**Annex 2: Information on activities aiming at implementation of the   
CIS regional initiatives**

### Introduction

The work of ITU-D is determined by the work programme, which is adopted by world telecommunication development conferences. The current Buenos Aires Action Plan, adopted by WTDC-17, contains global priorities, regional initiatives, resolutions and recommendations, along with study group Questions. WTDC Resolution 17 (Rev. Buenos Aires 2017), "Implementation of and cooperation on regionally approved regional initiatives at the national, regional, interregional and global levels", provides for all necessary measures to be taken to promote and implement the approved regional initiatives at the national, regional, interregional and global levels. The CIS regional initiatives (2018-2021) determine the objectives and expected outputs specific to the region.

The present document covers measures implemented by ITU during the period running from 2018 to the beginning of 2021. Regional initiatives are aimed at solving specific priority telecommunication/ICT issues requiring special action by ITU at the regional level. Within each regional initiative measures, initiatives, partnerships and projects were implemented in order to achieve them. ITU regional development forums serve as coordination mechanisms, facilitating implementation of the regional initiatives.

For the CIS region, the following regional initiatives have been adopted:

– CIS1: Development of e-health to ensure healthy lives and promote well-being for all, at all ages

– CIS2: Use of telecommunications/information and communication technology to ensure inclusive, equitable, quality and safe education, including the enhancement of women's knowledge of information and communication technologies and e‑government

– CIS3: Development and regulation of infocommunication infrastructure to make cities and human settlements inclusive, safe and resilient

– CIS4: Monitoring the ecological status and the presence and rational use of natural resources

– CIS5: 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.

Regional initiatives are interrelated with BDT's thematic priorities, and with the Questions of ITU-D study groups, as shown below.

|  |  |  |
| --- | --- | --- |
| Regional initiatives | BDT thematic priorities | ITU-D SG Questions |
| CIS1: Development of e-health to ensure healthy lives and promote well-being for all, at all ages | Digital services and applications | Question 1/2, Question 2/2 |
| CIS2: Use of telecommunications/ information and communication technology to ensure inclusive, equitable, quality and safe education, including the enhancement of women's knowledge of information and communication technologies and e‑government | Digital inclusion, digital services and applications, networks and digital infrastructure, statistics | Question 1/1, Question 2/1, Question 5/1, Question 7/1,  Question 1/2, Question 2/2, Question 3/2, Question 4/2, Question 7/2 |
| CIS3: Development and regulation of infocommunication infrastructure to make cities and human settlements inclusive, safe and resilient | Networks and digital infrastructure, cybersecurity, digital innovation ecosystems, policy and regulation, statistics | Question 1/1, Question 2/1, Question 3/1, Question 4/1, Question 5/1, Question 6/1, Question 1/2, Question 3/2, Question 4/2, Question 7/2 |
| CIS4: Monitoring the ecological status and the presence and rational use of natural resources | Environment | Question 6/2 |
| CIS5: 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 | Networks and digital infrastructure, digital innovation ecosystems, statistics | Question 1/1, Question 2/1, Question 5/1, Question 7/2, Question 1/2, Question 4/2 |

### Regional development forums

Regional development forums are a platform for dialogue at the regional level between ITU and the Member States, Sector Members, Academia organizations and other stakeholders with a view to strengthening cooperation and partnership in the interests of regional activities during the period between successive world telecommunication development conferences.

During the 2018-2020 period two regional development forums were held in the CIS region:

– [Regional Development Forum for the CIS region (RDF-CIS) 2019](https://www.itu.int/ru/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/10_Bishkek/10_Bishkek.aspx)

– [Regional Development Forum for the CIS region (RDF-CIS) 2020](https://www.itu.int/ru/ITU-D/Regional-Presence/CIS/Pages/Events/2020/RDF/default.aspx)

The objective of RDF-CIS 2020 was to help ITU Member States formulate proposals for the 2021 world telecommunication development conference (WTDC-21) and the BDT operational plan, as well as a contribution in preparation for the regional preparatory meeting for the CIS countries for WTDC-21 (RPM-CIS).

At RDF-CIS the results achieved in implementing the WTDC-17 regional initiatives were presented and evaluated, and implementation and funding mechanisms for ITU projects were examined. The results of advanced studies on the main areas of ITU's work in the region were also presented at the Forum: ICT infrastructure, digital transformation, digital skills and smart sustainable cities.

Representatives of the ITU membership reported to the RDF-CIS on projects implemented jointly with ITU in the framework of the WTDC-17 regional initiatives. ITU Member States also shared their key national priorities and made proposals for the work of ITU in the CIS region.

### ITU regional initiatives for CIS for the 2018-2020 period

This section provides information on measures taken to implement the ITU regional initiatives for the CIS for the 2018-2020 period and the principal results.

Information about the regional initiatives can also be found at <https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/WTDC17RIs.aspx>.

### CIS1: Development of e-health to ensure healthy lives and promote well-being for all, at all ages

**Objective**: To assist the ITU Member States in the region with the development of regulatory texts, technical solutions and specialized training programmes in the field of e-health (including telemedicine), with the aim of providing the public with improved medical services through the use of infocommunications.

### Expected results

1. Provision of more complete information to the representatives of telecommunication administrations, government healthcare authorities, medical institutions and the private sector regarding the current legal/regulatory and organizational/technical frameworks in the area of e-health.

2. Establishment of pilot telemedicine stations with a guaranteed electricity supply derived from solar energy.

3. Development of technical solutions in the field of e-health, including telemedicine, the processing of digital medical data, personalized medical-service records, the electronic outpatient card, the electronic patient health record, and so on.

4. Recommendations on the application of modern technical solutions in the design of e-health systems, including telemedicine networks.

5. Courses focusing on the training of medical students, and enhancing the skills of practising medical staff, in the use of ICTs in healthcare, including telemedicine, as well as courses for IT specialists on the maintenance of medical information systems.

### PRINCIPAL RESULTS:

In pursuance of this initiative, an ITU [regional workshop](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/10_Odessa/10_Odessa.aspx) on e-health development for Europe and CIS countries was held 17-19 October 2018. The workshop was attended by more than 40 participants representing 22 organizations from 12 countries. Topics discussed included the role of international organizations and government in e-health development; regulating e-health development in Europe and CIS; development of technical solutions in the field of e-health, including telemedicine; problems in the design of e-health systems, including telemedicine networks; building human capacity, including expertise in the field of e-health; impact of telecommunications/ICT on human health; and the prospects for e-health development.

[Recommendations](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Documents/RI-WTDC17/ONAT_RI2_Recommendations_Rev2.pdf) (Russian only) were prepared in 2018-2019 for the construction of telemedicine networks at the local (individual settlements), regional (districts, regions) and national levels taking into account the specific situation of the countries in the region. The document includes recommendations on the use of software and hardware platforms; standard project documentation for the construction of telemedicine networks; and recommendations for the provision of medical services using those networks, taking into account existing standards in the field of e-health.

In cooperation with the A.S. Popov National Academy of Telecommunication of Odessa, [multimedia e-health training courses](https://ehealthcourses.online/info/) (Russian only) have been developed consisting of three standalone courses: "ICT for medical students" (a course for medical students on the use of ICTs in healthcare); "ICT for doctors" (an upgrading course for practising medical staff on the use of ICTs in healthcare); and "E-health for ICT engineers" (a course for ICT specialists on working with medical IT systems). Each course consists of thematic modules with separate tests.

An ITU [online training series](https://www.itu.int/ru/ITU-D/Regional-Presence/CIS/Pages/Direct%20Assistance/eHealth2020.aspx) (Russian only) was organized in 2020 for e-health for doctors and IT engineers. The training aimed to improve the quality of medical care through the use of ICTs, and included both theory and practice. The series concluded with a final test, and successful participants were issued electronic certificates. Training sessions were provided in five countries (Belarus, Kazakhstan, Kyrgyzstan, Uzbekistan and Ukraine). Out of the 128 specialists who took part in the series, 57 received the certificate.

In 2021 recommendations will be developed for the creation of a pilot telemedicine station that can be used by countries wishing to design such stations for their own use.

