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CONTRIBUTION

Source:	ITU-APT Foundation of India (IAFI)[1]
Title:	**Proposal for a Liaison Statement to SG-5 regarding revision of the E-Waste management guidelines due to increase in use IoT devices in Asia-Pacific region.**

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Abstract:

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. The Asia-Pacific region has long been a strong manufacturing base and the sector continues to be a strong adopter of the Internet of Things (IoT), even IoT devices much more widely adopted in the Asia-Pacific region and becoming one of the leading application areas.

The Asia-Pacific region is a major consumer of electronic devices, and IoT devices will further add the consumption. Effective e-waste management strategies are necessary to minimize the environmental impact of discarded IoT devices and ensure proper recycling and disposal.

It is therefore proposed that ITU-T SG20 Regional Group for Asia and the Pacific (SG20RG-AP) draw the attention of ITU-T SG5 to study growing concern about electronic waste (e-waste) and request development of necessary reports and recommendations by SG5 for guidance of the Asia pacific administrations.

Impact of IoT on environment in countries of Asia -Pacific region:

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[1] ITU-APT Foundation of India is a sector member of ITU-T. For more details, please visit https://itu-apt.org

The Internet of Things (IoT) has the potential to impact both positively and negatively the environment in countries across the Asia-Pacific region.

A. Positive impact of the IoT devices on the environment in this region are:

1. Control of homes and cities via mobile:
2. Energy Efficiency:
3. Smart Agriculture:
4. Environmental Monitoring:
5. Smart Transportation:
6. Waste Management:
7. Medical Care of patient:
8. Assets tracking:

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.

B. Challenges from the use of the IoT devices on the environment in the Asia – Pacific region:

1. E-Waste Management: 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.
   Many big cities in Asia-Pacific region are densely populated and full of industries with in city area and surroundings. As lifespan of the IoT devices life span is short, so possibilities of addition of e-waste in such cities are quite high

2. Energy Consumption: The increasing adoption of IoT devices generates vast amounts of data that require processing and storage in data centers.

3. Unemployment: Unskilled workers are at a high risk of losing their jobs, which could lead to unemployment.

4. Manufacturing and Resource Consumption: The production of IoT devices requires the extraction of raw materials and manufacturing processes that consume resources and energy.

5. Privacy and Security Risks: IoT devices collect and transmit vast amounts of data, raising concerns about privacy and data security.

6. Disruption of Ecosystems: IoT devices used in environmental monitoring can inadvertently disrupt ecosystems if not properly managed.

It is important to note that while IoT has the potential to bring environmental benefits, its deployment, usage and disposal must be done in a responsible and sustainable manner. This

includes considering the lifecycle of IoT devices, ensuring data privacy and security, and addressing potential challenges such as electronic waste and energy consumption.

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.

SG-5 of the ITU-T has developed recommendations on e-waste management viz ITU-T L-1031 describes a three-step approach to achieve the e-waste targets set in the Connect 2030 Agenda. These steps consist of guidance on developing an e-waste inventory, approaches to design e-waste prevention and reduction programmes and the supportive measures required for successfully implementing the Connect 2030 e-waste targets.

It focuses on the following areas:

    a. Raising awareness of e-waste
    b. Promoting sustainable consumption and production
    c. Improving the management of e-waste

Similarly, ITU-T vide recommendations ITU-T L-1032 considers requirements for recyclers regarding waste generated due to information and communication technology (ICT). This Recommendation addresses, in particular, the informal sector that is involved in waste of electrical and electronic equipment (WEEE), their collection and dismantling.

L-1032 provides guidelines and certification schemes for e-waste recyclers. It focuses on the following areas:

    a. The collection and sorting of e-waste
    b. The treatment and disposal of e-waste
    c. The recycling of e-waste

Recommendations L-1031 is a more general document, while L-1032 is more specific. L-1031 is intended for a wider audience, including policymakers, businesses, and consumers. L-1032 is intended for e-waste recyclers and other stakeholders involved in the management of e-waste.

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.

So, there is a need to revise the guidelines specially ITU-T L-1032. Hence it is proposed to send the liaison statement to SG-5 of ITU-T for revision of the guidelines.

It is therefore proposed that ITU-T SG20 Regional Group for Asia and the Pacific (SG20RG-AP) draw the attention of ITU-T SG5 to study growing concern about electronic waste (e-waste) and

request development of necessary reports and recommendations by SG5 for guidance of the Asia pacific administrations.