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RESOLUTION – 79 - THE ROLE OF TELECOMMUNICATIONS/INFORMATION AND COMMUNICATION TECHNOLOGIES IN HANDLING AND CONTROLLING E-WASTE FROM TELECOMMUNICATION AND INFORMATION TECHNOLOGY EQUIPMENT AND METHODS OF TREATING IT

Background

The rapid advancements in technology, driven by the growing demand for a higher quality of life and regular declining in price of electronic gadgets, have led to the widespread production of electronic devices. This surge in production, however, has given rise to a significant generation of massive amounts of electronic waste (E-waste). Particularly, the Information and Communication Technology (ICT) sector, with its ever-expanding output of computer hardware, use mobile phones, power adopters and IoT devices faces a critical challenge in efficiently managing the disposal of E-waste.

The World Telecommunication Standardization Assembly (WTSA-20) adopted Resolution No. 79, titled " The role of telecommunications/information and communication technologies in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it". This document proposes amendments to the Resolution No. 79, addressing the widespread use of IoT devices outnumbering the use of all types of electronics devices due to the availability of internet especially due to speedy roll-out of 5G and W-Fi.

Introduction

The significant escalation of e-waste generation in the last two decades can be attributed to several key factors, including rapid technological advancements, increased economic activity, urbanization trends, and a rising demand for consumer electronics further fuelled by decreasing price points. Quick advancement and cost reduction on electronic gadget made a drastic transformation among regular users to access the new electronic products and digital technology. The utilization of mobile phone and internet usage are drastically increasing in last ten years.

Electronic waste (E-waste) account to be the fastest growing solid waste stream in the world. India and China are the largest consumers of electronic gadgets at the same time they are responsible for an increase in the waste electrical and electronic equipment. This rapid expansion of electronic products in worldwide could adversely affect the environment by vast deposition of e-waste at the backdrop. According to 2020 Global E-waste monitor report (Forti et al., 2020), the production of e-waste in the year 2019 was around 53.6 million metric

tons in which 17.4% were properly collected and recycled then the remaining 82.6% were not accounted. The prediction on global e-waste is expected to be 74.7 million metric tons by the year 2030.

Electronic waste is an indirect and unimaginable waste which makes adverse effects on the human, animals and environment by polluting the natural resources like air, soil and water. Accumulation and contamination of e-waste for a longer period may harshly affect the environmental resources.

E-waste comprises of various material, small complex components and contains many noxious elements such as CFC, arsenic, barium, cadmium, cobalt, copper, lead, lithium, mercury, nickel, polychlorinated biphenyls, selenium, silver, zinc and more. Many developed countries having the problem in e-waste separation due to its complex nature and recycling of e-waste.

Now, after invention of the IoT devices, a new dimension of automation and interaction between man and machine has emerged with the widespread adoption of IoT technology. As per the survey conducted in 2021, there were 21.7 billion active connected devices in the world, out of which more than 11.7 billion (54 percent) are IoT devices. This means that there are more IoT devices in the world than non-IoT devices. Major reasons of increase in the use of IoT devices are (i) reducing the cost of IoT devices (ii) availability of reliable and affordable connectivity (iii) development of new IoT platforms and applications for easy to use. So, thousands of IoT devices are adding every day. After widespread adoption of Internet due to expansion of 5G and Wi-Fi, a new digital Pandora's box of possibilities and challenges regarding the use of IoT devices has been opened. The number of interconnected devices in the world, dominated by IoT gadgets, now outnumbers all other types of electronic devices.

The Internet of Things (IoT) is a network of interconnected, embedded devices that can capture and transmit data without the need for human interaction over a wireless network. IoT devices are pieces of hardware, such as sensors, actuators, gadgets, appliances, or machines, that are programmed for certain applications and can transmit data over the internet or other networks. IoT devices connect and communicate with one another and perform a variety of tasks without the need for human intervention. IoT applications in everyday life include smart wearables, smart health monitoring, traffic monitoring, IoT in agriculture with many sensors, smart devices, robots in hospitals, smart grid and water supply, transportation, education and so on. Billions of IoT devices including of the Lithium batteries are likely to be added in coming years, outnumbering all types of electronics devices, so chances of e-waste from IoT devices will surpass all types of e-waste, considering the short lifespan of the IoT devices.

With the proliferation of IoT devices, there is a growing concern about electronic waste (e-waste). Lifespan of the IoT devices is often short, so when they are disposed of, it become as e-waste. E-waste is a growing problem, as it pollutes the environment and release harmful toxins. Effective e-waste management strategies are necessary to minimize the environmental impact of discarded IoT devices and ensure proper recycling and disposal.

Telecommunications and information communication technologies (ICT) play a two-pronged role in dealing with e-waste, generating e-waste and providing solution for the same. Despite being a major contributor to E-waste, the ICT sector lacks well-defined management strategies for handling this escalating environmental concern.

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Proposal

The increasing use of IoT devices is a reality and now no one can stop it. However, there are ways to reduce the negative impact of IoT on the environment.

To mitigate these negative impacts, it is suggested to implement sustainable practices throughout the lifecycle of IoT devices. This includes promoting responsible manufacturing processes, ensuring proper e-waste management and recycling, sourcing energy from renewable sources, and prioritizing data privacy and security. Collaboration between governments, industries, and stakeholders is very much essential to address these concerns and ensure the sustainable deployment of IoT technologies in the Asia-Pacific region.

This document proposes to modify Resolution 79 of WTSA-22.

Annex:

Revision of Resolution 79

RESOLUTION 79 (Rev. ~~Geneva, 2022~~ NEW DELHI, 2024)

The role of telecommunications/information and communication technologies in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it

(Dubai, 2012, Geneva, 2022)

The World Telecommunication Standardization Assembly (Geneva, 2022),

Recalling

a) Resolution 182 (Rev. Busan, 2014) of the Plenipotentiary Conference, on the role of telecommunications/information and communication technologies (ICTs) in regard to climate change and the protection of the environment;

b) Resolution 66 (Rev. Buenos Aires, 2017) of the World Telecommunication Development Conference, on ICT and climate change;

c) § 19 of the Hyderabad Declaration (2010), stating that the formulation and implementation of policies for proper disposal of e-waste are of great importance;

d)   the Basel Convention (March, 1989) on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which characterizes certain wastes resulting from electrical and electronic assemblies as hazardous;

e)   § 20 of Action Line C7 (E-environment) of the Geneva Plan of Action of the World Summit on the Information Society (Geneva, 2003), calling for governments, civil society and the private sector to be encouraged to initiate actions and implement projects and programmes for sustainable production and consumption and the environmentally safe disposal and recycling of discarded hardware and components used in ICT;

f)   the Nairobi Declaration on the Environmentally Sound Management of Electrical and Electronic Waste, and the adoption by the ninth Conference of the Parties to the Basel Convention of the Work Plan for the Environmentally Sound Management of E-waste, focusing on the needs of developing countries[11],

considering

a)   that, owing to the progress in telecommunications and information technology, consumption of and demand for electrical and electronic equipment has been continuously increasing and this in turn has led to a marked increase in the amount of e-waste, which has had a negative impact on the environment and health, particularly in the developing countries;

b)   that ITU and relevant stakeholders (such as the United Nations Environment Programme and the United Nations Development Programme for the Basel Convention) have a key role in strengthening coordination between interested parties to study the effects of e-waste;

c)   Recommendation ITU-T L.1000 of the ITU Telecommunication Standardization Sector (ITU-T), on the universal power adapter and charger solution for mobile terminals and other handheld ICT devices, and Recommendation ITU-T L.1100, on the procedure for recycling rare metals in ICT goods,

recognizing

a)   that governments have an important role to play in limiting e-waste by formulating appropriate strategies, policies and legislation;

