Update on current status of work on ITU Thematic Area of
Environment and Smart Sustainable Cities & Communities
December 2021 – May 2022

Update on current status of work

BDT and TSB Activities

- In the framework of the U4SSC, BDT is contributing to Working Group 5 of the Thematic Group on City Platforms. The expected deliverable will be a Reference framework for an integrated management of a smart sustainable city, which will be linked with the overall Digital Government Platform that is being developed in the Gov Stack initiative. This activity is being led by TSB in coordination with BDT.
- ITU is collaborating with the WEEE Forum and the Solving the E-waste Problem (StEP) initiative in promoting the fifth edition of the International E-waste Day (2022). A thought paper is being prepared by the partners following more than 30 consultations and more than 30 survey responses on the topic of global EPR. The thought paper will focus on the opportunities and challenges of global EPR and the drivers of e-waste collection that are not EPR-driven. The thought paper will be released on 14 October 2022. This activity is being led by BDT in coordination with TSB.
- BDT has organised the [Generation Connect Global E-waste Iconathon](#) which is an icon design contest that aims to raise awareness about the global e-waste issue and leverage the participation of youth globally. Young people of ages 18-29 are invited to participate and design a universal icon that signifies the take-back and collection of e-waste for recycling purposes. 3 finalists have been identified and their travel to the Generation Connect Youth Summit is being finalised, taking place at the World Telecommunication Development Conference in Kigali in June 2022. TSB has contributed with comments and was part of the selection process.
- In collaboration with GIZ through the [Gov Stack initiative](#), ITU has just opened a vacancy notice for a circular and sustainable public procurement expert to lead consultations and the preparation of a guide on this topic. An e-learning will also be prepared using content from the guide once the guide is complete. The guide will provide national governments with the status, challenges and opportunities of adopting circular and sustainable public procurement practices for ICT / Gov Stack-relevant goods and services. This activity is being led by BDT in coordination with TSB.
- BDT and TSB are actively engaging in the Coalition for Digital Environmental Sustainability (CODES) initiative as part of the follow-up to the SG's Roadmap on Digital Cooperation. ITU has activity spoke at events, round table discussions and contributed to the ['Action Plan for a Sustainable Planet in the Digital Age'](#). ITU will continue to work closely with UNEP to support and lead the implementation of impact initiatives outlined in the CODES Action Plan during 2022 and beyond. ITU was invited to speak at the launch of the CODES Action Plan that will take in a side event of the Stockholm +50. TSB will participate in this event.

- BDT and TSB continues to participate in the E-waste Coalition, the Solving the E-waste Problem initiative and the Circular Electronics Partnership. As part of the involvement with the Circular Electronics Partnership, it is planned that a Joint Declaration between ITU and WBCSD will be signed. WBCSD holds the Secretariat of the CEP.

TSB

Smart Sustainable Cities & Communities:

Ongoing activities and upcoming events:

- A Toolkit on Digital transformation for people-oriented cities and communities has been developed and launched in February 2022, together with UN-Habitat, IEA, UN-DESA, UNDP, UNIDO, UNECE, UNU-EGOV, UNEP, WMO and other UN bodies. The toolkit consists of the following modules:
  - Digital transformation of cities and communities
  - Developing a digital transformation strategy
  - Data processing and management
  - Connectivity, digital divide and digital inclusion
  - Accessibility and digital inclusion
  - Reduce the environmental impact of cities
  - Smart energy management
  - Smart water management
  - Emergency management
  - 4IR and smart manufacturing
  - Please see the toolkit available at: https://toolkit-dt4c.itu.int/
- The United for Smart Sustainable Cities (U4SSC) initiative is currently working on the following thematic groups, namely:
- Lessons Learned from Building Urban Economic Resilience at City Level During and After COVID-19;
- Compendium of Practices on Innovative Financing for Smart Sustainable Cities Projects;
- Guiding principles for artificial intelligence in cities;
- Procurement Guidelines for Smart Sustainable Cities;
- City Platforms;
- Enabling People-Centred Cities through Digital Transformation
- Pilot projects are being carried out in over 150 cities worldwide to implement the U4SSC Key Performance Indicators (KPIs) for smart sustainable cities and assess the "smartness" and "sustainability" of participating cities in collaboration with the other 17 UN agencies and programmes.
- The first United for Smart Sustainable Cities (U4SSC) Austrian U4SSC Country Hub will be hosted by the Austrian Economics Center in Vienna, Austria. The main objective of this country hub is to promote the work of U4SSC.
- TSB continues to develop city snapshots, verification reports, city fact sheets and case studies with the participating cities.
- The following city case study has been launched since December 2021:
- Daegu, Korea (Feb 2022)
- The 3rd meeting of the Focus group on Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture (FG-AI4A) will take place from 24-26 August 2022 in Seongnam, Korea (Republic of).
- The next meeting of ITU-T SG20 will take place on 18-28 July 2022, in Geneva, Switzerland.
- The next Joint Coordination Activity on Internet of Things and Smart Cities and Communities (JCA-IoT and SC&C) meeting will take place on 19 July 2022, in Geneva, Switzerland.

