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| **Open consultation of the Council Working Group on international Internet-related public policy issues  Virtual meeting, 11 January 2022** |  |
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|  | **Revision 1 to Document OPCWGINT9/3-E** |
|  | **13 January 2022** |
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VIRTUAL MEETING-PHYSICAL OPEN CONSULTATION OF THE COUNCIL WORKING GROUP ON INTERNATIONAL INTERNET-RELATED PUBLIC POLICY ISSUES   
(CWG-INTERNET)

**Brief Summary of the Online Open Consultation and Virtual Meeting - Physical Open Consultation**  
**(October – December 2021)**

**1. Introduction**

The 2016 Council instructed the CWG-Internet to produce a brief summary of the Open Online Consultation and Physical Open Consultation Meetings:

a) ITU secretariat should prepare a brief draft summary of the written contributions to the online open consultation and the discussions during the physical open consultation meeting,

b) Stakeholders present at the physical open consultation meeting should agree on the brief summary,

c) Submit brief summary, without edits, to the next CWG-Internet for inclusion as an Annex to the Chairman’s report.

d) CWG-Internet should consider and discuss the open consultation brief summary.

**2.** **Online Open Consultation on "*The environmental impacts and benefits of the Internet*"**

**2.1** An Online Open Consultation was conducted from October to December 2021 on the topic of "*The environmental impacts and benefits of the Internet*". During this consultation, 20 responses were received from a variety of stakeholders and regions (3 Government, 5 Companies, 2 Industry Associations, 6 Civil Society entities, and 2 International Organizations). The responses provided rich inputs, sharing different views with regard to the four specific questions:

***“The Environmental Impacts and Benefits of the Internet***

* *What effects does the Internet have on the environment and vice-versa?*
* *How can we improve the impact the Internet has on the environment and take advantage of its potential to help address climate-related issues?*
* *What role should stakeholders play in shaping the environmental impacts and benefits of the Internet?*
* *What are the policy, regulatory and other relevant matters associated with the environmental impacts and benefits of the Internet?”*

The meeting appreciated and thanked all stakeholders who responded to the online consultations.

**2.2** A compilation of the summaries received directly from the individual online submitters, including relevant comments made by participants during the meeting, can be found in the Annex of this document, as well as in the published compilation document [OPCWGINT10/2](https://www.itu.int/md/S22-OPCWGINT10-C-0002/en).

**3. Virtual Meeting - Open Consultation on “*The environmental impacts and benefits of the Internet* "**

**3.1** The tenth Virtual Meeting - Physical Open Consultation, on the topic of “The environmental impacts and benefits of the Internet”, took place on 11 January 2022 with 111 registered participants and more than 60 in attendance. As the Chair of CWG-Internet, H.E. Majed AlMazyed, was unable to join this meeting, the Vice-Chair, Mr. Cesar Martinez, chaired this Virtual Meeting – Physical Open Consultation.

**3.2** Deputy Secretary-General, Mr. Malcom Johnson, opened the meeting and welcomed the participants. He thanked them for their continued support of the work of the CWG-Internet and highlighted the timeliness and relevance of the topic of this consultation. In his opening remarks, Mr. Johnson also highlighted the importance of urgent climate action, the possibilities offered by new digital technologies to combat climate change, and the growing carbon footprint of the Internet given the accelerated digital shift that has taken place during the COVID-19 pandemic.

**3.3** The Chairman of the meeting, Mr. César Martinez, presented the draft Agenda of the meeting. He commended participants for their active participation and the rich set of contributions submitted by diverse stakeholders to this Open Consultation of the CWG-Internet.

**3.4** The Chairman also welcomed Dr Kelly Widdicks, Lecturer in Computer Science in the School of Computing and Communications at Lancaster University, to the meeting as a special expert to discuss the climate impact of ICTs. Dr Widdicks presented findings from the latest report on “[The real climate and transformative impact of ICT: A critique of estimates, trends, and regulations](https://doi.org/10.1016/j.patter.2021.100340)”.

**3.5** The Chairman then invited Mr. Paolo Gemma, Chairman of Working Party 2/5 on Environment, Energy Efficiency and the Circular Economy of ITU-T Study Group 5 on Environment, Climate Change and Circular Economy to inform the meeting of relevant ITU-T activities and standards. For more information on relevant ITU activities, please visit <https://www.itu.int/en/action/environment-and-climate-change/Pages/default.aspx>.

**3.6** Compilation document [OPCWGINT10/2-E](https://www.itu.int/md/S22-OPCWGINT10-C-0002/en) was then presented to the meeting and the Chairman invited various stakeholders to take the floor to present their submitted views.

