

Abstract

Background & Objectives: Waste production is inevitable in human societies. During the past years, many studies have been done on the quantity and quality of municipal waste generation, as well as waste management strategies. The process of change and conversion is one of the most important elements responsible for Municipal Solid Waste Management (MSWM). The present study aimed to investigate the characteristics of Tabriz urban solid waste and, finally, assessment the environmental impacts of proposed scenarios for the management of MSW in Tabriz in 2017.

Methods: In this descriptive study, the required data were collected from field observations, library data, physical analysis with 4 sampling steps in 4 seasons based on ASTM standard method. 4 scenarios (energy generation and composting, energy generation, composting, current status) were proposed and environmental impact assessment of proposed scenarios was done using Iranian Leopold matrix was conducted.

Results: An average of 1438 tons per day of MSW is collected from the city of Tabriz and shipped to the sanitary landfill. The average per capita of waste production for this city is 0.804 kg per person per day. Examining different components of the waste shows that about 59 percent of the total waste is organic matter. The average thermal energy generated from the total waste of Tabriz city is 7964.85 Kj/Kg. The results of the evaluation using the Leopold matrix showed that Scenario 1 (energy generation and composting) with a score of -170 was considered as the best scenario and scenario 4 (current status) with -214 points was the worst management scenario. In addition, Scenarios 2 and 3 are rated -203 and -181, respectively.

Conclusion: In the present situation, planning and adopting appropriate measures to reduce negative environmental impacts, composing and energy generation can be appropriate for the management of MSW in Tabriz.

Keywords: Environmental Impact Assessment, Leopold Matrix, Municipal Solid Waste, Tabriz.