

## Circular Economy in Indian Telecom Sector: Vision, Strategy and Action Plan

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# Vasudhaiva Kutumbakam- One Earth, One Family, One Future

- Industrial Revolution has provided material comforts, but has also led to huge consumption of resources- both material and energy- for feeding and operating machines The extraction of raw materials, their processing, production of goods in factories and transportation is very energy intensive, resulting in emission of polluting green house gases and generation of waste.
- The raw material resources are limited on the earth. More production leads to faster depletion and more pollution in general. As per an estimate, globally, by 2050, the rate of consumption of resources would be 3-times higher than the rate at which earth can replenish.
- Global Warming, due to Green House effects, has adversely impacted the Earth Climate, and Paris Agreement, UN Climate Change conferences (or COPs) to UN Framework Convention on Climate Change (UNFCCC), etc., are part of the strategy to address the climate crisis, such as limiting global temperature rise to 1.5 degrees Celsius.
- India has accorded highest priority to this issue, and is one of the major economies currently on track to meet the Paris Agreement goals, based on their pledged targets for 2030 (Climate Vulnerable Forum-CVF report, Times of India Delhi 16.10.2023) and as also reflected in the Panchamrit announcement and G-20 Delhi Declaration.
- Keeping in view that circular economy model of sustainable development is the Way Forward, Government of India in March 2021 formed 11
  Committees in various Sectors (including Electronics and Electrical) to expedite the transition from a "Linear Economy" to a "Circular Economy".
  Subsequently, Department of Telecommunications has undertaken the formulation of "Vision, Strategy and Action Plan for Circular Economy in
  Telecom Sector" to address the issues specific to Telecom Sector. The document is in is an advance draft stage.





#### Circular Economy vs. Linear Economy

- In traditional Linear Economy, also called "take-make-dispose" plan, raw materials are collected and transformed into products. After use, the products are discarded as waste and may end up in a landfill, with no concern for their ecological footprint and consequences.
- In the Telecom/ICT Sector, e-waste generation (1.6 Million tonnes in 2021-22) and its responsible and safe disposal is a huge challenge.
- In a Circular Economy (CE), the process is similar to the straight line down the middle, except it continuously loops back on itself. CE provides Environmental, Social and Economic benefits.
- The raw materials used may not always be fresh. Instead, the value of materials such as metals, plastics and synthetic chemicals are captured and recaptured — through strategies of reuse, repair, disassembly and remanufacture.
- Circular Economy deals with both environmental and economic aspects. In an ideal Circular Economy, all waste generated would be reused as raw material in production processes.
- <u>CE in Telecom</u> is "restorative and regenerative by design and aims to keep productive components and materials at their highest utility and value at all times, while reducing waste streams, i.e. ideally net zero (As per ITU-T L.1020: Circular economy: Guide for operators and suppliers...)

# **Overview of the Telecom Sector**

### Subscribers (July 2023)

- Broadband: 868.20 million
- Telephone (total): 1.18 billion

#### Value to the Economy: 6% GDP



#### Infrastructure

- Towers 7.76 lakh
  - **5G** in over 700 districts (out of 766) through 4 lakh Base Stations, along with 4G/3G/2G
  - Optical Fibre Infrastructure
    - Over 35 lakh route km OFC
    - 6.01 lakh OFC newly laid
    - Over 2 lakh Gram Panchayats connected



Data source: Ericsson Mobility Report, 2023. Accessed: Sep 10, 2023 https://www.ericsson.com/en/reports-and-papers/mobility-report/reports/june-2023



Data source: <u>https://telecomtalk.info/indian-states-highest-5g-bts-deployed-july2023/751501/</u>

#### 20-12-2023

## Sustainable Telecom with Circularity



Sustainable Telecom with Circularity Technical Feasibility

Environmental

**Sustainability** 

Aspects of Circular Economy in Telecom (as per ITU-T)

**ETC** Trinity for undertaking Telecom projects



Key values for the Vision that align with UN-SDGs.



#### Pillars of the Vision 2030

### **Vision-2030 for Circular Economy in Telecom**

(under advance draft stage)

- The telecommunication sector envisions a future that is *regenerative*, *sustainable*, and *inclusive*.
- Aligned with UN Sustainable Development Goals (SDGs), the Vision emphasizes inclusive growth, sustainable development, and continuous innovation.
- The Vision-2030, in line with ITU's Connect-2030 Agenda (ITU-T L.1031), envisages to realize the SDGs, especially the following<sup>2</sup>
  - SDG 8: Promote inclusive and sustainable economic growth, employment and decent work for all.
  - SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
  - >SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable.
  - SDG 12: Ensure sustainable consumption and production patterns.
  - >SDG 13: Take urgent action to combat climate change and its impacts.
- The major pillars of this Vision are given in the Figure.

