

Study of environment and effect of waste management

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ABSTRACT :

Bundelkhand is one of the poorer part of the Uttar Pradesh but it is very important for the Uttar Pradesh politically and economically. But the condition of the environmental sanitation and waste management is very poor in the said region. Though, the efforts are being done in this regard but no solid reforms have been observed. Therefore, The study done to identify the problems of solid waste management in Bundelkhand. The two broad types of data, the secondary and primary data were used in the study. Interviews and personal observations were also used to collect some of the data. Factors impeding the effective and efficient solid waste management were identified. Wrong attitudes and perceptions of the people about sanitation issues contributed to solid waste management problems of Bundelkhand.. Majority of the households did not educate their members on the need to clean their surroundings. A greater percentage of the household did not have a toilet facility.



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Introduction

India is a party to the UN Conference on Environment and Development (UNCED) held in 1992. In the same year, a national conservation strategy and a policy statement on environment were formulated. The policy addresses issues related to sustainable development including health. A very far-reaching notification by the Ministry of Environment and Forests gazetted in 1994 makes it obligatory for almost all development projects to conduct an environmental impact assessment study and get clearance.

Premature death and illness due to major environmental health risks account for nearly 20 percent of the total burden of disease in India(World Bank, 2001). India has environmental health risks of both categories: traditional hazards related to poverty and lack of development, such as lack of safe water, inadequate sanitation and waste disposal, indoor air pollution and vector borne diseases; and modern hazards caused by development that lacks environmental safeguards, such as urban air pollution and exposure to agro-industrial chemicals and waste.

A Government-constituted group at the highest level has identified six priority programme areas, namely urban low cost sanitation, urban waste water management, urban solid waste management including hospital waste management, rural environmental sanitation, industrial waste management and air pollution control, and strengthening of health surveillance and support services. There are many constitutional provisions and laws pertaining to the environment and its



protection and improvement. However, the level of enforcement has been extremely poor. Besides, there is no comprehensive legislation on environment and health.

Environment has deteriorated significantly due to unplanned urbanization, industrialization and indiscriminate use of pesticides in agriculture. The solid waste generation in cities has increased from 6 million tonnes (mts) in 1947 to 48 mts in 1997 and is expected to increase to 300 mts by 2047. The average waste collection in Indian cities is, however, 72 percent. Till recently medical wastes were also deposited and mixed with municipal waste collection. Monitoring of the urban environment in selected cities in recent years by the Central Pollution Control Board (CPCB) has identified 24 critically polluted areas in the country (10th Five Year Plan). The forest cover in 1999 was 19.39 percent of the total geographical area as against prescribed standard of 33 percent. Most of the country's water resources are polluted due to discharge of untreated / partially treated wastes from industry, domestic sewage and fertiliser / pesticide run off from agricultural fields. Agricultural activities including widespread use of fertilizers, pesticides and weedicides killers also alter the environment and create health hazards. Water stagnation and the consequent multiplication of vectors have increased the risk of vector-borne diseases. The high level of air pollution is resulting in increased respiratory diseases in cities. Suspended Particulate Matter (SPM) is higher than the prescribed limit in 69 locations out of 170 (Annual Report 2002, CPCB).

Literature Review

Despite the importance of adequate solid waste management to the urban environment, the performance of many city authorities in this respect leaves much to be desired. According to Malombe (1993), irregular services rendered to producers of refuse by municipal councils compel them to find ways of disposing of refuse. He observed that the main methods adopted by the producers are burning, composting, or indiscriminate dumping.

This is very pertinent in Ghana where waste management services are largely inefficient and ineffective. It is estimated that about 83% of the population dump their refuse in either authorised or unauthorised sites in their neighbourhood, and due to weak capacity to handle solid waste, unsanitary conditions are created (Benneh, Songsore, Nabila, Amuzu, Tutua, & Yaugyuorn, 1993).

Although these weaknesses have been attributed to lack of logistics and financial management, people's attitudes towards waste management should not be ignored (Nze 1978). He outlined several factors, which have conspired to promote the massive build up of urban garbage and waste. Nze noted that they resulted from inadequate and deficient infrastructure, inadequate structures for environmental administration, lopsided planning pastures and disregard for basic aesthetics, industrial and commercial growth, and other human factors. According to him, urban wastes in Nigeria are regarded as "non resources" having at best a nuisance value and therefore not surprising that an equally negative posture has been adopted in managing wastes from urban concentrations in the country.