**4.** **Summary of Discussions during the Virtual Meeting - Physical Open Consultation**

**4.1** Stakeholders present at the meeting agreed on the brief summary of the tenth Virtual Meeting - Physical Open Consultation of CWG-Internet, as included below:

**4.2** Participants highlighted both the positive and negative environmental impact of ICTs. They stressed the vital role that technology can play in the global effort against climate change while also noting that it adversely contributes to environmental pollution, greenhouse gas emissions and e-waste. Participants recognized that the body of research is growing rapidly on this topic, however it was stated that it is difficult at present to estimate the total net effect of ICTs on climate change. In particular, more research is needed on the impacts of growing trends and many fields of innovation (for example, without limitation, Artificial Intelligence (AI) and blockchain).

**4.3** While acknowledging that the use of digital technology and data is necessary to develop competitiveness and create climate benefits, both in the short and long term, participants stressed the importance of raising awareness on this topic and improving the evidence base (for example, through transparency, disclosure and measurement, including emissions and the use of resources in the full ICT lifecycle). All stakeholders were urged to consider innovative solutions and to work collaboratively to amplify the benefits and impact of ICTs in relation to climate change and environmental sustainability.

In particular, it was suggested by some stakeholders that a global transparent and unified scheme for metrics on environmental impact of the digital sector should be developed, recognizing that this will be a difficult and challenging task. Other stakeholders suggested that a global transparent and unified scheme for metrics on environmental impact of the digital sector could contribute to a stronger evidence base

**4.4** Participants emphasised that the use of new technologies could have a positive effect in various ways, including as the pandemic has shifted towards digital tools, the potential reduction in travel in future, as well as an important tool for decarbonization of other sectors and for directly monitoring and responding to climate change, disaster management, and the needs of a circular economy.

**4.5** Participants suggested that mitigating the negative environmental impacts of the Internet and digital technologies requires greater transparency and accountability across the ICT sector, shifting priorities towards durability, repairability and sustainability of ICT ecosystems (both software and hardware components), including the impacts of phasing out or not legacy systems.

**4.6** Attention was also called to the interrelationship between energy supply and usage, climate issues, and connectivity as well as their corresponding implications, urging for a holistic approach by taking all technologies into consideration.

**4.7** Calling for a consideration to provide effective communication while minimizing climate impacts, participants also highlighted that satellites and the use of sensors can deliver data that can help to address climate-related issues and reduce carbon emissions.

**4.8** It was recommended that Member States, in consultation with all stakeholders, should foster an enabling policy and regulatory environment for climate sustainability, in line with Paris Climate Agreement commitments, SDG targets, and other frameworks in order to ensure that the business case for sustainability can be profitably implemented so that it brings value for people, planet and economic growth.

**4.9** The meeting invited CWG-Internet to have a substantive discussion on the outputs of the open consultation, and suggested that the Secretariat share the contributions and Compilation document [OPCWGINT10/2](https://www.itu.int/md/S22-OPCWGINT10-C-0002/en) also with the relevant Study Groups and projects and programmes in the three ITU sectors and the General Secretariat.

**5. Closing**

**5.1** In closing, the Chair of the meeting thanked all stakeholders who sent submissions and participated in the open consultation discussions, and encouraged the CWG-Internet to consider the received responses and the fruitful discussions of this meeting. He also expressed his thanks to the Deputy Secretary-General present for his presence and support and the Secretariat for their efficient assistance during the meeting.

**5.2** The participants thanked the Chairman for his efficient management of the Virtual Meeting - Physical Open Consultation and for his flexibility in taking on the role of Chairman at short notice. The participants also thanked the Secretariat for their effective organisation of the online consultation and of the virtual meeting - physical open consultation.

