

GLOBAL INFORMATION SOCIETY WATCH 2020

*Technology, the environment and
a sustainable world: Responses from
the global South*



ASSOCIATION FOR PROGRESSIVE COMMUNICATIONS (APC)
AND SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY (SIDA)

Global Information Society Watch 2020

Technology, the environment and a sustainable world: Responses from the global South

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What is the circular economy of ICTs?

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The problem

We live on a planet that follows natural cycles and we are consuming resources beyond natural boundaries. Climate change, biodiversity loss, land erosion, pollution and resource depletion are the direct result of human impacts on the planet.

The information society comes at a cost to the environment. The digital device on which you are reading this report impacts our planet at each process in its life cycle. There are more personal digital devices in the world than people.

Currently, more than six billion new information and communications technology (ICT) goods are sold annually worldwide. There are estimates of 1.5 billion smartphones,¹ 126 million desktop computers, 659 million laptops, and 513 million Wi-Fi routers produced every year (as of 2021).² These numbers are expected to grow exponentially over the next five to 10 years thanks to new “smart” technologies. At least 20 billion new internet of things (IoT) devices are expected to be produced in 2021.³

As a result, electronic waste (or e-waste) is the largest growing waste stream, much of it discarded with our general waste. In terms of value, this leads to a loss of what we call “secondary resources” worth about USD 57 billion (in 2019).⁴ This is more than the gross domestic product of many countries.

ICTs also consume a lot of electricity: by 2030 they could use as much as 51% of the world’s electricity supply, and contribute up to 23% of the global greenhouse gas (GHG) emissions.⁵

Lastly, the materials used to make electronic devices are a major contributor to global warming. The mining of raw materials to produce our mobile phones and laptops has a negative impact on the environment and on communities, and these materials are often sourced from areas where conflict and human rights abuses occur.

What is the solution?

The circular economy of ICTs is about recognising the useful value in devices and parts that can operate in multiple usage cycles, reducing e-waste as much as possible, and limiting the negative impact of the production of ICT technology on the environment. It is about disconnecting from the pressure of rampant consumerism in the chase after the latest

1 <https://www.statista.com/statistics/263437/global-smartphone-sales-to-end-users-since-2007>

2 International Telecommunication Union. (2021). Recommendation ITU-T L.1024: The potential impact of selling services instead of equipment on waste creation and the environment – Effects on global information and communication technology. <https://www.itu.int/rec/T-REC-L.1024-202101-I/en>

3 Vega, M. (2021, 22 March). Internet of Things Statistics, Facts & Predictions [2020’s Update]. *Review 42*. <https://review42.com/resources/internet-of-things-stats>

4 Forti, V., Baldé, C. P., Kuehr, R., & Bel, G. (2020). *The Global E-Waste Monitor 2020: Quantities, flows, and the circular economy potential*. United Nations University (UNU)/United Nations Institute for Training and Research (UNITAR) – co-hosted SCYCLE Programme, International Telecommunication Union (ITU) & International Solid Waste Association (ISWA). <https://ewastemonitor.info>

5 Andrae, A., & Edler, T. (2015). On Global Electricity Usage of Communication Technology: Trends to 2030. *Challenges*, 6(1), 117-157. <https://dx.doi.org/10.3390/challe6010117>

device and the profit-driven marketing agendas of big tech companies. It is about ethical consumption to satisfy real computing needs instead of “feel worthy” marketing. It is also about making technology accessible to poor and marginalised communities, and about creating local jobs in the maintenance of durable digital devices. It is about effective collective action towards sustainability.

Goal 12 of the 2030 Sustainable Development Goals deals with “Responsible consumption and production”. Circularity, or “designing out waste and pollution, keeping products and materials in use, and regenerating natural systems,”⁶ is one way to do this.

In the context of ICTs, circularity aims at achieving the best use of digital devices by extending their lifespan. This helps in decarbonising the environment, but can also help to reduce social inequality by delivering lower-cost computing devices to communities or those who do not want to buy the most trendy digital device and brand. It also offers the opportunity to create jobs, because circularity entails creating a network of socially minded repairers, refurbishers and shops who are responsible for fixing old devices so that they can be productively reused.

This leads us to the definition of circular economy systems that “keep the added value in products for as long as possible and eliminate waste.”⁷ In line with the mission of zero-waste movements, the circular economy can be simply defined as “always resources, never waste”. Or, in an outcomes-based definition:

The circular economy is a new economic model for addressing human needs and fairly distributing resources without undermining the functioning of the biosphere or crossing any planetary boundaries.⁸

The circular economy of ICTs is one of the various “efforts to reduce global greenhouse gas emissions,” which is “a classic collective action problem that is best addressed at multiple scales and levels.” It is about “building a strong commitment to find ways of reducing individual emissions.”⁹

The circular economy can be applied to most areas where products are produced and used by people.

To learn more about the circular economy and how to get involved, see “Reduce, reuse, recycle: A guide to circular economies of digital devices”.¹⁰

6 <https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>

7 European Commission. (2014). *Towards a circular economy: A zero waste programme for Europe*. <https://ec.europa.eu/environment/circular-economy/pdf/circular-economy-communication.pdf>

8 Gladek, E. (2019, 15 August). The Seven Pillars of the Circular Economy. *Metabolic*. <https://www.metabolic.nl/news/the-seven-pillars-of-the-circular-economy>

9 Ostrom, E. (2009). *A Polycentric Approach for Coping with Climate Change*. World Bank Policy Research Working Paper No. 5095. <https://ssrn.com/abstract=1494833>

10 <https://www.apc.org/en/node/37016>

Technology, the environment and a sustainable world: Responses from the global South

The world is facing an unprecedented climate and environmental emergency. Scientists have identified human activity as primarily responsible for the climate crisis, which together with rampant environmental pollution, and the unbridled activities of the extractive and agricultural industries, pose a direct threat to the sustainability of life on this planet.

This edition of Global Information Society Watch (GISWatch) seeks to understand the constructive role that technology can play in confronting the crises. It disrupts the normative understanding of technology being an easy panacea to the planet's environmental challenges and suggests that a nuanced and contextual use of technology is necessary for real sustainability to be achieved. A series of thematic reports frame different aspects of the relationship between digital technology and environmental sustainability from a human rights and social justice perspective, while 46 country and regional reports explore the diverse frontiers where technology meets the needs of both the environment and communities, and where technology itself becomes a challenge to a sustainable future.

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2020 Report

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