### CIS2: Use of telecommunications/information and communication technology to ensure inclusive, equitable, quality and safe education, including the enhancement of women's knowledge of information and communication technologies and e-government

**Objective**: To provide ITU Member States in the region with centralized consultative and technical assistance in the various aspects of the use of telecommunications/ICT in education, as well as in regard to raising the level of people's ICT literacy, in the interests of human capacity development and of ensuring gender and social equality.

### Expected results

1. Provision of consultative and technical support to representatives of educational establishments with regard to current progress in the use of telecommunications/ICTs in education.

2. Establishment of training centres for enhancing women's knowledge of ICTs and e‑government.

3. Development of educational technologies and methods using telecommunications/ICTs.

4. Development of systems for providing pupils, parents and teachers with information on the safe use of Internet resources.

5. Further training courses, training sessions and seminars on introducing telecommunications/ICTs into education and human capacity development, including in rural areas, and also for persons with disabilities.

### PRINCIPAL RESULTS:

Regional initiative CIS2 covers a broad spectrum of measures, projects and programmes.

Since 2012, ITU, with support from the Administration of the Kyrgyz Republic in cooperation with the Institute of Electronics and Telecommunications in Bishkek, has been organizing annual courses for teachers from rural schools in the Kyrgyz Republic as part of ITU's "Connect a School, Connect a Community" initiative. Training teachers to improve their knowledge of ICT and therefore their use of the technology in their work contributes to improving the quality of school education in general and increasing digital literacy among pupils. The annual training is offered in several regions of the Kyrgyz Republic and typically involves trainers travelling to the region. The three-level curriculum encourages rural teachers participating in the training to progress from the easier to the more complex material. An important aspect is the high proportion of women (some 80% of the 100-odd participants every year). From 2012 to 2020 more than 800 teachers have undergone this professional upgrading training. That means that the quality of ICT subjects has been improved in 728 schools serving a total of 95 214 pupils. Due to the pandemic, the training in 2020 was conducted online, which served as a powerful reminder of problems with accessibility to the communication infrastructure and Internet access in rural schools, as well as the fact that many teachers do not even possess a personal computer. For 2021 it is planned to conduct that training in August and September.

In 2019 ITU, with the support of the Ministry of Communications and Informatization of the Republic of Belarus and in cooperation with the Belarusian State Academy of Communications (BGAS), implemented a project to create an information and training centre for IP telephony. The centre was officially opened in March 2020. The work of the centre is aimed at retraining the technical and management staff of IT departments of companies and organizations and is designed to facilitate the implementation of modern IT solutions, in particular IP telephony solutions, and reduce tensions in the work of companies and organizations with regulatory bodies. ITU procured standard and specialized technology for the centre. Premises for the centre were provided by BGAS. At the end of 2019, as part of the project, a pilot training course on integrated IP-telephony was held for 16 participants. In 2020 the centre conducted two courses for 20 participants. Representatives of other countries in the region have expressed interest in such training. Currently, due to the pandemic, training is not being carried out directly at the centre. However, the equipment of the centre is being used to conduct remote IT training. BGAS is interested in expanding it with a new training and research centre for quantum technologies in telecommunication systems.

In 2020 ITU jointly with the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan and in cooperation with the Ministry's ICT Laboratory (<http://www.e-training.az/main>) implemented a project to develop online multimedia ICT courses aimed at enhancing digital skills and promoting women's participation in the digital economy in Azerbaijan. As part of the project, the ICT Laboratory developed a platform for online courses (<https://iktlab.edu.az/>), which incorporates a user profile that allows for feedback and certification, and two online courses of 16 modules each: the first is aimed at teaching digital skills; the second, digital entrepreneurship and marketing skills. Both courses are developed in Azeri, extending access to those who do not speak either English or Russian. The project implementation saw 50 women undergo training in 2020. In 2021, the ICT Laboratory plans to develop a course on cybersecurity, expected to attract one thousand participants, and in 2022 – a course on programming.

In 2020 ITU, with the support of the Ministry of High-Tech Industry of the Republic of Armenia and the Union of Operators of Armenia, jointly with the non-profit organization Cross of Armenian Unity implemented a project aimed at supporting the creation of an AR/VR laboratory for modelling cultural heritage sites at the organization's Innovation Ethnic Regional Centre (IERC) in Echmiadzin, Republic of Armenia. The project gives young people practical experience with graphics, 3D-modeling, and application development.

