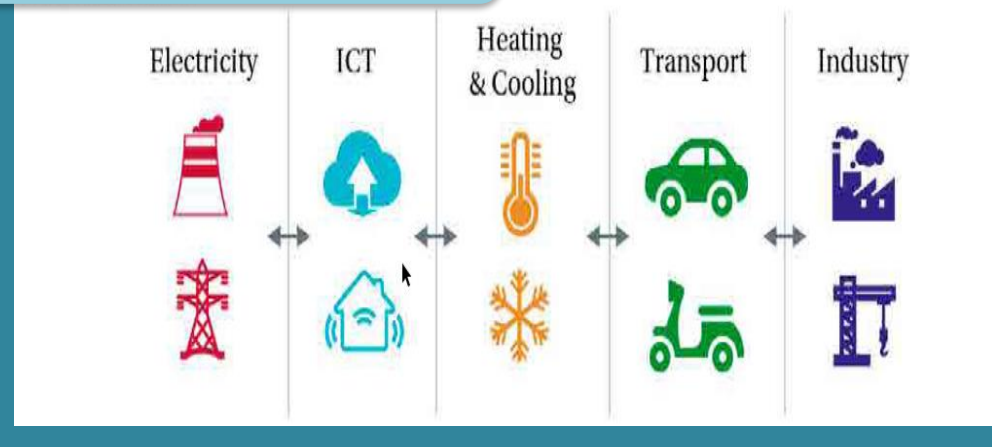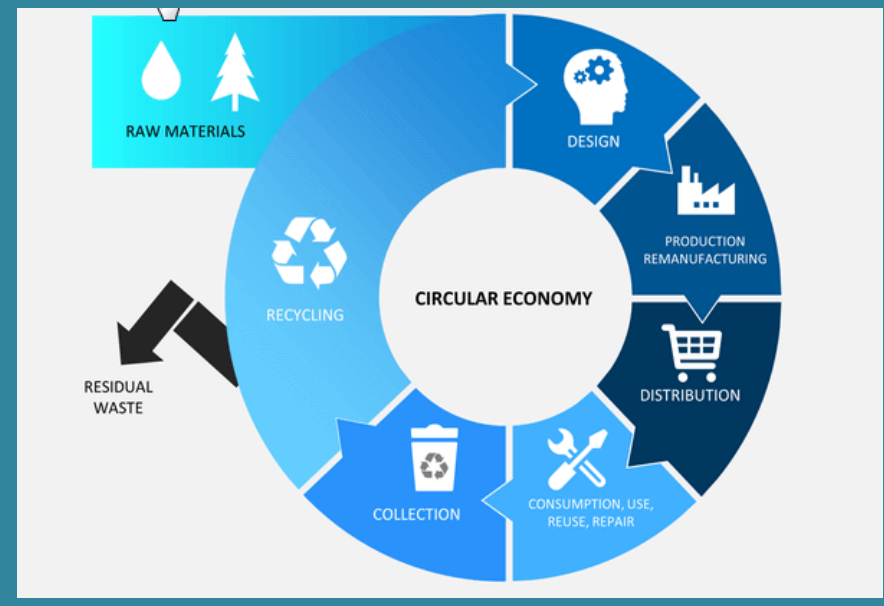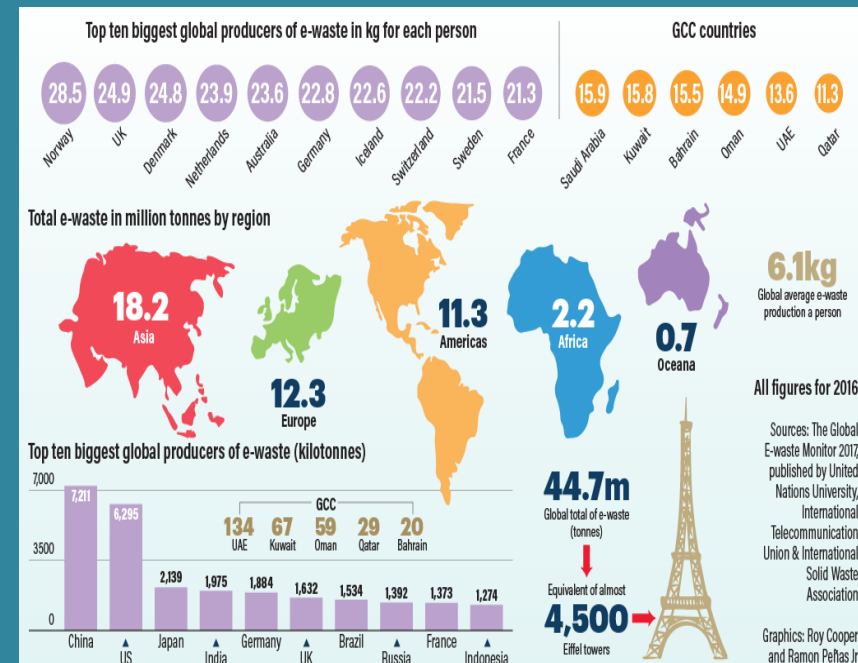8th GREEN STANDARD WEEK

