

This item was submitted to [Loughborough's Research Repository](#) by the author.  
Items in Figshare are protected by copyright, with all rights reserved, unless otherwise indicated.

## Waste collection: limiting factor in India

PLEASE CITE THE PUBLISHED VERSION

PUBLISHER

© WEDC, Loughborough University

VERSION

VoR (Version of Record)

PUBLISHER STATEMENT

This work is made available according to the conditions of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) licence. Full details of this licence are available at:  
<https://creativecommons.org/licenses/by-nc-nd/4.0/>

LICENCE

CC BY-NC-ND 4.0

REPOSITORY RECORD

Jain, Arun P., and Pradeep Monga. 2019. "Waste Collection: Limiting Factor in India". figshare.  
<https://hdl.handle.net/2134/31773>.



## Waste collection: limiting factor in India

Arun P. Jain and Dr Pradeep Monga, India

SOLID WASTE MANAGEMENT (SWM) is an important urban management and water supply and sanitation sector issue. In India, this issue has received a lot of attention due to increasing urbanisation and growth of associated problems. The rapid growth in urban population can be gauged from the fact that urban population is expected to grow from about one fourth of total population in 1991 to about one third of all Indians in 2001. (Census of India, 1991). About three fifth of this urban population is expected to reside in class I cities. Therefore, SWM in class I towns is an issue of growing importance. In Delhi, for instance, it is estimated that by 2020 the volume of solid waste to be handled may be about four times the volume as compared to 1995 levels.

While increasing attention has been focused on disposal of the growing amounts of wastes, little has been done to understand and appreciate the problems associated with collection of wastes. While the western focus of SWM has rightly been on novel methods and issues relating to disposal techniques and siting of such facilities, the focus in a third world country has to be a little different.

There are a number of reasons associated with that contention. Firstly, the waste collection efficiencies in Indian context are low as opposed to the western countries. It has been reported that municipal waste collection efficiencies in India range from 30-70%. (Monga, 1996). Secondly, the share of resources spent on collection alone normally amounts to four fifth of the total SWM budget in India. (Report, 1992). Therefore, there is a definite case for focusing attention on collection aspect.

### Waste collection model

#### Three tiers

The low efficiencies have often been attributed to inefficient removal of the waste by municipal authorities. While it is true that inadequate waste removals are a fact of life, it in itself does not constitute the whole problem. What is lost sight of is that there are other steps involved in the whole process. The proposed waste collection model is depicted in Figure 1 and adequately describes the three different tiers in waste collection along with failure points and causes.

The critical value addition provided by the model is recognition of the fact that collection involves more than only municipal (institutional) mechanism of pick up of garbage. There is an additional step of waste reaching the common bin areas from where it is picked up. In fact, it is the second tier of collection where the a number of value

added micro-enterprises also thrive by intercepting the wastes and segregating the same for economic benefit.

#### Failure points

As depicted in the model the scatter or leakage in the collection system is taking place at more than one tier. While at the first tier the system performance is excellent with nearly one hundred percent efficiency of collection. The leakage begins at the second tier. It is due to inappropriate removal of garbage practised by the households, commercial outlets or individuals. The second failure point is at the third tier where the traditionally understood municipal/institutional collection takes place. The limitations at both failure points are elaborated in next section.

#### Collection system failure factors

The leakage taking place at the second tier are primarily due to the individual and community level factors. The right attitudes are often missing in public at large to dispose their garbage at the designated place. It leads to a situation where garbage is thrown everywhere but in the bin. Public education to bring about right awareness can therefore be very important.

While attitudes are responsible for the collection failures to some extent, it is also noted that often there are no easily locatable bins within easy reach or one is confronted with an overflowing one. It brings two critical factors into light, namely:

- Inadequate planning for placement of bins
- Improper design of bins

(These points are further elaborated upon in the section on interventions)

In absence of an easily locatable and/or non overflowing bin even a well meaning individual is also forced to throw garbage indiscriminately.

The leakage at the third tier are the traditionally understood ones. These are largely a result of worker callousness due to lack of motivation or simply due to inadequate training/orientation of the worker towards requirements of his/her job. A number of times lack of proper equipment for the individual workers and/or for large scale movement of garbage also leads to leakage.

#### Interventions

The collection system leakage are largely responsible for desecration of landscape noticed almost everywhere in India. Since public perceptions are guided by visible degradation, it

