"OPTIMIZATION OF SOLID WASTE COLLECTION PATH USING GIS TECHNIQUE"

PROJECT REPORT

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ABSTRACT

Increasing population levels, rapid economic growth and rise in community living standard accelerates the generation rate of municipal solid waste (MSW) in Indian cities. Improper management of MSW causes hazards to inhabitants. The objectives of the study are to determine the quantitative characteristics of MSW along with basic information and to create GIS maps for chikmagalur city and optimizing the solid ate collection path. A questionnaire survey has been carried out to collect data from inhabitants including MSW quantity, collection frequency, satisfaction level, etc. The Geographic Information System (GIS) has been used to analyze existing maps and data, to digitize the existing sanitary ward boundaries and to enter the data about the wards and optimizing the present solid waste collection path. The generated Arc GIS maps give efficient information concerning static and dynamic parameters of the municipal solid waste management (MSWM) problem such as the generation rate of MSW in different wards, collection point locations, MSW transport means and their routes, and the number of disposal sites and their attributes.

Study area selected for the present study was chikmagalur. Chikmagalur District, one of the 27 districts of Karnataka State is located at 13^0 17' N latitude and 75 ^{0}15' E longitudes and largest urban center in the district. The city is situated at an altitude of 1021m above the mean sea level. The administrative limit of the Chikmagalur city municipal council encompasses an area of 27.00 sq.km. Arc GIS is used for database creation and analysis purposes. The total quantity of MSW has been reported as 35 to 40 ton/day for the year 2007-2008 and an attempt is made to optimize the present solid waste collection path using GIS technique