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ROLE OF CITIZEN PARTICIPATION IN HOUSEHOLD SOLID WASTE MANAGEMENT: A STUDY OF KHULNA CITY

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ABSTRACT

Poor solid waste management is one of the major Challenges for the urban areas in developing countries including Bangladesh. To overcome the SWM challenge citizen participation is must. The study was carried out to assess the quality of citizen participation in solid waste management at household level in Mujgunni Residential (Word no 9) and Sonadanga Residential (Word no 17) areas of Khulna City of Bangladesh where 80 households were selected purposively for each site for the interview with a structured questionnaire. In the study four main aspects of participation namely access, awareness, control and benefit are the key in measuring the quality of participation. By examining these four aspects, it is found that the quality of citizen's participation in the study area refers to placation level. The study reviewed and analyzed the current practices, knowledge, constraints and also the level of awareness and attitude towards participation in solid waste. Majority of the households do not engage in waste separation. Statistical analysis has been used to show the results. The research also investigated the challenges facing by the citizen in managing the household waste. This study suggested some strategies (waste reduction training programs, information dissemination, and need for authorities to engage residents) to improve the participation and awareness and for smooth functioning of the Khulna City Corporation's Solid waste Management System.
Key words: *Citizen participation, Solid waste management, Urban governance, Household level*

INTRODUCTION

Citizen participation and activities related to SWM executed by public and private sector can open a window of opportunity known as sustainable transition (Geels, 2011). When looking at inclusive participation in a multi-level environment, it becomes clear that several actors need to be involved when creating better practices and creating awareness amongst people related to waste. Various cases in developing countries show how a more inclusive system can help to overcome the challenge of solid waste management (Madera, 2015).

The population density of Khulna city is steadily rising, resulting in rapid growth of solid waste production. MSW management is strongly correlated with increased amount of solid waste. Khulna city is becoming more contaminated day by day due to a lack of an effective solid waste management system. In recent years, rapid population growth and significant migration from rural to urban areas have considerable strain on the current solid waste management system of Khulna city. MSW production is predicted to be 520 Mg (megagram) per day, with a majority of food and vegetable wastes and the residential areas are the prime source of producing MSW. About half of the garbage produced from the household level is properly disposed of at the dumping site. The majority of the rubbish is left uncollected and unregulated (Ahsan et al., 2015).

As a representative of rapidly expanding urban area of the country, Khulna city faces full burnt of SWM problem. So the problem needs to be carefully studied and observed. The current status of solid waste management in Khulna city shows that the present waste management system is not a satisfactory one rather it is environmentally harmful and hazardous to public health and safe human living. Thereby it requires an improvement from the perspective of environment and sustainable development. Organizational constraints, Lack of community participation, Non integration from informal sectors activity, inefficient collection and disposal practices, Absence of resource recovery component and Lack of human resources and vehicles are the major policy and operational level problems of solid waste management in Khulna city that can be summed up (Halim, 2021).

RESEARCH METHOD

Study Area and Sampling Procedure

The study has been performed in Mujgunni and Sonadanga Residential Areas of Khulna city under wards number 09 and 17 respectively. Khulna city is known as the third-largest city of Bangladesh, situated in the south-western part at 22°49′0″N and 89°33′0″E. The area of Khulna city is 45.65 sq. km and has about 1.30 million populations (BBS, 2015; Rahman & Kabir, 2019). The detailed information (Table 1) of the specific residential areas:

Table 1: Demographic Features of Mujgunni and Sonadanga Residential Areas

Features	Mujgunni Residential	Sonadanga Residential
Geographic Location	Latitude 22° 50' 42" N, Longitude 89° 32' 8" E	Latitude 22.8193° N, Longitude 89.5464° E
Ward No	09	17
Area	72 acre	65.53 acre
Comprised Area	Navy staff quarter, Mujgunni main road, Goalkhali main road, Mujgunni dakhin para road, Baikali cinema hall road.	Sonadanga main road, Boya cross road, South Majid Sarani, East Khan A Sabur Road, Bakshi bari area (Sonadanga 1st phase and 2nd phase)
Households	900	582

Study area is selected on the basis of existing solid waste management problems, large number of households, and access to information. From each of the ward 80 households have been selected purposively based on simple random sampling and the data has been collected through pretest questionnaire. A 7 days circle of waste generation from some households to get average waste generation per day.

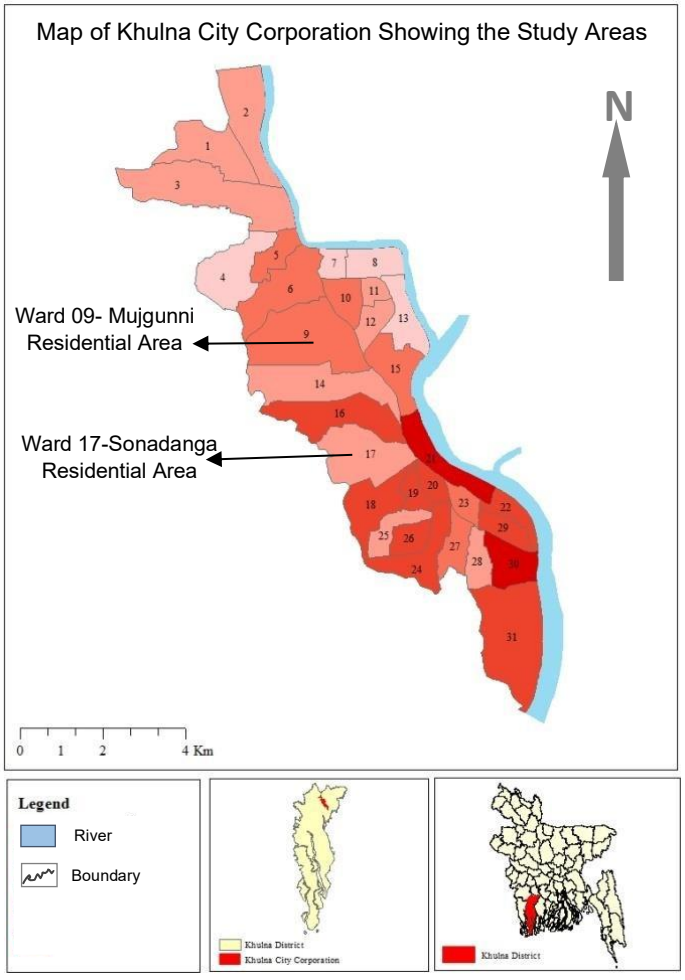

Figure 1: Map of the Study Area

Analytical Technique on Average Analysis Method

To present an overview of the citizen participation this paper examined the four key components that affect the quality of community participation.

Access: Access means channeling citizen to involve in development process (policy formulation, implementation and evaluation and monitoring). Citizens will participate if the government provides access in each process with certain roles. The greater the access space is opened, the higher the quality of community participation in regional development.

Awareness: Awareness refers to citizens' understanding of their position as part of a state system within the framework of democracy. If citizens' understanding is low, it assumes that people tend to be apathetic and will not involve in process of planning and implementation. Conversely, if citizens' awareness is high, then of course the community will be more active to participate. The higher the awareness of the citizens, the more qualified the participation will be.

Control: Control is associated with the position of citizens in controlling political power as the foundation of the democratic system. If the position of citizens in controlling public decisions is weak then citizens will tend to limit themselves to engage in the development process. But if the citizen's control in the decision-making process is strong, then the community will always actively play its role to control the power to ensure that policies are carried out in accordance with common interests.

Benefit: Benefit component in community participation relates to community appraisal in terms of their role in development process. If people feel the impact of development, they will be more active to be involved in the development process. In contrast, if people do not feel the benefits of development, then they tend to be more apathetic (Yani et al., 2017).