b)   that most of the e-waste from the telecommunication/ICT sector, particularly obsolete user devices like mobile phones, end up in the informal sector without formal disposal procedures;

c)   that telecommunications/ICT can make a major contribution to alleviating the impact of e-waste;

d)   that ongoing work and studies in ITU-T Study Group 5 under Question 7/5, on e-waste, circular economy and sustainable supply-chain management, may include aspects of environmental protection and sustainable design/manufacture and recycling of ICT equipment/facilities;

e)   the various and current efforts in developing countries and regions related to e-waste management, notwithstanding the challenges that still persist;

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[11] These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

f)   the inadequate awareness of how to effectively manage e-waste in developing countries;

g)   the impact of counterfeit ICT devices on e-waste generation;

h)   the role of the circular economy in reducing the global volume of e-waste and moving from the traditional linear production/consumption pattern to one that is sustainable;

i)   that there is a lack of tools for measuring the environmental impacts of e-waste and for assessing the environmental impact of telecommunications/ICTs;

j)   that the informal sector remains the predominant sector for handling e-waste in developing countries;

k)   that sustainable management of e-waste is essential to achieve the United Nations Sustainable Development Goals;

l)   ongoing work in Study Group 2 of the ITU Telecommunication Development Sector (ITU-D) under Question 6/2, on ICTs and the environment, studying strategies to develop a responsible approach to, and comprehensive treatment of, telecommunication/ICT waste,

recognizing further

a)   that large quantities of used, old, obsolete and unserviceable telecommunication/ICT hardware and equipment are exported to developing countries for supposed reuse;

b)   that many developing countries are suffering from severe environmental hazards, such as water pollution and health risks, due to e-waste, including from the influx of new telecommunications/ICTs;

c)   that the availability of counterfeit telecommunication/ICT hardware and equipment in developing countries exacerbates the challenge of handling and controlling e-waste,

resolves to instruct the Director of the Telecommunication Standardization Bureau, in collaboration with the Director of the Telecommunication Development Bureau

1   to pursue and strengthen the development of ITU activities in regard to handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it;

2   to assist developing countries to undertake proper assessment of the magnitude/quantity of e-waste generated in a harmonized manner;

3   to address the handling and controlling of e-waste and to contribute to global efforts designed to deal with the increasing hazards which arise therefrom;

4   to work in collaboration with the relevant stakeholders, including academia and relevant organizations, and to coordinate activities relating to e-waste among the ITU study groups, focus groups and other relevant groups;

5   to organize seminars and workshops to enhance awareness of the hazards and sustainable management of e-waste, particularly in developing countries, and gauge the needs of the developing countries, which are the countries that suffer most from the hazards of e-waste;

6   to assist developing countries and facilitate their work in the implementation of circular-economy principles,

instructs Study Group 5 of the ITU Telecommunication Standardization Sector, in collaboration with the relevant ITU study groups

1   to develop and document examples of best practice for handling and controlling e-waste resulting from telecommunications/ICT and methods of treating and recycling it, for dissemination among ITU Member States and Sector Members;

2   to develop Recommendations, methodologies and other publications relating to sustainable management of e-waste resulting from telecommunication/ICT equipment and products, and appropriate guidelines on implementation of these Recommendations;

3   to study the impact of used telecommunication/ICT equipment and products brought into developing countries and give appropriate guidance, taking into account *recognizing further* above, to assist developing countries,

invites Member States

1   to take all necessary measures to handle and control e-waste in order to mitigate the hazards which can arise from used telecommunication/ICT equipment;

2   to cooperate with each other in this area;

3   to incorporate e-waste management policies/processes, including their tracking, collection and disposal, in their national ICT strategies and take adequate measures in this regard;

4   to raise public awareness on the environmental hazards of e-waste,7

encourages Member States, Sector Members and Academia

to participate actively in ITU-T studies on e-waste, through the submission of contributions and by other appropriate means.