"ITU-T Study Group 5: Environment, Climate Change & Circular Economy"

Current model

Future landscape

Opportunities…

…ICTs as enablers for change

ICTs can support the development of the green economy in three principal ways:

- By reducing their own direct environmental impacts

- By decreasing the direct environmental impacts of other sectors

- By fostering a behavioral change in the society

A global challenge needs a global and comprehensive solution

- Raising awareness on the role of global standards in spreading access to green ICTs
- Working in partnership with major stakeholders to develop green ICTs standards to build a green economy and combat climate change
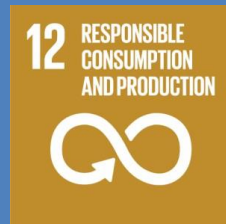- Standardized achievement can be multiplied worldwide across the whole industry

Do not move emission from a sector to another

For the ICT sector, the development of "green data centers" is something of a holy grail, to offset the industry's "bad boy" image as part of the causes of global warming rather than the solution. Already ICT contributes around 3 percent of global greenhouses gas emissions, due to electricity consumption, and this is projected to get worse as the world shifts toward ever more powerful broadband networks and always-on devices. Data Centers are a particularly egregious contributor to global warming. In the United States, they consume the energy output equivalent to 35 coal-burning power stations, with usage split more or less evenly between running the computers and cooling them down.

(World Bank source)

ITU-T programme on Environment, Climate Change & Circular Economy

Using ICTs to protect the environment

ITU

- **Develop international standards** to protect the environment

- **Assist countries** to develop policies and implement ITU-T standards on climate change adaptation and mitigation

- **Help companies** becoming more sustainable and socially responsible

- **Research and development** on areas which include e-waste, energy efficiency and smart sustainable cities

- Raise **awareness** on role of ICT in tackling environmental challenges

SUSTAINABLE DEVELOPMENT GOALS

7 AFFORDABLE AND CLEAN ENERGY

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

6 CLEAN WATER AND SANITATION

What can be done?

Information and Communication Technologies (ICTs), such as satellites, mobile phones or the Internet, are capable of playing a key role in **addressing environmental global challenges and sustainable development**.

By raising awareness of ICT's role in tackling environmental challenges including climate change, ITU-T is promoting innovative ICT solutions to environmental questions and is developing green ICT standards to support a sustainable future, in areas such as:

Assessment of environmental impact of ICTs

Climate change adaptation and mitigation

Energy efficiency

E-waste

ITU-T Study Group 5: Environment, climate change and circular economy

Lead Study Group for

SG5 is responsible for:

Studying ICT environmental aspects of electromagnetic phenomena and climate change.

Studies on how to use ICTs to help countries and the ICT sector to adapt to the effects of environmental challenges, including climate change, in line with the Sustainable Development Goals (SDGs).

electromagnetic compatibility, lightning protection and electromagnetic effects

ICTs related to the environment, climate change, energy efficiency and clean energy
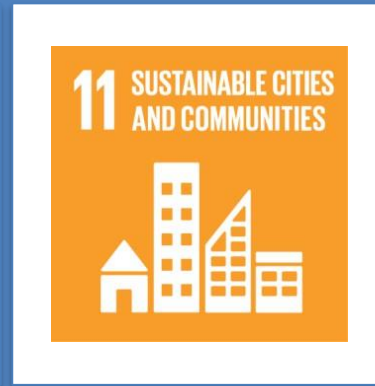
circular economy, including e-waste

