

ID: 745

Ecological Logistics Approaches: Supply Chain Strategies for Biodiversity Conservation**Rzgar Farooq Rashid^{1*}, Mesut Selamoglu²**¹Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil, Iraq²Logistics Program, Department of Management and Organization, Bahce Vocational School, Osmaniye Korkut Ata University Bahce, Osmaniye, Türkiye

*Corresponding Presenter's Email: rzgarfaruq91@gmail.com

Abstract

The increasing environmental degradation and biodiversity loss caused by industrial activities have prompted the need for more sustainable logistics practices. Ecological logistics, an emerging interdisciplinary approach, focuses on minimizing the ecological footprint of supply chains while contributing actively to biodiversity conservation. This paper scrutinizes how logistics and supply chain strategies could be structured to support ecological balance and the protection of endangered ecosystems. Through sustainable transportation, green warehousing, and ethical sourcing, the study looks into ecological logistics dimensions. This dimension focuses on low-emission transport, optimized routing, and reduced packaging waste as good environmental responsibility examples. It also analyzes how supply chain actors such as NGO's, governments, and local communities can be partners in developing logistics solutions that contribute positively to biodiversity conservation. In examining the cases, the research draws examples from ecological logistics implementation in the forestry, agriculture, and pharmaceutical sectors. These include habitat-sensitive routing journeys, relocation logistics for endangered species, or monitoring biodiversity via supply chain traceability technologies. Further, the authors discuss how digital tools such as GIS, IoT, and blockchain can further support the visibility and accountability required within the supply chain. Findings show that ecological logistics are realizable and vital for initiating long-term sustainable objectives. Designing logistical strategies with biodiversity in mind could be a potential area to gain an upper hand in competition and meet the legal prerequisites of environmental protection and CSR. Ultimately, this paper favors a shift from the purely efficiency-driven models toward eco-centric systems in logistics management, wherein biodiversity is regarded as a significant stakeholder in supply chain design, not an externality.

Key Words: *ecological logistics, biodiversity conservation, sustainable supply chains, green transportation, environmental responsibility*

