently and having an intense impact on water resources, land use and marine ecosystems,

thus in turn affecting the economies of all ITU Member States.

The critical importance of using telecommunications/ICTs to mitigate climate change and adapt to its adverse impact is widely recognized. This is why Member States should share best practices regarding sustainable telecommunication/ICT development and take into account the positive contribution of telecommunications/ICTs for sustainable development in other sectors of the economy.

## 2018 Implementation

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p><b>D.5-1 Improved availability of information and solutions for Member States, regarding climate-change mitigation and adaptation.</b></p>	<ul style="list-style-type: none"> <li>Development and implementation of two early warning systems for floods in Zambia, Kasaya Village and Mbeta Island.</li> <li>Development of a mobile multi-hazard early warning system and information sharing platform in the Caribbean region. Four countries benefited from this project</li> </ul>	<ul style="list-style-type: none"> <li>30% of all Member States with improved availability of information solutions regarding climate change adaptation and mitigation.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries with enhanced awareness of solutions regarding climate change adaptation and mitigation.</li> </ul>	<ul style="list-style-type: none"> <li>The two early warning systems established in Kasaya Village and Mbeta Island will provide early warning alerts to communities in order to evacuate to safe places before floods arrive to villages.</li> <li>The multi-hazard early warning systems and information sharing platform will provide real time information on meteorological hazards, such as hurricanes and storms, rapid decision making and coordination of activities between all stakeholders involved in disaster management.</li> </ul>
<p><b>D.5-2 Enhanced capacity of Member States in relation to climate-change mitigation and adaptation policy and regulatory frameworks.</b></p>	<ul style="list-style-type: none"> <li>Development of a session during the WSIS Forum on “E-environment: Multi-hazard early warning systems and the role of ICTs”.</li> </ul>		<ul style="list-style-type: none"> <li>Number of countries with improved capacity in relation to climate change adaptation and mitigation policy and regulatory frameworks.</li> </ul>	<ul style="list-style-type: none"> <li>The session provided the opportunity to raise awareness on the use of new ICTs and systems to monitor the environment and to disseminate information to end users on climate related risks.</li> </ul>

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p><b>D.5-3 Development of e-waste policy.</b></p>	<ul style="list-style-type: none"> <li>• Development of the Handbook for the development of a policy framework on ICT e-waste.</li> <li>• Report on Successful electronic waste management initiatives. Establishment of an e-waste pilot plant in La Plata, Argentina.</li> </ul>		<ul style="list-style-type: none"> <li>• Number of countries with e-waste policies developed</li> </ul>	<ul style="list-style-type: none"> <li>• The handbook of the development of a policy framework on ICT e-waste offers detailed information that will help and guide Member States in developing and establishing their national policies regarding e-waste management at a national level.</li> <li>• The report on Successful electronic waste management initiatives identifies successful electronic waste management projects in all regions. This will guide Member States in establishing e-waste management centres based on their own needs.</li> <li>• The e-waste plant pilot is providing concrete responses to the e-waste challenge in La Plata, Argentina. The plant also provides capacity building on environmentally sound management of e-waste to students of University of La Plata.</li> </ul>

## RESULTS ASSESSMENT

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>30% of all Member States with improved availability of information and solutions for Member States, regarding climate change adaptation and mitigation.</li> </ul>	<ul style="list-style-type: none"> <li>Development and implementation of two early warning systems for floods in Zambia, Kasaya Village and Mbeta Island.</li> <li>Development of a mobile multi-hazard early warning system and information sharing platform in the Caribbean region. Four countries benefited from this project.</li> <li>Development of a session during the WSIS Forum on “E-environment: Multi-hazard early warning systems and the role of ICTs”.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States assisted by BDT for increasing awareness on the impact of climate change and on promoting the use of telecommunications/ICTs to mitigate its negative effects.</li> </ul>	<ul style="list-style-type: none"> <li>Communities will increase its resilience and will get less affected by floods during the rainy season. Lives and economic losses will be reduced.</li> <li>Member states will increase its resilience to get affected by meteorological events. It will prevent economic losses and lives will be saved.</li> </ul>
<ul style="list-style-type: none"> <li>40% of all Member States with enhanced capacity in relation to climate change adaptation and mitigation policy and regulatory frameworks.</li> </ul>	<ul style="list-style-type: none"> <li>Development of a session during the WSIS Forum on “E-environment: Multi-hazard early warning systems and the role of ICTs”.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States assisted in developing their climate change strategies, policies and legislative frameworks.</li> </ul>	<ul style="list-style-type: none"> <li>Member states will be aware of different new ICT technologies and systems that can be used to monitor the environment, increase capacity to respond to disasters and to disseminate information to end users.</li> </ul>
<ul style="list-style-type: none"> <li>At least 40% of Member States with ICT e-waste policies.</li> </ul>	<ul style="list-style-type: none"> <li>Development of the Handbook for the development of a policy framework on ICT e-waste.</li> <li>Report on Successful electronic waste management initiatives.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States assisted in developing e-waste strategy, policy and regulatory frameworks.</li> </ul>	<ul style="list-style-type: none"> <li>Member States will use the guidelines to develop national policies, laws and regulation on e-waste; and benefit from best practices and successful e-waste projects that will enable them to tackle the e-waste problem at a national level.</li> </ul>

**Threat and risk assessment**

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Finance</b>	Lack of resources to satisfy all pending requests from the membership	Medium	<ul style="list-style-type: none"> <li>Brainstorming on resources mobilization</li> </ul>
<b>2. Stakeholder/ Partners</b>	Lack of engagement with partners in the field of climate change	Medium	<ul style="list-style-type: none"> <li>Cooperation improved with other organizations to provide necessary support</li> </ul>
<b>3. Human Resources</b>	Lack of staff exposure to issues related to the subject	Medium	<ul style="list-style-type: none"> <li>Support to staff participation to various events and discussions related to the topic</li> </ul>

## Output 5.2

### Emergency telecommunications

Countries throughout the world are experiencing increased numbers of natural and man-made disasters, with a disproportionate impact on developing countries. LDCs, SIDS and LLDCs are particularly vulnerable to the impact that disasters can have on their economies and infrastructures, and such countries often lack the capacity to respond to disasters.

The critical importance of using telecommunications/ICTs to respond to these devastating phenomena is widely recognized. Because of the role telecommunications/ICTs play in all phases of a disaster – prediction, detection, mitigation and relief – it is important to develop disaster telecommunications preparedness plans and strategies, including taking account of the need for resilient and redundant infrastructures and systems as part of disaster risk reduction and early warning.

Because disasters often extend beyond borders, effective disaster management may involve the deployment of efforts by more than one country in order to prevent loss of human life and regional crisis. Prior coordination and collaboration among disaster-management experts, including governments, the private sector, international organizations and non-governmental organizations, before disasters increases the probability of saving human life when rescue operations are conducted and thereby mitigates the consequences of a disaster.

Member States should take account of a diverse range of telecommunication/ICT solutions that are appropriate and commonly available for disaster response and mitigation, including those provided by amateur radio services and satellite and terrestrial network services/facilities, taking into account persons with disabilities and specific needs.

**2018 IMPLEMENTATION**

Outcomes	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.5-4 Developed standards-based monitoring and early-warning systems linked to national and regional networks. Collaboration to facilitate emergency disaster response.</p>	<ul style="list-style-type: none"> <li>Development of Global Guidelines on how to develop National Emergency Telecommunication Plans.</li> <li>Development of three (3) National Emergency Telecommunication Plans: Guatemala, Samoa, Vanuatu.</li> <li>Implementation of the Regional Emergency telecommunications network in 7 countries of the Americas region. The network is based on winlink using VHF and HF radios.</li> <li>Facilitated emergency response satellite equipment to Member States that requested assistance.</li> </ul>	<ul style="list-style-type: none"> <li>At least 65% of Member States have early warning systems and in particular, developing countries.</li> <li>During disasters facilitate emergency disaster response for Member States requesting support.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries with standards-based monitoring and early-warning systems and national emergency telecommunication plans developed.</li> <li>Number of countries assisted in case of disasters.</li> </ul>	<ul style="list-style-type: none"> <li>Three (3) countries were assisted in developing their National Emergency Telecommunication Plan: Guatemala, Samoa, Vanuatu.</li> <li>Three (3) countries received emergency telecommunications assistance in response to requests in the aftermath of disasters: Dominica, Papua New Guinea, Tonga.</li> </ul>

Outcomes (Ctn'd)	2018 achievements	Target 2020	Outcome indicators	2018 measurement of the outcome indicators
<p>D.5-5 Established partnerships among relevant organizations dealing with the use of telecommunication/ICT systems for the purpose of disaster preparedness, prediction, detection and mitigation.</p>	<ul style="list-style-type: none"> <li>Development of a project aimed at supporting the implementation of the WTDC-17 objectives and regional initiatives related to emergency telecommunications by assisting ITU Member States, and in particular LDCs, LLDCs, and SIDS, in the development of emergency communication plans and solutions</li> </ul>	<ul style="list-style-type: none"> <li>At least 60% of Member States have developed National Emergency Telecommunication Plans.</li> </ul>	<ul style="list-style-type: none"> <li>Number of partnerships established dealing with the use of telecommunication/ICT systems for the purpose of disaster preparedness, prediction, detection and mitigation.</li> <li>Number of jointly implemented projects.</li> </ul>	<ul style="list-style-type: none"> <li>Three (3) countries have benefited from this project.</li> </ul>
<p>D.5-6 Increased awareness of regional and international cooperation for easy access to, and sharing of, information related to the use of telecommunication/ICTs for emergency situations.</p>	<ul style="list-style-type: none"> <li>BDT organized a Multi-stakeholder Forum on the Role of Telecommunication/ICTs for Disaster Management and Risk Reduction for the Caribbean Islands, which took place from, 4-6 December, in Roseau, Dominica.</li> <li>BDT organized a Session on Multi-Hazard Early Warning Systems and the Role of ICTs, which took place on 18 March 2018 during the WSIS Forum.</li> </ul>	<ul style="list-style-type: none"> <li>At least 45% of Member States ratify the Tampere Convention.</li> </ul>	<ul style="list-style-type: none"> <li>Number of countries with increased awareness for easy access to, and sharing of, information related to the use of telecommunication/ICTs for emergency situations.</li> </ul>	<ul style="list-style-type: none"> <li>The Multi-stakeholder Forum on the Role of Telecommunication/ICTs for Disaster Management and Risk Reduction for the Caribbean Islands was attended by over 70 participants from different Caribbean islands including UN Organizations and NGOs</li> </ul>

**RESULTS ASSESSMENT**

Expected results	2018 achieved results	Performance Indicators	2018 Performance data
<ul style="list-style-type: none"> <li>At least 55% of Member States have early warning systems and in particular, developing countries</li> <li>During natural disaster facilitate emergency disaster response for the Member States in need.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of the regional emergency telecommunications network in 7 countries of the Americas region. The network is based on winlink using VHF and HF radios.</li> <li>Facilitated emergency response satellite equipment to Member States that requested assistance.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Member States assisted in developing and implementing early warning system.</li> <li>Number of Member States assisted in the case of disaster.</li> </ul>	<ul style="list-style-type: none"> <li>Three (3) countries have received emergency telecommunications assistance in response to disasters upon request.</li> </ul>
<ul style="list-style-type: none"> <li>At least 50% of Member States have developed National Emergency Telecommunication Plans.</li> </ul>	<ul style="list-style-type: none"> <li>Development of Global Guidelines on how to develop National Emergency Telecommunication Plans.</li> <li>Development of three (3) National Emergency Telecommunication Plans: Samoa, Vanuatu, Guatemala.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Cooperation Agreements signed between ITU and other partners on projects that focus on telecommunications/ICTs for disaster preparedness, prediction, detection and mitigation.</li> <li>Number of Member States assisted in developing their National Emergency telecommunication plans.</li> </ul>	<ul style="list-style-type: none"> <li>Three (3) countries have developed their National Emergency Telecommunication Plan.</li> <li>The Global Guidelines will guide Member States in developing National Emergency Telecommunication Plans based on their needs.</li> </ul>
<ul style="list-style-type: none"> <li>At least 40% of Member States ratify the Tampere Convention.</li> </ul>	<ul style="list-style-type: none"> <li>Forty-nine (49) Countries have ratified the Tampere Convention.</li> </ul>	<ul style="list-style-type: none"> <li>Number of Regional workshops on Tampere Convention.</li> <li>Number of Member States that ratified the convention.</li> </ul>	<ul style="list-style-type: none"> <li>One (1) workshop included a session on the importance of ratification and implementation of the Tampere Convention.</li> <li>Forty-nine (49) Countries have ratified the convention.</li> </ul>

## Threat and risk assessment

Perspective	Risk reported	Impact reported	Mitigation measures implemented
<b>1. Finance</b>	Lack of resources to provide appropriate support to Member States on their requirements	High	<ul style="list-style-type: none"> <li>• Mobilization of additional resources to cope with demand</li> </ul>
<b>2. Stakeholders/ Partners</b>	Insufficient support from partners and countries	High	<ul style="list-style-type: none"> <li>• Closer cooperation with countries and partners</li> </ul>
<b>3. Human resources</b>	Insufficient human resources to cope with work demand during multiple disasters at the same time	High	<ul style="list-style-type: none"> <li>• Capacity building activities performed for Member States</li> </ul>

## 2018 On-going projects by region

The table below provides the list of the current on-going projects for Objective 5 by region

Project N.	Title	Region
2RLA17016	Proyecto piloto para el uso de las TIC para situaciones de emergencia y desastres en la región de las Américas	America
2RLA18017	Project for the use of ICTs in emergency and disaster situations in the Caribbean region- Phase 1	America
9RAS14052	Implementing the Climate Change Adaptation Component of the Satellite Communications, Capacity, and Emergency Communications Solutions Project for the Small Island Developing States of the Pacific	Asia & Pacific
7RAS14050	Development of Satellite Communications Capacity and Emergency Communications Solutions for the Pacific Islands	Asia & Pacific
9RAS14052	Implementing the Climate Change Adaptation Component of the Satellite Communications, Capacity, and Emergency Communications Solutions Project for the Small Island Developing States of the Pacific	Asia & Pacific
9RAS17058	Emergency Telecommunications in Asia and the Pacific	Asia & Pacific
2GLO18095	Global e-Waste Statistics 2018	World or Multi-Regional
2GLO18094	Enhancement of National Emergency Telecommunication Plans and Coordination to Save Lives	World or Multi-Regional
7GLO03043	Rural Telecommunications Development in Least Developed Countries	World or Multi-Regional

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## PART 3 – The Telecommunication Development Bureau

This section presents the Telecommunication Development Bureau as well as the different departments and divisions that are part of it.

### Summary

The mission of the BDT includes the organization and support of the outputs related to the five objectives of the Telecommunication Development Sector. These outputs consist of actions and activities that represent a key component when it comes to the financial and planning processes.

### ITU-D Bureau

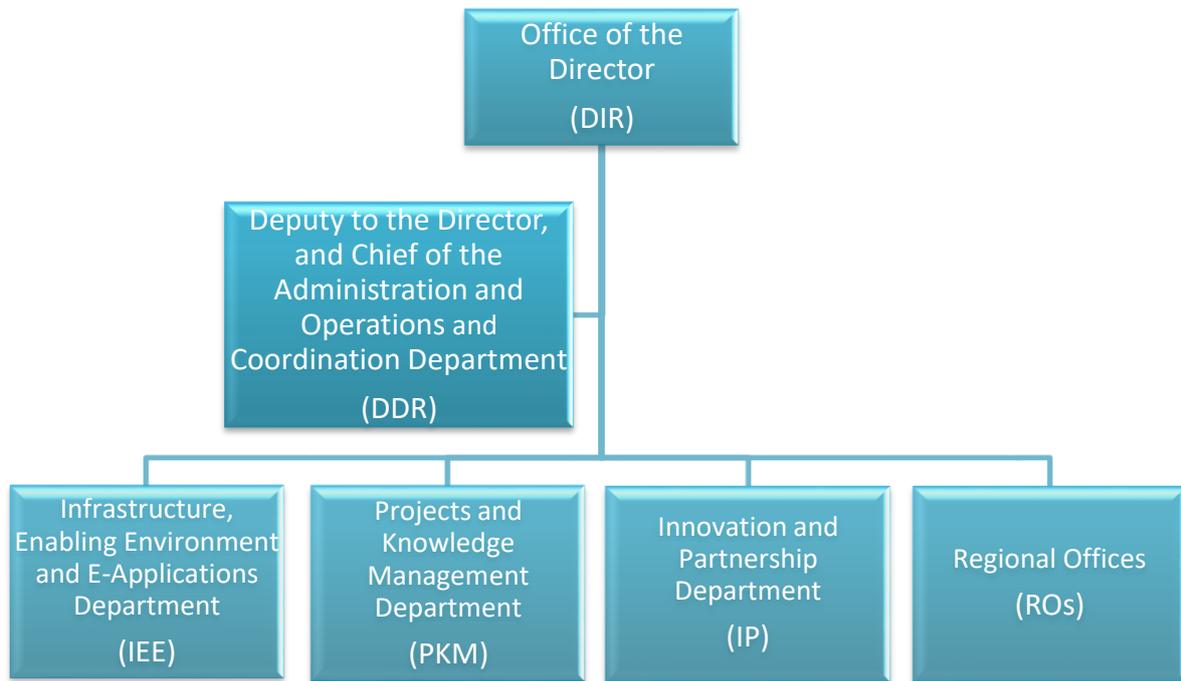
The Telecommunication Development Bureau is responsible for assisting countries in the field of information and communication technologies (ICTs), facilitating the mobilization of technical, human and financial resources needed for their implementation, as well as promoting access to ICTs. The Telecommunication Development Bureau also promotes the extension of the benefits of ICTs to all the world's inhabitants, participates in actions that contribute towards narrowing the digital divide, develops and manages programmes that facilitate information flow geared to the needs of developing countries.

The Telecommunication Development Bureau is organized into four Departments:

- Deputy to the Director and Chief of the Administration and Operations Coordination Department (DDR)
- Infrastructure, Enabling Environment and E-Applications Department (IEE)
- Projects and Knowledge Management Department (PKM)
- Innovation and Partnership Department (IP)

In addition, it includes the ITU Regional Offices.

The chart below illustrates the structure of the BDT.



## Key activities

The key activities of the Telecommunication Development Bureau are linked to the following:

- Assistance to least developed countries, landlocked developing countries and small island developing states
- Broadband deployment in rural areas
- Capacity building
- Climate change mitigation and adaptation and e-waste management
- Conformance and interoperability capacity building
- Cybersecurity: building confidence and security in the use of ICTs
- Digital inclusion
- Emergency telecommunications
- Global symposium for regulators
- Indicators and statistics
- M-health applications to combat non-communicable diseases
- Partnership building and resource mobilization
- Policy and regulatory fora
- Project implementation
- Spectrum management system for developing countries
- Study group activities and knowledge sharing
- Transition from analogue to digital broadcasting
- Transition to new generation networks

## Deputy to the Director and Chief of the Administration and Operations Coordination Department (DDR)

The Deputy to the Director and Chief of the Administration and Operations Coordination Department (DDR) is responsible for assisting and advising the Director in the direction and management of the Bureau including on all questions related to personnel, finance and operational planning process. The Department is responsible for leading the operational planning, assessment and reporting process within the framework of the Action Plan as adopted by the World Telecommunication Development Conference in coordination with the Heads of the other Departments in the Bureau and Regional Directors. The Department is responsible for management of the Administration Division (ADM), the Support Division (SUP), the IT Support Service (ITS) and the Support to Field Offices

Service (SFO). The Department is also responsible for coordinating conferences and events preparation and for monitoring the implementation of decisions emanating from ITU and BDT governing bodies including Council, Conferences and Assemblies of the other Sectors for matters of relevance to BDT as well as from the Telecommunication Development Advisory Group. The Department is responsible for coordination of the ITU-D Sector cooperation with other ITU Sectors and General Secretariat.

The following table provides the breakdown of human resources (Work/Months) in the Deputy to the Director and Chief of the Administration and Operations Coordination Department (DDR) by grade, for both planned and actual resources for 2018.

### Human resources (Work/months)

Grade	Planned	Actual
D2	12	12
P5	24	24
P4	12	12
P3	48	36
P2	48	72
G6	72	84
G5	24	0
<b>Total</b>	<b>240</b>	<b>240</b>

## Infrastructure, Enabling Environment and E-Applications Department (IEE)

The Infrastructure, Enabling Environment and E-Applications Department (IEE) is responsible for assisting ITU Member States and ITU-D Sector Members with the utilization of appropriate technologies to build or extend their telecommunication infrastructure and adapt to the rapidly changing telecommunication/ICT environment. This includes the provision of guidelines and tools for the development of policy and regulatory frameworks, financing policies and strategies, development of telecommunication networks, the use of reliable and cost-effective ICT applications, cybersecurity, broadcasting and spectrum management. The Department is also responsible for promoting access to, as well as use and knowledge of, telecommunications and ICTs

for groups which have been marginalized in their access to current mainstream information communications technology services, including women and girls, children and youth, indigenous people, persons with disabilities and people living in remote communities. The Department is also responsible for making contribution to and following-up the work of ITU-D Study Groups for issues related to the responsibilities of the Department.

The table below shows the breakdown of the human resources (Work/Months) in the Infrastructure, Enabling Environment and E-Applications Department (IEE) by grade, for both planned and actual resources for 2018.

### Human resources (Work/months)

Grade	Planned	Actual
D1	12	12
P5	48	48
P4	72	96
P3	36	12
P2	24	24
G6	12	12
G5	36	36
<b>Total</b>	<b>240</b>	<b>240</b>

## Projects and Knowledge Management Department (PKM)

The Projects and Knowledge Management Department (PKM) is responsible for assisting ITU Member States and ITU-D Sector Members strengthen the institutional and organizational capability to adapt to the rapidly changing telecommunication/ICT environment through capacity building. The Department also provides administrative and technical support in the formulation of project proposals and implementation of projects, project monitoring and evaluation; produces and disseminates timely statistical and analytical data on the Telecommunication/ICT Sector and the Information Society; and supports the work of ITU-D Study Groups. The Department is also responsible for providing concentrated assistance to least developed countries, small island

developing states, and landlocked developed countries. In addition, PKM implements activities and projects in the domain of emergency telecommunications, and climate change. The Department is also responsible for making contribution to and following-up the work of ITU-D Study Groups for issues related to the responsibilities of the Department.

The table below shows the breakdown of the human resources (Work/Months) in the Projects and Knowledge Management Department (PKM) by grade, for both planned and actual resources for 2018.

### Human resources

(Work/months)

Grade	Planned	Actual
D1	12	12
P5	48	48
P4	96	84
P3	48	60
P2	12	12
G6	12	12
G5	60	60
<b>Total</b>	<b>288</b>	<b>288</b>

## Innovation and Partnership Department (IP)

The Innovation and Partnership Department (IP) is responsible for the strategic planning and thinking that will properly position the BDT to accomplish the organizational goals and objectives and to achieve the corporate vision; partnership building and resource mobilization, including the management of the ICT-DF and other funds in trust to support the implementation of regional initiatives through bankable projects; and content coordination and strengthening of the synergy between the ITU-D Study Groups, the programmes and the special initiatives.

The table below shows the breakdown of the human resources (Work/Months) in the Innovation and Partnership Department (IP) by grade, for both planned and actual resources for 2018.

### Human resources (Work/months)

Grade	Planned	Actual
D1	12	12
P4	60	60
G6	24	24
G5	24	24
<b>Total</b>	<b>120</b>	<b>120</b>

### Regional and Area Offices

The Regional and Area Offices are responsible for proposing the operational policy and strategy of telecommunication development activities in their respective regions, coordinating with countries of the region to prioritize requirements, proposing inputs for the preparation of the operational plan based on these prioritized regional requirements, as well as coordinating and implementing technical cooperation activities in their respective regions, be they in the framework of projects, regional initiatives, or follow-up of World Telecommunication Development Conferences.

The table below shows the breakdown of the human resources (Work/Months) in the Regional and Area Offices by grade, for both planned and actual resources for 2018.

