

Community Participation As a Tool For Improving Solid Waste Management: A Case Study On Savar Municipality, Dhaka

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Executive Summary

In the introductory chapter that has a general introduction to explain the importance of the issue and its relevance. It contains background of the study and introduction to the problem, objectives, rationale of the study, scope and limitations of the study and organization of the dissertation. It also presents conceptual framework, theoretical perspective and literature review for the research. It also discussed about the current practice of community participation at municipality level in some developing countries of Asia for the better understanding of the practical-aspect. Then it is consists of methodology which is the base of any research work. The methodology possesses three sub-components, namely - study procedure, survey procedure, analytical procedure. Based on these three paramount components the design of the research will developed which includes numerous micro components like selection of topic and study area, development of goals and objectives, analysis of objectives and operational requirements, reconnaissance survey, enlisting of expected data and relevant sources, selection of sampling technique and sampling size, preparation of questionnaire, primary data collection, secondary data collection, processing of the data, data interpretation and analysis, formulation of sustainable scheme. Indeed, this design of research work provides a systemic view of the overall procedure of the research work. In description of the study area, It describes the study area with focusing on demographic and geographic data, socio-economic condition of the study area. This paper also consists of current practices, problems, constraints and potentialities of community participation at municipality. With the help of few case studies in selected areas of Savar Paurashava this chapter compares the presumed result of the regulations and the ground reality. It also assesses the implication of existing regulations on the solid waste management system. It presents major findings from the study regarding to community participation as a tool for improving solid waste management at Savar Paurashava. This paper proposes improving mechanism for community participation as a tool for improving solid waste management system of Savar Paurashava and recommends policies for development upgrade mechanism and provides conclusions of the research.

ABSTRACT

Community participation is frequently identified by the involvement of people in projects to solve their own problems and develop a sense of ownership with the projects. This article explores how well community participation explains variations in the performance of solid waste management projects in Savar municipality. Case studies of solid waste management in savar, reveal a variety of activities that we categorize into four forms of community participation: mobilizing, decision making, construction and maintenance. Mobilizing and Decision Making are associated with performance in the cases we examined. Our results suggest that participation form as well as community influence are important in providing public services like solid waste management. The hypothesis that increased community empowerment performance is a generalization for solid waste management in savar municipality.

INTRODUCTION

Community participation is a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them (World Bank, 1994). Community Participation is a function of information through which people can come to share a development vision, make choices, and manage activities (Williams, 1992). Public participation can be defined as a continuous, two way communication process which involves promoting full public understanding of the processes and mechanisms through which environmental problems and needs are investigated and solved by the responsible agency; keeping the public fully informed about the status and progress of studies and implications of project, plan, program or policy formulation and evaluation activities and actively soliciting from all concerned citizens, their opinions and their perceptions of objectives and needs and alternative development or management strategies and any other information and assistance relative to the decision (Canter, 1996).

In Savar, Solid waste management systems running, by the participation of the community. They were putting the garbage at the street in a proper way at the right time. At the individual level, residents are responsible as users. This involves actions like storing waste in a proper way in a bag or bin, separate recyclable or organic materials from other waste, offering waste at the right place at the proper time for collection, and cleaning the area around the house. Apart from individual responsibility, people can be collectively responsible in more or less organised activities, like meetings, clean-up campaigns, and awareness-raising activities. Therefore, community participation in savar area may involve making material, financial or physical contributions to activities of solid waste management, for instance working as cart operator or sweeper, and paying fees for waste collection. A step further is actively participating in formulating the project, meaning participation in meetings and expressing opinions and ideas about the objectives and activities of the project, and closely following the project and its progress. The highest level of community participation is community management and this may entail becoming a member of committees, being involved in controlling the project, being accountable to other community members about decisions taken. Often community management is carried out by a smaller group within the community, through for example a newly established committee or an existing community-based organization.

