



COMMUNITY PARTICIPATION IN SOLID WASTE MANAGEMENT PROGRAMMES SPONSORED BY THE LOCAL AUTHORITY: A STUDY WITH SPECIAL REFERENCE TO KANDY MUNICIPAL COUNCIL IN THE CENTRAL PROVINCE OF SRI LANKA

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ABSTRACT

Solid waste management has proceeded to be a foremost challenge and issue in urban areas in the world. With huge waste generation amounts in each year, Sri Lankan local authorities are facing difficulties in the systematic management especially, in the boundaries of municipal council. Solid waste management is one of the activities where community participation is a key to success as they are the main waste generators. Within this context, the study was examined community participation in local authority sponsored solid waste management programs executed in the area of study and to examine the success of the programs to promote community participation in their implementation. The study was carried out using qualitative data collection methods in Kandy Municipal Council in the Central Province, Sri Lanka. It found that community participation is active for the programs related to solid waste management executed under the rules imposed by the municipal council. These programs are successfully implementing in the area. Therefore, the participation appeared to be a mandatory requirement rather than an intentional involvement by community.

KEY WORDS: Solid Waste, Solid Waste Management, Community Participation, Local Authority, Bottom-Up Approach, Community Empowerment

1. INTRODUCTION

Solid waste is primarily a result of human activities. Hence, the increase of activities of people in any form invariably lead to the accumulation of solid waste. Therefore, it is not surprising that solid waste is closely associated with urban communities and industrial areas, which are characterized by high population density and high levels of activities related to production. The solid waste from industries together with domestic waste is a major issue found in contemporary societies. There is a long-term impact on the communities if the waste is not properly managed and disposed. It is also a serious health risk for the communities, which cost the national economy in the long term. At the level of the community and neighborhood, haphazard dumping of

solid waste also has become an issue related to the aesthetic beauty of the environment and a nuisance in day-to-day life. Therefore, solid waste management has become a sensitive issue for the community with political repercussions.

Experience in Sri Lanka and elsewhere shows that one major problem affecting the management of solid waste disposal is the inability of both the community and the local authorities (Liyanage *et al.*, 2015; Bandara *et al.*, 2014; Subash, 2006) work together in managing the waste. The inability of local authorities to coordinate their work, play their respective roles and hold responsibilities in an effective manner are the major reasons associated with the problem. Researchers have shown (Ndam, 2013; Joseph, 2014; Amoli, 2010) top-down



approach of solid waste management, which is centralized on state policies and administrative services though it has some impact, is not able to solve the problem of solid waste and solid waste management. Therefore, it goes without saying that an alternative is needed and there the bottom-up approach which, relies more on community participation, is a strong candidate. On the other hand, in developing countries where the state control is strong, citizens are accustomed to detach themselves from local authorities, expecting decisions on and administration services to be made on behalf them in a top-down manner (Mongkolnchaiarunaya, 2005, cited in Amoli, 2010).

Therefore, it is important to take community involvement for decision and policy making process which in turn enable them to take responsibility and sense of co-ownership (Nigbur et al., 2005, cited in Amoli, 2010) as highlighted in the bottom-up approach. Particularly, solid waste management as it is carried out today is generally recognized as engineering and administrative work (Liyanage et al., 2015) neglecting the community role. Further, realization of the failure of top-down approach has resulted in local authorities to adopt various community-centered strategies to manage solid waste disposal. This is primary because, community organization is complex and a range of socio-cultural variables and attitudes determines human activities. However, mobilizing the communities through participatory actions to manage solid waste remains a challenging issue (Karunasena and Amarathunga, 2010). It is therefore necessary to achieve a correct balance between the top level and the participatory strategies to make the community centered solid waste management a success.

Within this background, the study focused on collaborative actions between the community and the municipal council with regards to solid waste management programmes executed in the area of study. The term "Community Participation" has been used as "community involvement and their contribution" in this study to indicate within the process of solid waste management from its generation to the final disposal.

2. OBJECTIVES

1. To examine community participation in local authority sponsored solid waste management programmes
2. To examine the success of the solid waste management programmes of the local authority to promote community participation in their implementation

3. METHODOLOGY

The study was conducted in the Municipal Council of Kandy District of Central Province in Sri Lanka. The Kandy Municipal Council is the highest waste collected municipal council in the central province (Database of Municipal Solid Waste in Sri Lanka, 2005). It is one of the most affected areas, which faces a severe crisis with respect to the disposal of solid waste per day. The management of solid waste is carried out by dividing the area of the Kandy Municipal Council into the following five zones. Zone five is the most residential area out of the five zones as it comprises of 95% of households and rest of the units represent less than 5% in the zone. Therefore, zone five has been selected to conduct the study. It comprises eight village administrative divisions.

