



ITU-T Study Group 5

Environment, climate action, circular economy and electromagnetic fields

Introductory Presentation

24 March 2026



The world is facing unprecedented climate threats

2025 was the third hottest year on record

It should have been a relatively cool year; it was anything but



**After the floods of 2025, can we keep
2026 above water?**

Flooding has become the world's 'foremost climate hazard', according to experts. So what do we do about it?



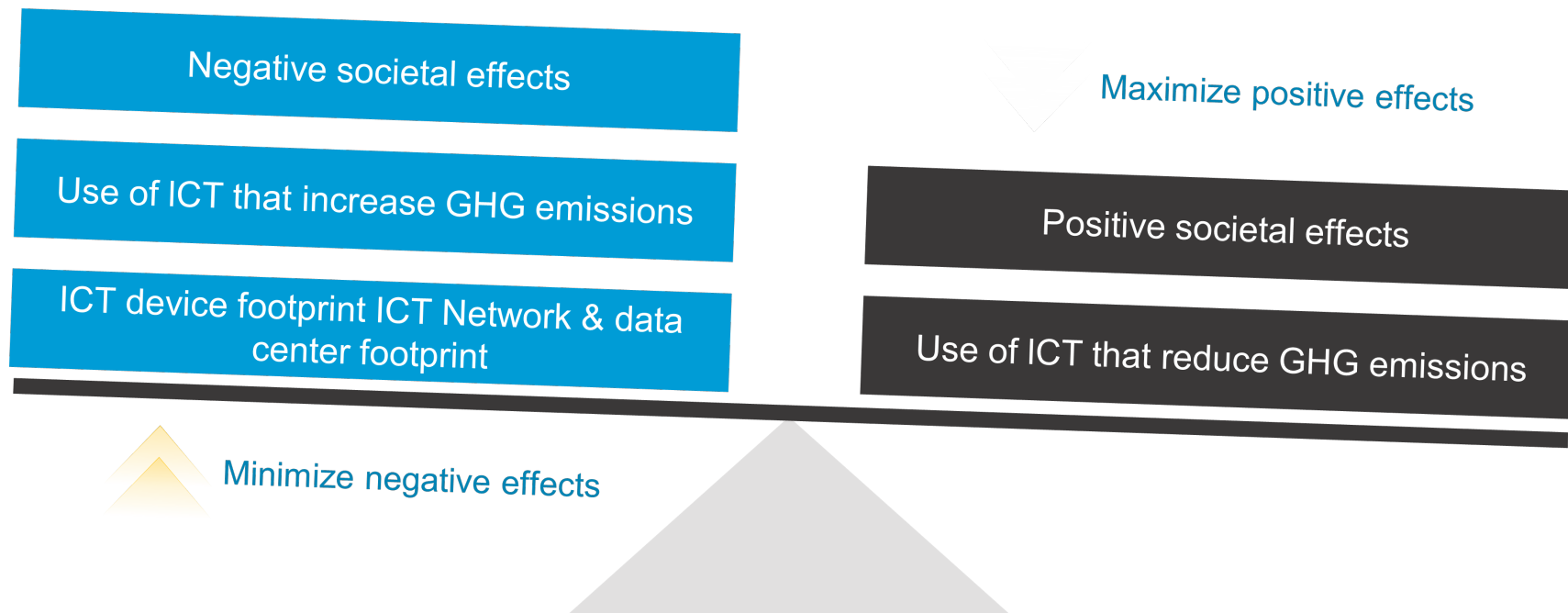
Nick Paleologos/Bloomberg

**The Earth Is
Warming Faster
Than Previously
Estimated**

Researchers found the first statistically significant evidence that global warming is accelerating.



The double-edged nature of ICTs



The adoption of digital technologies poses significant impact on our environment



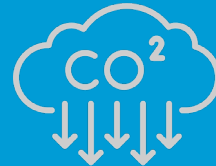
2%

of global GHG emissions annually are generated by the ICT industry



62 Billion

kilograms of e-waste was generated globally in 2022.



15%

of global emissions by 2030 could be mitigated through the use of ICTs.