- The [WSIS 2022 - Beyond smart cities = "Smart for all"](), which was co-organized with BDT, took place virtually on 10 May 2022.
- The [2nd meeting of the Focus group on Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture (FG-AI4A)]() took place virtually from 9-10 May 2022.
- The [STI Forum 2022 - Side Event on Building People-Oriented Cities Through Digital Transformation](), which is co-organized with Ministry of Digital Governance, Greece, Austrian Economics Center, UN-Habitat and U4SSC Country Hub – Austria, took place virtually on 6 May 2022.
- The [Episode 15 on Smart city platforms for an integrated management in smart sustainable cities](), took place on 28 April 2022.
- The [1st meeting of ITU-T Focus Group on "Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture" (FG-AI4A)]() took place virtually from 30-31 March 2022.
  - During the meeting, the following structure and working groups have been approved:
    - Working Group on Glossary (WG-Gloss)
    - Working Group on Digital Agriculture Use Cases and Solutions (WG-AS)
    - Working Group on Data Acquisition and Modelling for digital agriculture (WG-DAM)
    - Working Group for Mapping and Analyzing AI and IoT standards related Activities in Digital Agriculture (WG-Roadmap)
    - Working Group on Ethical, Legal, and regulatory Considerations relating to the use of AI for agriculture (WG-ELR)
    - Working Group on Collaboration and Outreach (WG-CO)
- The [Episode 14 on Accelerating agricultural digital transformation through AI and IoT](), which is co-organized with Food and Agriculture Organization of the United Nations (FAO) and International Organization for Standardization (ISO), took place on 29 March 2022.
- The [WSIS Forum 2022 workshop on "Towards People-Oriented Cities"]() took place virtually on 29 March 2022.
- During WTSA-20 (Geneva, 1-9 March 2022), the following changes concerning ITU-T SG20 were approved:
  - ITU-T SG20 title is: Internet of things (IoT) and smart cities and communities (SC&C)
  - The [mandate and lead roles of ITU-T SG20]() were approved.
  - The new [ITU-T SG20 management team]() was elected.
  - The following resolution concerning IoT and smart cities and communities was revised:
    - [Resolution 98 - (Rev. Geneva, 2022)]() - Enhancing the standardization of Internet of things and smart cities and communities for global development
- The [AI for Good webinar: Towards digital agriculture: Expanding on the AI and IoT paradigm](), which is co-organized with Food and Agriculture Organization of the United Nations (FAO), took place on 14 February 2022.
- The [Episode 13 on Architecting the Web of Things](), which is coordinated with the Web of Things WG of the World Wide Web Consortium (W3C), took place on 3 February 2022.
- The last [ITU-T SG20: Internet of things (IoT) and smart cities and communities (SC&C) meeting]() took place virtually on 3 February 2022.
- The main achievements of the SG20 meeting were the following:
- 2 Recommendations were approved, namely:
- Recommendation ITU-T Y.4214 on "Requirements of IoT-based civil engineering infrastructure health monitoring system"
- Recommendation ITU-T Y.4215 on "Use cases, requirements and capabilities of unmanned aircraft systems for Internet of Things"