Since the study employed qualitative research design, aiming to collect attitudinal and behavioral aspects of community related to solid waste management, it was difficult to pre specify the study sample in order to get real picture of the community. Crosschecking methods had to adopt to address this matter and sample was selected focusing these two situations. Therefore, two non-probability sampling methods namely; snowball and purposive sampling were used to select respondents for the study. Total sample of the study consisted of 98 respondents. Out of 98, 8 were selected based on snowball sampling and rest of the 90 were selected based on purposive sampling.

The study used both primary and secondary data. Primary data collected from key informant interviews, in-depth interviews, focus group discussions, informal discussion and observations. Eight key-informant interviews were conducted with the respondents identified through snowball sampling representing one from each Village Administration division. Key-informant interviews were also provided a background in finding respondents for in-depth interviews. Thirty in-depth interviews were carried out with staff members of the municipal council and other governmental officials under purposive sampling method considering the designation, knowledge and experience. Further, 60 in-depth interviews were carried with household respondents under purposive sampling method considering the ethnicity and income. Three focus group discussions were conducted as part of the study. One focus group discussion consisted all eight community health assistants and two focus group discussions with labourers consisted of six labourers in each group were conducted. Informal discussions were also used to crosscheck the collected data from other data collection tools representing both the Kandy municipal council staff members and residents. All together 10 informal discussions were



conducted consisting two community health assistants, two with labourers and six residents. Observation method used as dual purpose in the study. At first it used as qualitative data collection tool at the field to examine the community behaviors related to solid waste management activities. Secondly, it used to crosscheck data gathered through other data collection tools. Secondary data for the study was collected from the records of the municipal council and the divisional secretariat, human artifacts, internet sources and journals.

Since the study adapted a qualitative study with its context, thematic analysis was used as the main method of analysis.

4. RESULT AND DISCUSSION

4.1. Programmes on Solid Waste Management, Community Empowerment and Participation

The municipal council conducts several programs incorporating the community as they are the main waste generators. The main aim of these programs is to minimize the amount of waste that would be finally disposed at the site situated in *Gohagoda*. Awareness and educational programs are carried out focusing the public in several ways in order to build up their awareness on the problem of solid waste. This has been strengthened with the support of environmental committee programmes. Further, waste separation and scheduled waste collecting services are also been executed within the limits of the municipal council. Moreover, there are some programs conducted by the municipal council which aims to popularize composting and recycling practices among the community. In addition, prohibition of open burning is another program conducted by the municipal council. Some of these programs are voluntarily accepted by the community by forwarding their active participation into them. However, for some programs the municipal council seems to use legal power over the community. The following section explains details of such programs which are currently being operated within the limits of the municipal council aiming at community empowerment and participation in the area of study.

1. Conducting of Environmental Educational and Public Awareness Programs

Community awareness is an important aspect to understand the prevailing issues, causes, effects, necessity of participation and expand their role for solid waste management (Shukor et al, 2011). Conducting of awareness programs on solid waste management is the first and foremost strategy used by the municipal council to receive the maximum participation of the community for solid waste

management. These programs first started in the year 2011 at present now they are continuously carried out with the headship of the Community Health Assistants (*Praja Sauwkya Sahayaka*) of the municipal council. This idea collaborates with previous researches. As Shukor, (2011) mentions, providing awareness is one of the most successful factors for community participation in activities related to solid waste management.

In a broader view, the municipal council conducts their awareness and educational programs in dual ways targeting the empowerment of the community. They are, event based environmental education programmes and continuous public awareness programs on solid waste management. The solid waste management division of the municipal council organizes such events aiming the general public on environment related aspects such as environmental problems, environmental pollution and solid waste management including solid waste management practices, 3R concept, etc.. Below are three such events held during the period of data collection for the study.

One of the events was named as 'Flea Market' where the community can buy and sell used household items such as kitchen items, electric items, furniture and exercise machines and other items such as garments, flower plants and toys. The main aim of this event was to promote the concept of reuse among the public. The Flea Market was held in a common place in the Kandy city where the community can easily reach. Similarly, another event was named as 'World Environmental Day Celebration in Kandy District' which was jointly organized by the solid waste management unit of the Kandy municipal council and the Central Province office of the Central Environment Authority. The theme of the celebration for the year was "Sustainable usage will protect the Earth". The celebration was organized as an 'Environmental Education Exhibition' which focuses on school children, business community and the general public in the Kandy district. A public awareness workshop was also held parallel to the exhibition. Furthermore, a 'Home Gardening Competition' was organized by the Agricultural Department and the Kandy Municipal Council and residents who are involved and interested in home gardening.

When considering the above mentioned events which are based on environmental education, it is clear that the main target of the events organized by the municipal council includes dissemination of knowledge on environmental education while practicing them in real contexts. Dissemination of knowledge was reflected in all three events held during the period of data collection. At the same time, such events addressed all kinds of people in the



community without any age, economic, social or cultural difference. Similarly, these events were held in the city area of the Kandy District where the public can easily reach. Another important aspect associated with these events was the practice of activities related to solid waste management in real contexts with the use of creative methods. It was organized by the municipal council in order to promote the concept of reuse. At the same time, incentives or reward giving methods were also included into the competitions while directing them on waste management practices. It was made possible by organizing home gardening competitions, which appears as a kind of strategy to receive a higher number of participation for the programs organized by the municipal council.