In 2020 ITU, in collaboration with M. Dulatov University of Engineering and Economics in Kostanay, an ITU Academia entity, started work on the project "Creation of an education ecosystem in Kostanay". The project will make it possible to modernize the University's telecommunication network, provide educational institutions in Kostanay with high-speed Internet, create a platform for organizing distance learning, video conferencing, IP telephony, and connection to the electronic library of universities and educational resources, and perform management and monitoring functions for the network. ITU is currently purchasing equipment to build the ecosystem. Project implementation is scheduled to be completed in 2022.

In 2020 ITU, with the support of the Ministry for Development of Information Technologies and Communications of the Republic of Uzbekistan, in cooperation with Uzbekistan's Information Technology Park in Tashkent, and with the participation of ZTE Corporation, started a project to create a training centre to improve the level of knowledge of women and youth in the field of ICT in Uzbekistan. The project aims to improve the digital skills of women and youth in Uzbekistan and will contribute to the wider use of ICT services, overcoming gender inequality in the ICT field, developing digital entrepreneurship, and digital transformation of industry. The premises for the training centre are provided by the Information Technology Park. ITU is purchasing equipment. In 2020 the centre has already organized trainings for the trainers of the centre. Under the project, it is planned to conduct trainings in such areas as: ICT for development; IT entrepreneurship; basic course in computer graphics, 2D graphics; basic course in website design; introduction to programming (Python). A series of trainings will take place in April-May 2021. It is expected that at least 10 training courses will be organized during the project. Completion of the project is scheduled for 2021.

Child online protection remains a priority.

In cooperation with the A.S. Popov National Academy of Telecommunication of Odessa in Ukraine, ITU in 2020 worked on the updating of the [online course for the safe use of Internet resources](https://onlinesafety.info/) (Russian only) developed jointly with the Academy in 2015 under a WTDC-14 regional initiative. The course is designed on three levels: a basic level for preschool and the younger classes; an intermediate level for grades five to eight; and an advanced level for seniors, college students, parents and teachers. The updating work was done taking into account proposals from the ITU membership in the CIS region. The updated course was presented at the [Forum on Child Online Protection](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2020/09_Online/09_Online.aspx) for the CIS region in October 2020. Several countries in the region have expressed an interest in localizing the curriculum for children in their national languages. In early 2021, the first project to localize the training course into Armenian, implemented jointly with the Union of Operators of Armenia, was completed.

At present, a project is being prepared jointly with the UNESCO Institute for Information Technologies in Education to use the model of a distance learning course to create a new course on cybersecurity for teachers, which will be based on ITU's [Child Online Protection Guidelines](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/COP-2020-Guidelines.aspx) and related UNESCO guidance and resource materials. Work on the development of a distance learning course for teachers is scheduled to begin in the second quarter of 2021.

In addition to the regional measures, a direct contribution to achieving regional initiative CIS2 is being made by [Giga](https://gigaconnect.org/), a global initiative launched by UNICEF and ITU to connect every school to the internet, and every young person to information, opportunity, and choice.

Giga is anchored in the report of the United Nations Secretary-General's High-level Panel on Digital Cooperation, which recommends that "by 2030, every adult should have affordable access to digital networks" and that "a broad, multi-stakeholder alliance, involving the United Nations, create a platform for sharing digital public goods" (recommendations 1A and 1B respectively).

### Giga has four pillars.

**Map** – In partnership with governments, Giga has started by mapping connectivity demand, using schools as a base point, and identifying where there are connectivity gaps. This information, combined with existing ITU mapping data, allows countries to take stock of their existing infrastructure and assess wired and wireless availability when assessing appropriate solutions for connecting schools. Already more than 800 000 schools in 15 countries have been mapped, and are viewable live at [www.projectconnect.world](http://www.projectconnect.world)

**Finance** – Giga will work with governments and advise them on building affordable and sustainable country-specific models for finance and delivery, subsidizing market creation costs and incentivizing private sector investment.