**Human resources**  
(Work/months)

Grade	Planned	Actual
D1	48	48
P5	156	156
P4	48	48
P3	144	144
P2	24	24
G6	48	48
G5	192	180
G4/G3/G2	48	48
<b>Total</b>	<b>708</b>	<b>696</b>

The tables below show the breakdown by region

## - AFR

### Human resources

(Work/months)

Grade	Planned	Actual
D1	12	12
P5	48	48
P4	12	12
P3	48	48
G6	12	12
G5	60	48
G4/G2	24	24
<b>Total</b>	<b>216</b>	<b>204</b>

## - AMS

### Human resources

(Work/months)

Grade	Planned	Actual
D1	12	12
P5	48	48
P4	12	12
P3	36	36
P2	12	12
G6	12	12
G5	48	48
<b>Total</b>	<b>180</b>	<b>180</b>

- ARB

**Human resources**  
(Work/months)

Grade	Planned	Actual
D1	12	12
P5	12	12
P4	12	12
P3	12	12
P2	12	12
G6	12	12
G5	24	24
G3	12	12
<b>Total</b>	<b>108</b>	<b>108</b>

- ASP

**Human resources**  
(Work/months)

Grade	Planned	Actual
D1	12	12
P5	24	24
P4	12	12
P3	24	24
G6	12	12
G5	36	36
G3	12	12
<b>Total</b>	<b>132</b>	<b>132</b>

**- CIS****Human resources**  
(Work/months)

<b>Grade</b>	<b>Planned</b>	<b>Actual</b>
P5	12	12
P3	12	12
G5	12	12
<b>Total</b>	<b>36</b>	<b>36</b>

**- EUR****Human resources**  
(Work/months)

<b>Grade</b>	<b>Planned</b>	<b>Actual</b>
P5	12	12
P3	12	12
G5	12	12
<b>Total</b>	<b>36</b>	<b>36</b>



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## PART 4 – The resources

### Summary

This part of the document presents the summary of planned and actual resources for 2018. These estimates are based on the full implementation of outputs and activity programme of the Telecommunication Development Sector.

### Human resources

The following table and charts present the evolution of the planned human resources in terms of work/months for the Telecommunication Development Bureau for 2018.

#### *Comparison between the actual and planned human resources levels*

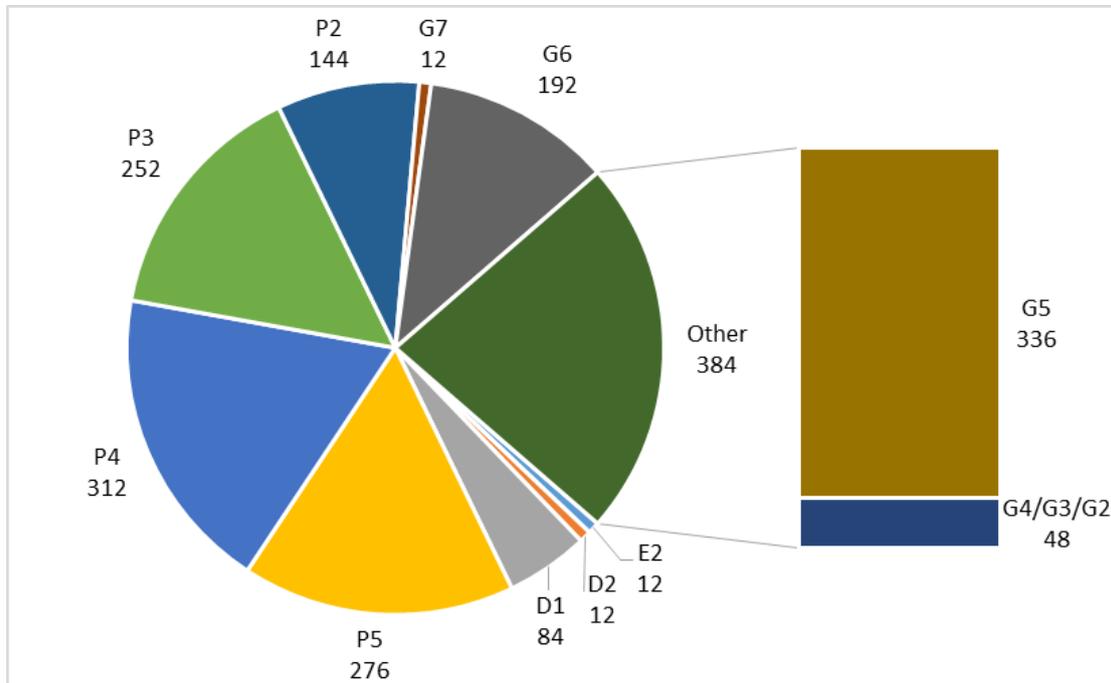
#### Human resources (Work/months)

Grade	Planned	Actual
E2	12	12
D2	12	12
D1	84	84
P5	276	276
P4	300	312
P3	276	252
P2	120	144
G7	12	12
G6	180	192
G5	360	336
G4/G3/G2	48	48
<b>Total</b>	<b>1 680</b>	<b>1 680</b>

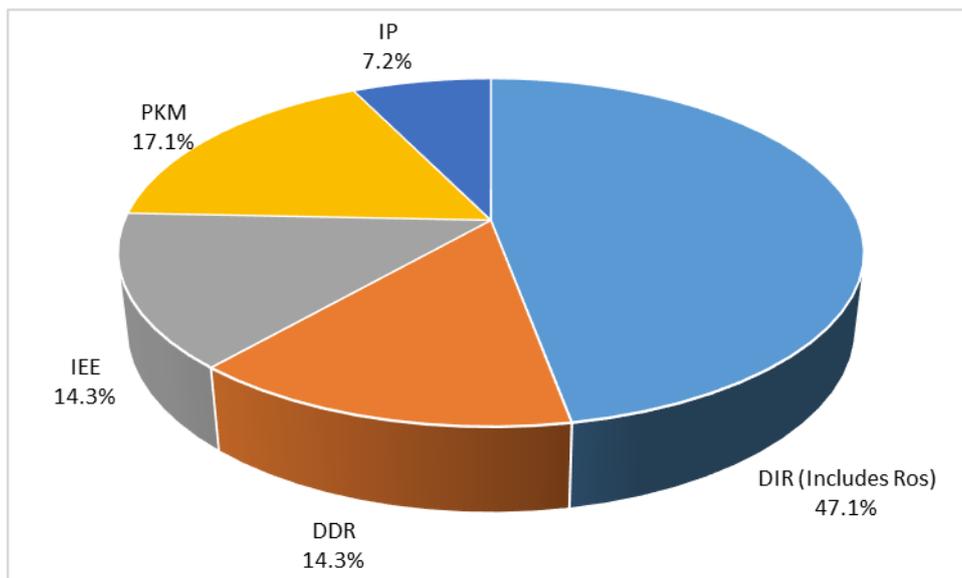
## Distribution of the 2018 actual staffing of the Telecommunication Development Bureau by objectives and grade

Outputs	E2	D2	D1	P5	P4	P3	P2	G7	G6	G5	G4/G3/G2	Total
<b>OBI. 1</b>												
Output 1.1 WTDC	0.6	0.48	2.64	7.32	1.8	2.52	3.48	0.6	4.08	4.08	1.32	28.92
Output 1.2 RPMs	0	0	0.36	0.84	0.12	0.12	0	0	0.6	1.32	0.12	3.48
Output 1.3 TDAG	1.68	1.68	8.76	16.2	14.52	8.04	8.52	1.68	22.08	12.72	0.84	96.72
Output 1.4 STG	1.2	1.2	5.52	15.72	34.2	10.44	11.16	1.2	21.48	20.28	0.96	123.36
<b>OBI. 2</b>												
Output 2.1 Policy and regulatory frameworks	0.84	0.84	6.24	32.28	48.72	19.8	10.56	0.84	19.2	27.24	4.2	170.76
Output 2.2 Telecommunication/ICT networks	0.84	0.84	6.48	34.56	29.4	29.16	7.8	0.84	12.36	34.8	6.6	163.68
Output 2.3 Innovation and partnership	0.72	0.84	11.16	15.12	22.8	16.8	7.08	0.72	23.28	25.2	3.48	127.2
<b>OBI. 3</b>												
Output 3.1 Building conf. and security in ICTs	0.84	0.84	7.08	20.76	21.12	20.64	27.6	0.84	14.28	25.2	4.32	143.52
Output 3.2 ICT applications and services	0.84	0.84	6.84	17.64	25.32	15.48	6.36	0.84	12.84	27.6	4.8	119.4
Output 4.1 Capacity building	0.84	0.84	5.28	29.04	26.04	29.64	22.8	0.84	12.36	36.96	5.76	170.4
Output 4.2 Telecommunication/ICT statistics	0.72	0.72	3.24	21	34.44	33.84	7.68	0.72	9.48	38.4	2.76	153.00
Output 4.3 Digital incl. of people with specific needs	0.72	0.72	6	24	23.64	13.8	6.48	0.72	11.64	24.36	2.76	114.84
Output 4.4 Concentr. Assist. to LDCs, SIDS and LLDC	0.72	0.72	6.48	17.88	17.4	16.08	8.4	0.72	10.2	20.16	4.2	102.96
<b>OBI. 5</b>												
Output 5.1 ICTs and climate-change adapt. and mitig.	0.72	0.72	4.32	11.76	6.6	15.84	8.28	0.72	8.88	18.12	2.76	78.72
Output 5.2 Emergency telecommunications	0.72	0.72	3.6	11.88	5.88	19.8	7.8	0.72	9.24	19.56	3.12	83.04
<b>Total</b>	<b>12.00</b>	<b>12.00</b>	<b>84.00</b>	<b>276.00</b>	<b>312.00</b>	<b>252.00</b>	<b>144.00</b>	<b>12.00</b>	<b>192.00</b>	<b>336.00</b>	<b>48.00</b>	<b>1680.00</b>

**Distribution of the actual 2018 staffing level of the Telecommunication Development Bureau by grade (Work/months)**



**Breakdown of total 2018 actual human resources by department**



*Distribution of the 2018 actual staffing (work/months) of the Telecommunication Development Bureau by Department and grade*

	DIR (Includes ROs)	DDR	IEE	PKM	IP
Elected Official	12				
D2		12			
D1	48		12	12	12
P5	156	24	48	48	
P4	60	12	96	84	60
P3	144	36	12	60	
P2	36	72	24	12	
G7	12				
G6	60	84	12	12	24
G5	216		36	60	24
G4/G3/G2	48				
<b>Total</b>	<b>792</b>	<b>240</b>	<b>240</b>	<b>288</b>	<b>120</b>

PART 1 .....EXECUTIVE SUMMARY

PART 2 .....THE FIVE OBJECTIVES OF THE  
TELECOMMUNICATION DEVELOPMENT SECTOR

PART 3 ..... THE TELECOMMUNICATION  
DEVELOPMENT BUREAU

PART 4..... THE RESOURCES

**PART 5 ..... IMPLEMENTATION  
OF REGIONAL INITIATIVES DURING 2018**





## PART 5 – IMPLEMENTATION OF REGIONAL INITIATIVES DURING 2018

In 2018, BDT continued to implement regional initiatives approved under the Dubai Action Plan (DuAP). These regional initiatives were intended to address specific telecommunication/ICT priority areas through partnerships and resource mobilization to implement small-, medium- and large-scale projects in the ITU regions.

The summary of activities undertaken during 2018 under these regional initiatives is provided by regions in section 1. More details on specific activities are provided in section 2. Tables 1 and 2 provide operational and financial information on the levels of regional activities in 2018<sup>1</sup>.

### SECTION 1. Summary

#### Africa Region

In 2018, BDT implemented project activities under 13 technical cooperation projects for a total amount of 2.8 million USD in the Africa region, in collaboration with Member States. In addition, activities on 41 actions of the BDT Operational Plan were implemented for an amount of 850 thousand CHF.

ITU provided support to Africa Telecommunications Union (ATU) in organizing the preparatory meetings to build Africa region common positions to the WRC 19 and other global events. ITU also facilitated the harmonization of policies and regulatory frameworks in the region, which includes universalization of broadband, e-health using mobile devices, and regional and sub-regional IXP to provide cost reduction of traffic. Assistance was provided to countries in the region in various areas, including the model national broadband plans, development of digital economy policies, development of strategies and corporate strategic plans for institutions, etc.

A number of projects are currently ongoing in areas such as institutional reform, telemedicine, wireless broadband, judiciary training, computer incident response team (CIRT) implementation and enhancement, m-diabetes, and m-cervical cancer. Several regional workshops and forums were organized in 2018 in the region in areas such as conformance and interoperability, IPV6, cybersecurity and cyber drills, Internet of Things (IOT), ICT economics and finance, quality of service and quality of experience, international roaming, and ICT accessibility and digital inclusion. Several national workshops were organized on subjects like spectrum management, ICT measurements and indicators, CIRT management, ICT skills train of trainers, child online protection (COP), cybersecurity maturity review and strategy, crisis management plans, judiciary training, and quality of service (QoS) and quality of experience (QoE).

