

RESOLUTION 66 (Rev. Baku, 2025)

Information and communication technology, environment, climate change and circular economy

The World Telecommunication Development Conference (Baku, 2025),

recalling

- a)* Resolution 182 (Rev. Bucharest, 2022) of the Plenipotentiary Conference, on the role of telecommunications/information and communication technologies (ICTs) in regard to climate change and the protection of the environment;
- b)* Resolution 1429 (C24) of the ITU Council on ITU's role in facilitating the contribution of ICTs to sustainability and climate action;
- c)* Resolution 73/247 (2018) of the United Nations General Assembly (UNGA), which recognizes the potential benefits for countries to transform their economies to promote sustainable consumption and production patterns, by engaging with partners to integrate or implement concepts such as circular economy and the Fourth Industrial Revolution (Industry 4.0) for more sustainable industrial activity and manufacturing systems, according to national plans and priorities;
- d)* Resolution 34 (Rev. Baku, 2025) of this conference, on the role of telecommunications/ICTs in disaster preparedness, early warning, rescue, mitigation, relief and response;
- e)* Resolution 73 (Rev. New Delhi, 2024) of the World Telecommunication Standardization Assembly (WTSA), on ICTs, environment, climate change and circular economy, instructing the ITU Telecommunication Standardization Sector (ITU-T) in this area;
- f)* Recommendation ITU-D 21 (Dubai, 2014) of the World Telecommunication Development Conference, on ICT and climate change;
- g)* Resolution 79 (Rev. New Delhi, 2024) of WTSA, on the role of telecommunications/ICTs in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it;

h) the relevant outcomes of the United Nations Climate Change Conferences, including the United Nations Framework Convention on Climate Change (UNFCCC), that relate to the telecommunication/ICT sector and the main outcomes of the Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal;

i) UNGA Resolution 70/1, on transforming our world: the 2030 Agenda for Sustainable Development,

considering

a) that climate change is a global challenge and that telecommunications/ICTs contribute to climate change and other environmental problems across their lifecycle through greenhouse gas (GHG) emissions; increased energy consumption, mainly electricity; raw material extraction; land and water use and pollution; biodiversity disruption; the generation of e-waste and rebound effects leading to increased resource use despite efficiency improvements;

b) the growing global recognition of circular economy and sustainability initiatives, which emphasize the integration of telecommunications/ICTs as an enabler of climate action and resource efficiency, and that the environmental impacts of telecommunications/ICTs can be reduced through the integration of circular economy principles to minimize waste and resource use;

c) the need to face the impacts and emergency derived from climate change through effective actions and the role that ITU can play in achieving sustainable use of telecommunications/ICTs, and in monitoring the telecommunication/ICT sector's climate impact and amount of e-waste being generated to support sustainable and inclusive digital transformation and development;

d) that developing countries¹ lack of preparedness poses a risk of significant negative impact, including, but not limited to, the repercussions of rising sea levels for many coastal areas in developing countries;

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

e) that increased digitalization worldwide will require more telecommunication/ICT infrastructure and devices, that the current rise in e-waste generation is outpacing formal recycling, and that some countries are not monitoring the amount of e-waste being generated and do not have e-waste policy, legislation or regulation in place;

f) that the role of ICTs in tackling the challenges of climate change encompasses a wide array of activities, including, but not limited to: the development of energy-efficient devices, applications and networks; the development of energy-efficient working methods; the implementation of satellite and ground-based remote-sensing platforms for environmental observation, including weather monitoring, as well as innovative undersea sensing technology, including scientific monitoring and reliable telecommunication (SMART) submarine telecommunication cables; and the use of ICTs to warn the public of dangerous weather events and provide communication support for governmental and non-governmental aid providers;

g) that telecommunication/ICT products contain critical raw materials which are finite, thus requiring particular attention by the telecommunication/ICT sector to boost the global recycling rate of these materials, and that caution must be exercised over the extraction procedures for these materials to ensure low environmental pollution levels;

h) the outcomes of ITU Telecommunication Development Sector (ITU-D) study groups on environment, climate change and circular economy topics and of other relevant ITU study groups;

i) that telecommunications/ICTs are essential for monitoring and managing the negative impact of climate change, as well as the potential of data and new and emerging telecommunication/ICT technologies to enhance climate adaptation and resource efficiency;

j) that cost-effective, safe and sustainable-by-design telecommunication/ICT solutions with improved carbon footprint are urgently required,

