# Reverse Logistics Modelling for Sustainable Waste Management in the city of Johannesburg

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## Abstract

The tremendous increase in urban solid waste in the fast-growing cities of developing and emerging countries has raised public interest in health and environmental implications. The municipal waste from about 3 billion people is still disposed of in an uncontrolled manner. As citizens and decision makers become more sensitive to environmental degradation, pollution, and its impact on their quality of life, efficient and effective municipal waste management is gaining importance on the agendas of local, regional and international discussions. The research evaluated the current status of reverse logistics aimed toward bioenergy production and identified the major stakeholders, sources and problems of the waste generated in the City of Johannesburg. Stakeholders in the reverse logistics and recycling value chain in South Africa were also identified and included in the survey. Solutions of waste accumulation, transportation and improper dumping were suggested. The researcher also developed a logistics model for waste to bioenergy. The current situation and issues associated with waste management leading to bioenergy production were also explored in relation to sustainability.

## Keywords: