

# Community Based Partnerships for Sustainable Solid Waste Management in Urban Area in Developing Cities.

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## 1. Introduction

### 1-1. Background

Community-based solid waste management is activities carried out by members of communities to clean up their neighborhood and/or to earn an income from solid waste. Examples are the collection of solid waste, the sale of recyclables, recycling and composting activities.

### 1-2. Problem Statement

National and local governments in many cities of developing countries including Dhaka city, Bangladesh has failed to provide proper solid waste collection service and to manage solid waste system. As a result Different local initiatives such as individual- based initiatives, NGO-initiated schemes and community based schemes emerged in different community neighborhood of the Dhaka city. This research is going to study the community participation for community based partnership for a sustainable solid waste management.

### 1-3. Objective of the study

- (1) To discuss the successful practice of community based solid waste management system in developing cities of India, Sri Lanka and the Philippines.
- (2) To clarify the effectiveness of community participation for sustainable solid waste management in two selected neighborhood in Dhaka city
- (3) Propose efficient and effective steps to improve the level of participation in community based partnerships for sustainable solid waste management system in Dhaka city.

### 1-4. Methodology of this research

At first, three countries were selected with community based solid waste management system that is India, Sri Lanka and Philippines. To find out the elements of effectiveness this research goes through a deep literature understanding. Secondly, this research has conducted a questionnaire survey among the residents of two neighborhoods in Dhaka city according to the findings of the elements of effectiveness in three developing countries to clarify the level of participation of community for the

success of community based partnerships solid waste management.

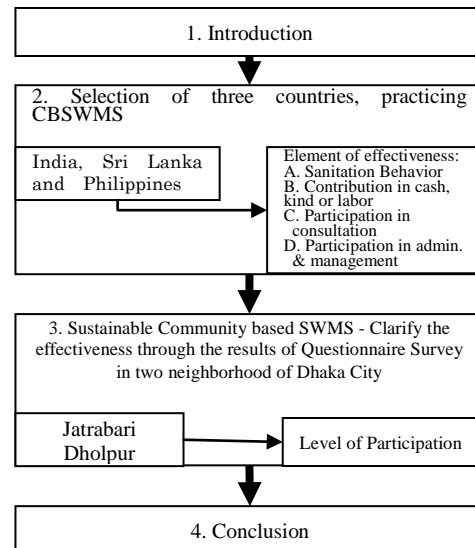


Fig. 1: Flow of this Study

### 1-5. Survey Area

This figure is showing the survey area in Dhaka City. These areas are middle and low income area. These two neighborhoods are known as Jatrabari and Dholpur (Fig.2).

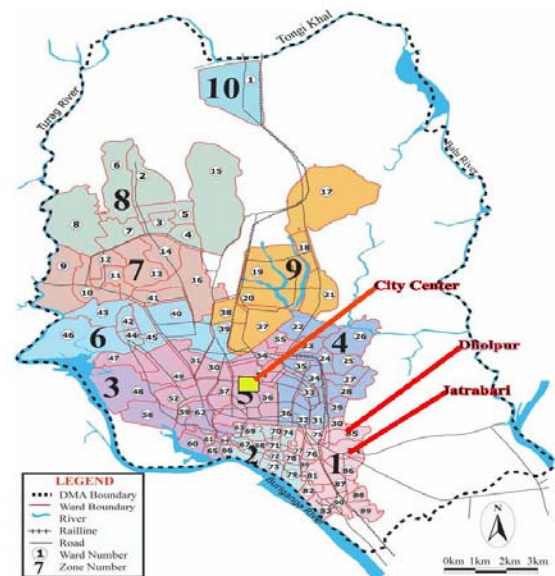


Fig. 2: Survey area in Dhaka City

In these two selected area community based solid waste management has practiced since 2005.

## 2. Community Based Partnerships

In community based partnerships it is very important to

participation of community.

### 2-1. Practice of Community Based Solid Waste management

By discussing the community based solid waste management through the participation of community this research will find out why this system becomes successful in these three countries.