ICTs could help reduce global greenhouse gas emissions by up to 20% by 2030

Energy efficiency solutions



Climate data collection



Early warning systems



Equitable climate action



International Telecommunication Union (ITU)



The International Telecommunication Union (ITU) is the United Nations specialized agency for information and communication technologies (ICTs)



194 Member States

+700 Companies/organizations

+160 Academia members



ITU Resolutions on Environment, EMF, Climate Change and Circular Economy



ITU Resolution 182 – “Role of telecommunications/information and communication technologies in regard to climate change and the protection of the environment”

ITU Resolution 176 – “Measurement and assessment concerns related to human exposure to electromagnetic fields”



ITU-T Resolution 79 – “Role of telecommunications/information and communication technologies in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it”

ITU-T Resolution 72 – “Measurement and assessment concerns related to human exposure to electromagnetic fields”

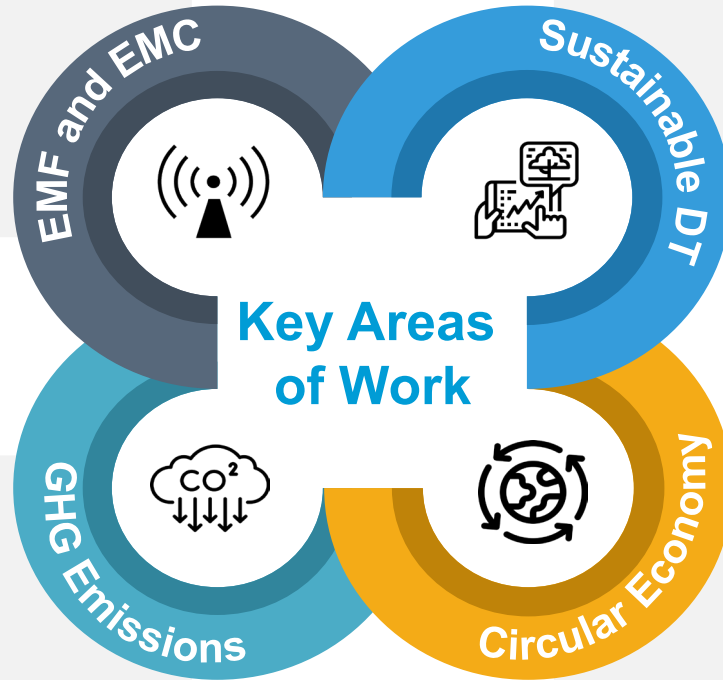
ITU-T Resolution 73 – “Information and communication technologies, environment, climate change and circular economy”

The Power of Standards: Driving a Sustainable Digital Future



ITU-T SG 5: Key Areas of Work

Continually addressing EMC, resistibility, and lightning protection. Furthered research on minimizing the potential health risks from EMF.



Development of standards that promote the integration of sustainable practices in the ICT sector, focusing on energy efficiency, resource management.

Development of standards and guidelines that help reduce the carbon footprint of ICT operations, contributing to global climate goals.

Support the transition to a circular economy within ICT, encouraging the strong e-waste management practices and the adoption of circular design principles.



ITU-T Study Group 5 Management Team

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SG5 Structure (Study Period 2025-2028)

PLEN



8/5

Guidance and
terminology on
environment

WP1/5



1/5

Electrical
protection,
reliability, safety,
and security of
telecommunication/
ICT systems



2/5

Equipment
specification and
component/device for
protection against
lightning and other
phenomena



3/5

Assessment of
human exposure to
electromagnetic
fields (EMFs)



4/5

Electromagnetic
compatibility (EMC)
aspects in
telecommunications
/ICTs



6/5

Environmental
efficiency of
telecommunica
tions/ICTs



7/5

E-waste, circular
economy, and
sustainable supply
chain management



9/5

Assessing the impact
of telecommunications
/ICTs on climate
change, biodiversity
and the environment -
including the influence
on other sectors



