

# Chapter 10

## Policy, Governance, and Global Collaboration for Data-Driven Sustainable Supply Chains: A Study on the Least Developed Countries

**Mostofa Tanjil Ahmed**

 <http://orcid.org/0009-0006-1535-5340>

*Army Institute of Business Administration, Bangladesh University of Professionals, Bangladesh*

**Nafisa Tasnuva**

 <http://orcid.org/0009-0001-0602-595X>

*Army Institute of Business Administration, Bangladesh University of Professionals, Bangladesh*

**Md. Rahat Khan**

 <http://orcid.org/0000-0002-9197-0365>

*Army Institute of Business Administration, Bangladesh University of Professionals, Bangladesh*

### ABSTRACT

*The study aimed to review and develop a policy framework for data-driven, sustainable supply chain governance and global collaboration in LDCs. The study was based on secondary data and an exploratory design based on general case studies of Bangladesh, Rwanda, Uganda, Nepal, Ghana, Cambodia, and Bhutan. The findings reveal that infrastructure deficits, institutional failure, technical power*

DOI: 10.4018/979-8-3373-6896-2.ch010

*shortfalls, and political and administrative gaps hinder transformation despite hopeful changes. The study adopts a seven-step integrated policy approach to create digital infrastructure, data governance frameworks, analytics functionality, traceability frameworks, adaptive governance functions, multi-stakeholder cooperation, and inclusive socio-economic outcomes. The study provides a theoretical framework for sustainable supply chain digitization in a resource-scarce context and offers practical guidance for policymakers, practitioners, and international development organizations.*

## **INTRODUCTION**

The introduction of a global trend in using data as a means of designing sustainable supply chains has fundamentally changed the way business is now conducted, how it competes, and how businesses generate value in the new international business environment (World Bank, 2024). The use of the assisted technologies of artificial intelligence, blockchain, Internet of Things (IoT), and big data analytics allowed supply chain participants to increase transparency, resource distribution, and environmental and social performance on multilateral networks (UNCTAD, 2023). The adoption of data-driven technologies into the supply chain management systems is a strategic necessity in developed economies, which has allowed real-time monitoring, predictive analytics, and evidence-based decision-making that simultaneously help to achieve the goals of operational efficiency and sustainability (OECD, 2024). Nevertheless, the process of implementing and using data-driven sustainable supply chains in least developed countries (LDCs) is quite limited by the complex issues associated with the policy frameworks, the system of governance, technical infrastructure, and the multilateral collaboration schemes (Khan & Pervin, 2024). Supply chain sustainability in LDCs is not just a business issue but is a key factor that defines economic growth, social inclusion, and environmental sustainability. These nations are exposed to unique threats such as poor digital infrastructure (low levels of broadband connectivity, unreliable power supply), low institutional capacity to regulate data, thousands of regulatory infrastructures on data protection and privacy, low availability of advanced technologies, and limited budget to invest in digital transformation (World Bank, 2023). In addition, the available literature shows that the success of data-driven supply chain projects in developing countries also depends largely on the standard of governance institutions, policy environment consistency, and the level of international cooperation and knowledge transfer mechanisms (Hendricks & Mwapwele, 2024).

Nevertheless, there is an increasing body of evidence that data-driven methods of supply chain management bring significant prospects of value addition and sustainable

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/policy-governance-and-global-collaboration-for-data-driven-sustainable-supply-chains/404523](http://www.igi-global.com/chapter/policy-governance-and-global-collaboration-for-data-driven-sustainable-supply-chains/404523)

## Related Content

---

### Green Investments and Returns: A Developing Country Perspective

Nabila Nisha (2017). *Measuring Sustainable Development and Green Investments in Contemporary Economies* (pp. 1-21).

[www.irma-international.org/chapter/green-investments-and-returns/174918](http://www.irma-international.org/chapter/green-investments-and-returns/174918)

### Edge AI and Blockchain Integration: A Review of Renewable Energy Optimization

Slimane Hadjab, Amol D. Vibhute, Imane Aitouhanni, Fatima Zahra Aoujil, Marouane Marhoun, Brahim El Ouardi, Serkan Derici, Yasmine El-Bakkouri, Yassine Mounianeand Mohamed El Bakkali (2026). *Empowering Resilient Communities Through Climate Action, Renewable Energy, and Waste Management* (pp. 199-220).

[www.irma-international.org/chapter/edge-ai-and-blockchain-integration/402767](http://www.irma-international.org/chapter/edge-ai-and-blockchain-integration/402767)

### Seaside Community Industrial Hubs: A Blue Economy Strategy to Reduce Imbalances in the South African Coastal Region Through State Entrepreneurship

Methembe Mdlalose (2022). *International Journal of Social Ecology and Sustainable Development* (pp. 1-20).

[www.irma-international.org/article/seaside-community-industrial-hubs/289640](http://www.irma-international.org/article/seaside-community-industrial-hubs/289640)

### Use of Artificial Neural Network for the Construction of Lorenz Curve

Sudesh Pundirand Ganesan R. (2014). *International Journal of Green Computing* (pp. 12-23).

[www.irma-international.org/article/use-of-artificial-neural-network-for-the-construction-of-lorenz-curve/113748](http://www.irma-international.org/article/use-of-artificial-neural-network-for-the-construction-of-lorenz-curve/113748)

## Advancements in Intelligent Traffic Monitoring System Design for Smart Urban Infrastructure

R. Arun Chakravarthy, C. Sureshkumar, M. Arunand R. S. Ranjani Shree (2025). *Building a Green Future Through Essential Decision-Making Competencies* (pp. 27-62).

[www.irma-international.org/chapter/advancements-in-intelligent-traffic-monitoring-system-design-for-smart-urban-infrastructure/379347](http://www.irma-international.org/chapter/advancements-in-intelligent-traffic-monitoring-system-design-for-smart-urban-infrastructure/379347)