WP1/5 - EMC, lightning protection, EMF

WP2/5 - Environment, Energy Efficiency and the Circular Economy

ITU-T Study Group 5: Environment, climate change and circular economy

Producing standards to achieve the → **SUSTAINABLE DEVELOPMENT GOALS**

Safe and reliable use of ICT

6 CLEAN WATER AND SANITATION

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13 CLIMATE ACTION

2 Working Parties

9 Questions

**4 Regional Groups**

ITU-T SG5 main results

ICT and climate change

▪ **ITU-L.1002** "External universal power adapter solutions for portable information and communication technology devices "

☞ **Builds on ITU-T standards defining universal chargers for hand-held devices such as mobile phones (ITU-T L.1000) and stationary devices such as xDSL modems (ITU-T L.1001)**
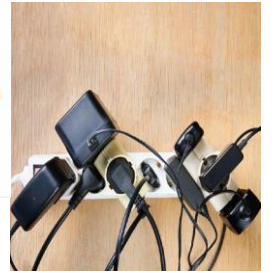
Latest Reports
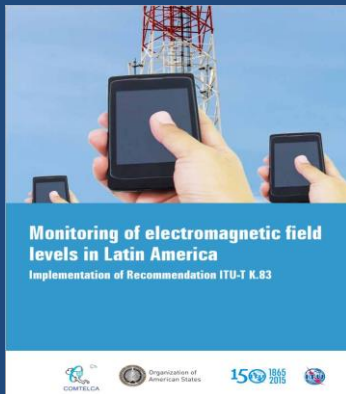
**Report on "Monitoring of electromagnetic field levels in Latin America"**

Monitoring of electromagnetic field levels in Latin America
Implementation of Recommendation ITU-T K.83

Report on "Sustainable Management of waste electrical and Electronic equipment in Latin America"

Sustainable management of waste electrical and electronic equipment in Latin America
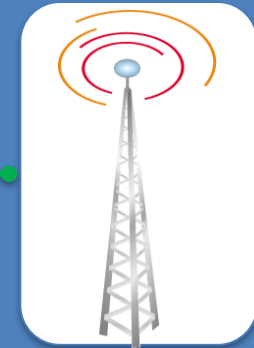
ITU-T SG5 key topics

Using ICTs to protect the environment

ITU
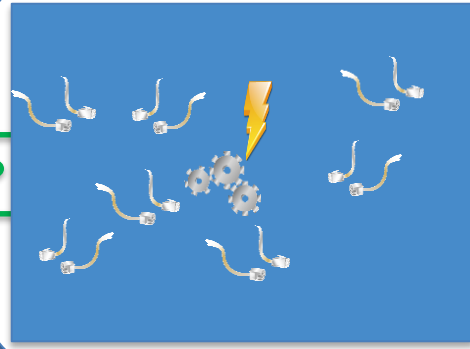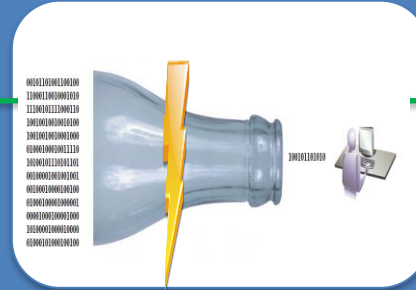
ICT protection
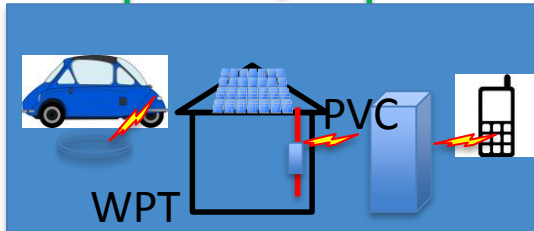
Internet data-centers protection