11/5

Climate change
mitigation and smart
energy solutions



12/5

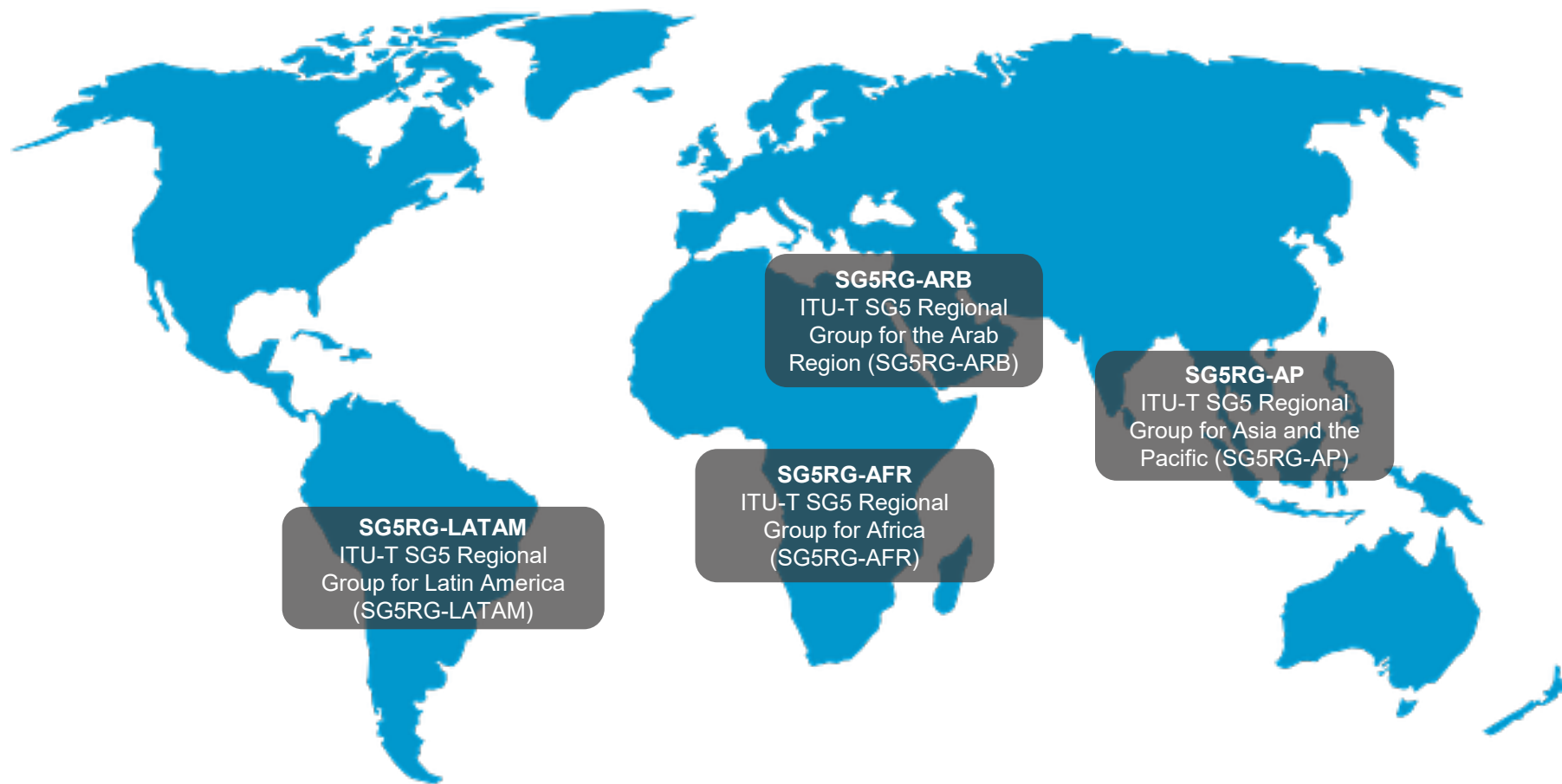
Climate actions and
adaptation to climate
change through
sustainable and
resilient
telecommunications/I
CTs (including new
and emerging)

WP2/5

WP3/5



ITU-T Study Group 5 Regional Groups



SG5RG-LATAM
ITU-T SG5 Regional
Group for Latin America
(SG5RG-LATAM)

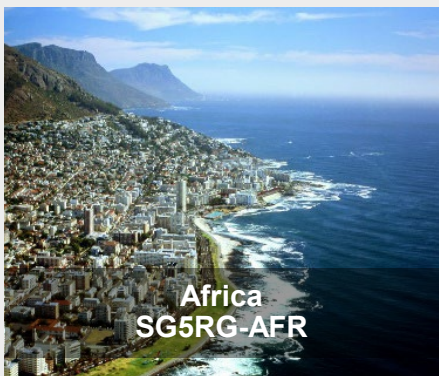
SG5RG-AFR
ITU-T SG5 Regional
Group for Africa
(SG5RG-AFR)

SG5RG-ARB
ITU-T SG5 Regional
Group for the Arab
Region (SG5RG-ARB)

SG5RG-AP
ITU-T SG5 Regional
Group for Asia and the
Pacific (SG5RG-AP)



ITU-T Study Group 5 Regional Groups



Why are regional groups important?

- Strengthen the participation of experts from the region in the work of ITU-T SG5
- Discussion of the priority of the region
- Preparation of joint contributions to advance the standardization work
- Share knowledge and best practices among countries of their region

ITU-T regional groups play a crucial role in promoting inclusivity, collaboration, and regional cooperation in the development of international ICT standards.

