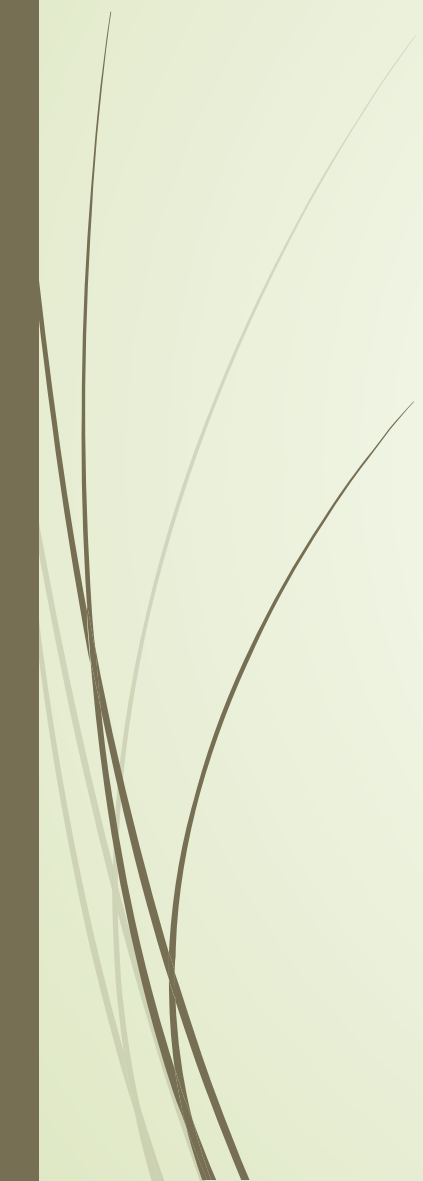




Assessing the Environmental Footprint of ICTs and AI in Africa

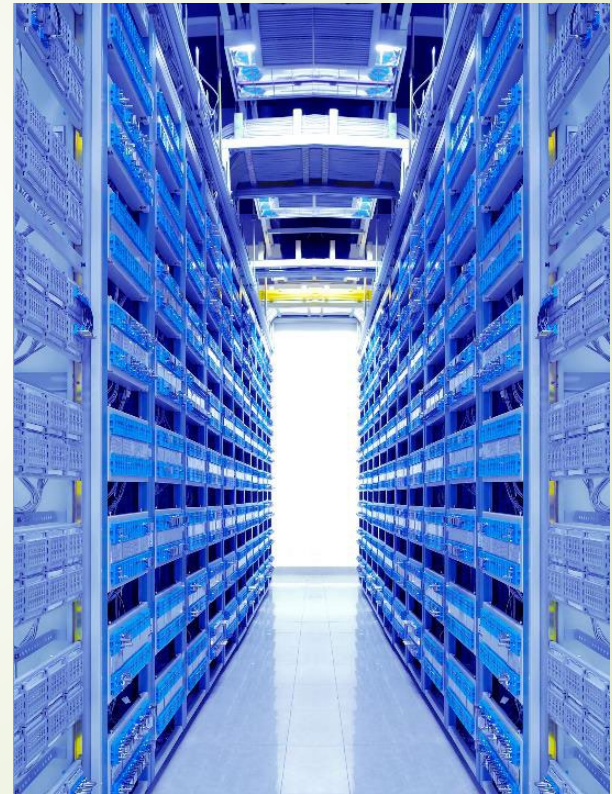
Overview of energy use, emissions, e-waste, and sustainability opportunities

16th Symposium on ICT, Environment, Climate Change and Circular Economy – Malabo, Republic of Equatorial Guinea.



Introduction

- ICTs and AI are rapidly expanding across Africa.
- Digital transformation supports economic growth and innovation.
- Environmental impacts must be assessed alongside development benefits.