**Connect** – In partnership with industry, and based on the mapping results, Giga will determine the best possible technical solutions available to provide schools with required connectivity, and countries with safe, secure, reliable, fit-for-purpose infrastructure to support future digital development needs. This includes determining the best possible solutions for last-mile connectivity.

**Empower** – Building on investments by UNICEF's Venture Fund in open source solutions, Giga will work with governments to identify, localize, and implement appropriate digital public goods at scale, as per a country's development priorities and in coordination with the broader national digital strategy. The focus is on, but not limited to, information and skills for children, teachers, and administrators.

Kazakhstan, Kyrgyzstan and Uzbekistan are the three countries selected from the CIS region to fast-track the Giga initiative.

The following interim results were achieved during 2020:

### Kazakhstan

– In January 2020 Kazakhstan became the regional Giga lead in Central Asia, with the signature of a three-way letter of intent by the Ministry of Digital Development, Innovations and Aerospace Industry of the Republic of Kazakhstan, ITU and UNICEF;

– A regional Giga office was opened in Nur-Sultan;

– Data was collected on 7 434 schools and school mapping was conducted;

– For 30 non-connected schools, information on the available telecommunication infrastructure was collected and fed into the broadband diagnostic tool (ITU-developed software) to estimate the bandwidth needed to connect schools and service the communication channels;

– Technical support was provided to the UNICEF office in Kazakhstan, including support for meetings with representatives of local telecommunication operators;

– Kazakhstan is calling for offers for technical and economic studies on connecting or improving the connection speed for 105 selected schools;

– The country profile is available on the [Giga website](https://gigaconnect.org/kazakhstan/).

### Kyrgyzstan

– Mapping of schools and telecommunication infrastructure has been done;

– On the basis of the mapping results, the Government of Kyrgyzstan has optimized the tariff plans for connecting school;

– In joint work with the Dalberg consultancy, a synthesis report has been prepared on the current situation and potential for connecting schools in Kyrgyzstan;

– Work is under way to connect 17 schools in remote regions;

– The country profile is available on the [Giga website](https://gigaconnect.org/kyrgyzstan/).

### Uzbekistan

– In joint work with the Dalberg consultancy, a synthesis report has been prepared on the current situation and the potential for connecting schools in Uzbekistan;

– The country profile is available on the [Giga website](https://gigaconnect.org/uzbekistan/).

### CIS3: Development and regulation of infocommunication infrastructure to make cities and human settlements inclusive, safe and resilient

**Objective**: To assist ITU Member States in the region in developing regulatory instruments and technical solutions aimed at creating an enabling environment for the development of infocommunication infrastructure in cities and human settlements, including the use of smart devices.

### Expected results

1. Recommendations on the development of infocommunication infrastructure, including the use of telecommunications and other connective media to support and facilitate the sustainable development of smart cities in developing countries.

2. Recommendations on development of the regulatory and legal framework governing the process of building and servicing infocommunication infrastructure in facilities of diverse ownership, including the use of smart devices for developing urban infrastructure.

3. Implementation of pilot projects for the introduction of smart devices in the interests of road-traffic safety, control of street lighting, energy saving, water-supply management, etc.

4. Greater awareness on the part of telecommunication administrations, regulatory bodies and telecommunication equipment developers, manufacturers and suppliers as to the strategies to be adopted for the construction of smart cities and implementation of the smart city vision in the CIS countries.

5. Further training courses, training sessions and seminars on the infrastructure of cities and human settlements.

### PRINCIPAL RESULTS:

Regional initiative CIS3 clearly demonstrated how complex and pervasive the role of modern information and communication technologies is. ITU Member States focus not only on the development of individual networks or technical solutions, but look at the challenge of digitalization in the broadest sense, centred on the socio-economic development of countries, cities and communities.

Projects and measures implemented by ITU under regional initiative CIS3 typically fell within the domains of several different sectors of the economy and the competence of several state bodies. Two good examples, in 2018 and 2019 respectively, were events held jointly with the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan: a [regional cyberdrill](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Events/2018/09_Baku/09_Baku.aspx) and a [workshop on intelligent transport systems](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/04_Baku/04_Baku.aspx).

