

Linking ICTs and Climate Change: Towards COP21 and SDGs

The contribution of the DCICC to the IGF

1. Climate change: The ultimate challenge for mankind

The current generation is plagued with the immense vulnerability brought in by the effects of climate change. The magnitude of environmental impacts linked to climate change affects livelihoods, health, ecosystems, energy sources and urban habitats. The chronic and acute manifestations caused by climate change also poses other threats including food shortage, air pollution, acid rain, flooding, glacial melting, desertification water scarcity etc. These problems can have devastating effects in low-income countries and on vulnerable communities.

2. Role of ICTs in dealing with climate change

Limited capacities to mitigate and adapt to climate change especially in developing countries has brought up the need for innovative measures. In this context, as the 21st Century is largely governed by the significant advances in technology, we may use this to our advantage by implementing ICTs in climate change mitigation and adaptation activities for the benefit of our future generations.

ICTs have permeated various areas related to socio-economic development, and are enabling the development of new skills, competitiveness and growth, particularly in developing nations.

ICTs have the potential to play a pivotal role in raising awareness and creating dialogue channels on the effects of climate change especially for developing countries and certain vulnerable communities by developing adaptation responses which include technology-based climate monitoring of weather situation and seismic information. In this regard, ICTs can enable improved decision making, increased access to real-time information and the subsequent transfer of pertinent information.

Additionally, through ICT innovations it is possible to provide improvements in wide-ranging areas including energy efficiency, human health, urban development, agriculture and production, protection of marine eco-systems and transportation of people and goods.

ICTs through smart metering and smart grids for domestic energy management assists in reducing the overall energy consumption of the sector. These systems may also avail of renewable energy sources like solar and wind energy to improve energy efficiency and reduce dependence on fossil fuels which helps reduce the greenhouse gas burden.

Smart solutions based on ICTs including services for the healthcare, education, water management and governmental sectors and can improve accountability and enables socioeconomic development by utilizing limited resources. ICT systems can also propagate smart transportation solutions to enable better route planning and traffic optimization, improved vehicle efficiency. These systems can also support the shift to

low emission alternatives like biofuels and electric cars which have a considerably lower carbon footprint.

3. ICTs and the Sustainable Development Goals

It is important to acknowledge that reduction in global warming and tackling climate change is essential to support the Sustainable Development Goal (SDGs) 13. In view of this Sustainable Development Goal, ICTs are in a unique position to create efficiencies that help the industrial as well as domestic sectors to reduce their greenhouse gas (GHG) emissions. With the climate change realm ICTs can play a crucial role in sharing climate and weather information and in forecasting and early warning systems.

In urban areas, ICT solutions are premised on the easy availability of mobile broadband and prevalence of ICTs through the increasing implementation of ICT-based innovations including smart sustainable cities (SSC) and internet of things (IoT).

In the context of ICTs and SDG 13, smart applications have the potential to improve the environment and tackle climate change. The various applications of ICTs may include areas such as manufacturing, energy, transport and buildings. Additionally, ICTs can help to foster sustainable consumption and greener lifestyles, which is also in line with SDG 12.

4. ICTs: the double edged sword?

ICTs have exhibited immense potential in reducing the climate change burden of the Earth, however, on the flip side, ICTs are also known to contribute to the global greenhouse gas emissions. It has been estimated that currently ICTs account for 2% of the global GHG emissions.

While ICTs are responsible for a certain portion of the GHG emission, ICTs have also been projected to aid the reduction of GHG emissions by 16 % by 2020 which accounts for nearly \$1.9 trillion in gross energy and fuel savings and a reduction of 9.1 Gigatonnes of CO₂ equivalent of GHG.¹ This has been estimated to be equivalent to more than seven times the ICT sector's emissions in the same period.

Therefore, overall, it can be deduced that ICTs are able to override the negative impacts of their use and the activities of the ICT industry itself.

In this regard, we should continue to view ICTs as catalyst for achieving the climate change goals stipulated in the SDGs and the targets determined by COP-21.

5. ICTs and Climate Change: Recent Actions of the DCICC and its members

ITU has organized 11 symposia on ICT, Environment and Climate Change. The 11th Symposia was held in April 2016 in Malaysia with the support of DCICC members. The main objective of these Symposia has been to raise awareness of the potential ICTs possess to address environmental challenges and to encourage stakeholders to integrate existing and emerging ICT-based solutions into their activities for an overall 'smarter' and more holistically 'sustainable' future for mankind.

¹ GeSI SMARTer2030

The annual Green Standards Week, which was launched in 2011, holds various sessions on the enabling role of ICTs in mitigating and adapting to climate change. ITU has been privileged to receive a significant number of DCICC members who grace the Green Standards Week every year.

The 5th ITU Green Standards Week on the theme "Cities and Climate Change: From the New Climate Agreement to the New Urban Agenda", was held in December 2015. The 5th ITU Green Standards Week concluded with the Bahamas Declaration.

In September 2016, policymakers pledged to take the key actions needed to achieve a successful transition to Smart Sustainable Cities in the "Montevideo Declaration", which was adopted by ministers, city mayors, businesses and academics meeting at the 6th annual ITU Green Standards Week in Uruguay's capital.