To assess the quality of citizen participation an analytical technique on quantitative approach by survey has been processed by using descriptive statistical data analysis technique to measure frequency in cross table analysis. Some indicators has been set on four components noted Access, Awareness, Control and Benefits which represents the level of participation in solid waste management. Score of the indicators is determined using Likert 1 to 4 scale (1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree). This four points scale forces the respondents to really make a choice (avoiding leaning towards no preference), since there is no middle point. Average analysis method then has been applied to see respondents' answers on each variable participation, by the following formula:

$$X = \frac{\sum (F.X)}{N} \quad \text{..... (1)}$$

Note: X : Average
$\sum (F.X)$: Score for categorized answers
N : The number of respondents

The above formula serves as the basis of analysis to calculate the value of quality of citizen's participation in solid waste management. The result then could be converted and confirmed into level of participation quality (ladder participation) (Yani et al., 2017). Conversion per-variable values is presented in Table 2.

Table 2 Ladder Participation (Arnstein)

Scores	Ladder Participation
28.57-32.00	Citizen Control
28.57-32.00	Delegated Power
21.55-25.05	Partnership
18.04-21.54	Placation
14.53-18.03	Consultation
11.02-14.52	Informing
07.51-11.01	Therapy
04.00 - 07.50	Manipulation

RESULT AND DISCUSSION

Level of Participation

As mentioned earlier, four fundamental aspects of participation, that the study considered valuable, were selected to understand citizens' participation in Khulna City Corporation. Access is fundamental because citizen participation can only be undertaken if people have access to active participation, and the authority opens access to the widest possible opportunity for all citizens to participate. Although access is widely available but the citizen has no awareness to engage, the quality of citizen participation is still difficult to meet. Therefore, public awareness toward the importance of participation in SWM becomes one of the main components in the quality of participation. In addition, citizens are also expected to have controls to ensure that their engagement efforts can be well appreciated by all interest groups involved. Finally, the benefit aspect is also one of the main factors affecting all the citizen to be involved in SWM process. The four components have been explained by calculating the score obtained by using the formula equation (1) (Average Analysis Method) and result then put in the score with Arnstein ladder showed in Table 2. Further analysis and discussion has been explained below, given to the four aspects of participation in solid waste management in Khulna City.

Access

Citizens in the study area have the opportunity to engage in decision making with the highest value on opportunity to engage but merely formalism (2.63 in Mujgunni and 2.53 in Sonadanga) in SWM process, especially in formulation stage showing in table 3. In addition, the public also recognizes the opportunity to speak but their advice or aspiration were not always heard (3.01 in Mujgunni and 2.97 in Sonadanga) which is fundamental to the decision-making process. However, the values at the level of determining or decide and obtaining invitations to engage have been relatively low in both study areas, accounting for 1.89 in Mujgunni and 1.85 in Sonadanga and 2.17 in Mujgunni and 2.45 in Sonadanga respectively.

Table 3 Access Aspect

Indicators	Score (Mujgunni)	Score (Sonadanga)
There was opportunity to engage but merely formalism	2.89	2.91
Receive invitation to engage	2.17	2.45
Being informed about opportunity to engage	2.38	2.46
Had opportunity to speak but their advice or aspiration were not always heard	3.01	2.97
Had opportunity to give advice but their aspiration was not always implemented	2.36	2.59
Had opportunity to talk and negotiate	2.89	2.62
Had opportunity to have role in decision-making	2.63	2.53
Had opportunity to determine/decide	1.89	1.85
Total Value	**20.22**	**20.38**

Source: Field Survey, 2022

The accumulated conversion values of the level of citizen participation quality in the access component are 20.22 in Mujgunni and 20.38 in Sonadanga which refers to the placation level of Arnstein Ladder described in Table 2. The findings means that access of citizen is available and is the formal way to the aspirations but their advice and opinion are not the main concern to be considered in SWM activities.

Awareness

Awareness is important thing that moves individuals to engage in any development activities. The following table 4 shows that indicators merely involved in solid waste management activities have the highest value with 3.01 in Mujgunni and the value of their involvement depended on their interest is highest with the score of 3.05 in Sonadanga. On the other hand the value of involved in giving advice in solid waste management activities is the lowest in both areas where Mujgunni shares 2.14 score and Sonadanga shares 2.18. The value of giving advice to these development process the Sonadanga has more score that Mujgunni which means there is better scope for giving advice to govt development process. The total value of the awareness component is 19.90 in Mujgunni and 20.78 in Sonadanga which means that public awareness for participation refers to placation level in both study areas. In other words, the quality of participation in Khulna City is still at a level to dampen the disappointment of citizens where the citizen's involvement depending on their interest is very high to participate in the solid waste management activities.