#### Americas Region

In 2018, BDT implemented project activities under 12 technical cooperation projects for an amount of 1 million USD in the Americas region, in collaboration with Member States. In addition, activities under 35 actions of the BDT Operational Plan were implemented for a total amount of 589 thousand CHF. In the Americas region, 22 additional capacity building activities were also implemented to cope with the demands of membership, such as ICT policy and regulation, business and management of telecommunication technical issues, IoT communication protocols, LTE radio access technologies, radioelectric spectrum, cybersecurity, emergency communications, satellite communications, digital TV, ICTs and climate change, IXPs, optical access in network communications, among others. Over 15 of these capacity building activities were

<sup>1</sup> All financial figures for 2018 are preliminary awaiting the final closure of accounts. Implementation figures refer to funds committed for the implementation of actions/projects.

delivered through the ITU Academy, including a pilot project on digital policies that targeted civil servants of the Brazilian Administration – a similar training will be delivered in the Caribbean in 2019.

Direct assistance and support were provided to different countries in the region in areas of policy and regulatory framework for an e-waste management, development of national ICT plans, and preparation of guidelines for transition from analogue to digital broadcasting, infrastructure deployment, web accessibility training, and others. A new online training focusing on the development, management and operation an indigenous radio network was delivered to over 200 indigenous people from 16 countries. ITU also developed in 2018 a new training programme to benefit indigenous communities by training indigenous technical promoters with a critical view of ICTs to be able to choose the most convenient technology for the development of community networks and ensure its sustainability without the need of external assistance in the operation and maintenance of these networks. The programme consisted of five on-line training courses followed by a hands-on face-to-face training focusing on three main areas: broadcasting, community networks and community mobile telephony.

Several regional workshops and forums on conformance and interoperability, Internet governance, cyber bullying, ICT accessibility and digital inclusion, cybersecurity and cyber drills, emergency telecommunications, and IOT were organized and delivered in 2018 in the Americas region. A pilot project on the establishment of the Alternate Regional Emergency Telecommunications Network in the Americas region was prepared as a result of the joint effort of ITU, CITELE, and COMTELCA. A conformance and interoperability (C&I) assessment study was conducted with the main objective of creating proposals on ways forward to improve the C&I status in the region.

### **Arab States Region**

In 2018, BDT implemented project activities under five technical cooperation projects in the Arab States region for 872 thousand USD, in collaboration with Member States. In addition, activities on 29 actions were implemented for an amount of 404 thousand CHF.

Through the ITU Arab States region centres of excellence network, 13 capacity building courses were implemented in different aspects of ICT applications and services, new technologies and broadband, with more than 183 participants trained. A cooperation agreement was signed with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) represented by the Employment Promotion Project (EPP) for the organization of Girls in ICT Day events until 2019. Assistance was provided to the Arab Incubators and Technoparks Network (ARTECNET), and a study was conducted on Internet networks and IXPs development in the Arab States region.

Capacity building activities on e-waste, EMF, smart learning, IoT, smart cities and Big Data development, spectrum pricing, cost and pricing of quadplay access, satellite communications, training needs analysis, and training plan development of ICT sectors were organized in the Arab States region. Direct assistance was provided to Palestine, Somalia, and Sudan on mobile number portability, ICT policy and strategy, and framework of spectrum pricing. Furthermore, capacity building assistance was provided to countries in the area of spectrum management. Efforts were continued in relation to cybersecurity through the organization of the regional Cybersecurity Week that contains annual regional summit and annual regional cyber drills as well as child online protection and cybersecurity activities. ICT accessibility was promoted regionally through the organization of regional ICT Accessibility Week.

Assistance to Sudan to develop a national ICT accessibility policy was conducted in 2018. In addition, one workshop was organized on spectrum management in collaboration with ITU-R.

### **Asia and the Pacific Region**

In 2018, BDT implemented project activities under ten technical cooperation projects for a total amount of 668 thousand USD in the Asia and the Pacific region, in collaboration with Member States and partners. The projects were funded by Department of Communications and the Arts (Australia), National Broadcasting and Telecommunications Commission (Thailand), Ministry of Science, ICT and Future Planning (Republic of Korea),

Estonia, and Bill & Melinda Gates Foundation, International Telecommunications Satellite Organization (ITSO). In addition, activities on 35 actions were implemented for an amount of 402 thousand CHF.

The key emphasis was on specialized assistance, awareness raising and capacity building in the areas of radio frequency spectrum management and monitoring, developing medium to long-term spectrum management master plans, policy and regulatory frameworks, cybersecurity, implementation of CIRT, national cybersecurity strategies, and child online protection, broadband, conformance and interoperability, and type approvals, ICT applications, telecommunication sector roadmaps and e-applications for Pacific Islands, quality of service, ICT indicators and statistics, Internet of Things, implementation of IPv6, ICTs for promoting innovation and entrepreneurship, ICTs for the empowerment of women, e-governance, smart and sustainable cities, e-agriculture, emergency telecommunications, and other technical and regulatory assistances.

In the area of training, the focus was on *mobile broadband QoS, Internet and IPv6 infrastructure security, monitoring radio frequency spectrum in the modern wireless era, cybersecurity, IoT technologies and applications for smart cities, conformity and interoperability and 5G planning, blockchain ecosystem and decentralization, competition analysis in digital applications environment, traffic engineering and advanced wireless network planning, IOT overview and applications, use of drones, satellite imagery and GIS for agriculture, IoT platform and application development, digital financial services and digital payments, digital skills for job creation.*

### CIS Region

In 2018, BDT implemented activities on 20 actions for an amount of 292 thousand CHF.

To raise awareness of membership and facilitate dissemination of best practices, ITU organized regional events on e-health, cybersecurity and COP, digital transformation, mobile number portability and C&I, Big Data and cloud computing, IoT and future networks, spectrum management, IMT-2020/5G and VoLTE/ViLTE. All regional events were organized in response to formal requests from ITU Member-States, Sector Members, and Academia in the CIS region.

ITU also developed a specialized information resource that will be used as a platform to promote regional initiative outputs, seek partnerships and consolidate membership activities on subjects related to regional initiatives.

Other tangible outputs include:

- Online training courses on e-health for students, doctors and IT professionals  
<https://ehealthcourses.online/info/>.
- Research: Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Moscow <https://www.itu.int/en/publications/Documents/tsb/2018-U4SSC-Case-of-Moscow/index.html#p=1>
- Assistance in redistributing digital dividend frequencies for new technologies including IoT in the Kyrgyz Republic.
- Assessment of readiness to implement a national Computer Incident Response Team (CIRT).

Finally, ITU mobilized partners and resources to implement the following projects in 2019:

- Creation of digital skills centres for women and youth in Uzbekistan.
- Development of multimedia online course for women and girls in Azerbaijan.
- Creation of information and training centre on IP-telephony in Belarus.
- Establishment of the Regional Laboratory on IoT and Future Networks.

## Europe Region

In 2018, BDT implemented activities under two technical cooperation project for a total amount of 493 thousand USD in the Europe region, in collaboration with Member States. In addition, activities on 26 actions were implemented for an amount of 257 thousand CHF.

Efforts to strengthen the implementation mechanism for the region were continued, including the coordination of actions with relevant organizations in the region, such as CEPT, EU, EC, ECO, ENISA, Regional Cooperation Council, ICPE and the UN, including UN ECE, R-UNDG, UNIDO, ILO, UNCTAD, WHO and FAO, and some UN country teams. Throughout the year, more than 32 workshops, seminars, expert group meetings on broadcasting, broadband, accessibility, cybersecurity, innovation, human capacity building were organized, attracting more than 6 000 participants in total from 35 countries. In addition, human capacity of more than 660 professionals was built through the ITU European network of centres of excellence (CoEs) that offered more than 17 training opportunities in 2018.

Direct assistance was provided to Albania, Bosnia and Herzegovina, Cyprus, Georgia, Greece, Montenegro, Poland, and Serbia in the fields of innovation, broadcasting, broadband, cybersecurity, and ICT applications, and elaboration of digital innovations profiles. More than 10 publications and reports have been elaborated during the year.

Europe Regional Office continued close coordination with the UN system, while contributing to the implementation to the WSIS Action Lines and 2030 Agenda for Sustainable Development. Collaboration with European Commission and the Regional Cooperation Council has been strengthened to advance the digital integration of Member States in the Western Balkans.

**Table 1. Implementation of BDT operational plan by region in 2018**

(amounts in thousands of Swiss francs)

Region	Objective 2		Objective 3		Objective 4		Objective 5		TOTAL	
	Number of actions	Impl. Level CHF (000)	Number of actions	Impl. Level CHF (000)	Number of actions	Impl. Level CHF (000)	Number of actions	Impl. Level CHF (000)	Number of actions	Impl. Level CHF (000)
Africa	19	591	6	68	15	187	1	4	41	850
Americas	15	238	2	42	16	220	2	89	35	589
Arab States	16	256	4	43	7	74	2	31	29	404
Asia-Pacific	18	196	7	117	10	89			35	402
CIS	7	109	7	82	6	101			20	292
Europe	14	113	7	75	5	69			26	257
<b>Total</b>	<b>89</b>	<b>1,503</b>	<b>33</b>	<b>427</b>	<b>59</b>	<b>740</b>	<b>5</b>	<b>124</b>	<b>186</b>	<b>2,794</b>

**Table 2. Implementation of projects by region in 2018**

(amounts in thousands of US Dollars)

Region	FIT		ICT-DF		Operation Plan		UNDP		TOTAL	
	Number of projects	Impl. Level US\$(000)								
Africa	6	351	3	2,263	4	183			13	2,797
Americas	9	823			3	191			12	1,014
Arab States	1	802	3	70	1	0			5	872
Asia-Pacific	9	635	1	33					10	668
CIS									0	0
Europe	2	493							2	493
<b>Total</b>	<b>27</b>	<b>3,104</b>	<b>7</b>	<b>2,366</b>	<b>8</b>	<b>374</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>5,844</b>

## SECTION 2. DETAILS OF ACTIVITIES UNDERTAKEN IN 2018 UNDER REGIONAL INITIATIVES

### AFRICA REGION

#### **AFR RI 1: Strengthening human and institutional capacity building**

The Regional Initiative on Strengthening Human and Institutional Capacity Building was extensively implemented within the framework of the ITU centre of excellence network and ITU Academy. In 2018, about 85 professionals were trained in various subjects by the networks.

The Annual Regional Human Capacity Building Workshop for Africa, organized by ITU in Nigeria from 27 to 29 August 2018, combined with the regional training on Internet governance, attracted more than 100 participants from 14 countries and 6 international/regional organizations.

#### **AFR RI 2: Strengthening and harmonizing policy and regulatory frameworks for the integration of African telecommunication/ICT markets**

Least developed country (LDC) capacities were increased in the area of telecommunication/ICT standardization and statistics through national workshops held in Chad and Burundi, which provided a deeper understanding of ICT indicators and data collection to the 25 participants in each workshop. A workshop on USO was also delivered in the Central African Republic.

ITU assistance to Uganda helped the country to progress with the development of its Digital Uganda Vision and get the document validated in the workshop held on 29 November 2018. This document is expected to integrate and harmonize all policies related to ICTs from various sectors in the country.

The project on the Institutional reform and the elaboration of the broadband strategy for Burundi was achieved with a new set of laws to be adopted by the country.

#### **AFR RI 3: Development of broadband access and adoption of broadband**

Wireless broadband infrastructure projects under the ITU/Craig and Susan McCaw Broadband Wireless Network Project for Africa are being implemented in six countries (Burkina Faso, Burundi, Eswatini, Lesotho, Mali and Rwanda) to develop wireless broadband infrastructure and applications and enhance capacity. The projects in Eswatini, Lesotho, and Mali are ongoing, while the projects in Burkina Faso, Burundi and Rwanda have already succeeded in bringing broadband access to hospitals and schools. The same project was also launched in Madagascar with local funding.

Under the ITU and the Ministry of Science, ICT and Future Planning (MSIP), Republic of Korea wireless broadband access master plan project, the groundwork has been completed for the adoption and use of broadband in the Republic of the Congo and Malawi. In the framework of the memorandum of understanding between China, ITU and the East African Community (EAC) and following the country visits conducted by ITU and MIIT China experts, countries on joint partnership and cooperation on the acceleration of development of infrastructure for the parties continue working on the project formulation for EAC.

The continuous effort put into the development of the ITU interactive terrestrial transmission map for Africa will result in increased business potential and improved infrastructure planning (sharing of passive telecommunication infrastructure and power supply) in the region.

Burundi was assisted in the development of a broadband policy, strategy and regulatory framework that will result in an improved regulatory environment to help meet the growing demand for broadband connectivity.

A broadband universal access study was conducted for Lesotho that provided strategic guidance for implementation of the universal broadband strategy and overall development of the ICT sector in Lesotho.