EMF exposure assessment from new and emerging technologies

PVC

WPT

EMC requirements in ICT facilities

Circular economy

KPIs to assess energy efficiency

ITU-T Standards

Quality management

Standard

Business

Customer

Certification

Continual improvement

Process

Green Data Centre

SUSTAINABLE DEVELOPMENT GOALS
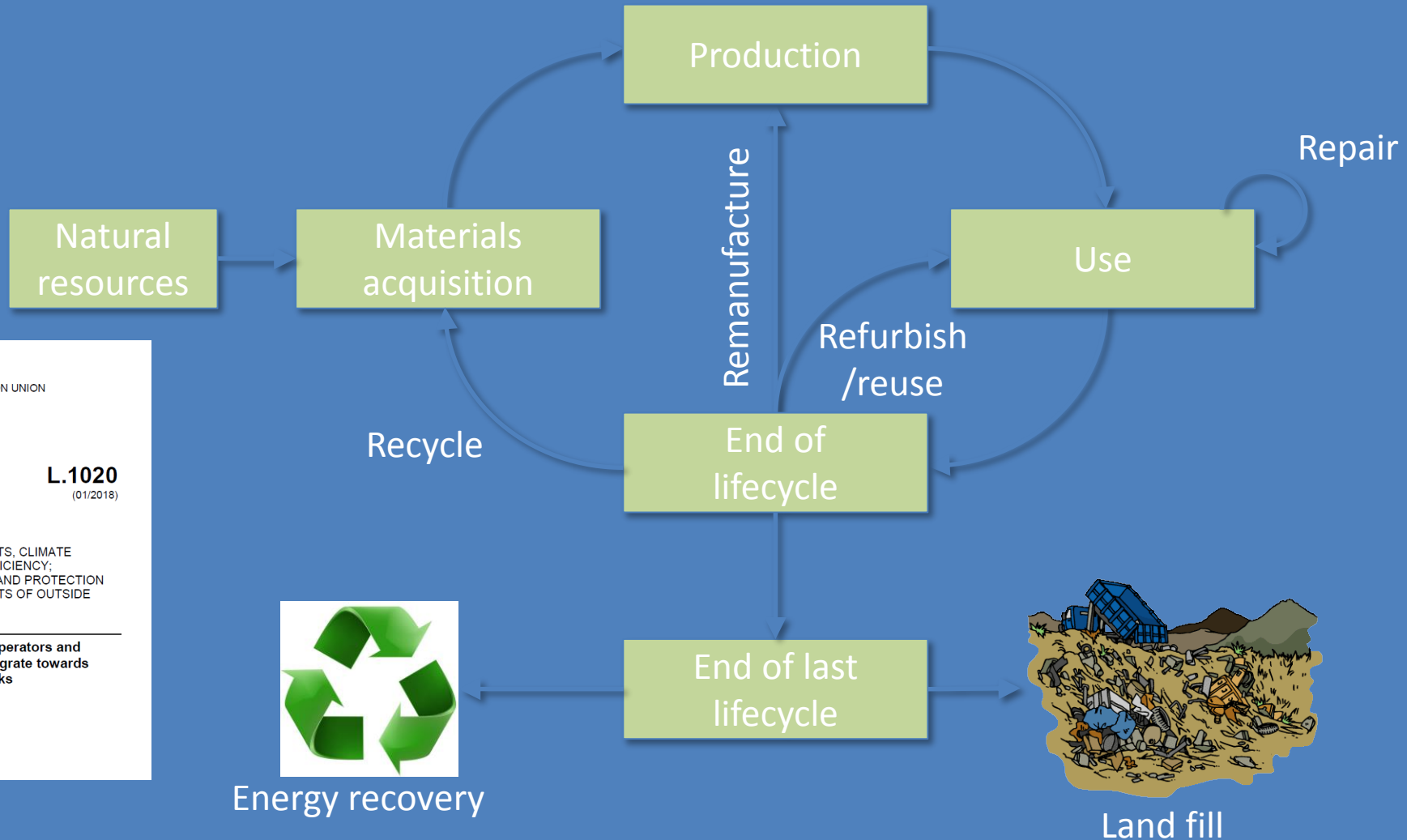
ITU-T Study Group 5
Environment: Key terms/concepts