**ANNEX**

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|  | Date | Submitter  (Contributions hyperlinked) | Response |
|  | October 29, 2021 | [Association for Proper Internet Governance](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=6) | **Summary provided in the Contribution:**  As an OCED report states: “ICTs, including the Internet, are having profound environmental impacts, both positive and negative.” ICTs, including the Internet, have greatly improved the efficiency of production and transportation processes, thus reducing greenhouse gas emissions. However, increased efficiency has resulted in lower costs and higher demand. It is not obvious that increased demand would have occurred without ICTs, and it is not obvious whether the efficiencies realized thanks to ICTs have been offset by the greater demand. Thus, it is very difficult to quantify the net impact of ICTs on the environment. The direct negative effects of ICTs and the Internet on the environment are essentially their contributions to environmental pollution and greenhouse gas emissions. E-waste constitutes a significant, and worsening, environmental issue. It is being combated by a number of programs, including in ITU. In our view, states should consider acceding to the 2012 International Telecommunication Regulations, whose article 11 states: “Member States are encouraged to adopt energy-efficiency and e-waste best practices taking into account the relevant ITU-T Recommendations.” As far as we are aware, this is the only treaty-level provision relating to e-waste. While certain (mostly OECD) Member States support ICT-related proposals in trade agreements (including in WTO), we are not aware of any proposals regarding e-waste in trade agreements. We note in passing that the very same states that support ICT-related proposals in binding treaty-level trade agreements object to discussing such proposals in ITU, on the grounds that treaty-level provisions are not necessary, cannot be sufficiently flexible, and could hamper innovation. This appears inconsistent. Regarding greenhouse gas emissions, it appears that the ICT industry’s contribution is comparable to that of the aviation industry, and that the Internet accounts for a significant proportion of global energy consumption and the consequent greenhouse gas emissions. ITU Recommendation L.1470 provides guidance on how to reduce greenhouse gas emissions in the ICT sector. A small number of web sites, including adult entertainment sites and gaming sites, account for a significant proportion of web traffic and thus of greenhouse gas emissions. News also accounts for a significant proportion, but a significant proportion of news is misleading (fake news). This is due to the current advertising-driven revenue model. A tax on digital advertising could reduce the volume of collected data, and thus reduce the consumption of electricity Data centers and content delivery networks also account for a significant proportion of greenhouse gas emissions (for example, it has been estimated that Bitcoin consumes as much electricity as countries like Indonesia or Sweden). International data flows also account for a significant proportion of greenhouse gas emissions. Undesirable international data flows can also be reduced by enabling users to control what data are collected and stored, as is done by the European Union’s General Data Protection Regulation (GDPR). Unnecessary international data flows can also be reduced by promoting data localization, and customs duties on international data flows, including for e-commerce. Consequently, the current WTO moratorium on customs duties for e-commerce should be abrogated, and there should be no international agreements limiting data localization requirements, or preventing national limitations of cross-border data flows. While robocalls (which are facilitated by the Internet) do not account for much traffic, most of them do not appear to provide social or economic benefits, thus their suppression would seem to be a priority item and indeed many countries, and the ITU, are taking measures to combat illegitimate robocalling. At present, the Internet is a “best effort” network, that does not allocate priority to any particular type of traffic, so reasonable quality of service is achieved by allocating the bandwidth that will likely satisfy peak demand. Use of a signaling network might achieve higher efficiency, and thus less use of electricity for the same throughput. It is suggested that studies be initiated on the use of signaling networks to improve the efficiency of Internet traffic. The respective roles of stakeholders are clearly set forth in paragraph 35 of the Tunis Agenda, however, we suggest a refinement that would more clearly specify the roles and responsibilities of the different stakeholders. |
|  | November 12, 2021 | [FAO](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=7) | **Summary provided in the Contribution:**  Environmental sustainability is a global priority and digital technologies, including geospatial tools and applications, have revealed over the last decades their full potential to play a critical role in targeting, monitoring and evaluating environmental and climate change risks mitigation and adaptation investments. As highlighted by the most recent and current events, and forums at the highest level, enshrined by COP 26, it is now clearer than ever that we can only rise to environmental challenges that include climate crisis by working together and FAO´s work over the last years has been concretely contributing to meeting these challenges.  FAO´s mandate includes supporting and assisting countries in their transformation towards more efficient, inclusive, resilient and sustainable agri-food systems for better production, better nutrition, a better environment, and a better life. The organization´s Big Fours, leaving no one behind. Through its new and strengthened focus on Digital for impact, especially with its Hand in Hand geospatial platform and subsequent agro informatics tools, FAO´s work aims at enabling digital capabilities for decision makers in our actual world challenging context, strengthening collaboration with people, academia, business and other international organizations to achieve common goals for environmental sustainability worldwide. |
|  | November 20, 2021 | [Association for Proper Internet Governance](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=8) | **Summary provided in the Contribution:**  While spam does not account for much traffic, it does not appear to provide social or economic benefits, thus its suppression would seem to be a priority item in order to reduce electricity consumption which has a negative environmental impact. Developed countries who previously opposed treaty-level provisions regarding spam are now promoting such provisions in WTO. Since more countries are members of ITU than of WTO, it would appear logical that developed countries should now promote similar anti-spam provisions in the ITU’s International Telecommunication Regulations. |