- o The Episode 12 on IoT for Earth Observation and Sustainable Development – opportunities and challenges, which is co-organized with Mandat International and World Meteorological Organization (WMO), took place on 14 December 2021.
- o The Episode 11 on Blockchain-based data management for supporting Internet of things and smart cities and communities, which was co-organized with Open & Agile Smart Cities (OASC) and United Nations University Operating Unit on Policy-Driven Electronic Governance (UNU-EGOV), took place on 8 December 2021.
- o The Episode 10 on The role of digital technologies on aging and health, which was co-organized with Pan American Health Organization (PAHO), took place on 7 December 2021.
- o The 6th Meeting of the United for Smart Sustainable Cities (U4SSC) Initiative took place virtually on 7 December 2021. During the meeting a new Thematic group on Enabling People-Centred Cities through Digital Transformation has been created.
- o The Episode 9 on Addressing the Security Risks of Digital Transformation on IoT, which is co-organized with ITU-T Study Group 17 "Security", took place on 6 December 2021.
- o The Episode 8 on Network capabilities and emerging technologies to support IoT-enabled verticals, which was co-organized with China Information and Communication Technologies Group (CICT), China Mobile, China Unicom, National Company for Support of Digital Development/Transformation (EADN), Huawei, Oki Electric Industry Co., Ltd and Tencent., took place on 18 November 2021.

Environment, Climate Change & E-waste

Ongoing activities and upcoming events:

- As part of a UNIDO-GEF project, TSB together with Basel Convention Regional and Coordinating Centres (BCRCs) in Latin America developed a Case Study on the Implementation of ITU-T Standards on sustainable management of WEEE: The path to a Circular Economy in Costa Rica. The case study details Costa Rica's experience in the implementation of Recommendations ITU-T L.1031 "Guideline for achieving the e-waste targets of the Connect 2030 Agenda" and ITU-T L.1032 "Guidelines and certification schemes for e-waste recyclers". Currently Argentina is working on the implementation of Recommendation ITU-T L.1031 "Guideline for achieving the e-waste targets of the Connect 2030 Agenda".

- TSB is working in the development of a Sustainable Digital Transformation toolkit (which is expected to be published together with other UN Agencies. This toolkit collates and highlights various ITU standards, publications guidelines and resources. It also provides resources from other UN Agencies collaborating in the toolkit.

- TSB is working on updating the brochures on ITU-T work on E-waste and Circular Economy, EMF, Energy Efficiency.
- TSB is part of the Advisory Board of the European Green Digital Coalition. ITU-T SG5 was invited to be part of this coalition.
- The first meeting of the 2022-2024 Study Period of ITU-T Study Group 5 will be held from 21 June to 1 July in Geneva. The second meeting is planned to take place in Frascati, Italy in the second half of October and it will be collocated with the 14th Symposium on ICTs, Environment and Climate Change.

- A workshop on **Global Digital ICT Product Passport to achieve a Circular Economy** will take place on 1 June 2022. The workshop is being co-organized together with UN Environment and ETSI. This workshop is a side event of the European Union Green Week 2022.
- The fifth meeting of the FG-AI4EE took place in Vienna, Austria on 4 May 2022 and was preceded by a [Workshop on Advancing Environmental Efficiency of Emerging Technologies](#).
- During WTSA-20 (Geneva, 1-9 March 2022), the following changes concerning ITU-T SG5 were approved:
  - o ITU-T SG5 title is: EMF, environment, climate action, sustainable digitalization, and circular economy
  - o The [mandate and lead roles of ITU-T SG5](#) were approved.
  - o The new [ITU-T SG5 management team](#) was elected.
  - o The following resolutions concerning Environment, EMF and Circular Economy were revised:
    - ▪ [Resolution 72 - (Rev. Geneva, 2022)](#) - Measurement concerns related to human exposure to electromagnetic fields
    - ▪ [Resolution 73 – (Rev. Geneva, 2022)](#) - Information and communication technologies, environment, climate change and circular economy
    - ▪ [Resolution 79 - (Rev. Geneva, 2022)](#) - The role of telecommunications/information and communication technologies in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it

- The [10th Green Standards Week](#) was held virtually from 14 to 16 December 2022. The theme of the 10th GSW was on Driving Sustainable Digital Transformation through sustainable e-waste management and circular economy. It was co-organized together with the Ministry of Health of Costa Rica, the Ministry of Science, Innovation, Technology and Telecommunication of Costa Rica, UNIDO, the Secretariat of the Basel Convention, the Regional Centre of the Basel Convention for South America, UNEP DTU Partnership, Step and IDD LAC.