Training on C&I was delivered to countries in 2018, as in previous years.

Namibia was assisted in the revision of its National Broadband Policy and associated Strategic Implementation Plan for achieving a digital economy, which will be compliant with the new guidelines, adding any new content if necessary.

Assistance was given to Africa region countries for:

- the development of ITU Interactive Terrestrial Transmission in the region;
- the ongoing implementation of phase 2 of the ITU/McCaw Foundation broadband wireless network in Burkina Faso, and an international tender organized for a similar project for Mali;
- Ongoing IPv6 testbeds in Cameroon and Sierra Leone to be used as a sub-regional testbed for IPv4 to IPv6 migration in West and Central Africa;

#### **AFR RI 4: Spectrum management and transition to digital broadcasting**

In 2018, a regional workshop on spectrum management and 5G was organized in Nairobi, Kenya. Another regional workshop on spectrum monitoring funding was organized in Accra, Ghana. In addition, some countries, such as Malawi, were assisted in their national spectrum management and frequency coordination. Burundi was granted fellowships to attend ABU meeting in Algiers, Algeria.

Direct assistance was given to Ethiopia to investigate and find solutions to the harmful interference of an AM broadcaster into the fixed line telephone network.

#### **AFR RI 5: Building confidence and security in the use of telecommunications/ICT**

In 2018, CIRT readiness assessment workshops were conducted for Niger and the Democratic Republic of Congo in July and October, respectively. These workshops helped to strengthen the concerned countries' preparedness for their national cybersecurity policy elaboration as well as for their national CIRT implementation.

### **AMERICAS REGION**

#### **AMS RI 1: Emergency telecommunications**

A bSmart project is under preparation for ITU to assist the Government of the Bahamas. Through this project, ITU will provide technical support, advice and guidance to contribute to the country's agenda on diversification, improvement of public services, enhanced security, enhancement of the tourism industry, developing an advanced ICT infrastructure and improving the quality of citizens' lives.

A needs assessment of emergency communication systems with the objective of implementing a mobile early warning system and communication platform was performed for Antigua and Barbuda, Barbados, the Bahamas, and Saint Lucia during the period from 18 September to 19 October 2018. The Virtual Vision platform as a mechanism for real time, inter-agency, national and regional information sharing, reporting and early warning is being introduced to these countries. Also, an assessment survey of the resilience of broadcasters in the Caribbean in times of disaster was undertaken in collaboration with the Caribbean Broadcasting Union (CBU) and the Commission for Caribbean Communications Resilience (CCCR) through the Caribbean Telecommunications Union.

A Multi-stakeholder Forum on the Role of Telecommunications/ICTs for Disaster Management and Risk Reduction for the Caribbean Islands was organized in Roseau, Dominica, on 4 to 6 December 2018. The forum was attended by over 50 participants from different Caribbean Islands, Thailand, United Kingdom, and the United States, including national and international humanitarian agencies, private sector and academia, such as International Federation of Red Cross, Emergency Telecommunications Cluster, International Organization for Migration, as well as national firefighters, Red Cross, Police and civil defense and the Caribbean Institute of Meteorology and Hydrology. The Forum served to pave the way for enhancing the use of ICTs for disaster management in the region and addressing key questions related to the best use of ICTs for disaster risk reduction and management. It also served as a platform to exchange new experiences and best practices in the use of modern technologies for monitoring and early warning.

The III Regional Workshop: Technologies to mitigate effects of Natural Disasters was organized on 1 and 2 August in Quito, Ecuador. The event was attended by more than 200 participants.

ITU-D attended the 49th Annual General Assembly of the Caribbean Broadcasting Union (CBU) in Kingston, Jamaica, from 13 to 15 August 2018, and made a presentation on the work of and support provided by ITU on disaster management initiatives using ICTs and other initiatives.

A study on the Assessment of Emergency Telecommunication plans and systems in the Caribbean Region for broadcasters was organized. This is a follow-up from the study done earlier for telecommunications in the region. All these will be congruent to the Emergency Telecommunications Winlink Project which addresses in large measure “The use of ICTs for emergency and disaster situations in the Americas region”.

ITU-D has supported the deployment of a mobile multi-hazard Early Warning and information-sharing platform in the Caribbean, in coordination with the Caribbean Disaster Emergency Management Agency (CDEMA). This platform allows the public and stakeholder agencies to submit reports and share information in real-time concerning hazards and disasters. All information is routed to the Disaster Management Office (DMO) and its staff via the application control panel. Once approved by DMO staff, alert notifications, early warning sirens and heat map content are then released to the public via the mobile application.

Emergency Communications for Central American countries, including communications equipment and the development of NEPTs: ITU is currently implementing the project “Pilot project in the use of ICTs in emergency and disaster situations in the Americas region”(“Proyecto piloto para el uso de las TIC para situaciones de emergencia y desastres en la región de las Américas”) to assist and support Member States in Central America (Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama) in improving their capabilities in emergency telecommunications and to improve their response to emergencies and disasters. Beneficiary countries have received an emergency tool kit that will allow their integration into a regional network of emergency Winlink-based telecommunications. ITU, in cooperation with IARU and FMRE and the respective Administrations, launched operations in Costa Rica, Dominican Republic, Guatemala, Honduras, and Nicaragua. Preparations are underway to launch operations in El Salvador and Panama in 2019.

## **AMS RI 2: Spectrum management and transition to digital broadcasting**

It is recalled that ITU launched in 2017 a border-area frequency coordination process for the Caribbean and Central America countries (a total of 27 countries and territories). Two meetings were organized in 2017. Most of the countries have also contributed the spectrum assignment data needed in order to run the frequency coordination simulation iterations. The 3rd meeting took place in Panama in May 2018, and the 4th and final meeting, in Belize in September 2018. It was a successful coordination, achieving average percentages of 96 per cent for UHF band and 94 per cent for VHF band of assignable digital TV channels after 40 iterations in UHF and 27 iterations in VHF, and 4 meetings. This was a joint effort by ITU-D and ITU-R.

In 2018, ITU delivered online training courses in the fields of spectrum management and digital broadcasting for the benefit of Latin American countries Commission (CITEL) through the ITU Academy platform.

A project was completed consisting in supporting and cooperating with the Ministry of Information and Communication Technologies (MinTIC) of Colombia in the development of studies, analyses and proposals related (i) to the diagnosis and updating of National Technical Plans of Radio Broadcasting (PTNRS); (ii) to defining the technological strategy for the new AM and FM broadcasting in the Republic of Colombia; (iii) to new technologies for broadcasting; (iv) to the proposal of a manual of good practices for assembly of radio stations; (v) to the technical specification of a web tool for management and control of the PTNRS and the radio broadcasting concessionaires; and (vi) to training and socialization activities.

A project was completed that consisted of assisting the Ministry of Information and Communication Technologies (MinTIC) of Colombia, in the development of a diagnosis and audit of the Spectrum Allocation by Objective Selection process in order to strengthen the management, analysis, administration, planning and allocation of the radio spectrum within the framework of the integrated management model of the ministry.

Project for a strategy design for the implementation of international best practices in the allocation of spectrum attributed to the IMT service in Colombia was completed. The main objective of this project was

to combine cooperation and technical assistance efforts to contribute in the validation and improvement of spectrum assignment processes for IMT (International Mobile Telecommunications) bands in Colombia.

A meeting of the Caribbean Spectrum Management Task Force was organized from 31 January to 2 February 2018 for around 30 participants from Caribbean countries providing contributions on the relevant reports of the task force (digital broadcasting transition, cross-border frequency coordination, emergency communication, spectrum pricing).

Bolivia was assisted on establishing a basic spectrum management system from 17 to 25 May, and the final recommendation was delivered to the beneficiary country.

In 2018, ITU provided direct assistance to Guyana through its National Frequency Management Unit (NFMU) in the Ministry of Public Communications in assessing and reviewing its spectrum assignments as part of its reform process.

In the framework of the ITU and the Ministry of Science, ICT and Future Planning (MSIP), Republic of Korea development of master plans for spectrum management project, an assessment with recommendations was prepared for Bolivia. The report included the assessment of a spectrum management scheme (i.e., spectrum policy, spectrum use, authorization, spectrum sharing, spectrum pricing, spectrum monitoring and compliance), and the provision of advice in connection with the development of relevant policies, legislation and regulations.

The 5th Annual Latin America Spectrum Management Conference and a workshop on Spectrum and Community Networks were co-organized with the Forum Global, involving 167 registered participants from 16 countries, including 12 countries from Latin America. Both events raised stakeholder capacity to understand the importance of efficiently managing spectrum resources. Visibility of community networks increased as a feasible alternative to connecting the unconnected. A project was drafted to work with the Internet Society and the Fundación Getulio Vargas (Brazil) in the development of a toolkit and the implementation of ad hoc assistance to implement community networks.

### **AMS RI 3: Development of broadband access and adoption of broadband**

Training on Conformance and Interoperability (C&I) for the Americas Region. Coordination is ongoing with countries of the Americas region to achieve a final design on the activity to be implemented. Training on C&I was delivered to countries in 2018, as in previous years.

In 2018, ITU continued to support the development of mutual recognition agreements (MRAs) for COMTELCA country members (Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama).

A forum on Conformance and Interoperability (C&I) in Innovation for Youths (25-27 June 2018) and a workshop on Establishing a Mutual Recognition Agreement (MRA) for the Caribbean Countries (28-29 June 2018) were held in Port-of- Spain, Trinidad and Tobago, attended by more than 16 developers and other participants from seven countries in the region. These events highlighted the importance of C&I for young IoT developers and served as forums for the discussion of the implementation of a MRA for the CARICOM region.

An internal technology assessment revealed that the existing IT infrastructure and platform of Caribbean Telecommunications Union (CTU) are inadequate to sustain the operations of the Secretariat at present and in the future. BDT provided assistance to CTU to enhance the technical infrastructure of the CTU Secretariat through procuring the core network, server and connectivity equipment and associated training and installation support for the IT network upgrade.

The 6th Latin American Telecommunications Congress was co-organized in Varadero, Cuba, with GSMA LA, ASIET and the Development Bank of Latin America on 11-15 June with the attendance of more than 300 participants from 30 different countries, including representative from 17 international organizations and 32 companies. A Forum on Broadband for Rural Areas was also organized on 11 June (<http://www.clt.lat/2018/eng/>).

ITU supported Member States in the Americas region in mapping long-distance terrestrial optical cable systems, a tool that helps administrations and regulators in their work of building and reviewing policies.

#### **AMS RI 4: Reduction of telecommunication service prices and Internet access costs**

An ITU study to determine a model for the national IXP for Suriname involved ISPs, Academia, governments, content providers, civil society, mobile providers and others during several months through online and *in situ* meetings. Three models were presented, of which one was selected. ITU developed the selected non-profit Private Model. ITU participated as secretariat to coordinate the procedures and internal rules for a further establishment of an interim executive committee that will take the responsibility of the physical implementation of the IXP.

A study was started on Interconnectivity and Reduction of telecommunication service prices and Internet access cost for some Member States in the Americas region. Coordination with ASETA and beneficiary countries for the development of the study is ongoing, and is focused on Colombia, Ecuador, Peru and Bolivia. This study is meant to determine the situation of international interconnectivity and to describe the reasons for the Internet access cost in those Member States. Additionally, it will foster international interconnectivity between the countries. The report of the study will be published in 2019.

#### **AMS RI 5: Capacity building to engage in global ICT policy, with special focus on improving cybersecurity and developing countries' participation in the existing Internet governance institutions**

The events Cybersecurity from La Plata River and VI Regional Forum on Cybersecurity and Cyberdrill Applied Learning for Emergency Response Team for the America Region were held in La Plata, Argentina from 4 to 8 June 2018. The event was attended by 117 attendees, plus 15 people on child online protection, representing 10 countries of the region: Argentina, Bahamas, Brazil, Chile, Cuba, Ecuador, El Salvador, Guyana, Paraguay, and Uruguay. 50 people participated in the Cyberdrill, organized in 12 teams. Chile and Paraguay expressed interest in organizing a similar cyberdrill event in 2019.

Cybersecurity and disaster reduction programme: Further to the post-implementation review of the project on the establishment of a national CIRT in Barbados, ITU was requested and has agreed to provide support and assistance with the continuation of the project towards full operationalization of the Barbados National CIRT.