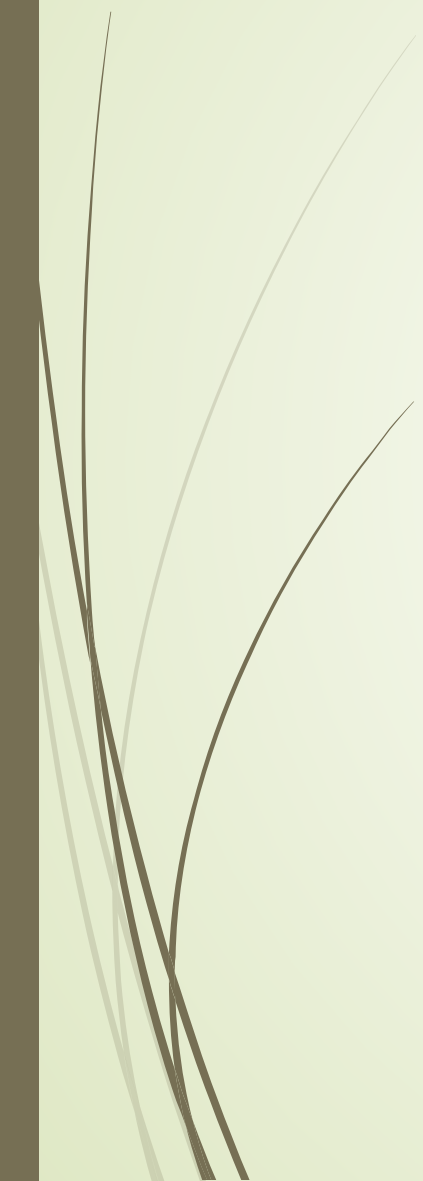
Key Environmental Footprints



- Electricity consumption of networks, data centres, and AI systems.
- Greenhouse gas emissions from ICT infrastructure.
- Electronic waste (e-waste) and resource depletion.
- Water use for cooling and manufacturing.



ICT Infrastructure in Africa

- 
- Growth in mobile broadband and fibre networks.
 - Increasing deployment of data centres and cloud services.
 - Dependence on diesel-powered backup systems in some regions.



AI and Energy Demand

- AI training and inference require high computing power
- Large AI models significantly increase electricity demand.
- Need for efficient AI systems and green computing approaches.

E-Waste Challenges



- Rapid device turnover contributes to e-waste growth.
- Limited recycling infrastructure in many African countries.
- Informal recycling can create environmental and health risks.

Opportunities for Green ICT

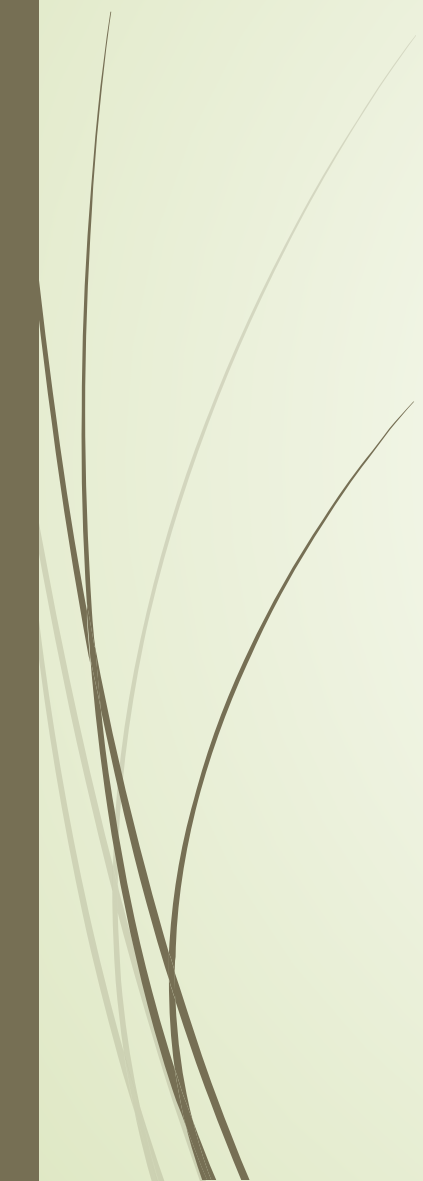
- Renewable energy integration for telecom and data centres.
- Energy-efficient network technologies and AI optimization.
- Circular economy approaches: reuse, repair, and recycling.





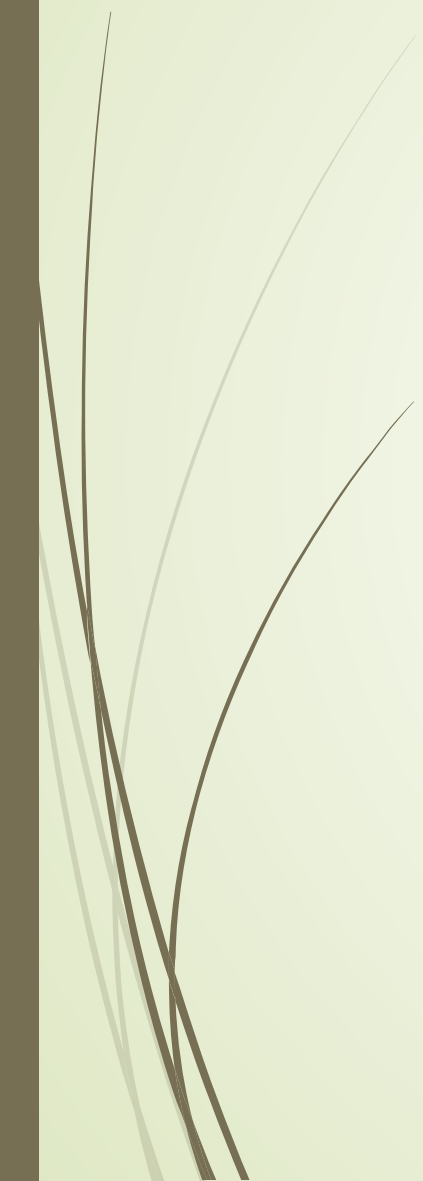
Data reporting to regulators to support environment footprint assessment

