



# Zero Waste Packaging Strategies in Ethiopian Textile Manufacturing: Environmental Sustainability and Cost Savings Analysis

Mekonnen Bekele<sup>1,2</sup>, Zerihun Beyene<sup>3,4</sup>, Yared Tekle<sup>5</sup>

<sup>1</sup> Adama Science and Technology University (ASTU)

<sup>2</sup> Mekelle University

<sup>3</sup> Department of Advanced Studies, Addis Ababa Science and Technology University (AASTU)

<sup>4</sup> Department of Research, Adama Science and Technology University (ASTU)

<sup>5</sup> Department of Advanced Studies, Adama Science and Technology University (ASTU)

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**Correspondence:** [mbekele@gmail.com](mailto:mbekele@gmail.com)

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## Author notes

*Mekonnen Bekele is affiliated with Adama Science and Technology University (ASTU) and focuses on Business research in Africa.*

*Zerihun Beyene is affiliated with Department of Advanced Studies, Addis Ababa Science and Technology University (AASTU) and focuses on Business research in Africa.*

*Yared Tekle is affiliated with Department of Advanced Studies, Adama Science and Technology University (ASTU) and focuses on Business research in Africa.*

## Abstract

Ethiopia's textile manufacturing sector is a significant contributor to the national economy, but it faces environmental challenges due to waste generation from packaging materials. A survey was conducted among 50 randomly selected textile manufacturing plants across Ethiopia, using a structured questionnaire to gather data on current practices, challenges, and potential solutions for reducing packaging waste. The findings indicate that about 40% of the surveyed plants have implemented some form of zero waste packaging strategy, with significant reductions in waste generation ranging from 25-30%, depending on the specific product line. Cost savings were noted at an average rate of \$1,500 per month. Zero waste packaging strategies show promise for enhancing environmental sustainability and reducing operational costs in Ethiopian textile manufacturing plants. Encouragement should be provided to adopt zero waste packaging practices through policy incentives, training programmes, and industry collaboration. This will help achieve broader goals of sustainable development in the sector.

**Keywords:** *African Geography, Zero Waste, Sustainability Assessment, Lean Manufacturing, Life Cycle Analysis, Eco-design Principles, Sustainable Packaging Design*

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