In support to the AMS regional initiative, the work carried out by ITU in the area of digital inclusion and the existing key resources available to support ITU members and stakeholders in their process of implementing ICT accessibility to create digital inclusive societies in Americas region, was shared with 214 participants of the regional event "Accessible Americas V: ICTs for ALL" (Jamaica, 28-30 November 2018). The BDT Focal Point in ICT Accessibility delivered a training session on "Fundamentals in ICT accessibility" to all participants. 90 trainees of the said training session successfully achieved the knowledge and obtained ITU certification.

The Global ICT Capacity Building Symposium (CBS-18) was successfully conducted in Santo Domingo, Dominican Republic, on 18-20 June 2018, under the theme "Developing skills for the digital economy and society." The symposium attracted 331 participants from 36 countries. The outcomes of the symposium are expected to provide strategic guidance to the national and international community on issues of skills development in the field of ICT and digital technologies.

BDT enhanced capacity and expertise in Bolivia and Paraguay, two landlocked developing countries, by sharing guidelines and best practices, and providing policy guidance through two separate country case studies (one on Bolivia and one on Paraguay on Landlocked developing countries (LLDCs) in the Americas: Connectivity challenges and opportunities).

The ITU online indigenous training course on "Communication Innovative Tools for the strengthening of Indigenous Communities of the Americas Region" has received over 600 registrations. ITU accepted enrolment of 150 in each class – only one class was planned for this year. The other 300 were invited to attend the two classes planned for 2019. See more at <https://www.itu.int/en/ITU-D/Digital-Inclusion/Indigenous-Peoples/Pages/default-bis.aspx>

Schools on Digital Policies: The School of Digital Policies (EPD) is the result of ITU partnership with the Fundacion Getulio Vargas (Brazil). Its main objective is to deliver short training on the Internet, from the governance standpoint and emphasize the importance of promoting the democratization of ICT access by means of digital public policies. Civil servants from the Brazil public administration and a few representatives from the private sector (35 in total) benefitted from the course. The EPD Initiative will offer courses to the Caribbean in 2019.

Capacity building to support ITU members in the definition of global ICT policy and regulation and business and management of technical issues:

- Online training courses were delivered within the ITU centres of excellence network within the Americas region in communication protocols for IoTs and satellite communication, fibre optic networks, LTE and 5G, spectrum management, cybersecurity, and climate change.
- An online training course on smart sustainable cities was launched and delivered through the ITU Academy platform. This is an ITU initiative implemented in partnership with CITELO/OAS benefitting 12 countries (Anguilla, Argentina, the Bahamas, Bolivia, Barbados, Egypt, India, Jamaica, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Yemen).

An online training course in the field of digital economy was delivered through the ITU Academy platform. This is an ITU initiative implemented in partnership with CITELO/OAS benefitting 13 countries (Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Mexico, Nicaragua, Panama, Peru, and Venezuela).

An online training course on consumer protection is under preparation. It will be a self-paced training course to be delivered through the ITU Academy platform. This is a direct assistance requested by ANATEL, the Brazil National Telecommunication Agency.

ITU launched the strategic telecommunication management programme in partnership with UBP, and in collaboration with ANTEL, ASETA and COMTELCA. This online education programme comprises 9 modules, and is to be delivered under the ITU Academy platform in 2018 and 2019.

The ITU Regional Economic Dialogue on Telecommunications/ICTs for Latin America and the Caribbean (RED-AMS) was organized by the ITU Americas Regional Office, together with the BDT/IEE Regulatory and Market Environment Division (RME) and in close collaboration with the Federal Telecommunications Institute (IFT) of Mexico. RED is a discussion platform for Member States and Sector Members in Latin America and the Caribbean, bringing new and topical regulatory and economic issues, ideas and innovative solutions to the front, responding to the BaAP mandate. 176 delegates from 14 countries participated in the dialogue. RED brings together representatives from regulatory associations, regional consumer associations and private sector associations, such as the Eastern Caribbean Telecommunications Authority (ECTEL), the Telecommunications Regional Technical Commission - Central America (COMTELCA), la Procuraduría Federal del Consumidor de México (PROFECO), GSMA, the Asociación Interamericana de Empresas de Telecomunicaciones (ASIET) and others (<https://www.itu.int/en/ITU-D/Regional-Presence/Americas/Pages/EVENTS/2018/20570.aspx>).

An ITU/ITSO Workshop on Satellite Communications was organized in Quito, Ecuador, from 10 to 14 September for 44 delegates. Participants were formally tested at the end of the workshop with a 100 per cent success rate. Paraguayan representatives offered to host the workshop in 2019.

### **ARAB STATES REGION**

#### **ARB RI 1: Development of broadband access and adoption of broadband**

More than 100 participants from 13 Arab States region countries participated and discussed the different themes presented during the workshop on emerging technologies held in Algiers, Algeria, on 14 and 15 February 2018.

In addition, awareness was raised among 80 participants on key issues during the regional forum on IoT and Big Data that took place on 17 December 2018, in Kuwait.

ITU launched a regional assessment study on the enabling environment for Big Data in the Arab States Region aiming to assess the policies, regulations and capacity building frameworks affecting Big Data in the Arab States region.

### **ARB RI 2: Building confidence and security in the use of telecommunications/ICTs**

Implementation of this initiative resulted in enhanced regional cooperation between relevant stakeholders in the field, including the Arab States Regional Cybersecurity Centre, the national CIRTs in the Arab States region, and other relevant partners for building trust and confidence in the use of ICTs among children and young people.

Several regional training workshops and events aimed at enhancing human capacity were organized covering more than 400 professionals. The Regional Cybersecurity Week was held in Kuwait, in October 2018, during which a series of thematic events took place on cybersecurity-related issues, including the regional cyberdrill. The week also included the 6th Annual Arab Cybersecurity Cooperation Team meeting (ACCT) to foster the coordination and cooperation between Arab CIRTs.

Several countries in the region were assisted at the policy level in formulating their national cybersecurity strategy and COP strategy. In addition, the ITU toolkit on cybersecurity strategy has been promoted during the relevant regional events.

Partnerships have been established between the ITU Arab States Regional Office and academia in the region in order to ensure the availability of professionals in cybersecurity and to promote the cybersecurity culture in society. This has been demonstrated through the partnership with ASREN in the organization of the ITU High Level Regional Meeting for Building Partnership with Academia in the Field of Cybersecurity, organized on 4 December 2018 in Amman, Jordan. In addition, the partnership with Naif Arab University for Security Sciences (NAUSS) resulted in NAUSS becoming one of the centres of excellence for the Arab States region in cybersecurity. In collaboration with NAUSS, a training course for the Saudi Arabia public prosecutors commission on cybersecurity and data privacy was organized in Cairo, from 9 to 13 December 2018, for 22 trainees.

### **ARB RI 3: Use of telecommunications/ICTs for smart and sustainable development and protection of the environment**

Built capacity on Electromagnetic Fields (EMF) considerations in sustainable environment, including its measurement methods and related policy at a regional ITU forum and training on “With ICTs everywhere - How safe is EMF?”, organized as part of the ITU Green Standard Week “GSW” events and kindly hosted by Universal Communications Service Access Fund (UCSAF) and Tanzania Communications Regulatory Authority (TCRA). The forum was held on 10 April 2018, and it was attended by more than 80 participants.

Built capacity on e-waste during a training workshop on e-waste statistics organized during the ITU Green Standards Week on 12 April 2018. The training, which was attended by 80 participants, was organized in collaboration with the Global Partnership on E-waste Statistics. It focused on providing an overview of the current statistics on e-waste and the methods of producing electronic waste statistics at a national level to help more countries to generate e-waste data.

Developed a regional project on e-waste monitor in the Arab States region. The project is to be implemented in collaboration with UNU with the aim to collect and improve e-waste statistics in the Arab States region. The project will improve data availability and quality, availability of policies and regulations and awareness through capacity building workshops and a Regional E-Waste Monitor for the Arab States region.

A model policy and regulatory frameworks on use of telecommunications/ICTs in emergency and disaster management in the Arab States region was developed with the aim to strengthen the capacity of ICT policy and regulatory institutions and to enhance regional collaboration and knowledge sharing on use of Telecommunications/ICTs in emergency and disaster management.

### **ARB RI 4: Smart learning**

Smart learning policies were scoped in Sudan as part of an assistance to this country to review their national smart learning policies in collaboration with UNESCO during a mission that took place from 18 to 25 September 2018.

### **ARB RI 5: Ensuring access to telecommunications/ICTs, in particular for persons with disabilities**

Capacity and awareness were increased of around 120 participants in the High Level Forum on Digital Inclusion organized during the ITU-UNESCO Digital Inclusion Week, from 24 to 28 September 2018.

Assistance was given to Sudan in formulating a national ICT accessibility policy.

Training was given to 12 web developers on web accessibility for digital financial services in a regional workshop in Cairo, Egypt, on 17 October 2018.

## **ASIA-PACIFIC REGION**

### **ASP RI 1: Special consideration for least developed countries, small island developing states, including Pacific island countries, and landlocked developing countries**

The satellite connectivity project “Development of Satellite Communications Capacity and Emergency Communications Solutions for the Pacific Islands” is in its implementation phase. The project supported by Intelsat, Kacific Broadband, Inmarsat and ITSO will benefit 11 Pacific Island Countries for the socio-economic development of remote isolated communities in these Small Island Developing States(SIDS).

FAO and ITU assisted Afghanistan (in development of e-agriculture strategy) and Papua New Guinea (through capacity development of farmers in Jiawaka province) in improving their e-agriculture framework and capacity.

ITU and the Pacific Islands Telecommunications Association (PITA) carried out a study on [Maximising Availability of International Connectivity in the Pacific](#), with support from the Department of Communications and the Arts (DoCA), Australia.

Mongolia was provided assistance on IPv6 infrastructure deployment roadmap and related security issues, in partnership with the Asia Pacific Network Information Centre (APNIC), the Communications Regulatory Commission (CRC) of Mongolia and DoCA (Australia). Assistance was also provided in enhancing capacity to address regulatory issues in digital applications environment

Samoa and Vanuatu were provided with assistance on developing National Emergency Telecommunication Plan as part of ITU-DoCA project.

The ITU-PITA workshop on Digital Skills for the Pacific, (Nadi, Fiji, 21-23 November 2018), which was supported by DoCA (Australia), built capacity of 17 participants from the Asia-Pacific region (Australia, Cook Islands, Federated State of Micronesia, Fiji, Papua New Guinea, Tonga, Tuvalu) in the area of digital skills gap analysis and training needs. In addition, it developed a spreadsheet-based toolkit to identify digital skills challenges based on ITU Digital Skills Toolkit.

Kiribati was assisted in developing their national cybersecurity strategy.

Tonga and Samoa improved their CIRT capacity through direct country assistance provided under ITU-DoCA project in cooperation with APNIC.

Vanuatu was assisted in improving their national spectrum management framework with support from the Ministry of Science, ICT and Future Planning, Republic of Korea.

The ITU-APT-PITA Workshop on “Enabling policies and regulations for catalyzing e-application in the Pacific” (30 November 2018 at Apia, Samoa), was organized back-to-back with the 11th APT Policy and Regulation Forum for Pacific (PRFP-11), and discussed the enabling policies and regulatory framework for catalyzing e-application in the Pacific with focus on practical cases of e-application.

The UNESCAP-ITU-PITA Asia-Pacific Information Superhighway (AP-IS) for achieving the Sustainable Development Goals in Pacific Islands Workshop was held in Nadi, Fiji from 19 to 23 November 2018, along with the workshop on ICT Statistics and IDI Indicators that enhanced the capacity of members in the Asia-Pacific region on infrastructure as well as ICT statistics and measurements.

The Solomon Islands were assisted in undertaking a review of the National Telecommunications Act.

Discussions were held with PITA under ITU-PITA strategy framework to enhance regional interconnectivity in the Asia-Pacific region. Specialized presentations on the technology and traffic trends and its implications for the Asia-Pacific region were made during the PITA Digital Strategy Forum (15-16 October), attended with over 100 participants, including several CEOs and high-level participation. Following the Forum, ITU-PITA training on “Traffic engineering and advanced wireless network planning” was held, attended by 37 participants from 10 countries

### **ASP RI 2: Emergency telecommunications**

ITU and the Department of Communications and the Arts (Australia) are implementing a project on “Emergency Telecommunications in Asia and the Pacific”. Samoa and Vanuatu were provided assistance on developing National Emergency Telecommunication Plan.

Pacific Regional Emergency Telecommunications Cluster (ETC) workshop was organized in Suva, Fiji from 4 - 7 December 2018. The workshop was organized under the Emergency Telecommunications Cluster (ETC) framework led by WFP of which ITU is a partner organization. ITU contributed to the workshop through ITU-DoCA project support.