Q7/5

E-waste
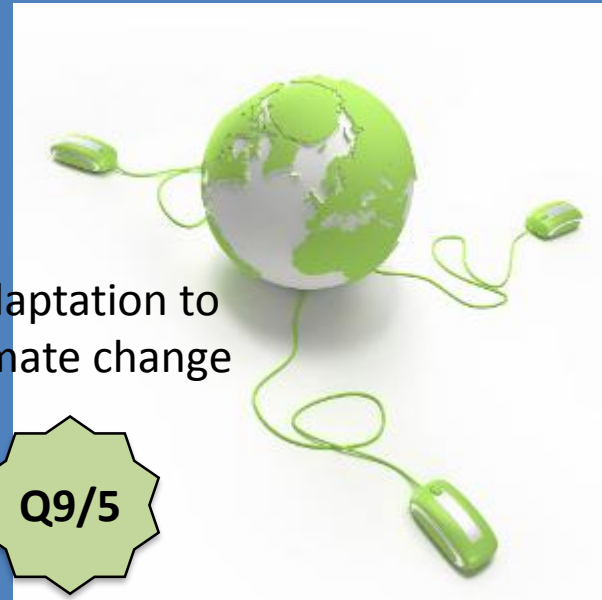
Adaptation to climate change

Q9/5

COUNTERFEIT

Counterfeit ICT devices

Low-cost, sustainable, resilient ICTs

Q7/5

ITU-T Study Group 5
Energy efficiency: Key terms/concepts

Q6/5

Sustainable
clean energy

Q8/5

Guides and terminology
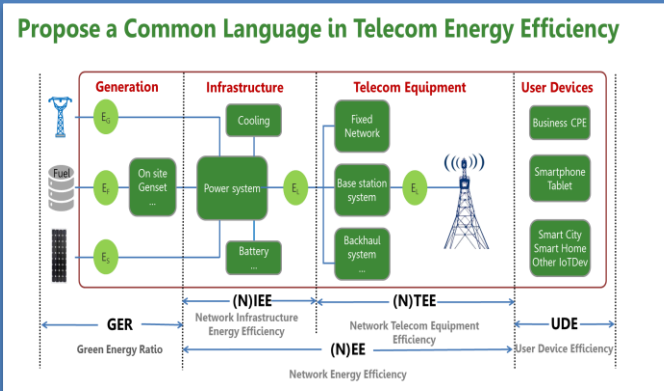
Propose a Common Language in Telecom Energy Efficiency

Assessment to promote
Sustainable Development Goals
(SDGs)

SUSTAINABLE
DEVELOPMENT
GOALS

Q9/5

Energy efficiency

Environment, Energy Efficiency and the Circular Economy

8th GREEN STANDARD WEEK
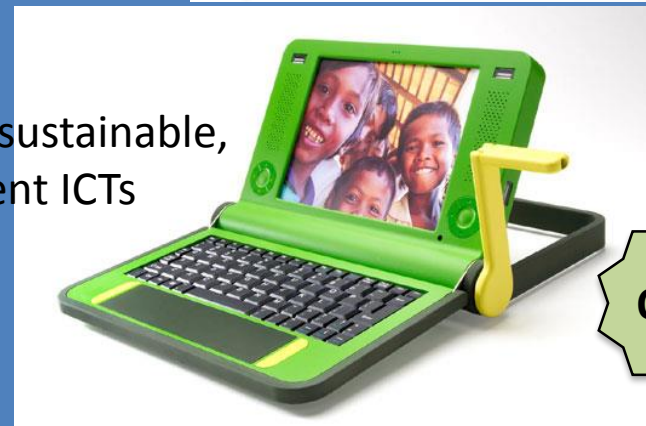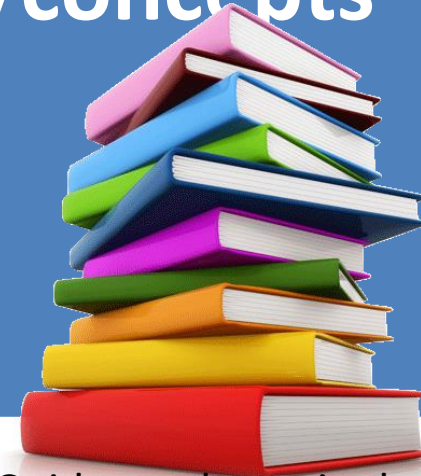
Current key topics

- E-waste management and reduction

- Circular Economy

- Sustainability - Reducing GHG to Achieve SDGs

- Environmental impact of mobile phones

- Energy efficiency KPIs for ICT Goods, networks, services

- Efficiency of SC&C solutions

- Green Data Centers Solutions and KPI/metrics

- 5G/IMT2020 sustainable development: EE KPI/ Metrics, Power feeding solutions, environmental impact assessment