This study is based on two objectives which are to examine the existing level and mechanism of participation of Paurashava citizens in providing and improving solid waste management services in the study area and to evaluate the effectiveness of existing citizen's participation and to recommend ways to improve it, if necessary.

METHODOLOGY

The reasons behind the selection of the paurashava as the study area are:

- This paurashavas are of similar type (class-I);
- Secondary data of this paurashava is available;
- This paurashava is providing solid waste management system by community involvement sand
- As the distance between these two paurashavas is small, primary data collection has been easier.

For the purpose of attaining the objectives of the study, three different indicators for solid waste management service has been selected.

- Waste collection
- Waste bins and;
- Waste disposal

The respondent has been chosen randomly from each household. For the purpose of holding selection, the steps shown below have been performed:

- At first, the list of holdings of the ward was collected from each paurashava and listed with a sequential serial number.
- Then, total holdings N divided by the sample size n gives the sample interval k
- One holding was selected randomly. Suppose it is M .
- Then the sample was selected on the basis of holdings bearing the numbers $M, M+k, M+2k, \dots, M+(n-1)k$.

Data have been collected from primary as well as secondary sources. Primary data have been collected from a questionnaire survey as well as key informants (paurashava personnel, staffs of different projects etc.) interviews.

Data for indicators have been collected through a questionnaire survey of individuals from randomly selected households from a sample of holdings in Savar paurashava. Secondary data were collected from the Paurashava offices, LGED as well as different books, reports and journals.

After collecting necessary data from the survey of individuals and key informants as well as secondary sources, all have been assembled and processed for the next phase.

In the process of analysis for the present study, a comparison of different parameters of solid waste management facilities for Savar paurashavas was established. Some computer software such as SPSS, Microsoft Excel etc. were needed to accomplish the analysis phase and GIS software has been used for the preparation the study area maps and services facilities maps.

STUDY AREA PROFILE

Savar municipality covers the northwest side of Dhaka Metropolitan City. It lies between 23.44° to 24.02° north latitude and 90.11° to 90.22° east longitude. Municipal area is bounded with four rivers- Turag on the east and east west, Dhalesswari and Bangshi on the west and Buriganga on the south. Only the northern side is without any river. So actual boundary of Savar paurashava is:

- At North- Ghoradia, Deogaon, MollikerTek, Modonpur,
- At South- Karnapara
- At East- DhoendaMouza, Bonga Union
- At West - Bonshi River

Climate of Savar is relatively mild in nature. The main features of the climate of this area are incessant rain in the rainy season and high temperature in the summer. More rain occurs between June and September. October to January is the low rain period. Rate of annual rainfall is 80 inches to 90 inches and temperature remains within 50° F. to 95° F (Savar MIDP, 2008).

Madhupur tract area is known to be raised during plasticine area. Due to the scorching sun calcium carbonate (CaCO₃) is created by oxidization and by the color of soil turns into red. High lands are of alluvial or loamy soil and low lands are of sandy or loamy. But areas on the south of the Paurashava are mostly of alluvial plain. Savar Paurashava is a residential area. But the most land use of the area is mixed. Mixed land use comprises residential, commercial, industrial, agricultural and institutional land use, open space, water bodies and road network. The mixing type of these land use is seen almost all over the study area. The study area consists of 9 wards and their land use is totally different from each other. The total area of Savar Paurashava is 16.67 square kilometers of which 54.85% is residential, 4.56% is commercial, 2.08% industrial, 24.55% is agricultural, 2.93% is institutional, 0.67% road network and others is 10.36% e.g. open space and water bodies (LGED, 2006).

Majidpur, Bank Colony, Bank Town, Karnapara, Rajashan, etc. are the core residential areas of the Paurashava. Both sides of the Dhaka-Aricha Highway, Wapda Road, etc. are used for commercial and industrial purposes. Institutions are established in scattered manner. Commercial establishments and residential buildings are located adjacently in an area. A good number of educational institutions are situated in the ward no. 4. So it can be said that, land use of Savar Paurashava is more or less mixed land use, because there has been no specific land use plan or zoning regulations for the Paurashava (Savar MIDP, 2008).

