PRESS RELEASE

UN TRADE AND DEVELOPMENT CALLS FOR SUSTAINABLE AND EQUITABLE STRATEGIES TO MITIGATE DIGITAL ECONOMY'S GROWING ENVIRONMENTAL IMPACT

- **The Digital Economy Report 2024 analyses the growing environmental impact of the world's expanding digital economy**

- **Developing countries shoulder the environmental impact of the digital economy but receive relatively small benefits from key mineral digitalization**

- **Increased demand for minerals and metals required for digitalization offers resource-rich developing countries a unique opportunity to diversify within the digital value chain and drive development for their citizens.**

Geneva– July 10, 2024 — UN Trade and Development (UNCTAD) today launched **The Digital Economy Report 2024**, shedding light on the significant environmental impact of the global digital sector and the disproportionate burden developing countries bear. This detailed report highlights that while digitalization drives global economic growth and offers unique opportunities for developing countries, its environmental repercussions are becoming increasingly severe. Developing countries remain unevenly affected both economically and ecologically due to existing digital and development divides but they have the potential to leverage this digital shift to foster development.

Rebeca Grynspan, UNCTAD's Secretary-General underlined the need for a balanced approach "We must harness the power of digitalization to advance inclusive and sustainable development, while mitigating its negative environmental impacts. This requires a shift towards a circular digital economy, characterized by responsible consumption and production, renewable energy use and comprehensive e-waste management. The digital economy's growing environmental impact can be reversed".

The report emphasizes the pressing need to address the environmental costs of rapid digital transformation. Key concerns include the depletion of finite raw materials for digital and low-carbon technologies, escalating water and energy consumption and the growing issue of digitalization-related waste. As digitalization progresses at an unprecedented rate, understanding its link to environmental sustainability becomes increasingly critical.

Developing nations bear the burden but do not reap the benefits. This can change.

Developing countries are pivotal in the global supply chain for transition minerals and metals, which are highly concentrated in a few regions. Africa's vast mineral deposits, essential for the global shift to low-carbon and digital technologies, include cobalt, copper, and lithium, crucial for a sustainable energy future. The continent holds significant reserves: 55% of the world's cobalt, 47.65% of manganese, 21.6% of natural graphite, 5.9% of copper, 5.6% of nickel and 1% of lithium.

According to the World Bank, demand for minerals required for digitalization like graphite, lithium, and cobalt could surge by 500% by 2050. The increased demand presents a development opportunity for resource-rich developing countries if they can add value to extracted minerals, utilize proceeds effectively and diversify within the value chain and other sectors.

Amid current global crises, limited fiscal space, slow growth and high debt, developing countries should maximize this opportunity by domestic processing and manufacturing. This would help them secure a larger share of the global digital economy, generate governments revenues, finance development, overcome commodity dependence, create jobs and raise living standards.
Rising global demand for clean energy commodities is already boosting driving foreign direct investment in Latin America, accounting for 23% of the region's greenfield project value over the past two years.

The environmental impact of the digital economy; Soaring energy and water consumption, growing digital waste

The environmental footprint of the information and communications technology (ICT) sector is significant, encompassing the entire lifecycle of digital devices and infrastructure —from raw material extraction and processing to manufacturing, distribution, usage, and disposal. This process consumes vast amounts of transition minerals, energy, and water, significantly contributing to greenhouse gas emissions and pollution.

In 2020, the ICT sector's CO2 equivalent emissions were estimated between 0.69 to 1.6 gigatons, accounting for 1.5-3.2% of global greenhouse gas emissions, a figure that is expected to rise with the growth of the digital economy.

The development of artificial intelligence and cryptocurrency mining are of particular concern. Bitcoin mining, for example, saw its global energy consumption increase approximately 34-fold between 2015 and 2023, reaching an estimated 121 TWh. Between 2018 and 2022, the electricity consumption of 13 major data centre operators more than doubled, highlighting the urgent need to address the energy and water footprints of these technologies.

E-commerce has surged, with online shoppers growing from fewer than 100 million in 2000 to 2.3 billion in 2021. This increase has led to a 30% rise in digital-related waste from 2010 to 2022, reaching 10.5 million tons globally. Inadequate handling and disposal of digital waste exacerbates environmental inequalities, disproportionately impacting developing countries.

UNCTAD calls for a strategic shift for sustainable and inclusive digitalization

UNCTAD advocates for innovative business models and robust policies to enhance the sustainability of digital growth. Key recommendations include:

- **Adopting Circular Economy Models**: Prioritize recycling, re-use, and recovery of digital materials to reduce waste and environmental impacts.

- **Implementing Resource Optimization**: Develop strategies to use raw materials more efficiently and reduce overall consumption.

- **Strengthening Regulations**: Enforce stricter environmental standards and regulations to mitigate the ecological footprint of digital technologies.

- **Investing in Renewable Energy**: Promote research and development of energy-efficient technologies and sustainable digital practices.

- **Promoting International Cooperation**: Foster collaboration among nations to ensure equitable access to digital technologies and resources, and to address the global nature of digital waste and resource extraction.

A call for global collaboration

UNCTAD urgently calls on the international community to implement comprehensive policies fostering a circular digital economy, minimizing environmental impacts, and bridging the digital divide. Most developing countries need further digitalization to participate effectively in the global economy. Immediate and coordinated efforts from governments, industry leaders, and civil society are essential for sustainable and inclusive digital development. Current discussions on a Global Digital Compact and the upcoming 20-years review of the World Summit on the Information Society can be leveraged to this end.

The report underlines the need to integrate digital and environmental policies and calls for urgent and bold action to ensure an equitable and environmentally responsible digital economy. This approach aims to allow countries to benefit from the opportunities the digital economy presents while safeguarding the interests and well-being of current and future generations.

Key figures to understand the environmental impact of the digital economy

➢ The ICT sector is estimated to have emitted between 0.69 to 1.6 gigatons of CO_2 in 2020,
   representing 1.5-3.2% of global greenhouse gas emissions.

➢ Producing a **2 kg computer** requires approximately **800 kg of raw materials**.

➢ Demand for critical minerals like graphite, lithium, and cobalt
   could surge by 500% by 2050.

➢ Data centers consumed 460 TWh of electricity in 2022,
   with consumption expected to double by 2026.

➢ **Digital-related waste increased by 30%** between 2010 and 2022,
   reaching 10.5 million tons globally.

➢ **Developed** countries generate **3.25 kg of digital waste per person**, compared to **less than 1 kg in developing countries** and **just 0.21 kg in least developed countries** (LDCs).

➢ **Only 24% of digital waste was formally collected globally in 2022**,
   with a mere 7.5% collection rate in developing countries.

➢ The number of **semiconductor units quadrupled from 2001 to 2022**,
   with **5G coverage** expected to **rise from 25% in 2021 to 85% by 2028**.

➢ **Internet of Things** (IoT) devices are projected to **grow from 16 billion in 2023 to 39 billion by 2029**.

➢ **Business e-commerce sales** surged **from $17 trillion** in 2016 **to $27 trillion in 2022** across 43 countries.

Sources: UNCTAD, Justice & Paix, UNITAR (SCYCLE), IEA, World Bank, Ericsson, Semiconductor Industry Association.

**About UN Trade and Development: **

UN Trade and Development (UNCTAD) is dedicated to promoting inclusive and sustainable development through trade and investment. With a diverse membership, it empowers countries to harness trade for prosperity.

Note to Editors: High-resolution images of the new logo and branding materials are available upon request. Additional background information and quotes can be provided upon request.