#### (1) India

In India urban areas like Delhi, Mumbai, Hyderabad, Bangalore, Chennai, Agra, Kolkata, Shimla etc has initiated community based SWMS in their local community. Laws regarding solid waste management in India are: The rules pertaining to solid-waste management are Hazardous Waste (Management and Handling) Rules (1989, amended January 2003), Biomedical Waste (Management and Handling) Rules (1998), Municipal Solid Waste (Management and Handling) Rules, 2000 and the Batteries (Management and Handling) Rules (2001).



Fig. 3: Timeline of solid waste management laws in India

Community based partnership solid Waste Management performs various kinds of activities throughout in Indian cities and neighborhood area. The partnership is become successful because of the proper participation of community. For the reason this system become successful is described in figure 4.

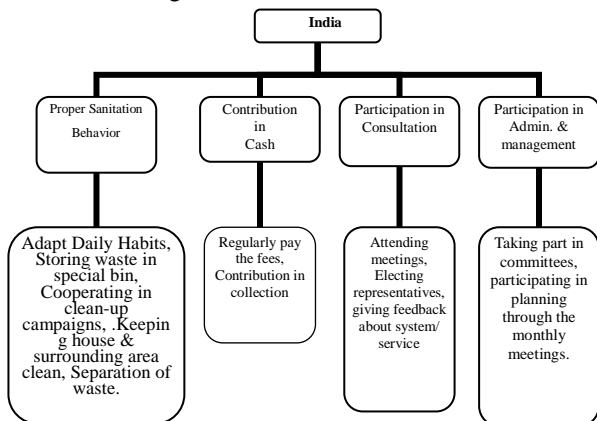


Fig. 4: reason of success of CBSWMS in India

#### (2) Sri Lanka

In Sri Lanka, laws regarding solid waste management in Sri Lanka is described in figure 5.



Fig.5: Timeline of solid waste management act in Sri Lanka

Urban area namely in Colombo, Matale, Kandy etc has initiated community based solid waste management with the community based partnership which is become very positive in reduction and collection and composting of waste. For the reason this system become successful is described in figure 6.

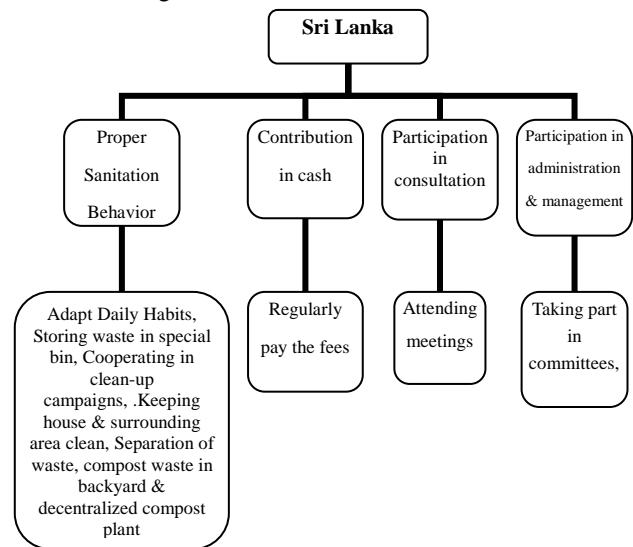


Fig. 6: Reasons of success of CBSWMS in Sri Lanka

#### (3) Philippines

In Philippines, The main legal instrument governing SWM in the country is the Ecological Solid-Waste Management Act of 2000 (R.A. 9003).



Fig. 7: Timeline of solid waste management laws in Philippines

It adopts community-based approaches to SWM and mandates waste diversion through recycling and composting, among others. According to the studied two cities named Manila and Cebu city scaled-up the Community based decentralized composting activities city-wide. In Philippines Participation in consultation and participation in administration and management is not clear. In Figure 8 described the reasons of success of CBSWMS in Philippines.