At present the total population of the Savar Paurashava is 1, 40,300 (BBS, 2001). According to the census report of 1991, this number was 1, 14,200. According to the LGED Population Growth Project, this number of population will increase day by day because of increasing rural urban migration, natural increasing trend, etc. Savar Paurashava projected its population 170536 in 2005 (before the year 2005). In 2011, estimated population of Savar Paurashava will be near about 2 lakhs and it will be more than 4 lakhs in 2021. According to the Census Report 2001, the population density of the Paurashava is about 1000 per sq. km or 40 people per acre. In the central area of the Paurashava this figure is about 1800 per sq. km.

The quantity of solid waste generation is 25 tons/day of which 15 tons (LGED, 2005) are collected and disposed of to the uncontrolled dumping site. At present the Paurashava has 2 garbage truck, 20 rickshaw vans, 40 waste bins and one dumping site at Genda (uncontrolled land fill). There is a provision to collect garbage from the waste bins, every morning by the garbage trucks and rickshaws.

Coverage of Paurashava services in solid waste disposal is 60% for the residential and 50% for the commercial users. Number of households served total is 5000. Recently the Paurashava authorities is planning to arrange 7 new dumping trucks, 16 new rickshaw vans, 9 transfer stations, 42 additional staff, and 50 waste bins, which will cover 90% residential and 65% commercial services in solid waste disposal (Masud, 2013) (MIDP, 2008).

Savar Paurashava mainly consists of 9 wards. Among them ward no three and ward no eight practiced community participation for improving solid waste management system in Savar.