Firstly, this made it possible to examine the implementation of IoT-based solutions directly in the context of the concrete, practical task of optimizing road traffic, thereby improving the ecological situation, reducing traffic deaths and of course shortening the time people spend in traffic. Secondly, work was done in parallel to create competencies in national computer incident response teams (CIRTs) and exchanges of cybersecurity experiences and information were established, providing confidence that ITS and other new technologies will not turn become easy prey for cyberattacks.

Thanks to the inter-sectoral nature of the third regional initiative, during its implementation ITU was able to set up completely new, successful partnerships. A good example of such a partnership was the work done jointly with the government of the city of Moscow. The outcomes included not only participation in events, but also - a first for the CIS region - a city case study under the U4SSC programme, "[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/files/downloads/The-Case-of-Moscow-E_18-00503.pdf)". The report met with great interest among ITU partners within the region and beyond, as it provided detailed, holistic descriptions of the technical decisions taken by Moscow and the organizational structure for the interaction between the different authorities and organizations of the city. The clarity and efficiency of the data exchange and the clear division of responsibilities are the foundation for the success of Moscow as a smart city.

Another good example was the cooperation with the Ministry of Communications and Informatization of the Republic of Belarus in organizing an annual [forum on smart sustainable cities](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Events/2021/Minsk-SSC.aspx). A forum was held in 2019, 2020 and 2021, and it has become a showcase event in the CIS region, attracting more participants every year.

Regional initiative CIS3 has become a driver for the development of cooperation between ITU-D and ITU-T in the CIS region, particularly in the domain of smart sustainable cities; but also for interregional cooperation in cybersecurity. Thus, in 2019 ITU's Regional Office for Asia and the Pacific and the Regional Office for the CIS region held the first [interregional cyberdrill](https://www.itu.int/en/ITU-D/Cybersecurity/Pages/ASP-CIS-Cyberdrill-2019.aspx), in Kuala Lumpur, Malaysia. The drill brought together over 300 participants. In the context of the review of ITU's regional presence, it is one of the most outstanding examples of successful cooperation.

Finally, regional initiative CIS3 laid the foundation for ITU's work in the region on a new work cycle, with themes such as digital transformation and [regional cooperation of start-up ecosystems](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Events/2020/09_Bishkek/09_Bishkek.aspx).

### CIS4: Monitoring the ecological status and the presence and rational use of natural resources

**Objective**: To assist ITU Member States in the region in monitoring the ecological status and the presence and rational use of natural resources.

### Expected results

1. Development of information systems to support decision-making in regard to monitoring of the ecological status and the presence and rational use of natural resources, including the creation of a spatial data infrastructure.

2. Creation of repositories of metadata relating to the results of studies on the ecological status of the region's natural resources.

3. Providing the governmental authorities responsible for the conservation of natural resources with high-quality, well-organized and harmonized spatial information for use in analysing and forecasting the state of the environment.

4. Further training courses, training sessions and seminars on monitoring the ecological status and the presence and rational use of natural resources.

### PRINCIPAL RESULTS:

At the request of the Administration of the Kyrgyz Republic, in 2020, a project was implemented on the [monitoring of the ecological status and of the presence and rational use of natural resources](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Documents/RI-WTDC17/Report%20climate%20project.pdf) (Russian only) in collaboration with the Institute of Electronics and Telecommunications with the aim of creating a geo-portal for the (ecological) monitoring of water resources in the Kyrgyz Republic. The objective was to create an information systems to support decision-making in regard to monitoring of the ecological status, presence and rational use of natural resources, including the creation of a spatial data infrastructure as part of a national spatial data infrastructure.

This was achieved by developing a geo-portal for monitoring the water resources of the Kyrgyz Republic, with a web-based dynamic spatial data management system. The principal management functions of the portal are:

1. Single-platform organization of spatial data collection. Currently, there are numerous sources of spatial data among various organizations and government authorities. To use those data for the support of management decision-making in an effective manner, processing and storage in a single system will be required.

2. Depiction of heterogeneous data. The stored spatial data are only useful if they can be visualized in the form of overlays within a unique coordinate system. A single set of data may be depicted in various ways to support decision-making.