According to Stirrup (1965), pulverization and grinding are means of reducing the volume of waste, or they are used to prepare refuse for final disposal processes. He further stressed that in some instances a threefold problem could be overcome by the use of composting. Thus, the feeding of impoverished soils, disposal of large portions of the refuse, and the disposal of sewage sludge can be realised through composting. Moreover, Stirrup claimed that the major advantage of incineration are complete destruction of combustible and organic matter, reduction of bulk, the ability to operate under hygienic conditions free from interference by the type of weather conditions that would affect disposal by tipping and the possibility of using residual heat from the furnaces. The solid waste management system of Ghana, and for that matter Accra, lacks most of these advantages due to the inability to afford incinerators. Gourlay (1992) observed that in larger cities, collection and disposal of solid waste is a municipal responsibility but the actual business of disposal is often contracted out to private firms.

Objectives

To ascertain the attitudes and perceptions of people towards solid waste management.

To assess the kind of incentives available for the AMA workers dealing with solid waste.

To make recommendations for improving solid waste management in the study area.

Research Methodology-

The primary data were collected using structured questionnaires. The questionnaires contained both closed and open-ended questions, and they were self-administered. In all, 200 questionnaires were administered to households.

Secondary data were collected from appropriate data sources, including books, journals, newspapers, and activities both published and unpublished.

Fifty-five (75) females and 25 males were interviewed. This distribution was used because it is observed that the females, mostly mothers, are responsible for domestic waste handling. Again, solid waste production is at the household level.

The data gathered from various sources were processed and analyzed. Simple descriptive statistical and analytical tools such as frequencies, percentages, and pie charts were employed in the analysis of the data. Relationships were established by cross tabulations.

Physical Environment. Currently rural areas of Bundelkhand of Uttar Pradesh faces all the serious problems confronting all rapidly growing areas. Sanitation generally in the area is very poor. There are visible unsightly scenes of heaps of rubbish in containers, which are ever flowing. Livestock are often found feeding on some of the rubbish on or along the streets and other open places.



The area has a very poor drainage system. Drains, which are very essential in residential areas, are lacking in the area. The very well constructed ones along roads are in a deplorable state with most of them caving in. These drains are dirty and filled with rubbish, and some are running through compounds of houses.

Basically, there is a minimal provision of amenities such as adequate refuse dumping grounds, toilet facilities, and playing fields as well as recreational centres for the area. There is evidence of uncontrolled development. This and the lack of basic infrastructure have made the community substandard. In terms of residential stress, it is one of the worst affected areas in the Greater Accra Metropolitan Area. The houses are invariably of the closed compound courtyard type. On the whole, the general environment is quiet dismal, and it especially faces very severe problem of solid waste management.

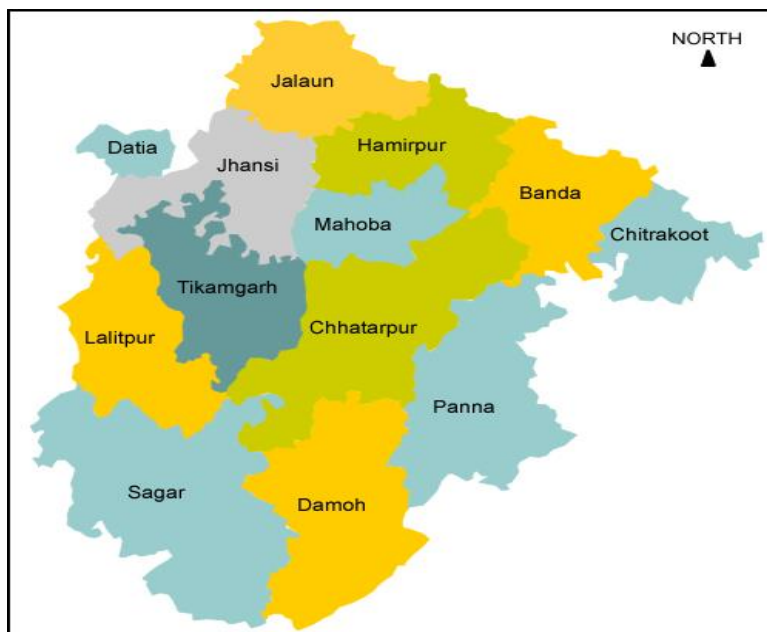
Economic Background. The occupational background of the residents is farming and small business livestock rearing and selling handicraft. Most of the women engage in marketing activities. The majority of men work as civil servants, “Watchmen” (security men) and labourers. Only a small proportion and insignificant percentage of the population work as office employees, and most of this category have a fairly high standard of living and higher educational background. A few of this category work as civil servants with the majority in the private sector.

The occupational level of residents is closely linked up with their income level. Various surveys showed that most of those who work as low level civil servants (“watchmen” and labourers) receive between 2500-4000 a month. These residents no doubt finds it difficult to make ends-meet as most of them have large families and in most cases have no formal education.