- During the [ITU-T SG5: Environment, Climate Change and Circular Economy meeting](#) held from 30 November to 10 December 2021 the following results were achieved:
  - o 13 Recommendations were consented (of which 9 were revised Recommendations):
    - ▪ ITU-T K.151 "Electrical safety and lightning protection of medium voltage input and up to ±400VDC output power system in ICT data centre and telecommunication centre"
    - ▪ ITU-T L.1035 "Sustainable Management of Batteries"
    - ▪ ITU-T L.1016 "Method for Evaluation of the Environmental, Health and Safety Performance of True Wireless Stereo Headphones"
    - ▪ ITU-T L.1036 "Scheduled waste management for base station (inclusive of e-waste)"
  - o 4 Supplements were agreed:
    - ▪ K.Suppl.13 "Radiofrequency electromagnetic field (RF-EMF) exposure levels from mobile and portable devices during different conditions of use"
    - ▪ K.Suppl.20 "Supplement on radiofrequency exposure evaluation around underground base stations"
    - ▪ L.Suppl.45 "Radio base station site best practices"
    - ▪ L.Suppl.46 "Definitions and Recent Trends in Circular Cities"
  - o 28 new work items were approved:
    - ▪ K.ecl "Surge protective component application guide - Electronic Current Limiters"
    - ▪ K.Suppl.WPT "EMF strength in and outside of WPT-EV/OLEV"

- K.76 (rev.) "EMC requirements for telecommunication network equipment (9 kHz-150 kHz)"
- L.NCIe "Carbon data intensity for network energy performance monitoring"
- L.Sup.EMUE "Energy related mobile end-user experience"
- L.Suppl.cdep "Computer processing, data management and energy perspective"
- L.Suppl.gcai "Guidelines on the Implementation of Eco-friendly Criteria for AI and other Emerging Technologies"
- L.SCCA "Supply-chain based carbon accounting information guidelines for ICT manufacturing industries"
- L.GPSIM "Good practices for the sanitization of the information media in end-of-life ICT devices"
- L.ICT_PROCURE "Public procurement of ICTs to mitigate the adverse effects of e-waste"
- L.Suppl.ICIP "Best practices for implementing the circular economy in ICT management"
- L.1031 (rev.) "Guideline for achieving the e-waste targets of the Connect 2030 Agenda"
- L.Suppl.GSP to ITU-T L.1060 "Specific principles for the green supply chain management of information and communication technology manufacturing industry"
- L.Database "Guidance for the creation of an ITU database on GHG emissions of the global ICT sector"
- L.1471 (rev.) "Guidance and criteria for information and communication technology organizations on setting Net Zero targets and strategies"
- L.1420 (rev.) "Methodology for energy consumption and greenhouse gas emissions impact assessment of information and communication technologies in organizations"
- L.Biodiversity_footprint "Methodology for the assessment of the footprint of an ICT organization on biodiversity"
- L.Biodiversity_oportunities "Development of guidance on how to assess the second order effects of ICT solutions on biodiversity, including positive effects"
- L.GHGintensities "GHG emissions intensity indicators for telecom network operators"
- L.GHGemissions_BS "Methodologies for accounting Greenhouse Gas Emissions of Base Station sites"
- L.GHGemissions_DC "Methodologies for accounting Greenhouse Gas Emissions of Data Centres and Telecommunication rooms"
- L.GHGemissions_IP "Methodologies for accounting Greenhouse Gas Emissions of Industrial Parks"
- L.Suppl.DC&SDG "Assessing environmentally efficient data centre and cloud computing in the framework of the UN sustainable development goals"
- L.MM&BP_IP "Measurement methodology and Best Practices for decarbonization of Industrial Park in support of Net Zero"
- L.MM&BP_BS "Measurement methodology and Best Practices for decarbonization of Base Station sites in support of Net Zero"
- L.MM&BP_DC "Measurement methodology and Best Practices for decarbonization of Data Centre and Telecommunication Room in support of Net Zero"
- L.BP_SC "Best Practices for decarbonization of Smart City in support of Net Zero"