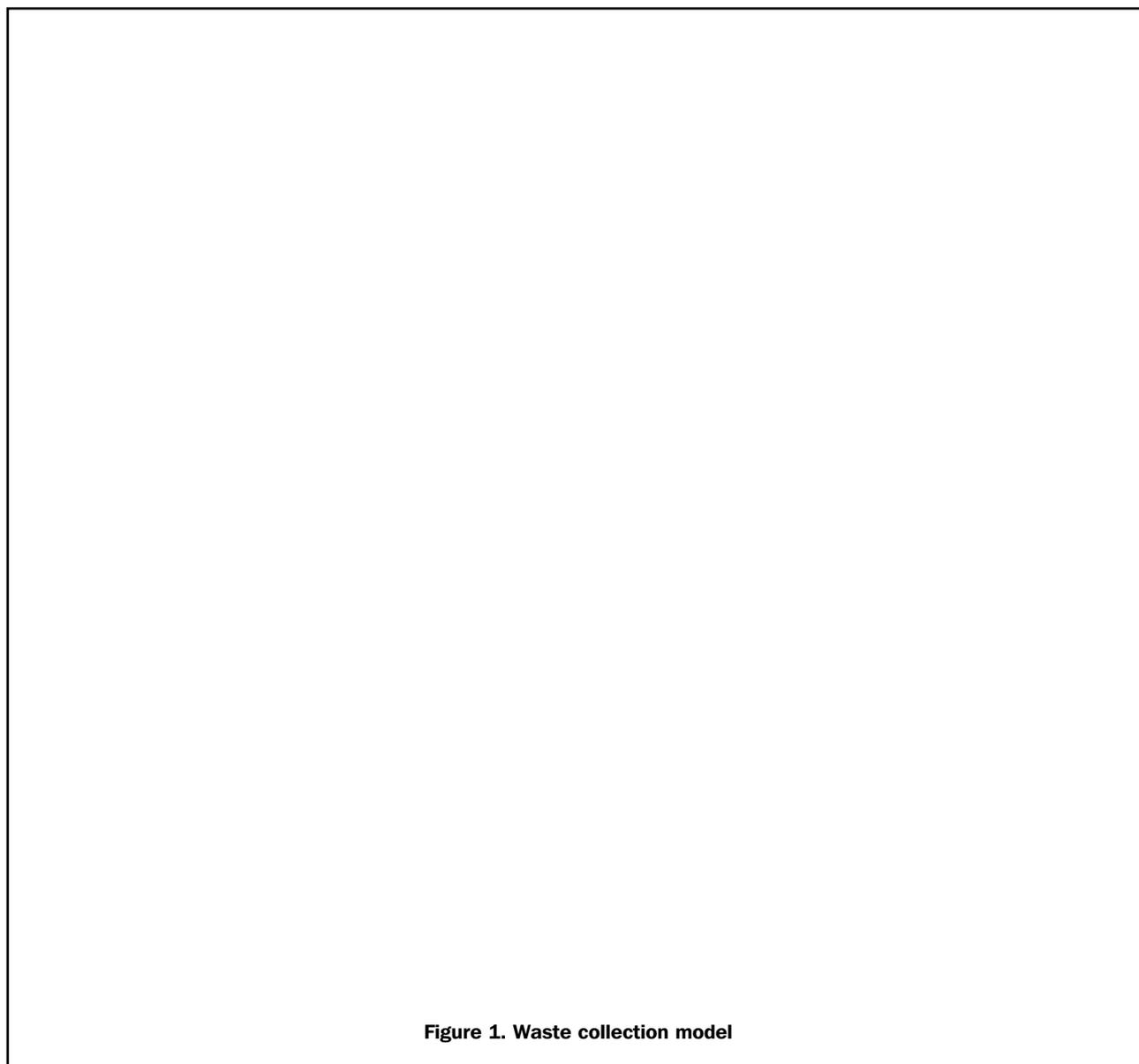


Figure 1. Waste collection model

is important to address the issue by way of suitable interventions. A few likely interventions are outlined below.

#### **Public participation**

The participation of public in devising a suitable SWM plan is beneficial for a number of reasons. It avoids putting into place mechanisms which are not compatible with the public perceptions and behaviours. Hence, a properly carried out participatory exercise will minimise conflicts between local governments and citizen groups and also help ensure long term sustainability of interventions.

Public participation is very important address the collection failures identified at tier 2 in the proposed model. Communities should be consulted in detail about location of the common bins. In Mohal a semi-urbanised suburb of Kullu, a participatory survey, indicated high willingness (>95%) to participate in waste bin planning. Respondents

also indicated clear preferences in terms of distances they were willing to travel to for disposing their garbage. (Jain 1996).

#### **Public education and local legislation**

Public education has to play a large role in correcting the unsuited patterns of behaviour as far as garbage disposal is concerned. A concerted programme clearly articulating the desired behaviours can have the desired effect. Programme for school children can also go a long way in inculcating right behaviours.

In addition to public education, it is also necessary to have tough local legislation banning indiscriminate throwing of garbage. A combination of focused awareness campaigns, and properly planned common bins along with tough local legislation appears to hold answers to a large part of waste collection problem.

### **Institutional strengthening**

The solid waste management function in the local governments in India often does not receive the adequate attention it deserves. While under pressure situations, brought on by increasing amount of public interest litigation, excellent performance is expected but little is done for internal capacity building. There is large scale need for proper training and orientation to the municipal workers along with clearly defined job benchmarks. The flow of authority and information within the departments also needs to be examined to redefine the organisational structures and improve job effectiveness.

### **Privatisation**

Privatisation of municipal services has recently been talked of in order to overcome the inefficiencies in the government system. A number of municipal corporations have considered this option. Privatisation does offer hope of capping the costs associated with collections. However, it is a politically sensitive issue as it can affect a large number of jobs. It will be some time before full implications of privatisation are clear.

### **References**

- CENSUS OF INDIA, 1991  
MONGA PRADEEP, *Solid Waste Management in Indian Cities*: A case of Shimla, presented at Seminar on Solid Waste Management, National Council for Development Communication, N. Delhi, September, 1996  
REPORT ON URBAN WASTE MANAGEMENT, *Ministry of Urban Development*, Government of India, July 1990  
JAIN ARUN ET AL., *Solid Waste Management in Mohal*, 22nd WEDC, New Delhi, 1996
- 

ARUN P. JAIN.  
DR PRADEEP MONGA.

---