Develop simple reporting templates requiring operators to submit:

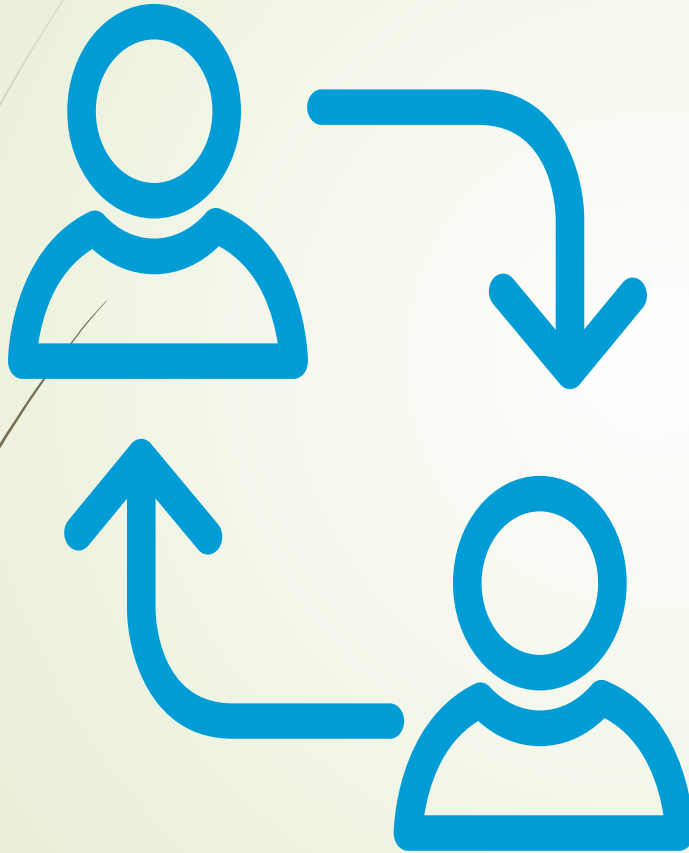
- Annual electricity consumption (kWh)
 - Fuel consumption for backup generators
 - Number and type of network sites
 - Data centre capacity and cooling systems
 - Renewable energy usage
 - Estimated AI computing workloads where applicable
- 



Challenges in measuring the energy use and environmental footprint of communications infrastructure

- Limited Availability of Reliable Data
 - Lack of Standardized Measurement Methodologies
 - Rapid Technological Changes
 - Limited Technical Capacity
 - Financial Constraints
 - Weak Coordination Between Institutions
- 

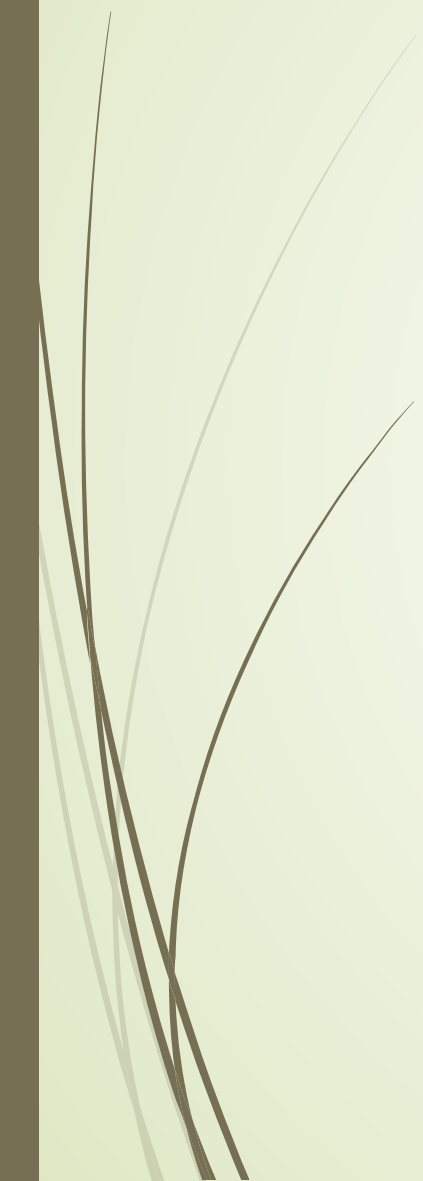
Recommendations for Africa



- Strengthen data collection on ICT environmental impacts.
- Promote regional cooperation and capacity building.
- Invest in renewable-powered digital infrastructure.
- Support sustainable AI innovation and research.



Conclusion



- ICTs and AI can drive sustainable development in Africa.
- Environmental impacts should be monitored and minimized.
- Collaboration among governments institutions, industry, and all relevant stakeholders is essential.