### **ASP RI 3: Harnessing the benefits of new technologies**

#### *IPv6*

Brunei Darussalam was assisted on IPv6 through (i) building capacity and awareness of 30 participants from government, regulators, industry and academia during a three-day national training on “IPv6 deployment and IPv6 Security”, organized by ITU, APNIC and the Authority for Info-communications Technology Industry of Brunei Darussalam (AITI) (13-15 August 2018) and ii) providing customized engineering assistance and recommendations to Progresif (mobile primarily) and Telbru (fixed operator) on the possible ways to deploy. Recommendations on deployment of IPv6 was also provided.

Mongolia was assisted on IPv6 through i) building capacity and awareness of more than 50 participants from government, regulators, industry and academia through a three-day national training on “IPv6 deployment and IPv6 Security”, organized by ITU, APNIC and CRC (22-24 October 2018) and (ii) supporting development of a national IPv6 roadmap.

#### *ICT Applications*

##### *E-agriculture*

E-agriculture related activities included the development of e-agriculture strategies in Member States in the Asia-Pacific region; supporting the development of e-agriculture solutions; building awareness and publishing case studies.

FAO-ITU E-agriculture Solutions Forum 2018 was hosted by the Ministry of Agriculture and Rural Affairs (MARA), China, and co-hosted by the Chinese Academy of Agricultural Engineering at Nanjing, China, from 15 to 17 November 2018, attended by around 235 participants from about 40 countries. The Forum shared knowledge and information on successful e-agriculture solutions and identifying ways of scaling up implementations at national level

Afghanistan and Pakistan were supported with the development of e-agriculture strategy in partnership with FAO.

FAO-ITU Publication on “E - agriculture in Action: Drones in Agriculture” was released <http://www.fao.org/e-agriculture/news/new-publication-fao-itu-e-agriculture-action-drones-agriculture>, and work was

undertaken on the next publication in the series titled “E-agriculture in Action: Blockchain for Agriculture Opportunities and Challenges”.

Regional training on The Use of Drones, Satellite Imagery and GIS for Agriculture was successfully held from 4 to 8 June 2018, at the Asian Institute of Technology, Thailand (36 participants), in partnership with FAO and GIC.

On the subjects of digital financial services and digital financial inclusion:

- Enhanced stakeholder engagement, finalization of project and start of implementation of China component of FIGI project with CAICT (China). The FIGI project is supported by Bill and Melinda Gates Foundation;
- Three training modules on DFS and Digital Payment have been developed for the Government of India through internal expertise in close collaboration between ITU-D and ITU-T. An online training was held from 1 to 15 October that enhanced the capacity of 67 participants from India in the area of understanding digital payments.

The Telecommunications Regulatory Commission of Sri Lanka (TRCSL) was assisted in developing digital skills for job creation through the event “Modern Application Design & Development for Achieving SDGs” organized in Colombo, Sri Lanka, from 10 to 14 December, 2018, attended by 42 participants from a wide range of organizations representing Afghanistan, India, and Sri Lanka.

### *International Girls in ICT Day*

International Girls in ICT Day was celebrated with around 50 events reported in the Asia-Pacific region.

In addition, three trainings were held under Girls in ICT Day in Thailand in 2018, to build capacity of more than 150 girls in the area of agrotech using ICTs with several partners, including the Ministry of Digital Economy and Society (MDES) of Thailand, FAO, UNESCO, Total Access Communication Plc (DTAC), NECTEC, CCKDM, and others.

### *Cybersecurity*

Kiribati and Bhutan was assisted in developing their national cybersecurity strategy.

Tonga and Samoa improved their CIRT capacity through direct country assistance provided under ITU-DoCA project in cooperation with APNIC.

The ITU Asia-Pacific region CoE training on cybersecurity enhanced the capacity of 50 participants.

### *Child Online Protection*

A draft framework for Child Online Protection was developed for the ASEAN member states and is currently under review by the ASEAN secretariat.

A workshop was held in Myanmar on Child Online Protection in Myanmar in December 2018.

### *Number Misuse*

ITU and the Department of Communications and the Arts (DoCA) implemented a project on Capacity Building for Countering Misappropriation of Telephone Numbers in Pacific Island Countries, with various partners.

### *Spectrum Management*

**The 4th Annual Asia-Pacific Spectrum Management Conference on Supporting ITU Asia-Pacific Regional Initiative on Spectrum Management** was held in Bangkok, Thailand, from 17 to 19 July 2018, in collaboration with Forum Global and Ministry of Science, ICT and Future Planning, Republic of Korea.

Several countries received assistance on developing their national spectrum management frameworks.

The Pacific Radiocommunication Workshop was held from 4 to 6 September 2018, in Solomon Islands.

A number of training programs were carried out with partners (ALTTC, APNIC, CAICT, SRMC, and TRAI) to build the skills on new technologies including:

- Monitoring RF spectrum in modern wireless era (16-20 April, China, 42 participants).
- Mobile Broadband QoS (1-5 May, India, 26 participants).
- Internet and IPv6 Infrastructure Security (14-18 May, Thailand, 34 participants).
- Conformity & Interoperability and 5G Planning (10-14 September, China, 50 participants).

#### **ASP RI 4: Development of broadband access and adoption of broadband**

ITU and the Pacific Islands Telecommunications Association (PITA) carried out a study on [Maximising Availability of International Connectivity in the Pacific](#), with support from the Department of Communications and the Arts (DoCA), Australia.

A number of training programs were carried out with partners (ALTTC, CAICT, DoCA, DoC, PITA, MCIT, MCMC, MDES, NBTC, and NECTEC) to build the skills on networks including:

- DLT (Blockchain) Ecosystem and Decentralization (3-6 September, Thailand, 62 participants).
- Traffic engineering and advanced wireless network planning (17-19 October, Fiji, 37 participants).
- IoT Planning (25-28 September, Indonesia, 103 participants).
- IoT Technologies and Applications for Smart Cities (29 October-2 November, India, 46 participants).
- IoT Planning (12-15 Nov 2018, Cyberjaya, Malaysia, 35 participants).
- IoT platform and application development in Thailand (6-9 November, Thailand, 50 participants).
- IoT overview and applications (23 April-20 May, Online, 156 participants).

#### **ASP RI 5: Policy and regulation**

Policy and regulatory awareness was enhanced for 60 participants from 21 countries during the ITU-BTRC Asia-Pacific Regulators Roundtable (6-7 August, Dhaka) and for a further 50 participants from 21 countries during the industry roundtable. The roundtable, which was hosted by BTRC and supported by DoCA, enhanced engagement and trust with industry in building their capacity and improved their opportunity to engage with the regulators/policy makers (<https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Pages/Events/2018/rr2018/home.aspx>).

More than 285 participants attended the event and enhanced their knowledge and engagement on smart cities and e-government through the Asia-Pacific Regional Forum on Smart Sustainable Cities and e-Government 2018 (4-6 July, Viet Nam). The forum focused on standards and KPIs for measuring smart city case studies, and designing sustainable smart buildings and cities, and ICT architecture, services and applications for smart cities. It was hosted by the Ministry of Information and Communications (Vietnam) and supported by WeGO and DoCA.

The ITU-USF (Pakistan) Workshop on Internet Access and Adoption enhanced the knowledge of 50 participants from Bangladesh, Bhutan, China, Indonesia, Malaysia, Nepal, Pakistan and Sri Lanka, on technologies, and regulatory and policy issues for implementing projects in rural remote areas with the objective to bridge digital divide. It shared best practices and universal service strategies amongst those 8 countries on digital transformation leveraging on cross sectoral collaboration; reviewed the development, implementation and strategies, policies, and legal and regulatory frameworks for the 'next-generation universal service obligations' (USO 2.0) and enhanced collaboration on use of innovative solutions that could be used to form policy or develop models for dissemination in the region (<https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Pages/ITU-USF-%28Pakistan%29-Workshop-on-Internet-Access-and-Adoption.aspx>). A draft framework for USO 2.0 was developed for the ASEAN countries and is currently under consideration by the ASEAN secretariat.

The ITU-APT-PITA Workshop on Enabling policies and regulations for catalyzing e-application in the Pacific (30 November 2018 at Apia, Samoa), which was organized back-to-back with the 11th APT Policy and Regulation

Forum for Pacific (PRFP-11), discussed the enabling policies and regulatory framework for catalyzing e-application in the Pacific with focus on practical cases of e-application. The activity was supported by DoCA.

Raised awareness for around 150 policy makers in China on Big Data Development and Convergence through the annual ITU-MIIT Seminar (26-27 June 2018, Nanning, China), which was supported by Ministry of Industry and Information Technology, China.

Mongolia was provided assistance on enhancing their capacity to address regulatory issues in digital applications environment.

Nepal was assisted in developing strategic plan, which resulted in enhanced capacity of 30 staff for drafting the strategic plan of the National Telecommunications Authority (NTA). Understanding was improved through a results based management practical session with NTA.

Philippines was helped in the development of selection criteria and other regulatory document for the introduction of third telecommunication operator. The process of award of license to the operator selected on the basis of criteria developed is under process.

A number of training programmes were carried out with partners (DoCA, MDES, NBTC, VNTA) to build the skills on policy and regulatory issues, including the following:

- Cost modelling in quadplay environment (Viet Nam, 40 participants);
- Competition analysis in digital applications environment (17-20 September, Thailand, 55 participants).
- ICT regulations (Myanmar, 20 participants)
- LTE, LTE Advanced and Road towards 5G (Myanmar, 20 participants)

### **CIS REGION<sup>2</sup>**

#### *Dubai Action Plan*

**CIS RI 1: Creating a child online protection centre for the CIS region** Organized Regional workshop for Europe and CIS on e-health, in Odessa, Ukraine, 17-19 October 2018 (jointly by ONAT and ITU Europe Office) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/10\\_Odessa/10\\_Odessa.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/10_Odessa/10_Odessa.aspx)).

#### **CIS RI 4: Development of broadband access and adoption of broadband**

Organized Regional Workshop on Broadband Development, Dushanbe, Tajikistan, 29-30 May 2018 (jointly with Communication Service under the Government of the Republic of Tajikistan) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/05\\_Dushanbe/05\\_Dushanbe.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/05_Dushanbe/05_Dushanbe.aspx))

Organized Regional Workshop “Broadband Development based on 4G and 5G Technologies”, Almaty, Kazakhstan, 17-18 September 2018 (jointly with Forum Global and the Ministry of Information and Communication of the Republic of Kazakhstan) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09\\_Almaty/09\\_Almaty.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09_Almaty/09_Almaty.aspx))

#### **CIS RI 5: Building confidence and security in the use of ICTs**

Organized Regional cyber drill for CIS, Baku, Azerbaijan, 3-7 September 2018 (jointly with the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09\\_Baku/09\\_Baku.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09_Baku/09_Baku.aspx)).

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<sup>2</sup> Since membership in CIS have requested ITU-D to focus in 2018 on projects/expert assistance under the Buenos Aires Action Plan, activities under regional initiatives from the BaAP (WTDC-17) have also been included.

*Buenos Aires Action Plan***CIS RI 1: Development of e-health to ensure healthy lives and promote well-being for all, at all ages**

In 2018, ITU achieved the following results within RI1 implementation:

Developed specialized multimedia training courses on e-health (jointly with Odessan National Academy of Telecommunication, ITU-D Sector Member) (<https://ehealthcourses.online/info/>).

Organized Regional workshop for Europe and CIS on e-health, in Odessa, Ukraine, 17-19 October 2018 (jointly with Odessan National Academy of Telecommunication, ITU-D Sector Member and ITU Europe Office) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/10\\_Odessa/10\\_Odessa.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/10_Odessa/10_Odessa.aspx)).

**CIS RI 2: Use of telecommunications/information and communication technology to ensure inclusive, equitable, quality and safe education, including the enhancement of women's knowledge of ICTs and e-government**

In 2018, ITU achieved the following results within RI2 implementation:

Mobilized partners and funding to implement a project "Creation of digital skills centre for women and youth in Uzbekistan" (planned for 2019).

Mobilized partners and funding to implement a project "Development of multimedia online course for women and girls in Azerbaijan" (planned for 2019).

Mobilized partners and funding to implement a project "Creation of information and training centre on IP-telephony in Belarus" (planned for 2019).

Organized Regional workshop for Europe and CIS on cybersecurity and child online protection, Odessa, Ukraine, 4-6 April 2018 (jointly with Odessan National Academy of Telecommunication, ITU-D Sector Member and ITU Europe Office)

([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/04\\_Odessa/04\\_Odessa.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/04_Odessa/04_Odessa.aspx)).

