ITU Backgrounders

ITU AND CLIMATE CHANGE

"Business as usual is no longer an option if we want to ensure the future livelihood of our planet. The future demands a shift towards a greener and more sustainable model of development – a shift that will mean leveraging the full potential of ICT."

Dr Hamadoun I. Touré,
ITU Secretary-General

Melting ice caps, ocean acidification, rising sea levels and extreme weather patterns – these are all signs of a changing climate. Most experts agree that, if the current model of development continues, the consequences of climate change may be more severe still, posing wider risks to local livelihoods, ecosystems, businesses and wider socioeconomic systems, particularly in vulnerable developing environments.

Central to the climate change issue is the production of Greenhouse Gas (GHG) emissions generated from human activities, which contributes to an increase in the overall average global temperature. According to the Fifth Assessment Report from the UN Intergovernmental Panel on Climate Change (IPCC), to be finalized in October 2014, emissions grew more quickly between 2000 and 2010 than in each of the three previous decades, meaning that GHG emissions have risen to unprecedented levels despite a growing number of policies to tackle climate change.

As the effects of climate change become more and more evident around the globe, countries are facing an immense dual-challenge of mitigating the causes of climate change – primarily by reducing the volume of GHGs released in the atmosphere – and adapting to its effects.

Information and Communication Technologies (ICTs) can help to overcome these challenges, not only by facilitating consumption reduction, energy efficiency and resilient development, but also by unlocking opportunities to transition towards a 'green economy' through sustainable growth.

Consumption reduction: 'Greening' through ICTs

ICT-enabled solutions are helping move the world towards a more sustainable and energy efficient future. Video conferencing, smart building management and e-applications are just a few examples of the many ways in which ICTs can facilitate the reduction of GHG emissions. As a result, the use of ICTs could cut projected 2020 global GHG emissions by 16.5%, leading to 1.9 trillion USD in gross energy and fuel savings.

However, the challenge for many ICT-enabled mitigation solutions is the lack of robust policies to address climate change. ITU is at the forefront of raising awareness about the potential of ICTs to decouple economic growth from GHG emissions, and is working to develop and promote the adoption of smart solutions to reduce GHG emissions and increase efficiency in other industries. Some examples include:

- Focus Group on Smart Sustainable Cities (FG-SSC): The FG-SSC is identifying the ICT systems necessary for cities to become more intelligent and more sustainable, serving as an open platform for smart-city stakeholders to exchange knowledge and identify the standardized frameworks needed to support the integration of ICT services in cities.

- One of the most effective ways of reducing GHG emissions, Smart Grids can help to mitigate climate change by building more controllable and efficient systems that send and use energy only when it is needed. ITU is leading the way in the development of new technical standards for smart grid implementation.

Change begins with us: 'Green' ICTs

The increasingly widespread use of ICTs has changed people's lives dramatically and boosted economic growth. But the ICT industry itself is a contributor to global GHG emissions, contributing between 2-2.5% of total emissions annually[1]. However, the increased global use of ICTs means these emissions are likely to double by 2020[2]. Ways of creating 'greener' ICTs will be an important part of ensuring that ICTs can continue to play a leading role in mitigating overall GHG emissions.

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Together with its network of members – which comprises 193 member states, over 700 private-sector entities and more than 60 academic institutions – ITU is working to redesign and transform ICT networks, services and applications to embrace improved energy efficiency criteria, reducing the environmental footprint of the ICT sector as a whole. Some examples of this include:

- The Toolkit on Environmental Sustainability for the ICT Sector provides detailed support on how ICT companies can build sustainability into the operations and management of their organizations.
- Next Generation Networks (NGNs) are new network architectures that improve the energy efficiency of ICTs by carrying all information and services (voice, data and video). They are expected to reduce energy consumption by 40% compared to today's legacy networks.
- Together with the United Nations Framework Convention on Climate Change (UNFCCC), ITU has developed a global methodology to assess the carbon footprint of ICTs.

Adapting to the reality of climate change

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Natural disasters and extreme weather events, particularly floods and storms, will become more frequent and severe because of climate change. As such, ITU continues to support Member States in all areas of disaster management – from prediction and detection, to alerting and assisting with relief efforts.

For example, ITU plays a leading role in facilitating the collection of real-time weather data and early warning data by allocating the necessary frequency spectrum resources to global observation systems. This allows governments to strengthen decision making and quickly adjust and respond to natural disasters, thereby reducing the economic and human impact of natural disasters.

In the immediate aftermath of disasters, emergency telecommunications play a critical role in ensuring the flow of information to government agencies and other humanitarian organizations involved in rescue operations. Through the ITU Framework for Cooperation in Emergencies (IFCE), ITU and its partners deploy satellite terminals and other emergency telecommunication equipment to affected areas within the first 24 to 48 hours of a disaster to help restore vital communication links.

1. Mainly through the consumption of electrical power, but excluding broadcasting and related radiocommunications activity.

2. ITU statistics show that, by end of 2014, there will be more than 7 billion mobile subscriptions, almost 3 billion Internet users and more than 2.3 billion mobile-broadband subscriptions across the globe.

The UN, ITU and climate change

All this work is done by ITU in close collaboration with other organizations committed to the fight against climate change and the promotion of sustainable development. By supporting key multilateral processes, such as the UNFCCC, ITU is working with the UN system to promote the use of ICTs to address the causes and effects of climate change. Over the coming year, ITU will support key UN conferences addressing climate change – such as the 2014 Climate Summit 2014, the 2014 UN Climate Change Conference (COP20) in Lima and the 2015 UN Climate Change Conference (COP21) in Paris – by assisting governments to leverage the potential of ICTs to reach an ambitious and legally-binding global agreement on climate change.

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OTHER ENVIRONMENTAL CHALLENGES

Climate change is not the only environmental challenge in which ICTs play a major role. As ICT devices become more ubiquitous, and applications and services based on ICTs continue to grow, sharp increases in electronic waste (e-waste) are expected to continue. Therefore, managing the associated environmental impacts of ICT devices and electronic equipment is a necessity.

ITU has developed a number of standards aimed at reducing e-waste. The universal charger for laptops and other portable devices (L.1000) will eliminate an estimated **82,000 tonnes of redundant chargers** and at least **13.6 million tonnes of CO^2 emissions** annually. In the same vein, a new universal power adapter (UPA) standard designed to serve the vast majority of ICT devices (L.10001) will cut manufacture of unnecessary adapters, while a standardized methodology for manufacturers to report the quantity of rare metals contained in their ICT devices (L.1100) will help spur recycling. Rare metals are now essential to the high-end functionality of ICT products; a standard mobile phone contains no less than 20 rare metals, and the need to recycle is clear – a tonne of gold ore yields just 5 grammes of gold, whereas a tonne of used mobile phones yields a staggering 400 grammes.

Global concern over e-waste spurred agreement at WTSA-12 on a Resolution on e-waste, giving further impetus to ITU's standardization work in this important area.

More information about ITU's activities on climate change is available at www.itu.int/climate