DECISION SUPPORT SYSTEM FOR SOLID WASTE MANAGEMENT: 
A CASE STUDY OF MADURAI CORPORATION

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ABSTRACT

Graphical User Interface (GUI) was developed to gather yearly, monthly and daily statistics of solid waste in Madurai Corporation viz. collection, transportation and disposal. Moreover, reports regarding accidents, vehicles, air quality and ground water quality at dumping yard conditions of the Madurai Corporation were also gathered. The collected data was giving as input to computer based Urban Waste Information System (UWIS) using Visual Basic front end and Microsoft Access back end. It is a vital tool, which provides best decision support to bridge the gap between requirements and reality. The user can easily understand the system and create own models as well. The system developed includes hardware and software requirements, system software used and application development tools. Application of UWIS provided all informations regarding solid waste at different levels such as zone wise, ward wise etc,. The user are allowed to add query to this and UWIS has the option to edit and update the existing information etc,. In essence to say, UWIS applied to the Corporation of Madurai results in computerizing the entire informations related to the urban solid waste.

KEY WORDS: Solid waste management (SWM), Graphical user interface (GUI), Urban waste information system (UWIS)

INTRODUCTION

The Urban Waste Information System (UWIS) is developed in the present case aids in providing the information of solid waste collection, transportation and disposal of solid waste for Madurai Corporation. The Commissioner of Madurai Corporation must be in a position to know timing for completion of segregation on the number of men at work, working hours, Cycle Time, efficiency of work men, Vehicle information and Disposal. The Commissioner of Madurai Corporation should also be able to monitor the Garbage generated at different wards. And he should be informed about the subsequent status of solid waste at the phase of generation. All these needs are mapped into features and features are mapped to various use cases through which these features are implemented. Urban Waste Information System is integrated with the IMAS (Information Management System ) database and assures of very good performance while trying to access the database and to perform data manipulation by way of adding, modifying or deleting, retrieving various data information.

AIM
To develop a user friendly Urban Waste Information System tool to the Madurai corporation for managing urban solid wastes.

**OBJECTIVE**

To collect the information pertaining to the ward information, vehicle information, water quality data, water quality data at landfill site, Accidental report and disposal process data.

To generate the data base which integrate the collected information.

**METHODOLOGY**

This project, UWIS will be done using VB 6.0 as front end, and MS Access as back end. It can used to report urban waste. This system will help to manage all the activities related to urban waste in Madurai Corporation using computers. Currently all the works are done manually, by computerizing all the activities related to urban waste which can be managed easily and effectively.

**System Design**

System design through two phases is logical and physical design.

**Logical Design**

In the logical phases the source, destination, data source and data flow diagrams are described. The format and contents of the report are determined. The input format content and input function are determined. It is a conceptual view.

**Data Flow Diagram (DFD)**

The data flow diagram was first developed by Larry Constantine as a way of expressing system requirements in graphical form. DFD is a graphical technique that depicts information flow and the transforms that are applied as data moves from input to output. The following diagrams elucidate the data flow diagram of the UWIS, a user friendly application package for urban waste information system.
RESULTS AND DISCUSSION

- Developed in user friendly manner
- Easy to use
- Provides pull-down menu facilities
- Save time that is the user is free from referring the varieties of ledger at every time for the essential information.
- The output can be taken in neat printed form
- Facilities like editing, deleting and view are available.

SUMMARY

This Project is developed for Solid Waste Management to maintain all the master data and information related to Vehicle and Solid waste. This Project generates the invoices of solid waste collection and maintains the Vehicle’s information (like ward information, vehicle information, Air Quality at landfill site, Water Quality at landfill site, Accident report and Disposal) and all reports generate according to client need.
CONCLUSION

The UWIS is application overcomes the existing problems in the manual system by retrieving all the information regarding collection, transportation and generation of solid waste at a single place. The applied UWIS consists of four main menus namely, Forms, Reports, Move and Exist. It also allows the user to enter the data, edit, update and manipulate. The main objective of the UWIS application is to give all information regarding solid waste at different levels such as zone wise, ward wise etc., the user are allowed to query and the UWIS has the option to edit and update the existing information, adding information etc., in essence to say, when UWIS applied to the Corporation of Madurai results in computerizing the entire information related to urban solid waste.

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BIOGRAPHICAL NOTES

SURESH BABU. S. doing Doctorial Research Fellow in Madurai Kamaraj University and has awarded masters in Ecology from Pondicherry Central University, Salim Ali School of Ecology and Environmental Science and worked as a Research Associate (RA) in the Department of Futures Studies, Madurai Kamaraj University, Tamil Nadu, in the project entitled “Studies to Evolve Zero Waste Management Plan in selected Municipalities of Southern district of Tamil Nadu, Sponsored by Ministry of Environment and Forest, Government of India, New Delhi. Worked as Senior Research Fellow (SRF) in National Bureau of Soil Survey and Land use Planning, Bangalore, Karnataka, India for Soil Resources Mapping.
RAJESHKUMAR. M. has completed his masters in Environmental Science from Madurai Kamaraj University, Madurai India. His areas of specialization for research are environmental monitoring and management, Environmental Epidemiology and Solid Waste Management. He is currently working for his doctoral research in the field of environmental monitoring and energy auditing. He underwent several trainings related to Geographical Information Technologies for Environmental Monitoring and Management programmers organized by DRDO, ISRO, NRDMS.

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