- L.Suppl.dces "Data centre energy saving: Application of AI technology in improving energy efficiency of telecom equipment rooms and Internet data centre infrastructure"
- L.FrameworkBIMSssc "Framework of Building Infrastructure Management System for Sustainable City"

BDT Activities

E-waste

- Under the GESP, ITU has continued its collaboration with the UN Institute for Training and Research (UNITAR). The Regional E-waste Monitor for Arab States was released in December 2021 as part of an ITU project. The Regional E-waste Monitor for Latin America was released in January 2022, with involvement from ITU in the review of the Monitor.
- The partners are also in the process of developing another Regional E-waste Monitor for the Western Balkans, where recently a kick-off meeting was 7inalized, and a series of e-waste statistics trainings were held.
- The project in East Africa in collaboration with the East African Communications Organisation continues, which aims to harmonize the collection of data on e-waste. A company is in the process of being procured to carry out data collection activities alongside the national statistics offices in Kenya and in Burundi. A training and data validation workshop on e-waste data and statistics will be held in Kenya by October 2022.
- The partners continue to deliver technical assistance to Malawi, Botswana and Namibia in the area of e-waste statistics and data collection, through online capacity building and close support to national statistics offices and other institutions and ministries. These countries are each 7inalized7 a national e-waste monitor, with the national statistics offices taking a lead in the quantification of e-waste generation, flows and importation of electronics.
- UNITAR has started its provision of technical assistance to the national statistics office and other government entities in Dominican Republic to support with the drafting of Recommendations for Product Scope and Target Setting in the draft national e-waste regulation for Dominican Republic which ITU and the UN Environment Programme (UNEP) have been supporting with.
- ITU will be supporting the preparation of a national e-waste monitor in Kazakhstan, which is being led by UNITAR through a project funded by the German Umweltbundesamt.
- The GESP e-learning course continues to be developed in order to transpose – in-person e-waste statistics capacity building into a self-paced online course on the GESP website. The course will allow for blended instruction between online and in-person delivery. The online training will be by invitation and participants will be able to take the course over a 2 to 4-month period, allowing participants the time to gather the data they need and to become familiarized with the e-waste statistics tools prior to in-person workshops.
- ITU has been busy rolling out the joint project with UNEP on *Implementing the EPR Concept in Policies and Regulations for the Sound Management of E-waste*. The following countries have been receiving technical assistance to develop their national e-waste management policies, strategies and regulations: The Gambia, Botswana, Namibia, Dominican Republic, Rwanda and Uzbekistan.
- A government stakeholder consultation workshop took place in Botswana in February 2022 on the development of a national e-waste management strategy. A private sector stakeholder consultation

workshop (taking place on 12th May 2022) and validation workshop, with further revisions to the draft strategy are all foreseen for the next few months.

- A government stakeholder consultation workshop [took place in Rwanda](#) in the end of March 2022 which resulted in the identification of several workstreams being required for the implementation of the extended producer responsibility (EPR) principle in Rwanda, where are regulation on this principle already exists. An awareness raising campaign has been launched at national level on 10th of May 2022 with the aim of increasing collection of e-waste at dedicated drop-off points and sensitize the population on the issue of e-waste. ITU in collaboration with UNEP and also with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) will continue supporting Rwanda until at least November 2023 on the following workstreams: revision of the regulation governing e-waste management and development of the ministerial order on e-waste, study into the financial mechanisms possible for EPR in Rwanda, development of an e-procedure and e-registration platform for EPR in Rwanda and finally the preparation of EPR Implementation Guidelines to support the regulation on governing e-waste management and the ministerial order on e-waste.

- A government consultation workshop and the meeting with key EEE producers from the private sector in The Gambia, are scheduled back-to-back during the week 16th-19th of May 2022.