Resolution 54 - (Rev. New Delhi, 2024) - Regional groups of study groups of the ITU Telecommunication Standardization Sector



ITU-T SG5 Regional Group for Africa (ITU-T SG5RG-AFR)

Management Team

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Hoda Shakra

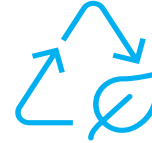
Egypt

Key priorities identified



Human Exposure to
Electromagnetic Fields

William Mnyippembe



E-waste management to achieve a
Circular Economy

Hoda Shakra

Anita Hodari Batamuliza



Smart Energy

Olivie Nakamatte



Sustainable Digital Transformation

Helen Nakiguli

Derrick Simiyu Khamali

Upcoming meeting



19-22 May 2026



Malabo, Republic of Equatorial Guinea



16th Symposium on ICT, Environment, Climate Change and Circular Economy

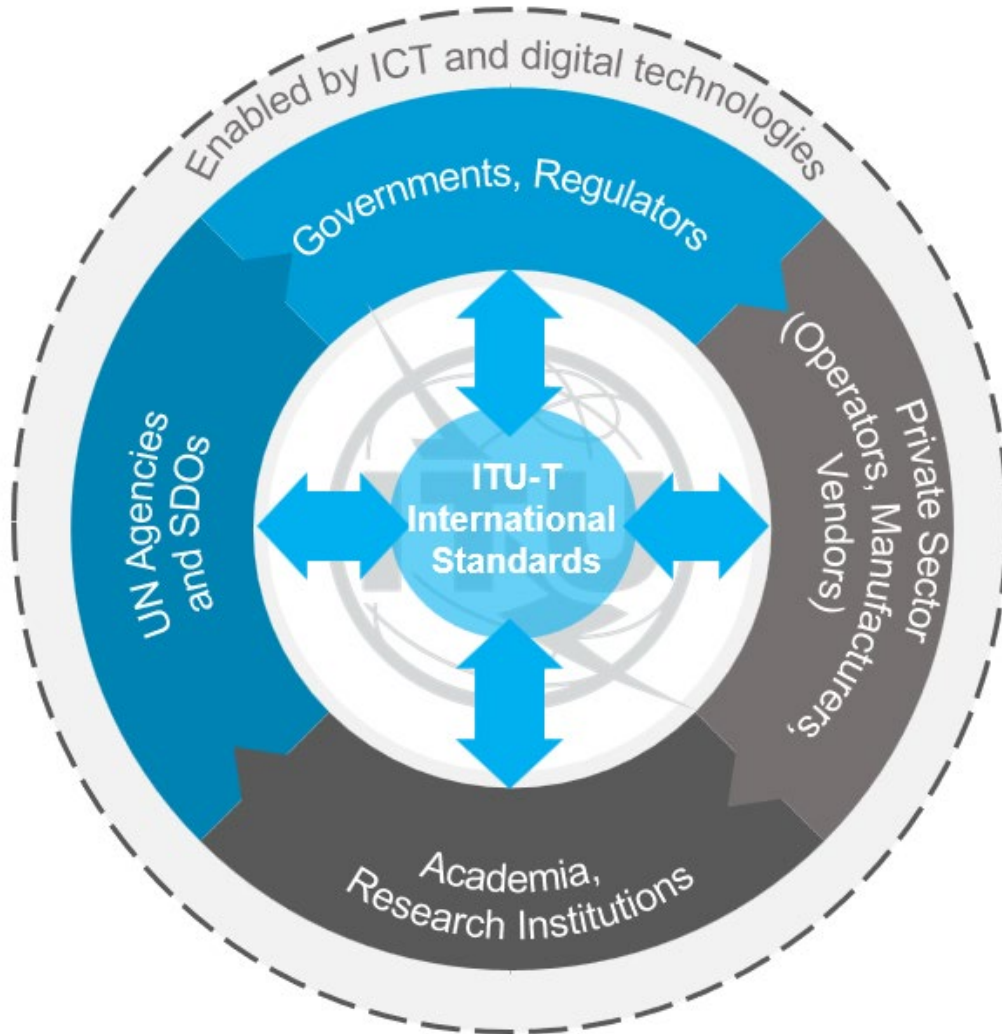
Main Topics:

- Environmental footprint
 - Sustainable digital infrastructure
- Circular economy & transparency
- Regional capacity & engagement



Bringing countries and industries together to help industry and governments.
A mutually beneficial partnership.