Table 4 Awareness Aspect

Indicators	Score (Mujgunni)	Score (Sonadanga)
Do not care with solid waste management activities	2.19	2.46
Solid waste management activities did not fit with my interest	2.26	2.58
My involvement depended on my interest	2.39	3.05
Merely involved in solid waste management activities	3.01	2.53
Involved in giving advice in solid waste management activities	2.14	2.18
Actively involved in solid waste management activities	2.87	2.99
Actively involved and participated in solid waste management activities	2.45	2.23
Knowing their basic rights as citizen to involve and determine	2.59	2.76
Total Value	**19.90**	**20.78**

Source: Field Survey, 2022

Control

The next aspect of participation is control. This relates to the certainty of the position of decision-making power that the people has which then influences their participation rate. The table 5 shows the weak control of citizens over the activities they proposed. The score of only involved few citizen in determining solid waste management activities has the highest value in Mujgunni (2.76) and informed to citizen by

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government in solid waste management activities has a very high value in Sonadanga at 2.98. In addition, indicator indicating that involved people but not in determining solid waste management activities is also relatively high at 2.58 in Mujgunni but in Sonadanga the indicator indicating only involved few citizen in determining solid waste management activities shares the second highest value. But the indicator on determining all solid waste management activities by citizen has the lowest value in both study areas indicating 1.55 and 1.60 respectively. The total value of Control component in Mujgunni is 18.48 and in Sonadanga 20.93, meaning that public participation in controlling public decision is still at placation level. But this aspects of participation indicates the better scenario in Sonadanga. This condition then affects the quality of citizen's participation because of weak position of their control in the process of policy making.

Table 5 Control Aspect

Indicators	Score (Mujgunni)	Score (Sonadanga)
Government determined all solid waste management activities	2.01	2.87
Citizen were just involved in determining solid waste management activities	2.22	2.62
Government only informed to citizen about solid waste management activities	2.45	2.98
Only involved few citizen in determining solid waste management activities	2.76	2.91
Involved people but not in determining solid waste management activities	2.58	2.89
Government opened up a room for dialogue to determine solid waste management activities	2.47	2.61
Government gave a room for citizen to determine solid waste management activities	2.44	2.45
All solid waste management activities determined by citizen	1.55	1.60
Total Value	**18.48**	**20.93**

Source: Field Survey, 2022

Benefits

The last component of participation in this research is benefit. People are likely to participate in development activities if they feel it will bring a positive impact to them. In the table 6, it could be seen that there are benefits but these have not met the expectations of the citizen, and this category received the highest score at 2.88 in Mujgunni and 3.03 in Sonadanga. This means citizen benefit met more with citizen expectations in Sonadanga than Mujgunni. Side by side the benefits of the SWM activities have not solved the problem of the citizen which carry the score at 2.71 relatively high in Mujgunni and also in Sonadanga with score 2.80. The lowest value is carried by the indicator benefits of solid waste management activities meet the expectations of the citizen, and it is managed by the community in a sustainable manner is 1.66 in Mujgunni and 2.01 in Sonadanga. Thus, the overall value of the benefit components in Mujgunni is 18.61 and in Sonadanga is 20.04, which means that the citizen's participation rate in the study area refers to placation level in both areas. This data illustrates that the people only consider the benefits they receive from SWM activities but has not yet fulfilled the citizen's expectations. This is proved by the people's perception who tend to be less satisfied with the benefits they receive because it has not been in accordance with their expectations.

