

# Chapter 8

## Two Sides of the Same Coin: Navigating the Paradox of Internet Expansion and Sustainable Development

**Rismawati Rismawati**

 <https://orcid.org/0000-0001-8046-6764>

*Universitas Muhammadiyah Palopo, Indonesia*

**Javaid Ahmad Wagay**

 <https://orcid.org/0000-0002-3525-4882>

*Kashmir University, India*

**Harman Preet**

 <https://orcid.org/0009-0004-0649-1856>

*Chandigarh Group of Colleges, Jhanjeri, India*

**Ramakant Amar Navghare**

 <https://orcid.org/0000-0001-8458-0724>

*Changu Kana Thakur ACS College New Panvel, India*

### ABSTRACT

*The internet accelerates SDGs but also worsens social inequality and environmental degradation. This chapter critically examines internet growth's conflict with sustainable development. It examines the environmental costs and risks of developing digital divisions and the opportunities digital connection offers in education, healthcare, government, and business. Digital maturity is crucial to SDG achievement, but incorporating sustainability in digital policies is tricky. The conversation proposes*

DOI: 10.4018/979-8-3373-3700-5.ch008

Copyright © 2026, IGI Global Scientific Publishing. Copying or distributing in print or electronic forms without written permission of IGI Global Scientific Publishing is prohibited. Use of this chapter to train generative artificial intelligence (AI) technologies is expressly prohibited. The publisher reserves all rights to license its use for generative AI training and machine learning model development.

*strategic frameworks for greening digital infrastructures and promoting equitable development. The chapter concludes that ethical governance, transdisciplinary research, and transformative policies are needed to balance technology progress with equity, environmental stewardship, and resilience. A truly sustainable digital future demands addressing this paradox.*

## **INTRODUCTION**

### **1.1 Overview of Internet Expansion in the Digital Age**

Over the last ten years, the fast growth of internet connectivity has changed world-wide economic, social, and environmental landscapes (Allam et al., 2022). Driven mostly by strong infrastructure investments, the spread of mobile technologies, and the growing affordability of digital services, global internet penetration has jumped from about 53% to over 67% between 2019 and 2024 (International Telecommunication Union, 2024). Although established economies have long dominated digital access, emerging nations in Asia, Africa, and Latin America have seen exponential growth rates, hence changing the geography of internet users all around.

Especially important hubs of digital dynamism are developing countries like India, Nigeria, and Indonesia. Governmental attempts to overcome connectivity disparities are shown by projects such as India's Digital India program, Kenya's National Broadband Strategy, and Indonesia's Palapa Ring Project (World Bank, 2023; ITU, 2024). For instance, the Palapa Ring Project in Indonesia, completed in 2019, created a 36,000 km national fiber optic backbone connecting remote regions like Papua, Kalimantan, and Maluku to the national internet grid. According to Indonesia's Ministry of Communication and Informatics (Kominfo, 2023), this initiative increased broadband penetration in eastern provinces by over 23% and facilitated digital banking and e-learning programs in areas previously disconnected. Similarly, Kenya's broadband expansion—under the Ministry of ICT—has seen the deployment of over 9,000 km of fiber infrastructure, resulting in a 21% increase in digital service delivery in health and agriculture in rural counties (ITU, 2024). These real-world examples illustrate how national-level infrastructure investments in the Global South can yield measurable socioeconomic outcomes aligned with the SDGs, especially SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), and SDG 9 (Industry, Innovation, and Infrastructure). A comparative snapshot is presented in Table 1.

34 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: [www.igi-global.com/chapter/two-sides-of-the-same-coin/392757](http://www.igi-global.com/chapter/two-sides-of-the-same-coin/392757)

## Related Content

---

### Immersive Technologies: Benefits, Challenges, and Predicted Trends

Christine M. Baker (2022). *Handbook of Research on Digital Transformation, Industry Use Cases, and the Impact of Disruptive Technologies* (pp. 34-54).

[www.irma-international.org/chapter/immersive-technologies/288641](http://www.irma-international.org/chapter/immersive-technologies/288641)

### IoT Modeling for Digital Enterprises and Decision Analysis: A Descriptive Presentation

Madalina Cucand Anca Gabriela Petrescu (2024). *International Journal of Innovation in the Digital Economy* (pp. 1-8).

[www.irma-international.org/article/iot-modeling-for-digital-enterprises-and-decision-analysis/349724](http://www.irma-international.org/article/iot-modeling-for-digital-enterprises-and-decision-analysis/349724)

### Ethical Implications of the Digital Divide and Social Exclusion: Imperative for Cyber-Security Culture in Africa

Essien D. Essien (2018). *International Journal of Innovation in the Digital Economy* (pp. 14-25).

[www.irma-international.org/article/ethical-implications-of-the-digital-divide-and-social-exclusion/191303](http://www.irma-international.org/article/ethical-implications-of-the-digital-divide-and-social-exclusion/191303)

### A Fuzzy System for Evaluating Human Resources in Project Management

Oladele Stephen Adeolaand Adesina Rafiu Ganiyu (2020). *International Journal of Technology Diffusion* (pp. 66-95).

[www.irma-international.org/article/a-fuzzy-system-for-evaluating-human-resources-in-project-management/242992](http://www.irma-international.org/article/a-fuzzy-system-for-evaluating-human-resources-in-project-management/242992)

### Capturing Public Knowledge and Awareness From Data Models and Policies to Build Research Links Between EU and US Ocean Research

Enrique Wulff (2023). *Handbook of Research on Technological Advances of Library and Information Science in Industry 5.0* (pp. 415-429).

[www.irma-international.org/chapter/capturing-public-knowledge-and-awareness-from-data-models-and-policies-to-build-research-links-between-eu-and-us-ocean-research/316592](http://www.irma-international.org/chapter/capturing-public-knowledge-and-awareness-from-data-models-and-policies-to-build-research-links-between-eu-and-us-ocean-research/316592)