|  | November 23, 2021 | [United Nations world food programme CERFAM KEPT](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=10) | **Text provided in the comment box:**  The innovative ideology product solution is titled "Accessibility and inclusive development in the food value chains". The activities of the food value chains is interlinked to the innovative ideologies of the subject areas of the accessibility and inclusive development. Particularly, the persons with hearing impairment, visual impairment and so on and so forth are included in the supply demand management of the food systems and the food value chains |
|  | December 2, 2021 | [Sustainable Digital Infrastructure Alliance (SDIA)](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=11) | **Summary provided in the Contribution:**  Digital technologies have a profound impact on the environment, yet is an area that has largely been ignored by policymakers and regulators. Given the breadth and complexity of the digital infrastructure ecosystem, which spans more than 30 industries globally, it is critical that the relationship between digital technologies and the environment receives greater scrutiny so that we can truly foster a sustainable digital economy. With our replies below to the four questions that the CWG-Internet poses, we seek to highlight the knowledge gaps that exist while also highlighting important resources and recommendations. As the ITU examines the relationship between digital technologies and the environment, we encourage Member States to work with digital infrastructure and ICT industry members, the rich community of academics, technical community members, and nongovernmental organizations working on ICT sustainability issues, and local and regional governments to holistically and collaboratively address the challenges we face across silos and stakeholder groups. Specifically, we recommend that Member States commit to creating a more enabling policy and regulatory environment for sustainability, in-line with Paris Climate Agreement commitments, SDG targets, and other relevant international frameworks, and assist in making the business case for sustainability by demonstrating the value that it brings to people and communities, the planet, and economic growth. An important step in realizing this would be to facilitate the creation of a global, unified, and transparent reporting scheme capturing the most important metrics to measure the environmental impact of the Internet and the supporting digital infrastructure.  **Comment from Association for Proper Internet Governance**  We largely support the comments in this contribution. |
|  | December 7, 2021 | [AICEP](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=13) | **Text Provided in the comment box:**  ICT has been always seen as an important ally in the global effort against climate changes because of its disruptive capacity to transform processes and practices in every economic sector. With the internet and the different digital devices which surround us nowadays, many people is able to work from home, without going to their working places, and as such, without contributing to the increase of global heating. However that potential has not been fully used and the digital infrastructures as well as digital products of high energy use, are growing without control. The energy consumption related to ICT’s has been increasing 9% year after year, with consequent effects in the greenhouse emissions. ICT sector is seen of paramount importance to mitigate the causes and to adapt to climate changes. However in general terms the direct and indirect environmental impacts related to the growing use of digital equipment are constantly being undermined due to the small dimension of the devices and the invisibility of the related infrastructure. Therefore the changes of consumption patterns towards a digital sobriety, especially in developing countries, may give rise to a digital transition aligned with the global concerns with climate changes. A balanced digital transition has to do basically with the purchase of low energy consumption devices, which do not need to be charged often, and to reduce the unnecessary use of high energy consumption devices. To-day the digital transition generates a strong increase of the ICT’s carbon footprint, seen in the energy used to produce and use of equipment (such as servers, networks and terminals) which have been growing at an yearly rate of 9%. Yet the digital consumption is highly uneven. The excessive digital consumption is not a global phenomenon, it is caused by the rich countries, which use more digital devices and more energy to operate them. If we change our relationship with digital technologies, from an excessive consumption to a more balanced use, one may reduce the energy consumption by 1,5% yearly. All of us like to buy broadband plans, and other internet connection without even considering their impact on our environment. This is getting serious as the use of the internet is becoming more common compared to the past times. All of us need to be conscious about this fact and start educating ourselves along with the creation of awareness from those who are ignorant about it. We all use the internet to communicate with others, to use the same for hosting video conference calls or just to call one’s family. The fact remains that we all use the internet increasingly more these days on account of the fact that we can now carry out several tasks from being online. And thanks to IOT, or internet of things, the ways and means through which we can use the net to control our immediate environment has grown tenfold in the last few years. Although we are not yet living in a dystopian world, we may as well be there given the sheer amount of time that each one of us spends online. Given this, it is time that we took a closer look at some of the positive and negative impacts of the internet and the way it is being utilized today.  **Comment from Association for Proper Internet Governance**  We largely support the comments in this contribution. |
|  | December 7, 2021 | [Association for Proper Internet Governance](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=14) | **Summary provided in the contribution:**  We present here elements take from the European Green Party report Digital technologies in Europe: An environmental life cycle approach. Digital technologies have a considerable environmental impact, and this impact is mainly material. 40% of the environmental impacts of Information and Communication Technologies (ICT) are due to the depletion of metal resources and the use of fossil resources, mainly to manufacture the devices. Digital technologies for European use alone accounts for 40% of the sustainable GHG emissions budget of Europe to stay below 1.5°C. Almost 10% of European electricity consumption is devoted to digital technologies. Key recommendations include fewer, longer lasting and more sustainable digital devices. To reduce the number of devices, make them multifunctional. Fight all forms of obsolescence by extending the legal duration of software update periods to a minimum of 5 years. Increase reuse rates by moving from proprietary systems to interoperable and open ones and making the right to return compulsory. Incentivise the durability of products, second hand purchases and refurbishment with consumer protection. |