- [In Dominican Republic](#), the draft national e-waste management regulation is being finalized and has been reviewed by the minister. It will also be issued for public consultation in the near future. A validation workshop of the regulation has been scheduled to take place in the end of May 2022. As a result of this support by ITU and UNEP, both the Ministry of Environment and the Dominican Institute of Telecommunications signed a Memorandum of Understanding to work together on the topic of e-waste. Draft technical guidelines are currently being prepared to accompany the regulation, so as to help with the implementation of the regulation.

- ITU and UNEP have been supporting the Ministry of ICT and the Ministry of Environment, Forestry and Tourism [in Namibia](#), where there are plans to conduct a study into the financing of e-waste management in Namibia to determine the appropriate EPR fee. There are also plans to develop a position paper to support the initial drafting of a regulation on e-waste management in Namibia. These activities follow the submission of the national e-waste management policy to the Cabinet, which have recently sent it for further review by a special Cabinet Committee.

- ITU has issued a vacancy notice for an expert to support with the development of a national e-waste management strategy in Mauritania and in Niger, which is funded through a partnership with GIZ. The work will start soon and will run until November 2023.

- An e-learning on EPR is being developed for the ITU Academy and the materials will also be used by the Tunis International Centre for Environmental Technologies. The e-learning will provide a deep-dive into the EPR topic, and it is a follow-up to the e-learning currently on the [ITU Academy on an Introduction to E-waste Policy](#).

- As a continuation of BDT technical support for the development of e-waste policies in ITU member states and following the extensive consultations of national stakeholders from both public and private sector carried out during 2021, the draft national e-waste policies in Burundi and Malawi will be presented and validated through dedicated workshops that will be conducted during the period June-September 2022.

Climate Change

- ITU and the World Benchmarking Alliance are working together on a report, 'Greening ICT Companies: Monitoring Emissions Footprints and Commitments', which will be launched in June 2022. The report assesses how 150 ICT companies are progressing in terms of its environmental footprint, carbon targets and commitments. The report also showcases innovative digital best practices companies are taking to reduce emissions.
- ITU, the Digital Public Goods Alliance (DPGA) and the World Meteorological Organization (WMO) issued a call and report for weather, climate & hydrological information datasets to be made open and freely available as digital public goods. This was driven by the efforts of the DPGA's Climate Change Adaptation Community of Practice that focused on DPGs with the potential to impact climate and weather services.
- ITU is reviewing and updating the ICT and Climate Change Training Programme which includes six foundational modules and 15 elective modules related to climate change and the circular economy. The module 'GHG Reduction in the Energy Sector' is being shared with the Tunis International Centre for Environmental Technologies for course facilitation via ITU Academy. A half-day high-level/introductory e-learning course is also being developed based on the overall content of the ICT and Climate Change Training Programme for wider rollout on ITU Academy.
- ITU is developing an e-learning course as part of the Women's Entrepreneurship Accelerator funded by Mary Kay on 'Green Entrepreneurship and Economy'. The course is being developed in collaboration with ITC and will be rolled out in December 2022.
- ITU contributed to UNIDO's LKDF Forum 2021 on how digital technologies can raise the interest of youth in green skills and equip them with the skills and education for a sustainable future, to support green technology development and a transition to a green/circular economy. A Session Background Paper and Outcome Book have since been released with contributions from ITU.
- ITU engaged with four Master's students from the Graduate Institute of International and Development Studies, Geneva on a capstone research project on 'ICTs for Climate Change Action' which was finalized in December 2021 and presented during a seminar and results were summarized for an ITU News Hub. The research explored how IoTs can be leveraged to mitigate climate change impacts in the agricultural and energy sectors in Sub Saharan Africa.
- For the Generation Connect Global Youth Summit taking place in Kigali, Rwanda between 2nd and 4th June 2022, ITU is developing a masterclass on 'Applying the power of digital technologies for climate action'. It explores the importance of digital, geospatial and sensing technologies, and presents use cases demonstrating just how digital technologies can provide insights and effective solutions for climate action – and offers ideas for young people globally to get involved in citizen science projects to directly address climate and development challenges. In addition, an Intergenerational Dialogue 'Becoming a young change enabler' will connect live with two leading climate activists attending UNEP's Stockholm+50 to explore how young people can enhance sustainability to support a greener and circular economy.