## Vision-2030 for Circular Economy in Telecom (contd..)

(under advance draft stage)

By the year 2030, the circular telecom ecosystem aims to contribute towards resource security by prioritizing sustainable practices in material use, eco-friendly design and manufacturing, responsible consumption and waste management. Vision 2030 envisages the telecom sector to:

- i. Operate under a well-equipped administrative and technical structure with robust governance as well as a well-defined structure for stakeholder roles and responsibilities, across the telecom value chain;
- ii. Have voluntary adoption of Circular Economy targets, focusing on sustainable design and manufacturing and Extended Producer Responsibility (EPR) for EoL telecom and ICT products and infrastructure
- iii. Mainstream telecom equipment and devices with circularity through emphasis on R&D and also by leveraging the government's E-Market (GEM) portal to create a separate segment and product lines for circular products;
- iv. Leverage advanced technologies like AI, ML, and IoT to create platforms capable of seamlessly implementing Circular Economy principles, merging sustainability with continued connectivity;
- v. Strengthen partnerships and collaborations across the telecom value chain to drive collective efforts to mainstream circular practices through skill development, capacity building, and awareness generation;
- vi. Create a separate, formal, well recognised, accepted, and defined market segment for reused, refurbished, recycled telecom products, ICT equipment, and related infrastructure; and finally
- vii. Provide overall regional and global leadership in mainstreaming Circular Economy.

# **Attributes of Recommendations and Road-Map**



# **Recommendations – Action Plan and Roadmap**





**Potential relationship between CE goals and AI/digital technologies:** ITU recognizes that Digital Transformation will play a crucial role in the sustainable development

#### **Recommendations for Circular Transition**

(under advance draft stage)

The Recommendations aim to align the adoption of circular measures in telecom sector, drawing upon international standards and guidelines, and merging of enabling policy measures.

#### • Recommendations related to Industry

- Raw material sourcing
- Product designing, component & equipment manufacturing
- Supply Chain Actors: Rethinking the Existing Model
- Telecom Infrastructure Design, its Owners and Users
- Network Operations
- Recycling of Telecommunication Equipment
- Use of Artificial Intelligence, Machine Learning & Blockchain Tools

#### **Recommendations for Circular Transition** (contd..)

(under advance draft stage)

- Creating an Enabling Policy Environment
  - Policies for Resource-use and Incentives to Promote Secondary Resources
  - Regulations and Implementation Needs for the Evolving Landscape of Telecom Waste
- Incentivise Circularity under Telecom Schemes, such as Digital Communication Innovation Square(DCIS), Public Procurement Preference (PPP) Make in India (MII), Production Linked Incentive (PLI) and Telecom Technology Development Fund (TTDF).
- Sustainable Public Procurement & Facilitating Development of Sharing Platforms
  - Enabling Product as a Service (PaaS)
  - Support for Refurbishment and Reuse
- Takeback Systems & EPR First Right of Access to Waste
- Support for Resource Efficiency across the Telecom Value Chain
- Support the use of Renewable Energy, Energy-efficient Technologies in Telecom
- Advancements in Recycling Technologies
- Capacity Building and Awareness
- Monitoring and Tracking Mechanisms
- Establishing an enabling institutional framework. 20-12-2023

# Action Plan and Roadmap

(under advance draft stage)

- Capacity Building & Awareness Generation / Awareness Raising
- Research and Development & Strengthening Knowledge Base
- Policy, Regulatory, Incentives/Schemes Framework
- Partnerships and Collaborations
- Technology Adoption

# G20 New Delhi Leaders' Declaration and Circular Economy

 Under the presidency of India, the recent G20 New Delhi Leaders' Declaration\* in September 2023 defines a clear vision and commitment by a large section of our world to work cooperatively towards the future of the planet. The declaration lays out visionary goals of a "Green Development Pact for a Sustainable Future", where the hope for a "circular economy world" is emphatically articulated as follows:

"In order to endeavor to decouple our economic growth from environmental degradation and enhance sustainable consumption and production, including primary resource consumption while supporting economic growth, we acknowledge the critical role played by circular economy, extended producer responsibility and resource efficiency in achieving sustainable development."

 In this context of sustainable consumption and production, a "circular economy" pathway presents a model to reconcile the need for economic development along with tackling the challenges of resource scarcity and global climate change. This document presents a strategy to usher in a circular economy in the Indian telecom sector.

(\*G20 New Delhi Leaders' Declaration, Sep 2023. <u>https://www.mea.gov.in/Images/CPV/G20-New-Delhi-Leaders-Declaration.pdf</u>)

# THANK YOU