|  | December 8, 2021 | [U.S. Council for International Business (USCIB)](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=15) | **Text provided in comment box:**  The U.S. Council for International Business (USCIB) is pleased to participate in the CWG-Internet’s Open Consultation, “The Environmental Impacts and Benefits of the Internet.” USCIB is a trade association composed of more than 300 multinational companies, law firms, and business associations from every sector of the U.S. economy, with operations in every region of the world. In particular, USCIB Members include a broad cross-section of the global companies in the information and communications technology (ICT) sectors as well as leading users of ICTs. We welcome this opportunity to offer a multi-sectoral perspective on this very timely issue. We note that USCIB tackled the question of how existing and emerging digital technologies may be mobilized to address climate change as part of the 2020 Internet Governance Forum (IGF). Specifically, this workshop, “Tech for the Planet”, explored how technologies that have enabled and sustained the digital transformation of the economy have been leveraged to mitigate damage to the environment and reduce the carbon footprints of consumers, business, and governments. The IGF published a workshop report that provides a useful summary of the key policy questions and recommendations resulting from the workshop that may be useful to the ITU CWG-Internet as part of this consultation. Data Collection and Data Flows -- It goes without saying that the Internet has enabled the continued innovation of digital technologies and their transmission to address a broad array of environmental challenges. In terms of improving the impact the Internet has on the environment and taking advantage of its potential to help address climate-related issues, experts have underscored the importance of data collection and appropriate Internet platforms and technologies (e.g. Artificial Intelligence) to house, understand, analyze and aggregate data to address specific environmental challenges. In addition, the OECD noted that “…transborder data flows can also facilitate collaboration between governments to improve their policy-making at international level. They can help strengthen collective commitment and efforts across borders to support greater public sector transparency, contribute to addressing global challenges as defined for instance by Sustainability Goals (SDGs)…” Accordingly, it is increasingly important that global policy makers recognize that criticality of the free flow of data across borders, subject to legitimate security and privacy concerns. Policies and regulations that impede cross-border data flows or mandate the localization of data undermine the potential to tap Internet-enabled technologies to address environmental challenges. Harmonized and Complementary Standards – Experts have underscored that both technical and corporate standards are needed to ensure both technology interoperability and access to and use of the Internet as a transmission mechanism as well as to promote “green” best practices. Each set of standards complements the other, it has been emphasized. Such corporate standards would complement the technical work underway in non-governmental international standards-setting bodies like the ISO and IEEE, both of which are helping to ensure interoperability of digital technologies designed to reduce carbon or protect oceans, rivers, or other water sources. Accordingly, USCIB strongly encourages governments to support policies that allow the free flow of data across borders, subject to legitimate security and privacy concerns. Harmonized technical standards are best realized through existing international standards-setting bodies, such as the ISO and the IEEE, not through top-down governmental mandate. The promotion of common corporate standards should be encouraged as part of a broader, cross-sectoral effort by business to realize COP 26 climate change goals. Multistakeholder Approach – USCIB has emphasized in statements before various global forums that the the multistakeholder model for Internet governance continues to be the best method to enable whole-of-society/whole-of-government consideration of Internet policy issues that is grounded in democratic values and the principles of transparency, accountability, and consensus. Given the rapid pace of technological change, governments need the perspectives provided by business, the technical community, and civil society to better understand what policies are commercially viable, technically feasible, offer adequate user protections, and avoid unintended consequences. The contributions of all stakeholders produce a flexible policy environment critical to empowering the rapidly evolving digital economy. The highly disruptive impacts of environmental degradation suffered by people throughout the world makes such multistakeholder participation even more important to ensure that the Internet functions in a stable, secure, and resilient manner to facilitate technology solutions to climate change. Governments play an important role as they set and agree on regulation, legislation, and international treaties and agreements that address environmental challenges. Local nongovernmental organizations representing civil society are essential participants as they are effective in furthering the understanding of governments about local culture and related concerns. The business voice is critical to inform deliberations about what is technically feasible and commercially available. The synergy of the multi-stakeholder process is needed to bring all parties together and achieve maximum impact. Examples of Internet-enabled Innovations – We provide several examples of how business is using or promoting the development of digital technologies, including through partnerships with customers and other third parties, to help mitigate the environmental challenges threatening our planet.  **Comment from Association for Proper Internet Governance**  We do not agree that free flow of data will help to reduce the environmental impact of the Internet. On the contrary, it likely exacerbates it, for the reasons set forth in our contribution.  We do not agree that the current Internet governance arrangements (the so-called multi-stakeholder model) are appropriate. On the contrary, we find that they have at times failed to result in appropriate outcomes, as set forth in our previous contributions to CWG-Internet, see in particular:  <http://www.apig.ch/CWG-Internet%202017-2ter.pdf>  In fact, multi-stakeholder models are generally not fit for purpose, see:  <https://www.msi-integrity.org/not-fit-for-purpose/>  And they have not worked well for specific aspects of Internet governance, see:  <http://www.apig.ch/Chatam%20IG%20formatted%20final.pdf>  And:  <http://www.boundary2.org/2021/03/multistakeholder-internet-governance-still-doesnt-live-up-to-its-pr-review-of-palladino-and-santaniello-legitimacy-power-and-inequalities-in-the-multistakeholder-internet-governance/> |
