

Stakeholder-based SWOT analysis for successful municipal solid waste management in Lucknow, India

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Abstract

The present investigation is a case study of Lucknow, the main metropolis in Northern India, which succumbs to a major problem of municipal solid waste and its management. A qualitative investigation using strengths, weaknesses, opportunities and threats analysis (SWOT) has been successfully implemented through this community participation study. This qualitative investigation emphasizes the limited capabilities of the municipal corporation's resources to provide proper facilitation of the municipal solid waste management (MSWM) services without community participation in Lucknow city. The SWOT analysis was performed to formulate strategic action plans for MSWM in order to mobilize and utilize the community resources on the one hand and municipal corporation's resources on the other. It has allowed the introduction of a participatory approach for better collaboration between the community and municipal corporation in Lucknow (India). With this stakeholder-based SWOT analysis, efforts were made to explore the ways and means of converting the possible 'threats' into 'opportunities' and changing the 'weaknesses' into 'strengths' regarding a community-based MSWM programme. By this investigation, concrete strategic action plans were developed for both the community and municipal corporation to improve MSWM in Lucknow.

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1. Introduction

Municipal solid waste (MSW) is an essential by-product of everyday living. Thus, the idea of eliminating solid waste is an impractical proposition; what is realistic is the management of solid waste in an effective manner, which is scientifically approved and needed for sustainable urbanization and development. Effective and scientific municipal solid waste management (MSWM), including prevention and reduction of waste, is necessary for sustainable urbanization and development. If the population and resources are not accompanied by the development of innovative approaches for availing enhanced community participation and government

support for environmental management, it may lead to deterioration of environmental quality and social conflicts (GTZ, 1988). This approach would promote effective strategies for conflict resolution in participatory environmental management (Furedy, 1991). It is becoming increasingly evident that a waste management programme that ignores the social aspect is doomed to failure. The problems of public participation in planning and implementation are no less important than the technical or economic aspects in waste management and decision-making (Joos et al., 1999).

In India, MSWM is an obligatory function of urban local bodies and corporations. But this service is poorly performed by these agencies, which results in problems regarding health, sanitation and environmental degradation (Report of Indian Supreme Court's Committee, 1999). In the Indian context, especially in the northern states, there is a lack of skills and awareness of the need

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to adopt proper MSWM services, resulting in inadequate allocation of financial and human resources by the government authorities and a general public apathy; thereby, the existing scenario of MSWM has become very chaotic (Raman, 1995).

Several case studies on MSWM in India have shown that the higher the average income of the people, the higher is their per capita waste generation (Report of Indian Supreme Court's Committee, 1999). It was observed that the composition and volume of waste generated might change following urbanization in a city, and associated changes in people's lifestyles (Zhao, 1998; Capua and Maganani, 2000).

Lucknow is the capital city of Uttar Pradesh (India) situated between 26°52' N latitude and 80°52' E longitude and having a unique blend of heritage and culture. Due to improper solid waste disposal and management, there is an urgent need to initiate a well-planned integrated MSWM approach with the community's participation in the city. Per Census 2001, this city has a total population of about 2.8 million (including 0.5 million floating population), which generates 1200–1400 metric tonnes of municipal garbage per day. On average, 70–75% of total MSW generated is collected by the municipal corporation of Lucknow, and the collection efficiency ranges from 60% to 70%. In the city, street sweeping is the only method of primary collection of MSW. It was observed in a survey made by the authors that rapid urbanization, population increase, influx of floating population, lack of motivation and skills among municipal corporation staff, public apathy and lack of human resource development activities etc. are the major limiting factors that are hindering proper MSWM in Lucknow.

The same survey also reported that an urban area city dweller in Lucknow is responsible for generating 400–450 g per day of waste as compared to rural areas that produce less than 200–250 g daily.

The present study focused on ways of encouraging community participation in MSWM services and, in particular, how such participation by community and government sectors (especially the municipal corporation) can be increased.

SWOT is an acronym for strengths, weaknesses, opportunities and threats. Every programme, project, development and management plan has its strengths and weaknesses, opportunities and threats. Considering these strengths, weaknesses, opportunities and threats (SWOTs), a project coordinator can deal more effectively with the problems that are likely to come up, and look at ways and means of converting the threats into opportunities, and off-setting the weaknesses against the strengths. This analysis could be undertaken for any idea, organization, person, product, programme or project (Johnson et al., 1989).

In this project, SWOT analysis was applied to develop action plans for successful implementation of new

initiatives for MSWM. In other words, this stakeholder-based SWOT analysis was performed to develop a strategic action plan of MSWM for Lucknow city. It aimed at identifying the positive and negative factors, as well as internal and external factors, that might have an impact on the proposed MSWM programme. SWOT analysis of this programme and its components (community and city municipal corporation) was intended to maximize both strengths and opportunities, minimize the external threats, transform the identified weaknesses into strengths and to take advantage of opportunities along with minimizing both internal weaknesses and external threats (Saaty, 1987).

SWOT is a tool designed to be used in the preliminary stages of decision-making on the one hand and as a precursor to strategic management planning on the other. It should be performed by the individual user and also in groups. The group-wise analysis is particularly effective in providing factors, major objectives, clarity and, therefore, focus to all the discussions about strategy-formulation regarding any proposed MSWM programme (Johnson et al., 1989).

In the SWOT analysis, available resources and their potential utilization are studied from the viewpoints of economic, ecological and social sustainability. However, its main purpose in the planning process is to obtain decision support that is to be utilized in the choice of the strategy to be followed. In a decision-theoretic study, a decision is considered as a choice between two or more alternative measures. Generally, rational decision-makers choose the alternative that maximizes the utility, determined on the basis of information available on the decision-alternatives. In decision support, information is produced on the decision situation, on alternative choices of action and its consequences etc. A complete decision-model constitutes the basis for the decision support. The alternatives available, information about the consequences associated with these alternatives and the preferences among these consequences are the three criteria for the decision (Bradshaw and Boose, 1990). Each aspect of the information must be sound so that the best alternatives can be selected. Thus, SWOT is used for analyzing internal and external environments in order to attain a systematic approach and support for a decisive situation. If used correctly, it can provide a good basis for successful strategy formulation.

It was intended that the SWOT analysis could provide a framework for analyzing a situation and developing suitable strategies and tactics; a basis for assessing core capabilities and competences; the evidence for, and key to, change and success and also provide a stimulus to participate in a group experience (Schmoldt and Peterson, 2000). The further utilization of SWOT is usually based on qualitative and quantitative analysis of internal and external factors, as well as on the capabilities and

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