Table 6 Benefit Aspect

Indicators	Score (Mujgunni)	Score (Sonadanga)
Citizen did not feel benefits of solid waste management activities	2.52	2.61
Only few or certain groups of citizens got advantages from solid waste management activities	2.37	2.38
Citizen knows the benefits of solid waste management activities from information provided by the government but do not feel the benefits directly	2.33	2.71

There are benefits but these have not solved the problem	2.71	2.80
There are benefits but these have not met the expectations of the citizen	2.88	3.03
The benefits of development already meet some of the expectations of the citizen	2.01	2.19
Benefits of solid waste management activities meet the expectations of the citizen	2.13	2.31
Benefits of solid waste management activities meet the expectations of the citizen, and it is managed by the community in a sustainable manner	1.66	2.01
Total Value	**18.61**	**20.04**

Source: Field Survey, 2022

After examining four selected components to measure citizen participation in SWM activities in the study area, it can be said that the level of citizen participation in the both study areas implies to tokenism level, where people get opportunity to engage but merely formalism. However, the final decisions about solid waste management activities remain to be the domain of the government to determine, and there is not much heed in the citizen's responses and it often seems not to present public's preferences. Also the citizen notifies their reluctance on actively involved in the SWM system and their interest proceeds their involvement. In addition, the findings show the weak position of citizens' control over the determination of SWM activities which it turns affects their participation rate in this sector. The participation of placation level means citizens begins to gain influence through broads or committees, but they can still be outnumbered or overruled, particularly when their opinions are unfavorable from the perspective of professional planners (Arnstein, 1969). Understanding mechanism of participation that will be utilized in the process of SWM programs is very crucial for sustainable solid waste management system.

Amount of Household Solid Waste Generation

Table 7 Amount of Household Solid Waste Generation

Amount of Household Solid Waste	Frequency	Percent	Families*Daily Amount	Total Quantity of Waste (kg) (Approx.)
Below 1 kg	52	32.5	52*1kg	52 kg
1.1-2 kg	87	54.4	87*2	174 kg
2.1-3 kg or above	21	13.1	21*3	63 kg
Total	160	100	Total daily waste generation	289 kg
			Average daily waste generation	**1.806 kg**

Source: Field Survey, 2022

From the table 7 it is seen that out of 160 respondents 32.5% families generate below 1 kg of waste and 54.4% families generate 1-2 kg of wastes and it indicates the highest amount. Only large families generate more waste and that is near 2-3 kg/day or above of this. So it is found that majority of the people of the study area generates below 2 kg of waste. So with the help of above estimation it is easy to figure out total amount of waste generated in the study area in a day. The table 7 also shows that in the study area average daily waste generation is 1.806 kg.

Household Size wise Waste Generation

The table 8 shows the household wise daily waste generation. It is found that the household holding 1-2 members produces below 1 kg waste per day. On the other hand the household consists of 5-6 members generate 2-3 kg household waste or above of that. So it is said that the more the household size the more the household waste generation. So the waste generation obviously depends on the household size in the study area.

Table 8 Household Size wise Waste Generation

		Quantity of Waste Generated Daily			
		Below 1 kg	1.1-2 kg	2.1-3 kg or above	Total
Size of Household	1-2	21	0	0	21
	3-4	31	57	1	89
	5-6	0	30	20	50
Total		52	87	21	160

Source: Field Survey, 2022

Nature and Quantity of Solid Wastes

Table 9 Nature and Quantity of Solid Wastes

Amount of Waste (in kg)	Food Waste		Paper Waste		Plastic Waste		Glass Waste		Clothing Waste		Metal and Rubber Waste		others	
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Below to 0.25	1	.6	123	76.9	89	55.6	109	68.1	36	27.7	122	76.3	13	81.3
0.26-below 0.5	66	41.3	37	23.1	71	44.4	21	13.1	74	56.9	1	.6	3	18.8
0.5-below 1	86	53.8	0	0	0	0	3	18.8	20	15.4	37	23.1		
1-2	7	4.3	0	0	0	0	0	0						
Total	160	100	160	100	160	100	133	100	130	100	160	100	16	100

Source: Field Survey, 2022

According to the physical composition of the waste, the amount of food waste generation is highest in the study area. Actually in the study area there are two types of waste- one is perishable and the other is non-perishable. The plastic waste means polythene bag and hard plastic here. The above table 9 also indicates that the lowest amount of waste generation founds in metal and rubber waste category. Sometimes bulky waste and other unknown waste particle are known as other types of physical composition of the waste for this study purpose.