|  | December 9, 2021 | [United Kingdom - Department of Digital, Culture, Media and Sport](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=16) | **Summary provided in the contribution:**  Both a vital tool for climate action and a key contributor of greenhouse gas emissions, the Internet has a range of positive and negative impacts on the environment. The Covid-19 pandemic in particular has shed light on some of the benefits the Internet can offer. With interactions ranging from international meetings to social gatherings and school classrooms going online, the Internet has proved itself to be a critical alternative to in-person interactions and thus an effective way of reducing high-emission travel. At the same time, the Internet continues to be an important tool for directly monitoring and responding to climate change, be it by optimising energy use in homes, forecasting extreme weather events or facilitating research on sustainable energy sources. However, despite the Internet’s positive contribution to environmental issues, it must not be forgotten that the Internet itself, or at least the Infrastructure supporting it, is a significant contributor to greenhouse gas emissions. According to a 2020 publication by The Information Technology and Innovation Foundation, ICTs account for about 4 percent of global electricity consumption, and 1.4 percent of global carbon emissions. Furthermore, the growing quantity of E-waste, also known as waste electrical and electronic equipment, is another major threat to the wellbeing of our planet. An Open Consultation is an excellent opportunity to build knowledge and develop strategies to address these issues, thus harnessing the potential of the Internet to build a greener future for all.  **Comment from Association for Proper Internet Governance**  We fully support the comments in this contribution. |
|  | December 10, 2021 | [Latin American Institute of Terraforming](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=17) | **Summary provided in the contribution:**  According to a November 2021 survey of IPCC scientists, a large majority believe that we are heading for a 3,0°C global temperature increases due to political inaction. In this context, it is urgent to rethink the role of digitalization and its contribution to global warming, according to the scientific evidence. It is risky to assume that the new efficiencies enabled by ICT will suddenly start creating significant carbon savings in the economy at large, without a strategic role for governance. Therefore, the catalytic role of the ITU must be even more critical, assertive, and decisive for the challenge of the climate crisis so as to be able to drive digital environmental justice. To this end, we suggest five actions (of many others that can be implemented), based on scientific evidence, that can be considered by ITU around greenhouse gas emissions due to ICT use:  1. Adopt the precautionary approach on the contribution of ICTs to energy efficiency and, consequently, to their supposed contribution to reducing CO2 emissions from other sectors. Until scientific consensus indicates more unambiguous evidence for action (which relates to our proposal number 2), the precautionary principle should be standard for ITU, industry, and States.  2. Promoting multidisciplinary and independent scientific research, both empirical and theoretical, on the environmental impact of ICTs (especially the digital rebound effect and the intensive use of other natural resources).  3. Encourage States and the ICT industry, as well as industrial sectors benefiting from the innovations of digitization, to produce standardized open data on energy use and the environmental impact of technologies in their production areas. This is key for our proposal one and two.  4. Promote with the States standardized methodologies and incentives that encourage ICT sector companies, differentiated according to their size and sector, to commit to achieving net-zero or carbon-negative emissions before 2050, and establish a detailed roadmap of sectoral targets.  5. Promote initiatives for enterprising States to stimulate innovative, socially acceptable, and sustainable technological developments and policies with all stakeholders.  **Comment from Association for Proper Internet Governance**  We largely support the comments in this contribution. |
|  | December 13, 2021 | [Global Rus Trade](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=19) | **Text provided in comment box:**  Technological development and digitalization, which are huge trends nowadays, have a controversial impact on the environment. On the one hand, the development of ICT leads to the appearance of “green” technologies and tighter connectivity in the world’s society. On the other hand, digital infrastructure and consumers’ utilisation of the equipment significantly increase our carbon footprint. But I believe that future technological innovations will help to significantly reduce the damage done to the environment. To take advantage of the Internet's potential to help address climate-related issues now 1) we need to ensure equal access to the Internet 2) give people opportunities to learn basic knowledge of the Internet and some digital skills and 3) share information about climate-related issues and raise awareness. Also, it is important to 1) bring all the stakeholders together to elaborate joint solutions and recommendations and 2) develop a public-private partnership to reach common goals. |
|  | December 13, 2021 | [IBIS](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=20) | **Text provided in comment box:**  Contribution of Intellectual Property in Ecological Solutions is very important. |
|  | December 13, 2021 | [State Corporation "Rostec"](https://www.itu.int/en/council/cwg-internet/Pages/display-sep2020.aspx?ListItemID=15) | **Summary provided in the Contribution:**  Internet and environment – both play a big role in modern society. But, the more we focus on the internet and its potential, the less attention we pay to nature, climate, and environment. To bring things back to the balance, we have to recognize real opportunities to use internet applications for enhancing environment we live in.  As for our company, we lead and execute a project in the area of Internet of Things (IoT) with close collaboration and support from Russia’s government. We believe, that combining our knowledge and products in sustainable solutions (water quality monitoring, air pollution sensors, manufacturing management & optimization IT-systems and etc.) with the IoT technology could bring a tailored tool for reducing negative impact on environment and climate to the majority of industrial facilities in Russia.  But we suppose, that one-sided initiatives can’t last long without a reliable support of other stakeholders. We believe, that true success can be achieved in the satiation, where:  1) Policy makers set up an obligatory frame for transition to sustainable solutions;  2) The government has a clear view on what have to be achieved and supports the most relevant initiatives;  3) There is a confirmed demand from partners, which share a common view on environment problems and the need to solve them. |