On 12 September 2016, ITU together with the National University of La Plata and the Chamber of the Senator of the Province of Buenos Aires organized a Forum on "The catalytic role of ICTs to achieve Sustainable Development Goals 11, 12 and 13" in La Plata Argentina. This Forum provided a platform for discussions on how ICTs can function as enablers to drive sustainable development and, in the process, facilitate solutions for the attainment of SDGs 11, 12 and 13.

Additionally, the ITU-T Study Group 5: Environment and Climate Change, through the Connect 2020 Agenda, based on its Goal 3: Sustainability: Manage challenges resulting from telecommunication/ICT development and specifically Target 3.3: Greenhouse Gas emissions generated by the telecommunication/ICT sector to be decreased per device by 30% by 2020, is working on the development of international standards (ITU-T Recommendations) to reach this target. Some of the Recommendations and Supplements developed in this area include:

- Recommendation ITU-T L.1500 – Framework for information and communication technologies (ICTs) and adaptation to the effects of climate. This Recommendation describes the framework for using ICTs for adapting to the effects of climate change
- Recommendation ITU-T L.1501 – Best practices on how countries can utilize ICTs to adapt to the effects of climate change. This Recommendation provides guidance on how information and communication technologies (ICTs) can help countries to adapt to the effect of climate change. It also provides a framework and a checklist for countries to integrate ICTs into their national climate change adaptation strategies.
- Recommendation ITU-T L.1502 – Adapting information and communication technology infrastructure to the effects of climate change. This Recommendation identifies direct and indirect threats of climate change on ICT services and provides options for adaptation and mitigation. These threats include extreme rainfall, flooding, landslides, extreme wind, lightning, extreme humidity, drought, ice storms and heavy snowfall.
- Recommendation ITU-T L.1503 - Use of information and communication technology for climate change adaptation in cities. This Recommendation identifies the impacts of climate change in cities and explains why cities need to adapt to its harmful effects.
- Supplement 24 - ITU-T L.1500 - Overview of climate change effects and possible impacts. This Supplement aims at offering a better understanding of climate

change effects that could assist in the development of national reports and recommendations related to adaptation, as well as be used as a reference to relevant decision makers and other recommendations.

To further examine the impact of climate change on urban systems, in May 2016, ITU together with UNECE has launched the United for Smart Sustainable Cities (U4SSC) initiative. The U4SSC is a global platform for smart city stakeholders to shape smart sustainable cities worldwide. The U4SSC counts on the support of 16 UN Agencies and it advocates for public policies to encourage the use of ICTs to facilitate and ease the transition to smart sustainable cities. Among the several topics covered by the U4SSC, climate change forms an integral aspect to be explored while fostering smart city development.

Within the realm of climate change, the EBU (as part of the World Broadcasting Union and as ITU sector member specialized in broadcasting technologies and standards) focused its activities on "green broadcasting". These activities included the implementation of standards and guidelines developed within the WSIS follow-up and on behalf of DCICC.

In particular EBU has launched a working group on Sustainable technology in broadcasting, led by BBC research center, that gathers regularly and exchange know how and technologies and experiences. This group has already produced a short guide on Sustainable Production (Tech 3367)² and provides regular updates on how to implement these recommendations in the daily practice of TV and radio production (Tech Report 031)³. This document suggests practical steps broadcasting organizations can take to reduce the environmental impact of producing television or radio programmes.

During the year 2016 most of the activities of this group have focused on the test of "ALBERT", a software tool that is a carbon calculator for broadcasting production. By introducing data into some simple parameters grill, each broadcaster can easily calculate the amount of carbon's emissions that a certain production activity will emit. In effect, this forecast makes it easier for the producers to intervene on some factors and reduce the emissions.

A new area that will be explored in the coming months with TV and radio content being consumed through the web and Internet.

As the number of people who access TV and radio content through the Internet and mobile devices increase, there is a higher need for powerful servers that will allow for fast streaming and easy access for consumers. This new mode of distribution of content does not replace the existing systems (such as DTT and satellite) and is thus expected to add to the carbon emissions.

At the policymaking level, EBU has suggested that a survey on what broadcasters are doing to reduce the carbon's emissions should be introduced as a permanent chapter in the annual reports prepared.

² <https://tech.ebu.ch/publications/tech3367>

³ <https://tech.ebu.ch/publications/tr031>

The WSIS Forum to be held in June 2017 will host the next physical meeting of the DCICC which will aim to achieve the targets set by the Paris Agreement and the SDGs 12, 13 and 15.

6. *Next Steps*

DCICC members have agreed to meet annually during the WSIS Forum and report to the IGF on the results and progress made.

7. Questions raised by DCICC to all IGF participants

- (i) What can the Internet governance community do in order to promote more climate-friendly best practices?
- (ii) How can we enhance the consciousness of IGF and its members in relation to the collective responsibilities towards the environment and the targets set by the Paris Agreement?
- (iii) How can various stakeholders collaborate to more effectively to address climate change, especially within their own respective areas of work?
- (iv) What is hindering the Internet governance community from taking more significant steps to address the relationship between climate change and the Internet?
- (v) What policy gaps need to be filled in order to promote a more sustainable environment as it relates to the Internet and ICTs?
- (vi) How can we leverage the existing initiatives, knowledge sets, and resources of the Internet governance community to promote a more sustainable Internet?