Very often, it is the income generated by the trading women that is used to support the income of their husbands and for that matter the up-keep of the family. Most of the women traders are able to earn more than their husbands who work as low-level civil servants, and in most cases the financial support from the women in the family is higher than that of the men.

Figure: 1 Map of Accra Showing the Study Area.





RESULTS AND DISCUSSION

Attitudes and Perceptions of the People towards Solid Waste Management

Issues of attitudes and perceptions appear to affect both inhabitants and authorities regarding solid waste management in bundelkhand. Issues such as people's opinion on responsibilities for ensuring clean surroundings, education of household to clean their surrounding, disposal of household waste, and children's involvement in solid waste management are described below.

Table 1: Opinions on Responsibility for Ensuring Clean Surroundings

Response	Percentage
Administration	75.7
Individuals	10.0
Both Administration & Individuals	14.3
Total	100.0

With a large percentage of the population thinking that Administration is solely responsible for ensuring clean surroundings, it is likely that the people may not support clean up campaigns meant for making the surroundings clean. This may partly explain why Administration is engulfed in filth and yet the respondents seem unconcerned. This confirms the studies of Songsore (1992) that with the establishment of the Waste Management Department and Municipal Assemblies, the public tend to have the view that the WMD should be solely responsible for managing waste.



In order to change this trend it is suggested that the people be educated to see the problem as a shared responsibility of both the individual in the respective communities and the Administration. Further analysis of the data showed that about 37% of the total respondents thought it was appropriate for individuals to share in the responsibility of cleaning their own surrounding while about 63% thought it was not appropriate. The 37% respondents who thought individuals must be responsible for cleaning their own surroundings gave their reasons as indicated in Table 2 below.

Table 2: Reasons for Individuals to Help Clean their Own Surroundings

Response	Percentage*
The residents are mostly affected by the bad odour resulting from dirty surroundings	40.5
Dirty surroundings cause diseases	43.8
It will save the individuals some money	15.7
Others	
Total	100

Besides the above reasons given by the respondents that individuals should take responsibility for the cleanliness of their surroundings, there are others reasons. These reasons include the impressions of visitors to the area, destruction of the area's scenic beauty, and the choking of drainage channels that will lead to flooding and environmental pollutions.

The responses suggest the lower level of the respondents' knowledge concerning sanitation issues. More seminars and talk shows on sanitation could be organized by the government or organizations as a remedy. It was realized that there was some kind of relationship between the respondents' level of education and their perceptions about cleaning their own surroundings.

Table 3: Lessons Taught to Household Members on Sanitation

Lessons	Frequency
(1) Dirty surroundings cause diseases	20



(2) House members must not litter	10
(3) People and family must not defecate at unauthorized places	12
Total	42

Lessons such as the regular organization of communal cleanup exercises, discouraging of people who may be found littering about and respect for sanitary laws did not come up as issues taught. The respondents' inability to point out these lessons could be an indication that general education on sanitation should be further emphasized in the community.

It was observed from the survey that people relied heavily on administration facilities for their refuse disposal. None of the respondents depended on private contractors. The situation as presented above partly explains why the Administration is unable to cope with the problems of solid waste management in the study area. As every household looks up to the Administration for its solid waste disposal, it puts unmanageable pressure on the equipment and insufficient work force, among other things.

Recommendations

- The public should be educated by the Administration on solid waste and its related issues. Basically, hygiene practices should be taught especially on radios, televisions, in news papers, and in schools to educate people on proper ways of handling solid waste and keeping the surrounding clean.
- Stricter enforcement of byelaws should be ensured by the Administration where administrative penalties for minor violations should be taken with urgency.
- The byelaws on sanitation should be made to require every landlord to provide an environmentally friendly toilet facility in his house.
- The Administration should make it a responsibility of introducing the use of standard bins with lid for domestic and commercial use to the people of Bundelkhand.
- People should develop proper attitudes and perception towards waste handling, which should be achieved through both formal and informal education.
- The government, donor countries, Nongovernmental Organisations (NGO) and other stakeholders should be encouraged to donate money and equipment to the WMD to enable the department acquire effective and efficient personnel and equipment.
- Worker dealing with solid waste in Bundelkhand should be residents of the area. With this, they would be more responsible for their job and be comfortable with the people.
- The community should adopt a self-help approach to solve the problem. Much can be achieved when the various communities mobilize themselves and organize periodic clean up exercises and by contributing financially to support the exercise, the residents can also



act as watch dogs and make sure that they themselves adhere to proper waste disposal practices.

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