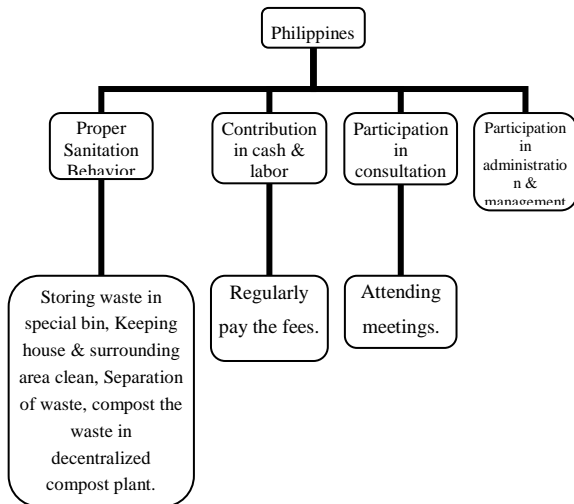


Fig. 8: Reasons of success of CBSWMS in Philippines

From the above discussion it is understandable that each country has few similarity and difference among the participation.

Table 1: Comparative study of the element of success of CBSWMS in three countries

Comparative Study of reasons of success of CBSWMS in three countries				
		India	Sri Lanka	Philippines
<b>A</b>	<b>Proper Sanitation Behavior</b>			
1	Store waste in special bin	o	o	o
2	Cooperate in clean up campaigns	o	o	-
3	Keep house and surrounding area clean.	o	o	o
4	Separate of waste	o	o	o
5	Compost in own back yard	-	o	o
6	Compost in decentralized plant	-	o	o
7	Adapt daily habits	o	o	-
<b>B</b>	<b>Contribution in cash, labor</b>			
1	Regular fee payment	o	o	o
2	contribute in labor	o	-	-
<b>C</b>	<b>Participation in Consultation</b>			
1	Attend meetings	o	o	o
2	Elect representatives	o	-	-
3	Give feedback about the system	o	-	-
<b>D</b>	<b>Participation in administration. &amp; management</b>			
1	Taking part in committees	o	-	-
2	Participation in decision making during meetings	o	-	-

### 3. Sustainable Community based SWMS in Dhaka

This chapter will clarify the effectiveness of community participation according to the findings of the element of effectiveness in a community based partnerships for sustainable solid waste management in Dhaka city.

#### 3-1. Clarify the effectiveness

From the comparative study between three countries (table 1) it has found that there are four element of effectiveness.

(1). Proper sanitation behavior: Proper sanitation behavior of community residents may include: 1. Adapting daily habits, 2. bringing waste to collection point, 3. storing waste in a special bin, 4. cooperating in a clean-up campaigns, 5. keeping house and surrounding area clean, 6. separating waste into inorganic and organic part, 7. composting the waste.

(2). Contribution in cash and labor: It usually involve: 1.Regularly pay the fee, and 2. contributing in labor with collection (voluntary or paid).

(3). Participation in consultation: It may take place during meetings organized by CBOs to talk about the needs and problems regarding solid waste management. 1. Attend meetings 2. Elect representatives who manage waste collection 3.Giving feedback about collection system/waste services to operating team or management

(4). Participation in administration and management: In this type of participation, community members may: 1.Taking part in committees, 2. Becoming member of a CBO involved in waste collection, environmental education etc, and 3. Participate in decision-making during meetings.

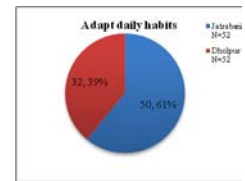


Fig.9:Adapt Daily Habits

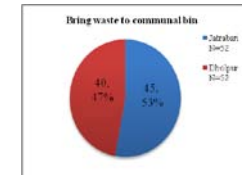


Fig.10: Bringing Waste

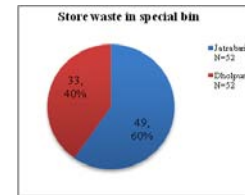


Fig.11: Storing waste



Fig.12:Regularly pay fees

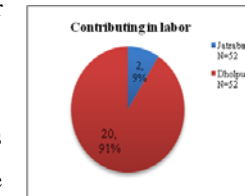


Fig. 13: Contributing in labor

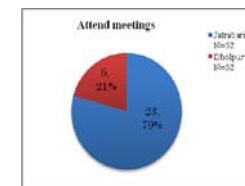


Fig.14: Attending meetings

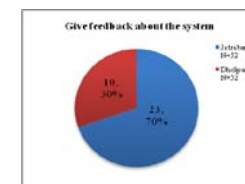


Fig.15: Giving feedback

According to the findings of the element of effectiveness, this study analysis of survey results of the two neighborhood of Dhaka city (table 2).

