

# Big Data Analytics for Municipal Waste Management

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## ABSTRACT

As waste management becomes a greater concern for cities and municipalities around the world, big data analysis has the potential to not only help assess the current waste management strategies, but also provide information that can be used to optimize the systems used in various institutions, local government, companies, etc.

## KEYWORDS

Waste Management, Big Data, Local Government

## 1 INTRODUCTION

Concept of waste management

Solid Waste Management (SWM) is a set of consistent and systematic regulations related to control generation, storage, collection, transportation, processing and land filling of wastes according to the best public health principles, economy, preservation of resources, aesthetics, other environmental requirements and what the public attends to [1]

Managing solid waste is one of the most essential services which often fails due to rapid urbanization along with changes in the waste quantity and composition. Quantity and composition vary from country to country making them difficult to adopt for waste management system which may be successful at other places. Quantity and composition of solid waste vary from place to place [3]

## 2 OPPORTUNITIES FOR WASTE MANAGEMENT OPTIMIZATION

By collecting and storing data related to types of waste, quantities, periodicity and composition.

### 2.1 GIS Analytics

## 3 STATISTICS AND WASTE MANAGEMENT

While rural area usually generates organic and biodegradable, urban area produces waste influenced by culture and practices of society. [3] p47 to 63

There are many data analysis methods that are used when studying waste management, but the two most popular are PCA and PLS1. [2]

decision makers should distinguish between optimal, good, and fortuitous decision-making. In the optimal decision making, one can solve the optimal problem using the techniques available in other fields. In this solution method, generally some constraints (criteria) are considered, where the function(s) is to be optimized through applying some methods. Good decision-making is done based on experience, trial and error or comparison between different options of the integrated SWM. Although it is possible to choose

decisions close to the optimal state using this decision-making method, today these methods are not applicable due to increased number of different combinations in the decision-making process. In the fortuitous decision-making, since decisions are made with no scientific base, so the results are not acceptable [1]

The process of solving a math program requires a large number of calculations and is, therefore, best performed by a computer program. Lingo is a mathematical modeling language designed particularly for formulating and solving a wide variety of optimization problems including linear programming. Lingo optimization software uses branch and bound methods to solve problems of this type. [1]

## 4 CONCLUSIONS

Working on this

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## A MORE HELP FOR THE HARDY

Of course, reading the source code is always useful. The file acmart.pdf contains both the user guide and the commented code.

## ACKNOWLEDGMENTS

The authors would like to thank Dr. Yuhua Li for providing the matlab code of the BEPS method.

The authors would also like to thank the anonymous referees for their valuable comments and helpful suggestions. The work is supported by the National Natural Science Foundation of China under Grant No.: 61273304 and Young Scientists' Support Program (<http://www.nnsf.cn/youngscientists>).

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