6 CLEAN WATER AND SANITATION

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ITU
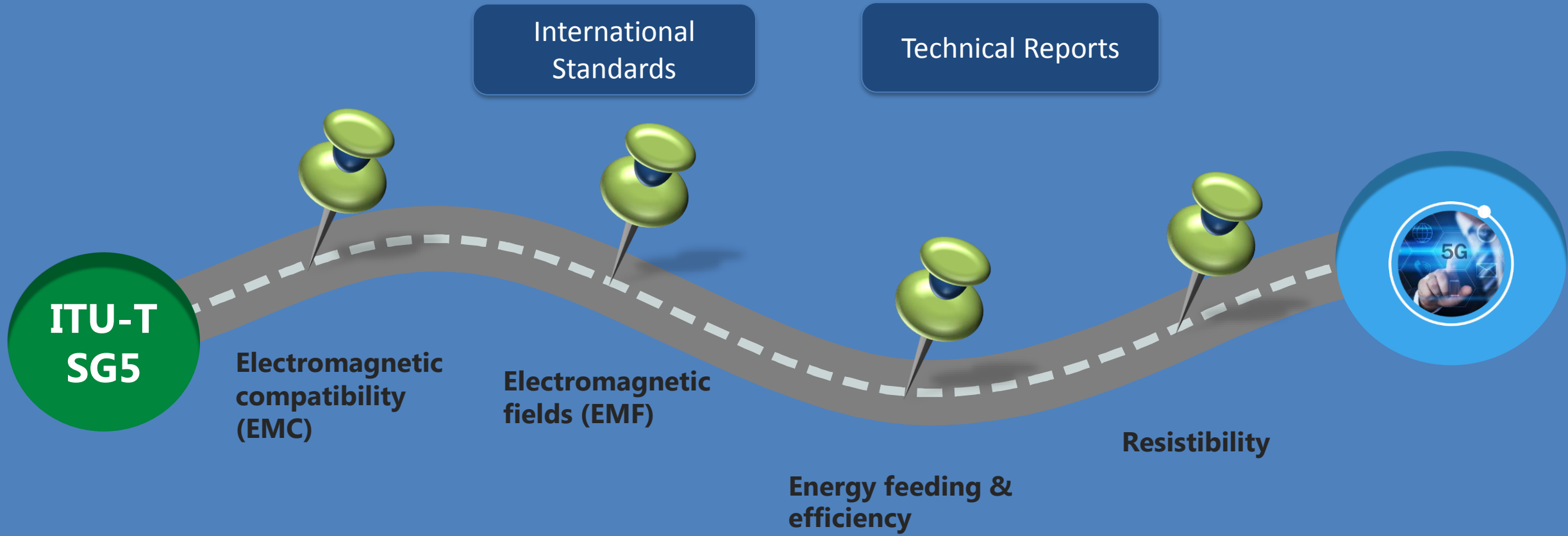
Future key topics

- ICT response to the **circular economy** with particular reference to device maintenance, repair, obsolescence, re-use and the sharing economy

- Circular Economy and Industry 4.0

- Implication of the use of **AI** on current and future ICT installations, networks and services:
  - Implication on data centers (increase consumption).
  - Effect on e-waste generation

- Assessement Architecture of ICT Networks, services using KPI for Energy efficiency, e-waste, & LCA aspects

- Review of **Bitcoin** energy consumption implication and impact.

- **Use of blockchain** for sustainability gains – e.g. supply chain tracking, peer-to-peer energy transactions, sustainability reporting
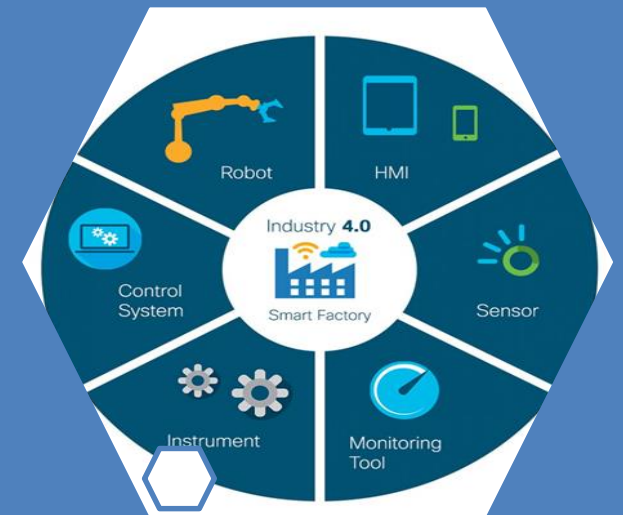
Connect 2020 Agenda – Towards PP-18

Target 3.2: Volume of redundant e-waste to be reduced by 50% by 2020
→ **Draft Recommendation L.EW2020** "Connect 2020 Agenda E-waste reduction"

Target 3.3: Greenhouse Gas Emissions (GHG) generated by the telecommunication/ICT sector to be decreased per device by 30% by 2020
→ **Draft Recommendation L.Connect2020 "**

GOAL 3: SUSTAINABILITY

SUSTAINABILITY

Manage challenges resulting from telecommunication/ICT development

Targets:

- Target 3.1: Cybersecurity readiness should be improved by 40% by 2020

- Target 3.2: Volume of redundant e-waste to be reduced by 50% by 2020

- Target 3.3: Green House Gas emissions generated by the telecommunication/ICT sector to be decreased per device by 30% by 2020

PARIS CLIMATE AGREEMENT

Keep warming "well below 2°C".

BASEL CONVENTION

United Nations Framework Convention on Climate Change

UNITED NATIONS UNIVERSITY

UNIDO

ITU

ITU-T WP2/5 main results

E-Waste reduction

- **ITU-T L.1000**: Universal power adapter and charger solution for mobile terminals and other hand-held ICT devices
- **ITU-T L.1001**: External universal power adapter solutions for stationary information and communication technology devices
- **ITU-T L.1002**: External universal power adapter solutions for portable information and communication technology devices
- **ITU-T L.1005...6, 7** Test Suites for universal adapters
- **ITU-T L.1010**: Green battery solutions for mobile phones and other hand-held information and communication technology devices

ITU-T WP2/5 main results

E-Waste Management

- **ITU-T L.1021** Extended Producer Responsibility (EPR) Guidelines for Sustainable E-waste Management
- **ITU-T L.1030**: E-Waste management framework for countries
- **ITU-T L.1100**: Procedure for recycling rare metals in information and communication technology goods
- **ITU-T L.1101**: Measurement methods to characterize rare metals in information and communication technology goods
- **ITU-T L.1102**: Use of printed labels for communicating information on rare metals in information and communication technology goods

ITU-T WP2/5 main results

221 kg/100m
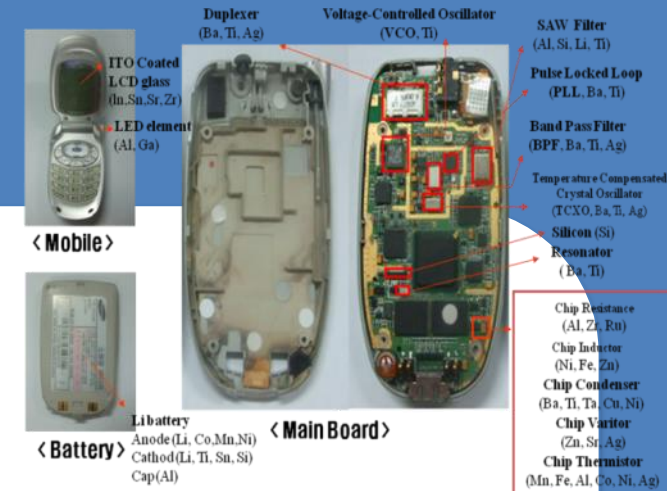
Sustainable Power Feeding

- **ITU-T L.1200**: Direct current power feeding interface up to 400 V at the input to telecommunication and ICT equipment
- **ITU-T L.1201**: Architecture of power feeding systems of up to 400 VDC
- **ITU-T L.1202**: Methodologies for evaluating the performance of an up to 400 VDC power feeding system and its environmental impact
- **ITU-T L.1203**: Colour and marking identification of up to 400 VDC power distribution for information and communication technology systems
- **ITU-T L.1204**: Extended architecture of power feeding systems of up to 400 VDC
- **ITU-T L.1205**: Interfacing of renewable energy or distributed power sources to up to 400 VDC power feeding systems
- **ITU-T L.1206**: Impact on ICT equipment architecture of multiple AC, -48VDC or up to 400 VDC power inputs
- **ITU-T L.1207** Progressive migration of Telecom/ICT site to 400 VDC sources and distribution
- **ITU-T L.1220**: Innovative energy storage technology for stationary use - Part 1: Overview of energy storage
- **ITU-T L.1222**: Innovative energy storage technology for stationary use - Part 3: Supercapacitor technology