Community Participation is one of the main element of community partnership and community partnership is the base for community based SWMS.

Table 2: Analysis of the survey results in Dhaka city:

		Jatrabari		Dholpur	
		N=52	%	N=52	%
A. Sanitation Behavior	Adapt daily habits to agreed solid waste management system	50	61%	32	39%
	Bring waste to communal bin	45	53%	40	47%
	Store waste in special bin	49	60%	33	40%
	Cooperate in clean up campaigns	22	52%	20	48%
	Keep house and surrounding area clean.	30	62%	18	38%
	Separate waste in organic and non-organic	21	46%	25	54%
	Compost the organic part in own back yard	3	27%	8	73%
B. Contribution in cash, labor	Regular fee payment	49	64%	28	36%
	Contribute in labor	2	9%	20	91%
C. Participation in consultation	Attend meetings	23	79%	6	21%
	Elect representatives	0		0	
	Give feedback	23	70%	10	30%
D. Participation in admin. & management	Taking part in committee	0		0	
	Participation in decision making during meetings	0		0	

So, this study has determined the four level of participation such as:

- a) Basic or first Level – Sanitation behavior
- b) Mid or Second level – Contribution in cash, labor
- c) Mid-high or third level – Participation in consultation
- d) Highest level – Participation in administration & management.

Following the results the participation level of community based partnership for sustainable solid waste management system in Dhaka city given in fig.16. From the figure it is clear that, the basic level of participation is higher in Jatrabari than Dholpur.

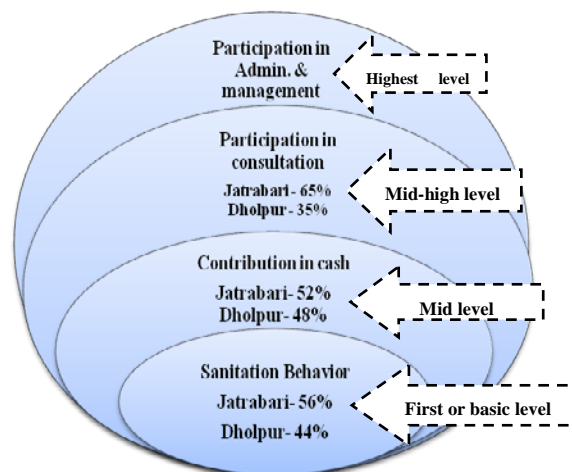


Fig. 16: Level of participation of Dhaka city.

But participation of a community for a successful community based partnerships has yet to reach.

#### 4. Conclusion

The literature study, semi structured interview and questionnaire survey were applied for this study. The results are:

- (1) Selected three developing cities practice community based solid waste management and the reasons of the success is discussed which are: A. Sanitation behavior, B. Contributing in cash, C. Participation in consultation, D. Participation in admin. and management. These are the four element of effectiveness.
- (2) The level of participation has determined by analyzing the elements of effectiveness through the questionnaire survey in two neighborhood of Dhaka city. According to the results, basic level of participation may be achieved in certain extent but to achieving the other level of participation this city has to go a long way.
- (3) To improve the community participation for a strong partnerships Dhaka city need: a. Proper law and regulations, b. Modification of municipal ordinance for the inclusion of NGOs, CBOs, and micro enterprises into the main stream of SWM. c. Public awareness should be raised through public campaigns and media demonstrations d. The Municipality should facilitate innovative, community-based programs.

References:

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