Education wise Waste Disposal Status

Table 10 Education wise Waste Disposal Status

		Education of Respondents				Total
		Primary	Secondary	Higher secondary	Above higher secondary	
Separated Waste Before Disposal	Yes	8	11	13	20	52
	No	16	53	17	22	108
Total		24	64	30	42	160

Source: Field Survey, 2022

Now a days respondents are also separating glasses before waste disposal. The separation of clothing, rubber and other waste are optional to the respondents. The above table 10 shows that the people who are higher educated separate waste mostly. But it is the great sorrow that more that 50% higher educated people are not participated in waste disposal procedure in the study area. In that case people who do not in the secondary education category have the highest percentage of more than 80% do not engaged in waste separating system.

CHALLENGES FACED BY THE RESPONDENTS IN PARTICIPATION PROCESS IN THE STUDY AREA

After questionnaire survey and reviewing different literature the following challenges have been identified. There are:

- **Lack of awareness and knowledge**

Most of the community people did not know about the existence of solid waste management activities. The majority of them have primary level education, which does not expose them to SWM concepts (Swapan, 2016), (Kilewo & Frumence, 2015). Citizen Skeptical attitude about the effectiveness of participation and their limited knowledge of government process have been observed. (Rahman & Hossain, 2021), (Babazadeh, et. al, 2018).

After questionnaire survey the challenges identified through following indicators
-No practice of waste segregation (85% respondent said this)
-No training or awareness session of SWM from KCC or NGOs (65% said this)
-Do not involved in any development activities (45% said this)
-Ignorance keep them in darkness from participation (35% said this)

- **Lack of interest in SWM and lack of trust in authorities**

This is another major challenge in participation process. They confirm that as local residents did not have any influence on the decision-making process, they were reluctant to attend. The second issue is that there is no platform from which citizens can raise their voices. Lastly their participation is limited largely because they feel that this participation would ultimately be ineffective in helping them influence local decision making (Swapan, 2014), (Swapan, 2016).
-They don't get any feedback after complaining to the authorities (28% said this)
-Their opinion does not count (22% said this)
-They believe that engagement by community or political leaders was sufficient to represent their demands (45% said this)
-They don't trust in authorities and get no appreciation from any authorities to participte (44% said that)

- **Poor information dissemination**

Most of the respondents who are not interested in participating blaming it on the poor information dissemination process of the authority concerned about solid waste management. Sometimes they are not even informed (Swapan, 2016).
-Never informed about SWM activities (70% said that)
-No invitation in meeting about SWM (65% said this)
-No information about staff's sudden leave (80% said this)
-Not provided adequate opportunity to voluntarily participate (55% said this)

- **Have no threat/not bound**

Participation and involvement largely attracted those who perceived that they might be negatively affected (in terms of loss of land, eviction and the risk of inadequate compensations) by the proposed activities. Others participated indirectly or through informal means (Swapan, 2016), (Kilewo & Frumence, 2015).
-They don't face any problem in irregular SW collection (43% said this)
-They don't believe in environmental pollution (12% said this)
-They have not to pay any compensation for roadside dumping (75% said that)

- **No opportunity for formal complains**

The authority did not register any formal complaints. There has no complaints box in addition. But they informally approached the ward councilors and city corporation officials about any issues that required resolving regarding solid waste management (Rahman & Hossain, 2021).
-Absence of complain box (21% said this)
-No knowledge about complain box (40% said this)
-Informal approach but not always effective (50% said this)

- **Authority's limitations**

Authority's limitations is another cause for non-participation of citizens. These limitations (Financial, manpower, skill, coordination and management) in building up public awareness of the planning process or making a genuine effort to consult local residents to minimize potential conflicts, (Swapan, 2016), (Babazadeh, et. al, 2018).
-One of the conservancy supervisors said that there is limitation of vehicles in this purpose. All the van are uncovered. Roadside waste cannot properly removed by the NGO staffs. Every month there need an extra truck for carrying the excessive waste from the STS point.