Strengthening Collaboration and Implementation of Standards



Collaboration Across UN Agencies



World Health Organization



UNECE



One planet
connect with care



Collaboration with other SDOs



GeSI
ENABLING
DIGITAL
SUSTAINABILITY



Thank you!



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Website

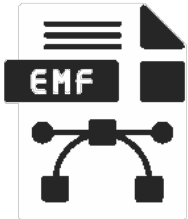
[SG5 - Environment, EMF, climate
action & circular economy](#)



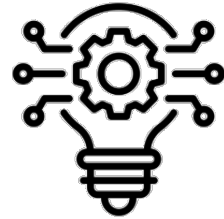
Additional slides

Resolution 72 on “Measurement and assessment concerns related to human exposure to electromagnetic fields” (Rev. New Delhi, 2024)

Key highlights



Urgent need on
standardized
measurements on human
exposure to EMF



AI and other emerging
technologies as a facilitator
on EMF modeling and
assessment



Considering:

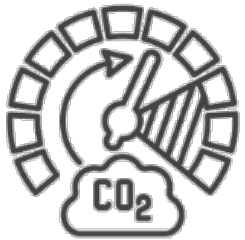
- that the considerable increase in the use of telecommunications/ICT equipment has resulted in an increase in the sources of EMF emission, including simultaneous exposure from multiple sources, with a potential impact on exposure levels;
- that there is a need to inform the public of the levels of EMF from different radio-frequency (RF) sources in a scientific and objective manner through measurements and other standardized methodologies, as well as of the potential effects of EMF exposure;
- that AI and other emerging technologies can facilitate modelling and assessment of human exposure to EMF.

Resolves:

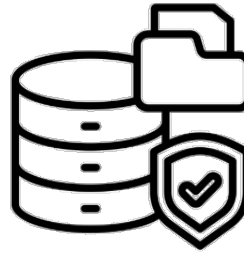
- to develop, publish and disseminate technical reports and Recommendations to **support countries in formulating guidelines regarding EMF exposure**;
- to encourage **collaboration with SDOs in field of simplifying the testing process for measuring and assessing exposure to EMF to make it more accessible and cost-effective for developing countries.**

Resolution 73 on “Information and communication technologies, environment, climate change and circular economy” (Rev. New Delhi, 2024)

Key highlights



Role of ICTs in enabling environmental sustainability, alongside challenges in assessing their environmental impact and reducing GHG emissions



Priority on developing and harmonizing standards and environmental data for the ICT sector



Recognizing:

- that ICTs are essential for monitoring climate and protecting natural ecosystems, data gathering, rapid information transfer and managing the risks of climate change; that ICTs are also critical in accelerating the transition to circular economy;
- that there is growing research considering the environmental impact of ICTs; however, it is still difficult to estimate the total net impact of ICTs on climate change.

Resolves:

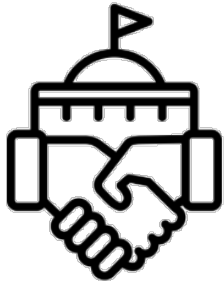
- to continue and further develop ITU-T work programme on ICTs, climate change and circular economy, as a high priority;
- to promote the development and adoption of ITU-T Recommendations for enhancing the use of ICTs to serve as a potent and cross-cutting tool to assess and reduce GHG emission and promote circularity in other sectors.
- to work towards minimizing the ICT sector environmental impact.

Invites Member States, Sector Members, Associates and Academia:

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

Resolution 79 on “The role of ICT in handling and controlling e-waste from ICT equipment and methods of treating it ” (Rev. New Delhi, 2024)

Key highlights



Role of governments in mitigating the impact of e-waste and promoting ICT sector circularity



International standards for e-waste management on best practice sharing and methodologies for lifecycle assessment



Considering:

- that the amount of e-waste generated is rising in line with increased demand and consumption of increasingly affordable ICT equipment;
- that only a small part of e-waste is being properly collected and recycled.

Instructs:

- to study and develop ITU-T Recommendations and reports on methodologies for estimating the lifespan of telecommunication/ICT equipment and collection systems for e-waste in all geographic areas;
- to promote best practices for recycling and reuse of e-waste and promote the use of secondary/recycled materials;

Invites Member States:

- to include the prevention of exposure to the environmental hazards of e-waste and its treatment in their relevant policies/strategies and promote the circular utility of e-waste through reusing and recycling efforts;
- to collaborate with the relevant stakeholders in the development of sustainable and comprehensive e-waste management frameworks by adopting relevant international standards;
- to encourage manufacturers to design durable devices with increased lifespan and further encourage consumers to participate in circular economy by reusing and maintaining user devices.