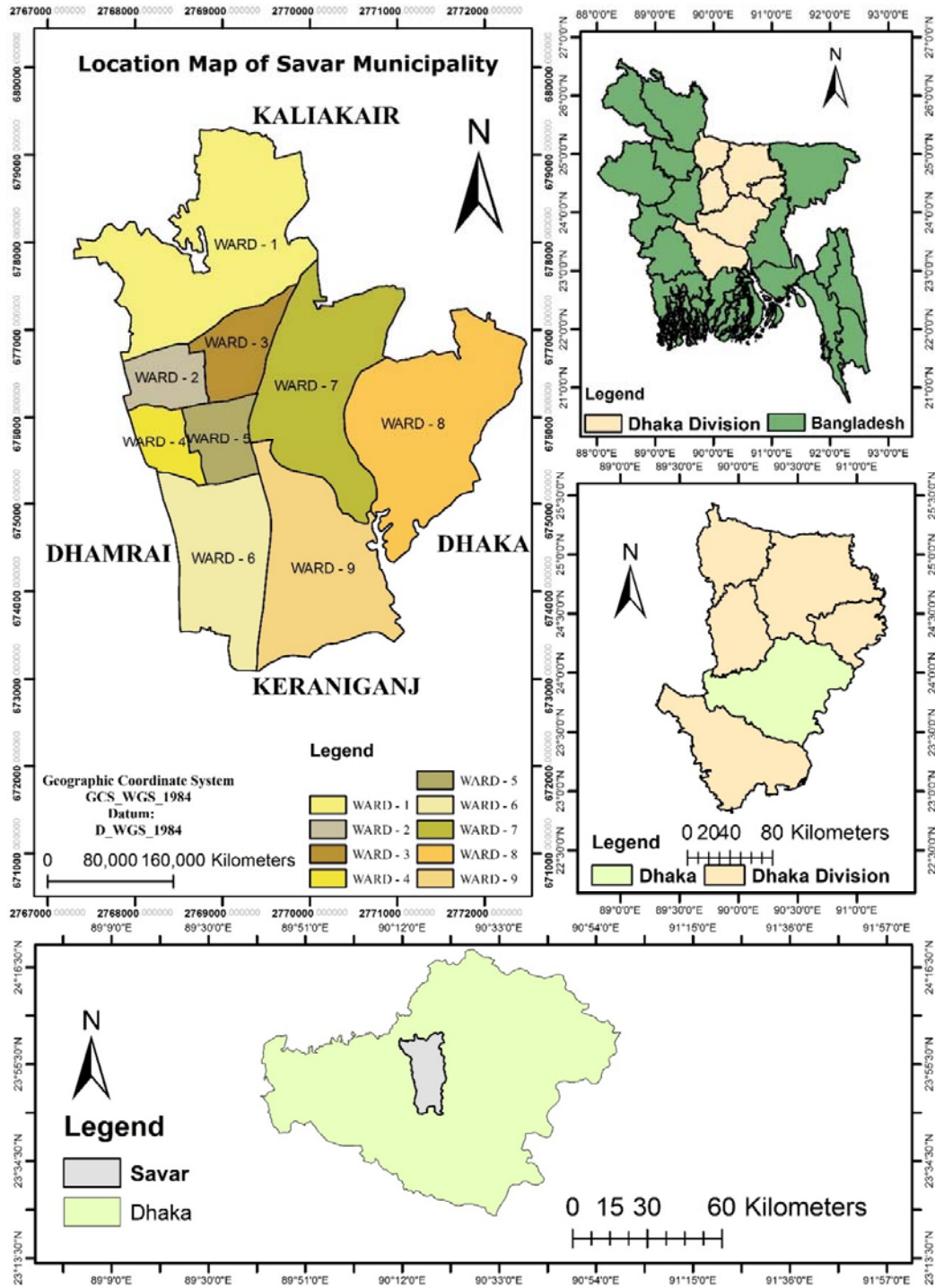


Figure 1: Location Map of Savar Municipality

WAY OF PARTICIPATION FOR SOLID WASTE MANAGEMENT

Savar paurashava incorporate people in different service providing activities through different committees.

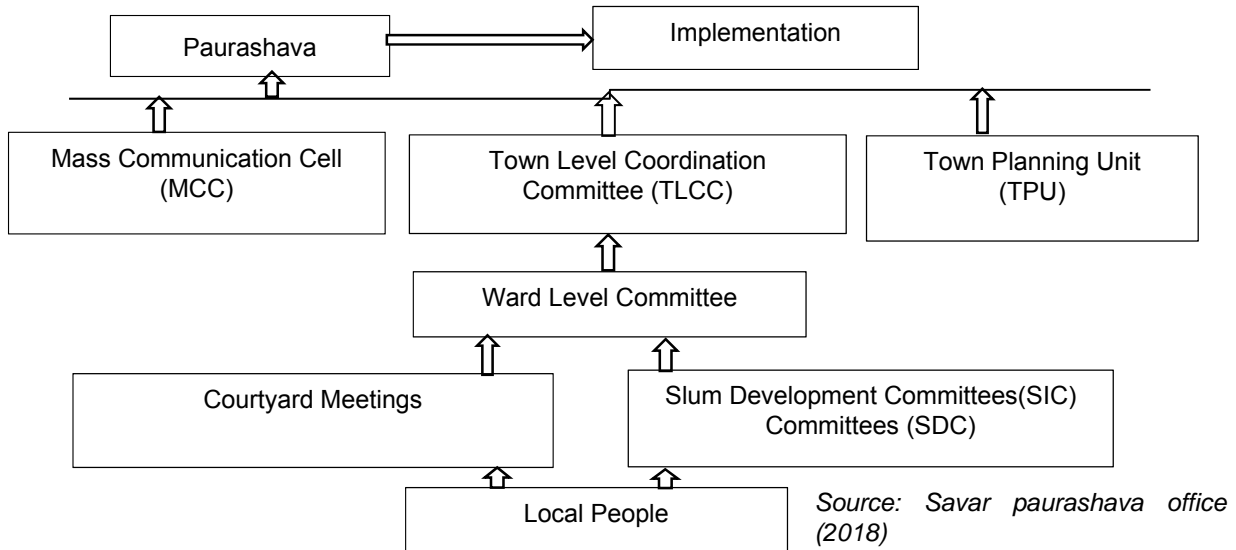


Figure 2: Relationship of different committees of Savar paurashava

There are three committees in Savar paurashava namely Mass Communication Cell, Town Level Co-ordination Committee (TLCC), Town Planning Unit (TPU). The main objectives of these committees are to gather opinion of people related to service facilities as well as arrange different kinds of awareness building program. Under Town Level Co-ordination Committee (TLCC) there are nine Ward committees that arrange different courtyard meetings at these nine Wards. Besides, Slum Development Committees (SDC) gather opinion from slum areas that are finally presented to TLCC through WC.

According to UGIAP, the Savar Paurashava has to arrange courtyard meeting quarterly at every Ward. The participants of these meetings should mainly the poor women of that area. But, in practice the situation is different. The courtyard meetings are not arranged regularly. Though, the female ward commissioners are responsible to arrange the courtyard meetings quarterly and submit the minutes of the meetings to the monitoring authority, but they submit the minutes of more than one meetings by arranging a single meeting. Sometimes the female ward commissioners use these meetings as their post-election showdown. For these reasons, the paurashava authority cannot gather the authentic information from poor people by courtyard meetings.

In ward committee, respective ward commissioner is the chairperson and the female ward commissioner is co-chairperson. Sometimes due to personal conflict and lack of coordination between them, the meeting does not hold in every quarter. They both do not want to take the responsibility of arranging the meeting. Some ward commissioner does not participate in ward committee meeting because they think that different issues must be discussed in the meeting and the Paurashava will not be able to solve all the problems and in result the citizen will not vote to that ward commissioner in the next election. The total ward committee member of Savar paurashava is 90.

Savar Paurashava arrange TLCC meeting in every quarter. But in most cases, among 50 members around 10 to 20 members attend in the meeting. Though all members do not attend the meeting but some effective issues are discussed and the issues are being implemented.

Forms of people's participation means to what extent and how the people are being involved in different kinds of development activities that are implemented by the paurashavas. In Savar paurashava among nine wards participatory approach was applied in ward no. three and eight. And other wards which is ward no. one, two, four, six and nine this approach is not applied at present. In Savar paurashava ward no three and eight are practiced participatory approach and other wards are not included in this approach. In Savar paurashava, other wards except for mobilizing residents, all forms of participation are almost absent. In other wards about 55% people are mobilized which indicate that people are conscious about participation but they do not get the opportunity of it. On the other hand, in Savar paurashava ward no. three and eight take initiative to mobilize people more than that of other wards that result 74.5 % peoples' engagement to participate in mobilizing residents.

Table 1: Percentages of responses with regard to mobilization of people

S.L. no	Forms of Participation	Other Wards		Ward 3 and 8	
		yes	no	yes	no
1	Mobilize other people	55	45	78	22
2	Attend courtyard / WC / TLCC meeting	12.5	87.5	52.3	47.7
3	Discuss about service facilities	30	70	55	45
4	Involved in awareness building program	8.5	91.5	22.5	77.5
5	Respond to questionnaire from authority	40	60	70	30

Source: Field survey (July, 2018)

Table 1 shows that more than 52.3% people of ward no. three and eight attend courtyard meeting arranged by the paurashavas to discuss different kinds of problems and their demands. Generally, these meetings are arranged in poor communities. It also shows that in these two wards, 45% of the surveyed people have experience of discussing with the paurashava authority about service facilities and the corresponding figure is 20% for other wards in Savar paurashava. The table also shows that the rates of participation in awareness building programs and responding to questionnaires by inhabitants of ward no three and eight are higher than those wards of Savar paurashava.