considering further

- a) the outcome document adopted by the United Nations Conference on Sustainable Development (Rio+20), entitled "The Future we want", reflecting the renewed commitment to advancing sustainable development and achieving environmental sustainability, and recognizing the important role of ICTs;
- b) the ongoing implementation and follow-up process of the Global Digital Compact, as part of the United Nations Secretary-General's *Our Common Agenda*, which aims to outline shared principles for an open, free, secure and sustainable digital future for all, and recognizes the centrality of digital cooperation and sustainable digital transformation in achieving the Sustainable Development Goals (SDGs),

noting

- a) that it is important to facilitate an environment in which ITU Member States, Sector Members and other stakeholders may cooperate to obtain and effectively use data and studies on disaster management and climate change to assist their transition to a circular economy;
- b) that there are a wide range of international forums, platforms and partnerships working towards tackling climate change issues and supporting transition to a circular economy that ITU should cooperate and collaborate with;
- c) ITU activities on climate change and environmental sustainability, such as Green Digital Action led by ITU, which advances climate action through digital innovation by driving industry commitments, and other relevant multistakeholder initiatives,

recognizing

- a) that rapid, deep and sustained reductions in GHG emissions from the global telecommunication/ICT sector, guided by ITU work, including ITU-T L-series Recommendations will help in limiting global warming;

- b) that other environmental impacts associated with the telecommunication/ICT sector must also be addressed, particularly the amount of raw material and natural resources, such as fossil fuel energy sources and minerals, required for the manufacture of devices and network equipment, as well as the amount of e-waste generated after disposal;
- c) the United Nations Joint Task Force to investigate the use of submarine telecommunication cables for ocean and climate monitoring and disaster warning (JTF SMART Cable Systems);
- d) that the information obtained from sensors in SMART cables can be used for climate-change monitoring (ocean circulation, heat content and sea-level rise), seismic monitoring (earth structure and related hazards) and near-to-far field tsunami and earthquake early warning, contributing to disaster risk reduction, among other things;
- e) the work of the Circular Electronics Partnership, of which ITU is a founding member, on a coordination platform for global organizations and businesses that are actively working on creating a circular electronics industry;
- f) that ITU and the United Nations Institute for Training and Research founded the Global E-waste Statistics Partnership, which produces the Global E-waste Monitor to monitor e-waste developments over time and help countries produce e-waste statistics;
- g) the unique vulnerabilities of small island developing states (SIDS) and the national initiatives that they are leading to address climate change, resilience and sustainability through integrated and forward-looking approaches, which require continued support,

resolves

- 1 to give priority and the necessary support to advancing ITU-D activities on climate change and circular economy-related issues, while ensuring appropriate coordination among the three ITU Sectors, to contribute to the wider global efforts to mitigate and adapt to climate change;

2 to continue and further develop ITU-D activities on ICTs, environment, climate change and circular economy in order to contribute to the wider global efforts to mitigate and adapt to the effects of climate change;

3 to include, as a priority, assistance to developing countries in strengthening their human and institutional capacity to address climate change issues and environmental effects of telecommunications/ICTs, particularly in areas such as management of climate-related disasters, and the transition to a circular economy;

4 to increase awareness and promote information-sharing on the role of ICTs in enhancing environmental sustainability, in particular by promoting the use of more energy-efficient² devices and networks and more efficient working methods, as well as ICTs that can be used to replace or displace higher energy consuming technologies/uses;

5 to promote the development and application of renewable energy systems where appropriate, to support ICT operations and in particular continuity and resilience during disasters;

6 to promote circular economy principles in the design of telecommunications/ICTs, in particular by extending the lifespan of equipment, combating software obsolescence, encouraging the repair and refurbishment of devices, improving the recovery of material resources from related waste and applying environmentally sustainable-by-design approaches;

7 to set up e-learning programmes related to ICTs, the environment, climate change and the circular economy, including on relevant ITU recommendations, within available resources;

² With respect to efficiency, promotion of efficient use of materials used in ICT devices and network elements should also be a consideration in ITU-D activities.

8 to encourage the evaluation of the full range of environmental impacts of telecommunications/ICTs across their life cycle, from planning to disposal, to inform policy, innovation and sustainable design practices;

9 to encourage and support Member States, particularly the least developed countries, landlocked developing countries and SIDS, in integrating telecommunications/ICTs into climate resilience strategies, policies and long-term sustainability planning, to address their specific challenges and capacity needs;

10 to strengthen knowledge-sharing platforms, including regional and triangular cooperation, to exchange experiences on ICTs, environment, climate change, and circular economy policies, particularly in developing countries,

instructs the Director of the Telecommunication Development Bureau, in collaboration with the Directors of the Radiocommunication Bureau and the Telecommunication Standardization Bureau