1/6 diameter reduction

4.6 kg/100m

ITU-T WP2/5 main results

Energy Efficiency

- **ITU-T L.1300**: Best practices for green data centres
- **ITU-T L.1301**: Minimum data set and communication interface requirements for data centre energy management
- **ITU-T L.1302**: Assessment of energy efficiency on infrastructure in data centres and telecom centres
- **ITU-T L.1310**: Energy efficiency metrics and measurement methods for telecommunication equipment
- **ITU-T L.1315**: Standardization terms and trends in energy efficiency
- **ITU-T L.1320**: Energy efficiency metrics and measurement for power and cooling equipment for telecommunications and data centres
- **ITU-T L.1321**: Reference operational model and interface for improving energy efficiency of ICT network hosts
- **ITU-T L.1325**: Green ICT solutions for telecom network facilities
- **ITU-T L.1330**: Energy efficiency measurement and metrics for telecommunication networks
- **ITU-T L.1331**: Assessment of mobile network energy efficiency
- **ITU-T L.1332**: Total network infrastructure Energy efficiency metrics
- **ITU-T L.1340**: Informative values on the energy efficiency of telecommunication equipment
- **ITU-T L.1350**: Energy efficiency metrics of a base station site
- **ITU-T L.1360**: Energy control for the software-defined networking architecture

Load
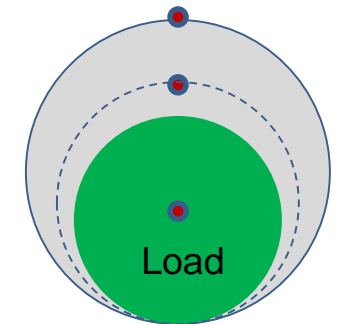
ITU-T WP2/5 main results

Methodologies

- **ITU- T L.1400** Overview and general principles of methodologies for assessing the environmental impact of information and communication technologies
- **ITU-T L.1410**: Methodology for environmental life cycle assessments of information and communication technology goods, networks and services
- **ITU-T L.1420**: Methodology for energy consumption and greenhouse gas emissions impact assessment of information and communication technologies in organizations
- **ITU-T L.1430**: Methodology for assessment of the environmental impact of information and communication technology greenhouse gas and energy projects
- **ITU-T L.1440**: Methodology for environmental impact assessment of information and communication technologies at city level
- **ITU-T L.1450**: Methodologies for the assessment of the environmental impact of the ICT sector
- **ITU-T L.1460**: Connect 2020 GHG emissions, guidelines

ITU-T WP2/5 main results

Climate Change Adaptation/Mitigation
Low cost sustainable Telecom Infrastructure

- **ITU-T L.1500**: Framework for information and communication technologies and adaptation to the effects of climate change
- **ITU-T L.1501**: Best practices on how countries can utilize ICTs to adapt to the effects of climate change
- **ITU-T L.1502**: Adapting information and communication technology infrastructure to the effects of climate change
- **ITU-T L.1503**: Use of information and communication technology for climate change adaptation in cities
- **ITU-T L.1504**: ICT and adaptation of agriculture to the effects of climate change
- **ITU-T L.1505**: Use of ICT in the adaptation of the Fisheries Sector to the Effects of Climate Change
- **ITU-T L.1506**: Framework of climate change risk assessment for telecommunication and electrical facilities
- **ITU-T L.1700**: Requirements and framework for low-cost sustainable telecommunications infrastructure for rural communications in developing countries
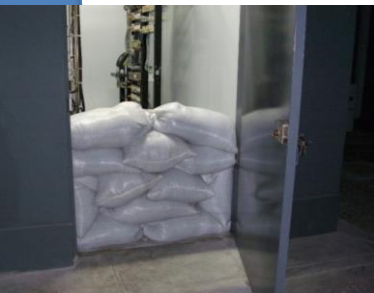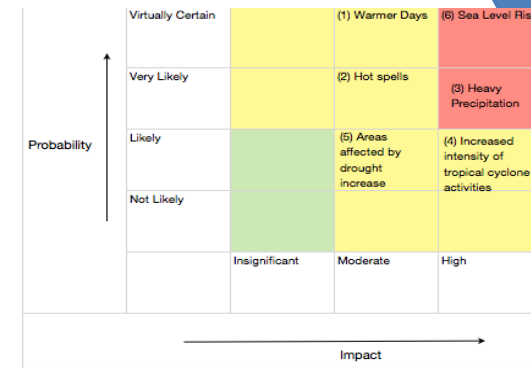
THANK YOU!

"We do not inherit the Earth from our ancestors, we borrow it from our children"

American Indian proverb

Additional Information

ITU-T/SG5 "Environment, Climate Change and Circular Economy"
  itu.int/go/tsg5

ITU-T and Climate Change itu.int/go/ITU-T/climate

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