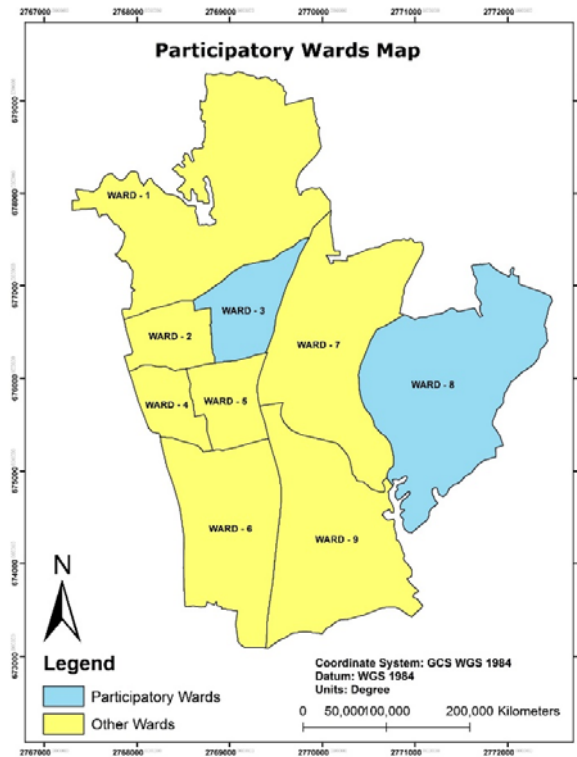


Figure 2: Participatory Wards Map of Savar Paurashava

Table 2: Percentages of responses with regard to contribution of people in construction work

S.L. no	Forms of Participation	Other Wards		Ward three and eight	
		yes	no	yes	no
1	Contribute by labor, money, property etc.	25	75	33	67
2	Construct dumping zone	79.5	20.5	88.7	11.3

Source: Field survey (July, 2018)

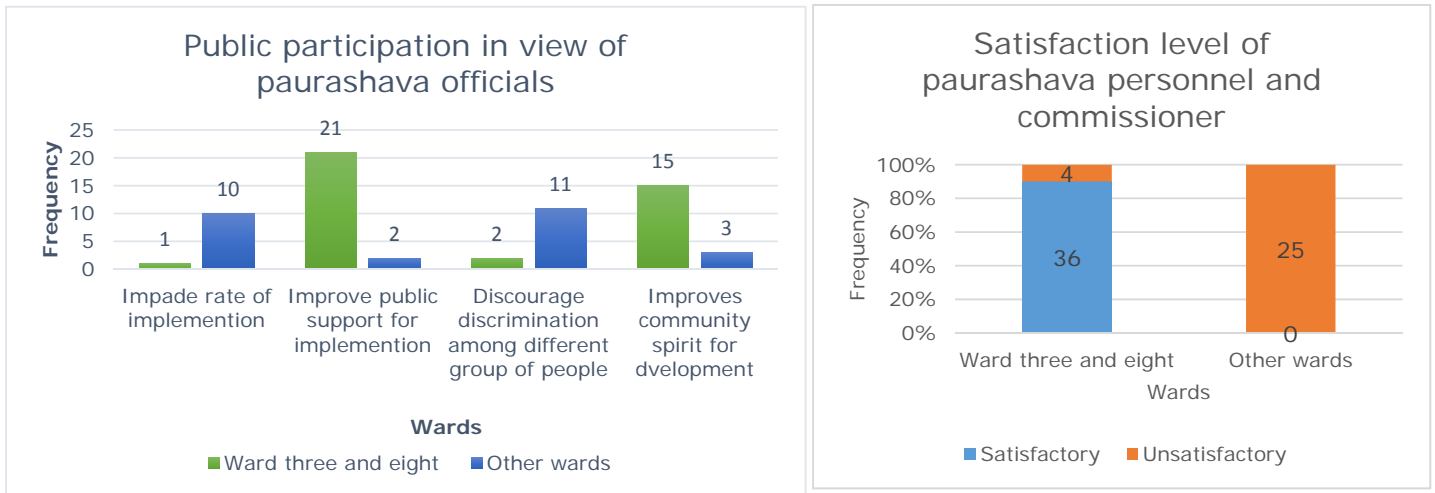
One of the main achievements of effective community participation is to encourage people to contribute something for the betterment of the project. These contributions may take different forms such as donations of money, portions of property, labor, monitoring the project etc. From these points of view, the people of ward no three and eight in Savar paurashava are more advanced than the people of other wards in Savar paurashava. Table 2 shows that 33% people of ward three and eight of Savar paurashava have contributed or are willing to contribute these sorts of help and other wards the figure is 22.0%. The table also explains that more than 88.7% people of Savar paurashava ward three and eight have constructed their road and drain to improve the quality of service facility and in other wards the figure is below 80%.