1 to formulate a plan of action for the role of ITU-D in this regard, taking into account the role of the other two Sectors;

2 to ensure that the plan of action is implemented under the relevant objective of the ITU-D action plan dealing with ICTs, environment, climate change and circular economy, taking into account the needs of developing countries, and cooperating closely with the study groups of the other two Sectors and with ITU-D Study Group 2 in its work under the relevant study Questions;

3 to promote liaison with other relevant organizations in order to avoid duplication of work and optimize the use of resources;

4 to organize, in close collaboration with the Directors of the two other Bureaux and with other competent bodies, workshops, seminars and training courses in developing countries at the regional level for the purpose of raising awareness and identifying key issues;

5 to report annually to the Telecommunication Development Advisory Group on progress on the implementation of this resolution;

- 6 to ensure, within the available budget of the Union, in implementing the ITU-D action plan, that appropriate resources are allocated for telecommunication/ICT initiatives related to the environment, climate change and circular economy;
- 7 to support telecommunication/ICT projects related to the environment, climate change and circular economy, in particular for capacity building in the fields of data collection, monitoring, and policy and regulatory frameworks, especially in developing countries, taking into account their needs, and within available resources;
- 8 to support the development of reports on telecommunications/ICTs, related to the environment, climate change and circular economy, taking into consideration relevant studies in ITU-D study groups;
- 9 to assist affected countries with utilizing relevant applications for climate-related disaster preparedness, mitigation and response, and adaptation;
- 10 to support developing countries in reducing their e-waste generation by establishing and strengthening e-waste policy and regulation, and by building capacity in collecting e-waste data;
- 11 to develop and deliver dedicated capacity-building and training programmes on e-waste management and on circular economy, making use of existing toolkits and resources where available, and ensuring their dissemination and accessibility to developing countries, tailored to regional needs;
- 12 to encourage and support developing countries in formulating their respective national action plans to transition to a sustainable and circular economy in the telecommunication/ICT sector;
- 13 to assist developing countries in initiating projects that achieve the sustainable and smart management of water resources through the use of ICTs;

14 to assist developing countries in initiating projects on disaster prediction, detection, monitoring, response, relief and adaptation;

15 to support ITU study groups in examining the benefits of undersea sensing technologies and continue collaboration with relevant stakeholders to increase ITU members' awareness/knowledge of undersea sensing technologies and to exchange up-to-date information that allows the reuse and repair of telecommunication/ICT equipment for sustainable use of ICTs,

invites Member States, Sector Members and Associates

1 to continue to contribute actively to the ITU-D work programmes on the environment, climate change and circular economy, in order to deliver on the targets set out in their nationally determined contributions and the SDGs;

2 to promote the collection of standardized environmental data for the telecommunication/ICT sector and ensure their harmonization across domestic data systems for easier analysis;

3 to continue or initiate public and private programmes that include climate change and circular economy, giving due consideration to relevant ITU initiatives;

4 to take necessary measures to reduce the effects of climate change by developing and using more energy-efficient ICT devices, applications and networks, as well as monitoring the impact of the telecommunication/ICT sector on the environment and finite critical raw materials;

- 5 to continue supporting the work of the ITU Radiocommunication Sector in remote sensing (active and passive) for environmental observation³ in accordance with relevant resolutions adopted by radiocommunication assemblies and world radiocommunication conferences;
- 6 to incorporate environmental indicators, conditions and standards in their national ICT plans and to adopt national strategies aimed at mitigating the carbon footprint of ICTs;
- 7 to implement public awareness campaigns on e-waste disposal and recycling to improve consumer understanding of the environmental impact of telecommunications/ICTs;
- 8 to leverage ITU digital sustainability resources, including the e-waste and circular economy toolkits, greening-digital products, and relevant reports for national plans and policy implementation;
- 9 to continue developing and improving e-waste management and handling policies and regulations, including the management of hazards and the establishment of effective tracking, collection and disposal schemes, with close cooperation across public and private sectors;
- 10 to promote international and regional cooperation, particularly between developing countries, for sharing best practices, policies and solutions on ICT-enabled climate action, circular economy and e-waste management;

³ Environmental observation can be used to forecast weather and warn the public in the case of natural disasters and to gather information on dynamic environmental processes and systems.

11 to liaise with their relevant national entities responsible for environmental issues in order to support and contribute to the wider United Nations processes on climate change and the SDGs, by providing information and developing common proposals related to the role of telecommunications/ICTs in mitigating and adapting to the effects of climate change, so that they can be taken into consideration within UNFCCC and other relevant United Nations bodies.