Organized Regional workshop for CIS "National Strategies of Digital Transformation", Issyk-Kul, Kyrgyzstan, 28-29 August 2018 (jointly with the State Committee of Information Technologies and Communications of Kyrgyz Republic)

([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/08\\_IssykKul/08\\_IssykKul.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/08_IssykKul/08_IssykKul.aspx)).

**CIS RI 3: Development and regulation of infocommunication infrastructure to make cities and human settlements inclusive, safe and resilient**

In 2018, ITU achieved the following results within RI3 implementation:

Organized Regional cyber drill for CIS, Baku, Azerbaijan, 3-7 September 2018 (jointly with the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09\\_Baku/09\\_Baku.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09_Baku/09_Baku.aspx)).

Conducted Research on Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Moscow (jointly with the ITU Telecommunication Standardization Bureau and Government of Moscow).

**CIS RI 4: Monitoring the ecological status and the presence and rational use of natural resources**

In 2018, ITU achieved the following results within RI4 implementation:

Mobilized partners to implement projects during 2019-2021.

**CIS RI 5: Fostering innovative solutions and partnership for the implementation of Internet of things technologies and their interaction in telecommunication networks, including 4G, IMT-2020 and next-generation networks, in the interests of sustainable development**

In 2018, ITU achieved the following results within RI4 implementation:

Mobilized partners and funding to implement a project "Establishment of the Regional Laboratory on IoT and Future Networks" (planned for 2019).

Organized Regional workshop for CIS on mobile number portability, conformance and interoperability testing of telecommunication equipment, Moscow, Russian Federation, 1-2 March 2018 (jointly with Central Science Research Telecommunication Institute (ZNIIS), ITU-D Sector Member) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/03\\_Moscow/03\\_Moscow.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/03_Moscow/03_Moscow.aspx)).

Organized Regional forum "Internet of Things, Telecommunication Networks and Big Data as Basic Infrastructure for Digital Economy", Saint Petersburg, Russian Federation, 4-6 June 2018 (jointly with Rostelecom, ITU-T Sector Member, and Saint Petersburg State University of Telecommunication, ITU Academia Member) (<https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20180604/Pages/default.aspx>).

Organized Regional Workshop "Broadband Development based on 4G and 5G Technologies", Almaty, Kazakhstan, 17-18 September 2018 (jointly with Forum Global and the Ministry of Information and Communication of the Republic of Kazakhstan) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09\\_Almaty/09\\_Almaty.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09_Almaty/09_Almaty.aspx)).

Organized 2nd Annual CIS and Central and South-Eastern European Spectrum Management Conference, Almaty, Kazakhstan, 19-20 September 2018 (jointly with Forum Global and the Ministry of Information and Communication of the Republic of Kazakhstan) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09\\_Almaty/09\\_Almaty.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/09_Almaty/09_Almaty.aspx)).

Organized Regional Workshop on Deployment of VoLTE/ViLTE Networks based on IMS. From Standardization to Implementation, Samarkand, Uzbekistan, 2-3 October 2018 (jointly with the Ministry for Development of Information Technologies and Communications of the Republic of Uzbekistan) ([https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/10\\_Samarkand/10\\_Samarkand.aspx](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/10_Samarkand/10_Samarkand.aspx)).

### **EUROPE REGION**

For the implementation of the Europe regional initiatives, a bottom-up approach has been used, with the engagement of ITU membership and relevant stakeholders who used the Regional Development Forum for Europe as the mechanism to coordinate and provide strategic guidance. RDF-EUR 2018 was held on 11 June 2018 in Prague, Czech Republic.

Activities of the ITU Office for Europe are also part of the regional coordination and reporting at the UN level in the context of the SDG process. The ITU Office for Europe has been contributing to periodical meetings of the UN Regional Coordination Mechanisms for Europe and Central Asia as well as contributed to the UN Regional Forum on Sustainable Development in UNECE Region on 1-2 March 2018, Geneva, Switzerland.

#### **EUR RI 1: Spectrum management and transition to digital broadcasting**

A twinning programme between Hungary and Albania led to an exchange of best practices in the field of spectrum management, in addition to development of the new spectrum strategy and policy in Albania.

A series of seminars and workshops built the capacity of more than 1 100 stakeholders in the field of spectrum management and transition to digital broadcasting. This includes the following meetings (please note that some of them also contributed to the achievement of expected results of RI-2):

- Regional Seminar for Europe and CIS on Digital Future Powered by 4G/5G, Kiev, Ukraine (14-16 May 2018)
- Regional Seminar for Europe and CIS on 5G Implementation in Europe and CIS: Strategies and Policies Enabling New Growth Opportunities, Budapest, Hungary (3-5 July 2018)
- Regional Workshop for Europe and CIS on "Broadband Development based on 4G and 5G Technologies", Almaty, Republic of Kazakhstan (17-18 September 2018)

- Baltic Sea Region 5G Ecosystem Forum "5G Technology", Riga, Latvia (27-28 September 2018)
- Regional Regulatory Forum for Europe on "Evolving Regulatory Frameworks for Digital Future", Budva, Montenegro (1-2 October 2018)
- Forum on "Towards 5G Enabled Gigabit Society", Athens, Greece (11-12 October 2018)

### **EUR RI 2: Development of broadband access and adoption of broadband**

The following publications were made available in 2018:

- The Future of Cable TV in Europe
- ICT for Sustainable Energy
- Workshop reports

The Europe region part of the ITU Broadband Map was updated by reflecting the networks of several European operators.

A series of seminars and workshops built the human capacity of more than 1 300 stakeholders in field of development of broadband access and adoption of broadband, including:

- Workshop on The Future of Cable TV, Geneva, Switzerland (25-26 January 2018)
- Regional Seminar for Europe and CIS on Digital Future Powered by 4G/5G, Kiev, Ukraine (14-16 May 2018)
- Regional Seminar for Europe and CIS on 5G Implementation in Europe and CIS: Strategies and Policies Enabling New Growth Opportunities, Budapest, Hungary (3-5 July 2018)
- Regional Workshop "Broadband Development based on 4G and 5G Technologies", Almaty, Republic of Kazakhstan (17-18 September 2018)
- Baltic Sea Region 5G Ecosystem Forum "5G Technology", Riga, Latvia (27-28 September 2018)
- Regional Regulatory Forum for Europe on "Evolving Regulatory Frameworks for Digital Future", Budva, Montenegro (1-2 October 2018)
- Forum on "Towards 5G Enabled Gigabit Society", Athens, Greece (11-12 October 2018)

The following series of events provided unique platforms for more than 600 stakeholders to exchange best practices, build capacities and partner in the field of the adoption of broadband:

- ITU Co-organized Hague Summit for Accountability & Internet Democracy, The Hague, Netherlands (31 May 2018)
- ITU Workshop on "Multimedia applications and the future of digital society", Ljubljana, Slovenia (9 July 2018)
- ITU Regional Workshop for Europe and CIS «Complex Aspects of eHealth Development», Odessa, Ukraine (17-19 October 2018)

The above mentioned activities have been supplemented by a series of trainings delivered by the ITU European network of centres of excellence that built capacity of more than 600 participants in field of broadband, Internet governance, cybersecurity and next generation networks.

### **EUR RI 3: Ensuring access to telecommunications/ICTs, in particular for persons with disabilities**

A self-paced online course on "ICT Accessibility: The Key to Inclusive Communication" has been developed and made available to all stakeholders. Thanks to this course, more than 200 stakeholders have built their capacity in fields of ICT accessibility policy, web accessibility and procurement. 30 stakeholders successfully completed all modules offered.

A platform for countries in the Europe region involved in ICT accessibility has been established in partnership with the European Commission, and, as a result, the first ever ITU-EC Forum for Europe "Accessible Europe: ICT for ALL" was held in Vienna, Austria (12-14 December 2018), attracting more than 150 stakeholders and resulting in the report identifying the challenges at the European level and possible way forwards.

The regional competition on Innovative Digital Solutions for Accessible Europe was held, attracting more than 50 stakeholders who submitted their achievements in the field of ICT accessibility. The collected information constitutes the basis for a new repository of digital solutions enhancing accessibility.

With the aim of building the community of implementers in field of ICT accessibility, the following events were held:

- ITU forum was held on ICT Accessibility a Requisite Towards an Inclusive Digital Society, Vienna, Austria (23 February 2018), which attracted more than 100 stakeholders.
- ITU contributed to the agenda of m-Enabling Summit for Europe, drawing attention of more than 100 stakeholders and engaging many of them in work with ITU.
- Project proposal on web accessibility of public sector websites has been developed. Pilot implementation is programmed for 2019.

#### **EUR RI 4: Building confidence and security in the use of telecommunication/ICTs**

A number of countries were supported in the process of strengthening of their cybersecurity capabilities:

- Cyprus: Implementation of project on establishment of the national CSIRT, officially opened in Nicosia, Cyprus, on 25 June 2018.
- Bosnia and Herzegovina: Cybersecurity readiness assessment was prepared.
- Albania: Cybersecurity readiness assessment was prepared.
- Georgia: National child online safety assessment was prepared.
- Poland: ITU expert contributed to the national process of review of the national cybersecurity strategy based on the ITU National Cybersecurity Strategy Guide.

A series of seminars and workshops built the human capacity of more than 1 250 stakeholders in field of cybersecurity. This includes the following:

- Regional Workshop for Europe and CIS on Cybersecurity and Child Online Protection, Odessa, Ukraine (4-6 April 2018).
- National Event on Child Online Protection: Awareness Day for Children and Teens, Noto, Italy (9 May 2018).
- [6th Central European Cybersecurity Public-Private Dialogue Platform, Sibiu, Romania](#) (12-14 September 2018).
- [Forum on "Keeping Children and Young People Safe Online", Warsaw, Poland](#) (18-19 September 2018).
- [Forum on "The New Global Challenges in Cyber Security", Bucharest, Romania](#) (16-17 October 2018).
- [ITU Cyber Drill - ALERT \(Applied Learning for Emergency Response Teams\) for Europe Region, Cyprus](#) (26-30 November 2018).
- [Second Western European Cybersecurity Public-Private Dialogue Platform, Porrentruy, Switzerland](#) (29-30 November 2018).

The above-mentioned activities have been supplemented by a series of trainings delivered by the ITU European network of centres of excellence that built capacity of more than 600 participants in the field of broadband, Internet governance, cybersecurity and next generation networks.

## EUR RI 5: Entrepreneurship, innovation and youth

The following publications were made available in 2018:

- [Accelerating Digital Transformation. Good Practices for Developing, Driving and Accelerating ICT Centric Innovation Ecosystem in Europe.](#)
- Digital Innovation Profile for Republic of Serbia.
- Digital innovation Profile for Bosnia and Herzegovina.

Assistance in building an ICT-centric innovation ecosystem was provided to Montenegro, which included the organization of two national workshops (September and December 2018), engaging relevant stakeholders, processing a series of more than 120 interviews, building a Digital Innovation Profile, including a series of recommendations and projects.

A number of seminars and workshops built the human capacity of more than 1 000 stakeholders in field of ICT-centric innovation ecosystems and bridging digital innovation divide. This includes the following:

- ITU Innovation Track of the WSIS Forum 2019: Digital Transformation: Building Vibrant ICT-Centric Innovation Ecosystems, Geneva, Switzerland (19 March 2018).
- ITU Regional Innovation Forum for Europe on Bridging The Digital Innovation Divide: Fostering Digital Entrepreneurship and Startup Ecosystems, Oslo, Norway (21-23 November 2018).

With the aim of strengthening digital inclusion across regions, the following actions attracting more than 700 stakeholders have been implemented:

- [ITU and European Commission Girls in ICT Day celebration, Sofia, Bulgaria](#) (28 April 2018).
- [ITU and Com-ITU of CEPT Celebration of the Girls in ICT Day, Bucharest, Romania \(8 August 2018\).](#)
- [Digital Youth Forum, Warsaw, Poland](#) (17 May 2018).
- Celebrations of Girls in ICT Day was facilitated and coordinated across the region. Stakeholders from more than 30 European countries reported on their celebrations. In total, over 40 000 girls and young women joined for around 2 000 activities in Europe.

Moreover, two project proposals were elaborated for consideration by relevant stakeholders:

- Strengthening of digital skills through coding bootcamps in the Mediterranean: Aiming at implementation in 2019, targeting countries from Europe and Arab States regions and assisting countries in the development of their national digital skills strategies and establishing coding boot camps in some of the countries.
- Building ICT-centric innovation ecosystem in south and eastern Europe: Aiming at assisting countries in building their strategies and institutional capacities fostering ICT-centric innovation.





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