|  | December 13, 2021 | [PJSC Rostelecom](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=22) | **Text provided in comment box:**  Damage to the environment by Internet is defined as all digital activities that generate greenhouse gas emissions. In fact, this is a negative impact of external use of new technologies that usually remains unknown to consumer, while the digital world significantly adversely affects the environment creating a sizeable carbon footprint: 4% of all greenhouse gases. Owing to their intangible external appearance, digital technologies are usually considered as a tool that has no direct impact on the environment. However, digital technologies are indeed tangible and depend on a physical infrastructure such as data centers and kilometers of cables used for transmitting antennas.  **Comment from Association for Proper Internet Governance**  We largely support the comments in this contribution, in particular the reference to the 2012 ITRs at the end of the contribution. |
|  | December 13, 2021 | [Government Offices of Sweden](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=23) | **Summary provided in the Contribution:**  Governments and policy-makers need to find urgent answers to protect populations already affected by climate change and its effects on everyone’s lives. Using digital technology and data is necessary to develop competitiveness and create climate benefits - both in the short and long term.  It´s urgent to act swiftly in order to reduce the carbon footprint of the digital economy as well as the need for accelerated digitalization in order to grasp the full potential in reduced co2 emissions. |
|  | December 13, 2021 | [Telefonica S.A.](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=24) | **Text provided in comment box:**  Digital technologies and services are key for the decarbonization of other sectors. In particular, modern connectivity and high-capacity networks are important enablers of more efficient and greener economies. We believe it is vital putting in place policy and regulatory approaches (including sustainable financing) that would incentivise investment in fibre roll-out and 5G deployment by: • Reviewing policies to bring down the cost of deployment of 5G and fibre networks. • Reducing barriers to develop and deploy of digitally-enabled services. • Promoting voluntary network sharing agreements. • Providing incentives like tax benefits, fee reductions and more, for environmentally efficient ICT solutions. • Ensuring all sustainable finance instruments support digital solutions and networks. • Promoting Big Data storage and analysis functional to the achievement of carbon neutrality. |
|  | December 13, 2021 | [Association for Progressive Communications (APC)](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=26) | **Text provided in the Contribution:**  We cannot afford to underestimate the environmental impacts of the internet and digital technologies. The large-scale extraction of raw materials, such as lithium, have devastated natural ecosystems and deepened ecological crises, particularly in the global South. Communities in the global South are disproportionately affected by environmental degradation and air and water pollution caused by the production, use and disposal of electronic devices. Moreover, the internet and digital technologies are increasingly being used to censor, surveil, threaten and attack environment defenders, and to spread disinformation about the science of climate change. At the same time, the internet and digital technologies are being harnessed to raise public awareness and to advocate and act collectively for meaningful change. There is enormous potential for the internet and digital technologies to contribute to environmental justice and sustainability; however, this potential will be unrealised without addressing the root causes of the environmental impacts of the internet, and substantial investment in local community-led initiatives to monitor changes in ecosystems, collectively prepare for extreme weather, and mitigate and adapt to the effects of climate change. Regulation of the information and communications technology (ICT) sector can help to address the worst environmental impacts of the internet. Mitigating the negative environmental impacts of the internet and digital technologies requires precautionary approaches, greater transparency and accountability across the ICT sector, and shifting priorities towards durability, repairability and sustainability of ICT infrastructure. Innovation and collaboration to reduce the negative environmental impacts of the internet must centre the experiences of environmental rights defenders and communities most affected in order to uphold the right to a healthy environment for everyone, everywhere.  **Comment from Association for Proper Internet Governance**  We fully support the comments in this contribution. |
|  | December 14, 2021 | [Mauritius Ministry of Information Technology, Communications and Innovation](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=27) | **Text taken from the Contribution (no summary provided):**  What effects does the Internet have on the environment and vice-versa?   * The Internet has helped reducing paper wastage through online services. The Government has implemented over a hundred e-services to facilitate citizens and businesses transactions, and in doing so, has helped to reduce paper usage. * E-commerce has also helped to reduce demand for utilities (power, water etc.) that would have been needed to run physical stores. * On the other hand, the Internet consumes huge amounts of electricity. The carbon footprint is mainly a result of the power required to keep necessary infrastructure running. Mobile phone antennas, the devices used to access the Internet, and data centres require large amounts of electricity. Data centres contribute around 0.3% to overall carbon emissions, whereas the information and communications technology sector (including digital devices, mobile-phone networks and televisions) accounts for more than 2% of global emissions[[1]](#footnote-1). * Intricately associated with the Internet is e-waste. As most devices have a limited lifetime, many of these devices have a negative impact on the environment if they are not properly disposed.   How can we improve the impact the Internet has on the environment and take advantage of its potential to help address climate-related issues?   * Use of green (renewable) energy to power Internet infrastructure and services. E.g. Use alternative cooling mechanisms for data centres. Mauritius is surrounded by sea water and cooling systems can be developed using deep ocean water. * The Internet, through website, blogs, social media etc., provides an easily accessible platform to sensitize the population about environment protection. Online petitions are becoming more popular and can be used as a tool to advocate for environmental causes. * The Internet provides numerous avenues for collecting, distributing and analyzing environmental information, making it available to greater numbers of researchers, reducing redundancy and increasing capacity to understand the complex global ecosystem. Thus, the Internet can be used to monitor the current state of the environment. * Using emerging technologies like IoT (Internet of Things), drones, artificial intelligence etc., various monitoring can be carried out e.g. air quality, water quality, imminent disaster like earthquake, floods detection etc. * Digital applications through the Internet can help in supporting implementation of environmental laws, through data capture and monitoring. * The Internet has the potential to help the Government accelerate into an eco-friendly, low-carbon economy. For example, Korea has initiated a Green New Deal and a Digital New Deal which aim to propel the country into a Green Digital economy. Some key projects identified under these initiatives are:   + Green and smart schools   + Promote digital innovation of urban and industrial spaces   + Digital twin – Create high-resolution 3D maps for the country and build smart management systems for old underground public utilities facilities   + Digital SOC: Adopt C-ITS (an intelligent transportation system that implements environment-friendly transportation) to major routes, install IoT sensors on railroads and build 4th generation wireless networks for railway   What role should stakeholders play in shaping the environmental impacts and benefits of the Internet?   * Government can impose regulations that can force the Public to adopt better technologies that can help to decrease emissions. The Energy Efficiency (Labelling of Regulated Machinery) Regulations 2017 provides for mandatory energy efficiency labels on certain types of domestic appliances and provides clearer energy savings information for the Public. * Government has already taken initiatives towards green environment through the procurement of greener equipment with features like registration with EPEAT/EU Ecolabel, Energy Star compliance. * Private companies are also tapping on the use of the Internet to provide online services and digital communication. Many companies have reduced paper statements and use email communication instead. * The Government also provides many online services. As an example, all tax filings for the Mauritius Revenue Authority have to be submitted online. * Government is also making accessible open datasets on the Open Data Portal which includes data regarding environment.   What are the policy, regulatory and other relevant matters associated with the environmental impacts and benefits of the Internet?   * Legislations/policies can be enacted to:   + Promote adoption of greener appliances related to the use of Internet (PCs, laptops, network devices etc.).   + Limit paper use in favour of online communication and services.   + Compel labelling of raw materials used in the manufacture of equipment for better recycling and disposal decisions.   + Promote e-waste recycling e.g. enforcement of Extended Producer Responsibility (EPR) which is an environmental policy approach in which producers take responsibility for the management of products after becoming waste.   **Comment from Association for Proper Internet Governance:**  We fully support the comments in this contribution. |
|  | December 14, 2021 | [EMEA Satellite Operators Association (ESOA)](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=28) | **Summary provided in the Contribution:**  The Pandemic provides a good backdrop to the topic of this consultation. With lockdowns across multiple countries, the need for universal connectivity has become very clear and real in a way that policymakers perhaps did not realise. Similarly, the positive effect lockdowns had on the environment also did not go unnoticed. Hence, connectivity and climate are both important considerations; they are not unrelated and as noted in this submission, should be given greater consideration together. |
|  | December 14, 2021 | [Centre for Global IT Cooperation](https://www.itu.int/en/council/cwg-internet/Pages/display-oct2021.aspx?ListItemID=29) | **Text provided in comment box:**  Internet, being inherently an information technology, provides the information and decision medium for monitoring and information support of natural resource management systems, such as those at municipal and utilities level. The improvement of information systems currently opens up opportunities for more efficient allocation and use of resources, such as transport, water, electricity. Just like in agriculture, monitoring the environment is an important application area where new opportunities for more granular and detailed monitoring and management emerge from innovation in ICTs. Implementation tests for real0life smart cites are underway in Australia and China, transforming the city environment with a number of important and possibly ambiguous technological components: - "smart" street lighting; - urban Wi-Fi network, covering most of the urban open space, with the ability to inform the public, and anonymized monitoring of the situation; - video surveillance systems combined with video analytics systems, face recognition based on AI technologies to ensure a safe urban environment and the suppression of offenses; - microclimate sensors for monitoring the situation, analytics and decision-making on the operation of microclimate management systems; - parking sensors and payment systems; - a big data platform that integrates multimodal data from various sensors to improve decision-making on city management. A few other areas to be shortly transformed by internet application include: - sensor networks using LPWAN family of technologies, providing cost effective way to reduce environmental footprint of agriculture and infrastructure projects by more efficient allocation of scares resources; - digital transformation of global value chains, enabled by internet connectivity can improve efficiency of use of environmental resources; - sharing economy enabled by the internet can reduce the total resource consumption. Regulations generally, need to protect the right to safe and healthy living environment, with minimal constraints to innovation to prevent unmitigated unacceptable harm to persons, society and the state. Clear and predictable management of responsibility of technology providers is also essential for innovative enterprises to mitigate the uncertainties inherent with new technologies. |

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1. Nicola Jones, *How to stop data centres from gobbling up the world’s electricity*, Nature 561, 163-166 (2018) [↑](#footnote-ref-1)