- **Others**

The participation is also obstacle by the poor economic condition, limited effectiveness of communication strategies taken by authority, status of social capital (Swapan, 2014) and Poor communication and information sharing among govt, private and community groups (Kilewo & Frumence, 2015).

SATISFACTION LEVEL OF THE RESPONDENTS

Table 11 Satisfaction Level of the Respondents

To determine the satisfaction level of citizen in the context of solid waste management system, data have been collected through a likert scale of 1 to 5 scale where 1 is strongly disagree and 5 is the strongly agree. Then the question were set where their full satisfaction will be with the strongly agree and their dissatisfaction with strongly disagree.

Satisfaction Criteria	Score(Mujgunni)	Score(Sonadanga)
Service is Convenient	1.71	1.77
Regular Service	1.65	1.67
Sufficient Payment	2.99	2.97
Waste Removed Properly	2.45	2.21
Road and Drain Properly Cleaned	2.11	1.19
Status of Staff Behavior	3.22	3.40
Maintain Safety Measures	2.89	2.93
Authority Concern about your Problem	2.88	3.01
Average	**2.48**	**2.50**

Source: Field Survey, 2022

From the table 11 it can be said that citizens are satisfied with SWM system in terms of status of staff's behavior but their major dissatisfaction are irregular service and convenience in both study areas.

RECOMMENDATIONS

From the above discussion the following recommendations are provided for improving the management of household waste for the residence of the study area. The recommendations shown in table 12 are specific to each household that should be involved in the strategic planning of the specific interventions.

Table 12 Recommendations

Sl No	Recommendations	Why to be done	Who can do this	Where to be done
1	Separate and minimize food waste and organic waste before disposal.	If the organic food wastes area separated at household level then the total amount of waste will be deducted and it will be easier to transport waste for dumping at disposal sites.	Citizen level and also in commercial	at household level and commercial used level
2	A community wide Composting programme	To manage food and yard waste in which material is processed in a central location within the community.	Khulna City Corporation or non-governmental organizations	At the community level
3	Encourage residents to use appropriate storage containers providing containers	Improper storage container causes difficulties for the collection providers and can create significant public health problems in regard to attracting diseases. In the light of past public health issues, residents should be encouraged to dump their waste in containers	Provided by municipal services	At household level
4	Improve collection coverage and frequency	To improve disposal methods, reduce burning, to avoid mismatched disposal cycle of the residents	Khulna City Corporation or non-governmental organizations	At household level
5	Public education campaign should be launched carefully	To develop good public habits of garbage disposal.	Khulna City Corporation or non-	At community level

			governmental organizations	
6	Launch programs on focusing on recycle and reuse	To keep environment safe and maximize the uses of resources	Khulna City Corporation or non-governmental organizations	At community level and STS point also
7	Hold monthly/ quarterly meeting on SWM	To increase participation of citizen in decision making process	Khulna City Corporation or non-governmental organizations	Both at community level or at municipality

CONCLUSION

The overall goal of this research is to assess the quality of participation of citizen and their participation level in solid waste management system focusing on access, awareness, control and benefits. The four components have their own levels according to the ladder of the quality of Arnstein's participation (1969). The results of citizen's participation of the study areas showed that the quality of participation in these four components is all at the level of placation, where the highest score can be seen in the access component and the lowest in the benefit component. In general, the capacity for participation shows that the level is still at the position of Tokenism. The findings defines that citizens participation is just an emphasize of formal procedure, but government has all the domain to control the system.

However, it is an urgent need and scope to improve solid waste management system of residential areas of Khulna city and some necessary recommendations to enrich the overall environmental condition of the city. The government of Bangladesh can play the role of a facilitator at the macro-level to improve overall management system, while at micro level KCC can play a direct role to manage solid waste much more efficiently by improving their institutional, financial and technical capabilities and by helping the waste related significant NGO's.

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