Table 3: Percentages of responses with regard to participation of people in maintenance work

S.L. no	Form of Participation	Other Wards		Ward three and eight	
		yes	no	yes	no
1	Participation in management work	21	79	47.5	52.5

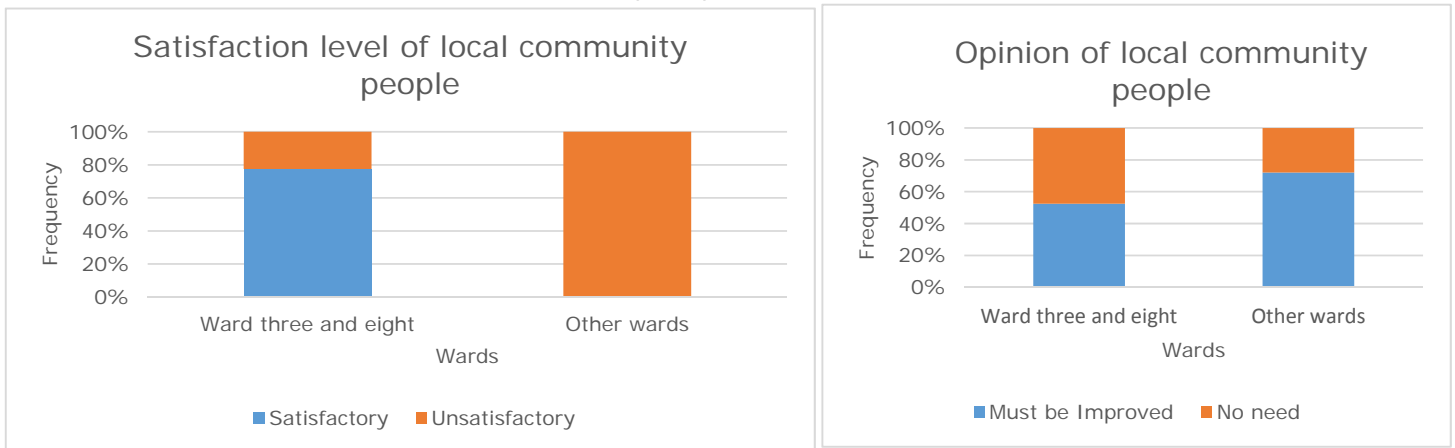
Source: Field survey (July, 2018)

Proper maintenance of services is very much needed for their sustainability. Generally, it is very difficult for any authority to repair all sorts of damages immediately. In this circumstance, the local people can be involved to maintain the services for minor problems. If a participatory approach is followed during provision of service people are motivated to take these responsibilities. Table 3 demonstrates that the people of Savar Paurashava ward number three and eight (47.5%) are more conscious about maintenance of services by their own effort than that of other wards people of Savar Paurashava (52.5%).