3. Effective geospatial analysis. The depiction of spatial data in the form of overlays and analysis of the resulting cartographical material can bring out regular patterns in the distributions and suggest appropriate management solutions.

4. Organization of a dialogue between citizens and government authorities. The geo-portal functionalities allow users to create their own data; this serves as an external source of information for the system and gives the authorities up-to-date information about problem areas of direct concern to the citizens.

5. Mobile data access. Geo-portal access is possible through a browser on a desktop computer, or from the screen of a mobile telephone. Data is thus available to users around the world as long as they have Internet access, without any requirement for the installation of specialized software. This makes it possible to optimize the management process.

Given the importance of the project, in early 2021 the elaboration of next steps for its continued support and development was started, including an assessment of the capabilities of the designed information system for the monitoring of water resources and the organization of user training.

ITU continued its participation in the ongoing project "Regional E-waste Monitor CIS plus Georgia, Turkmenistan and Ukraine". The project is implemented by the Sustainable Cycles (SCYCLE) programme jointly with the United Nations University (UNU), the United Nations Institute for Training and Research (UNITAR), and the United Nations Environment Programme (UNEP). The project is being implemented with support from the federal Environment Agency of Germany (UBA), ITU and the International Solid Waste Association.

A regional e-waste monitoring system will be an important contribution for the countries of the CIS, for Georgia, Turkmenistan and Ukraine. It will facilitate the collection of information needed for the purpose of reporting to the Basel Convention secretariat, and make it possible to track progress in the achievement of Sustainable Development Goals, in particular § 12.5.1 and § 12.4.2, which concern e-waste.

Regional e-waste monitoring will also be a major step towards realization of the agreement on cooperation between the CIS Member States on waste electrical and electronic equipment and the associated action plan. Since the objective of the agreement is to help the parties concerned create a regional system for dealing with waste electrical and electronic equipment, any steps taken towards regional monitoring will directly contribute to meeting the objective.

The first training course under the project was held in Moscow in January 2020. At the end of that year, a webinar was held on legislation, statistics and electronic waste handling. Interim results were presented on the market volume of electrical and electronic equipment (EEE) sales and the volume of electrical waste produced. In addition, some approaches were discussed for analysing statistical information to calculate the volume of new EEE on the market and the volume of e‑waste produced. Project implementation is continuing in 2021.

### CIS5: 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

**Objective**: To assist ITU Member States in the region with harmonious transformation of the telecommunication market and transition of telecommunication operators to the provision of innovative services to users, ensuring the stability and enhanced performance of telecommunication networks, including 4G, IMT-2020 and next-generation networks (hereinafter "telecommunication networks") within a context of ubiquitous implementation of the Internet of Things concept and technologies.

### Expected results

1. Development of recommendations on the use of modern technologies and advanced concepts for the operation of the telecommunication market, including principles for telecommunication network interworking, tariff-setting for services, numbering, addressing and identification, as well as issues relating to service quality, security and reliability and traffic management, including aspects of net neutrality.

2. Increased interoperability among telecommunication networks, services and devices through implementation of the IoT concept, including the industrial IoT.

3. Help in ensuring the required level of confidence and security when implementing the large-scale transformation of telecommunication networks within the context of introduction of the IoT concept, including the industrial IoT.

4. Establishment of a single toolkit and a set of specifications for the testing of devices, telecommunication networks and their components within the framework of the IoT concept, including the industrial IoT, on the basis of regional laboratories.

5. Development of recommendations relating to the establishment and operation of regional IoT laboratories, in the interests of sustainable development.

### PRINCIPAL RESULTS:

Regional initiative CIS5 has become a centre of attraction for the most technically oriented measures and projects of ITU and its partners in the region, from areas such as spectrum management, digital networks and infrastructure, compliance and compatibility testing, 5G, future networks and bridging the standardization gap.