Source: Field survey (July, 2018)

Figure 3: Opinion and Satisfaction level of paurashava personnel and commissioners about present participation level



Source: Field survey (July, 2018)

Figure 4: Satisfaction level and Comments of community people about present participation level

Figure 3 shows that in Savar paurashava, 90% respondents of ward no. three and eight are satisfied and the rest are not satisfied. On the other hand, in other wards of Savar paurashava, almost every respondent is dissatisfied about present participation level. In response, 95% (Figure 3) respondents of other wards in Savar paurashava suggested to improve it. On the other hand, 65% respondents of ward no. three and eight in Savar paurashava gave opinion in support of improving it and 35% (Figure 3) respondents did not feel about the necessity of people's participation. Figure 4 shows that in other wards people of Savar paurashava, almost

every people are dissatisfied. On the other hand, in Participatory wards of Savar paurashava, 75% people are satisfied and only 25% are not satisfied. In response, 70% (Figure 4) people of other wards in Savar paurashava suggested to improve it. On the other hand, 55% respondents of ward no. three and eight in Savar paurashava gave opinion in support of improving it and 45% (Figure 4) people did not feel about the necessity of people's participation.

PEOPLES OPINION ABOUT SOLID WASTE MANAGEMENT

The scores of each of three indicators under solid waste management service facilities were summed up for participated and non-participated wards in Savar paurashavas separately. Then the score of each indicator was added to achieve the total score. Next, the total score was divided by the maximum possible score of 3000 for each service and multiplied by hundred to get the satisfaction score scaled to a range of 0-100. Finally, the satisfaction score was measured to the level of very poor, poor, fair, good and very good according to TUGI Index.

Table 4: Score of solid waste service of Savar paurashava

Wards	Frequency	Score				Maximum Possible Score	Satisfaction Score
		Waste Collection	Waste Bins	Waste Disposal	Total		
Other Wards	200	459	355	395	1209	3000	40.3
Ward no three and eight	200	664	601	660	1925	3000	64.17

Source: Field survey (July, 2018)

Table 4 presents all the three indicators of solid waste facilities which in participated Wards in Savar Paurashava bear higher score than those of non-participated wards in Savar paurashava. It is clear from the table that regularity in waste collection and disposal is as require as adequate numbers of dustbins to improve this service. The respondent of Ward no three and eight in Savar paurashava reported 156 higher score to dustbin facilities than that of other wards. But the score of waste disposal in participated wards in Savar paurashava is almost 265 higher than other wards. It indicates that it is possible to satisfy people with solid waste services by limited number of dustbins if coordination between paurashava authority and paurashava people can be ensured. Eventually the table shows the total score of satisfaction level with solid waste management system of Savar paurashavas which is 64.17 in participated wards and 40.30 in other wards. It indicates that the inhabitants of participated wards is more satisfied with the present system of providing service compared with non-participated wards.

Table 5: Satisfaction score and level of Savar paurashavas at a glance

S.L. no	Indicators	Other Wards		Ward no three and eight	
		Satisfaction score	Satisfaction level	Satisfaction score	Satisfaction level
1	Solid waste Management	40.3	Poor	64.17	Fair

Source: Field survey (July, 2018)

Table 5 shows that in participated wards satisfaction level is fair and non-participated wards satisfaction level is poor. Because of community participation satisfaction level in participated wards in Savar Paurashava is better than other wards in Savar Paurashava. Satisfaction level is providing according to TUGI index.

RECOMMENDATION AND CONCLUSION

- Increasing more participatory technique in Savar paurashava
- Both men and women should be invited to the Courtyard meetings as well as Gender and Environment committee
- Monitoring solid waste management of the activities of these committees should be increased.
- To ensure more effective participation the paurashava authority should formulate ward level committee with the coordination with other govt. agency or private agency.
- Community approval should be displayed in the paurashava ground and the authority must preserve the right in favor of citizens to make query about any service provision activities.

Moreover, after distinguishing among different forms of people's participation, it is found that not all forms of participation are equally practiced in delivering service facilities in the Savar paurashavas. It is also found that people's involvement for providing and improving solid waste management service facility is treating as an optional activity. Paurashavas are generally controlled by Pourashava Ordinance 1977. So if people's participation is included in the ordinance and makes the participatory approach as a mandatory task, it is expected that the solid waste management service facility would be improved in Savar paurashava area.

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Savar MIDP (Municipal Infrastructure Development Plan)