The demands for technical expertise made it possible to realize the full potential for cooperation between the three Sectors of ITU. Working with ITU-R experts, a number of regional [seminars](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2019/04_Minsk/04_Minsk_Presentations.aspx) and [courses](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/EVENTS/2018/05_Minsk/05_Minsk_Presentations.aspx) were held, with the Radiocommunication Sector providing a high level of expertise and the Development Sector helping to maximize involvement of the countries and the categories of stakeholders affected. Meanwhile, ITU-T experts made a crucial contribution to solving tasks related to the development and standardization of future networks and applications. ITU regional offices and experts from the ITU-T study groups developed detailed technical reports on four subjects: 1) construction of regional testing laboratories; 2) forecasting communication network growth to 2030; 3) the quality of network operation in pandemic conditions; and 4) testing of augmented reality applications and equipment.

Particular mention must be made of the partnership between ITU and the operator Rostelecom in the creation of the International Research, Development and Testing Centre for New Equipment, Technologies and Services in Saint Petersburg at Bonch-Bruevich Saint-Petersburg State University of Telecommunications. This unique cooperation project not only ensured the successful implementation of regional initiative CIS5, but also inspired other initiatives in the region. The centre, [created in 2020](https://youtu.be/FlcNQ2KFZLA), is intended to accelerate the adoption of new technologies on the networks of the operators by allowing testing on model networks; it should augment the human capacities of the academic institution and other organizations involved; and it should give students a possibility to acquire skills that are as relevant as possible to future work on actual operator networks. As part of the project, the following reports were produced (Russian only):

1. ["Network design](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Documents/RI-WTDC17/RI%20CIS%205%20-%20Network%202030.pdf) 2030"

2. ["Development of recommendations for the creation and operation of regional IoT laboratories"](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Documents/RI-WTDC17/RI%20CIS%205%20-%20Regional%20C%26I%20labs.pdf)

3. ["Development of recommendations for QoS requirements under degraded conditions due to pandemic-related demand peaks for the purpose of ensuring functional robustness of communication networks"](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Documents/RI-WTDC17/RI%20CIS%205%20-%20NP%20and%20QoS.pdf)

4. ["Development of recommendations for testing of augmented reality services on the model networks of regional laboratories"](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Documents/RI-WTDC17/RI%20CIS%205%20-%20AR%20testing.pdf).

In 2021 the Regional Office will begin connecting other countries of the region to the Saint Petersburg centre, which will mark the creation of a fully functional virtual regional laboratory.

Work under regional initiative CIS5 made it possible to achieve practical results in bridging the standardization gap. Thus, in 2020 [technical assistance was provided to Belarus](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Regional%20Initiatives/DirectAssistance2020.aspx) on the unification of top-level data exchange processes and development of a standard for the data format and exchange processes in smart cities. Meanwhile, regional experts continued actively participating in the development of global standards under the ITU-T study groups. The decisive factor in this success was the work of the [ITU-T SG regional groups](https://www.itu.int/en/ITU-T/studygroups/2017-2020/20/sg20rgeecat/Pages/default.aspx), which coordinated their meetings with ITU‑D forums and seminars dealing with the corresponding subjects. The best example of this cooperation was the annual ITU forum on future networks and applications, held in Saint-Petersburg. The [2019 forum](https://www.itu.int/en/ITU-D/Regional-Presence/CIS/Pages/Events/2019/05_St_Petersburg/05_St_Petersburg.aspx) was the occasion of an important milestone, as ITU for the first time was able to host a meeting of the [focus group for future networks](https://www.itu.int/en/ITU-T/focusgroups/net2030/Pages/default.aspx) in the CIS.

Given the importance of the radio spectrum for the successful development of information and communication technologies, the ITU Regional Office provided comprehensive support to the countries of the region in the form of technical expertise (reallocation of frequencies in Kyrgyzstan for the Internet of Things) and by holding regional and interregional events on interference-free operation of radio equipment, frequency coordination in border regions, and [other subjects](https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2020/Spectrum_EUR_CIS/Remote.aspx). In 2018 a coordination meeting was held between the RCC and CEPT at the Regional Office, contributing to the preparations for WRC-19.

A complete list of the events held in pursuance of regional initiative CIS5 is given on the [corresponding webpage](https://www.itu.int/ru/ITU-D/Regional-Presence/CIS/Pages/WTDC17RIs.aspx) of the ITU Regional Office.

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