These events appear as a tool of community empowerment in activities related to solid waste management. It was initially made with the use of information sharing which creates a platform to both the community and the municipal council to share ideas and opinions about each other. On one hand it appears as a strategy to induce the decision making process of the community in relation to environment and its related aspects.

The concept of community participation shows that the process of community participation starts by providing information to the community and improving their awareness (Shukor, 2011). The venue where the community gatherings are held is also important to receive the support and attention of the local/religious leaders for the continuity of public awareness programmes. Religious leaders such as Buddhist monks have traditional authority over the community to make influences on their behaviors patterns. It was observed during the event based environmental educational programs which were held in a common a place in Kandy where anyone can reach easily. At the same time, some events have been organized in a very common places which are mostly used by the general public.

Similarly, community empowerment and dissemination of knowledge observed in event based awareness programs are seen as positive impacts on solid waste management practices of people. The majority of people who participate in home gardening competitions engage in home composting and they handover only the non-degradable waste to the municipal council. Therefore, these events can be regarded as of an appreciation for the community who produce waste in a responsible manner. It is also provides an encouragement for the others to follow them. Accordingly, the municipal council has identified the importance of these concepts and therefore, apply them into the real world. It will enhance the successfulness of community participation. However, the success depends on the

level of community support received in actual contexts.

According to the opinions of the officers of the municipal council, in actual context, an active participation could be seen for the event based environmental educational programs. The Community Health Assistants made attempts to gather the residents who were from their own village administrative division and tried to maintain a better relationship with them allowing them to participate in such events. However, unlike in other programs, residents who have not participated in usual programs seem to participate in these programmes. These programmes were held in the middle of the Kandy city and therefore, everybody could participate without any difficulty. Moreover, all these events were held during weekends when the city usually becomes populated. In addition, some of the residents have participated in these events with due to a short notice given by the Community Health Assistants. Therefore, as a whole, it is clear that the community actively participated in these events.

In addition to the above mentioned events, continuous awareness programs are conducted by the municipal council. The programmes on solid waste management started along with the awareness programs in order to make the community aware about the waste separation waste collecting time table. At the beginning, "door to door" and "community gathering" methods were used to make the community about such programmes. The majority of community gatherings were organized at village temples and community halls. The establishment of Environmental Committees made the task easier as it induces community participation. Similarly, distribution of handbills and establishment boards indicating the boards of waste collecting timetable in each road, with the support of private and governmental institutions is another strategy used during the continuous awareness program conducted by the municipal council. The waste collecting boards in each road has been established with the sponsorship of both private and government institutions. It is important to create a public-private partnership for the success of programmes related to solid waste management. On the other hand, it is important to make the community aware and to get their active participation.

In real the context, the continuous awareness programs conducted by the municipal council are mostly oriented towards providing awareness on solid waste management rather than education. Except in 'door to door' or 'community gathering' programmes, others were always represented by a set of selected people in the community. 'Door to door' or 'community gathering' awareness programs were conducted covering all the residents of the zone who



were mainly targeted to get introduced to the new solid waste management programmes of the municipal council. According to the understanding of the community it is more about waste separation and waste collecting time table in the area.

Some awareness programs are carried out with a Japanese volunteer related to the Japan Overseas Cooperation. The Japanese International Cooperation Agency together with the solid waste management division of the Kandy municipal council conducts programmes to provide environmental education within the limits of the municipal council. These awareness programs cover a vast area in relation to the different aspects found in solid waste management including the experience of systematic solid waste management methods used in developed countries. During such programmes Japan strategically addresses different community groups. These programs are targeted for preschool and school children within the limits of the municipal council.

Awareness programmes for both preschool and school students are also conducted with the support of the Japanese volunteer under the supervision of the municipal council. Preschool programs teaches children about basic habits related to solid waste management. It is important to develop better sanitary and waste related habits and behaviors among children. There are 25 preschools operating under the Kandy municipal council and there are nearly 100 private preschools. These awareness programs which are not held in large scale are conducted with the help of Community Health Assistants in the area. They provide simple awareness such as do not litter everywhere and have a clean environment. However, this can be identified as one of the appreciable efforts made by the municipal council, since the preschools which were in the area of study are controlled by the municipal council. The students coming from the municipal council limits represent both poor and lower class of the society. It was revealed from their behaviors that these children have less awareness on the concept of clean environment and related sanitary activities. Therefore, the volunteer strategically attempts to take the attention of the children by providing them some toffees, attractive simple songs and exercises using their native language. All such attempts caused to change the attitudes of children and finally the behaviors of them to have a clean environment.

Similarly, school awareness programs for the students of grade 1 to 13 conducted with the support of Japanese volunteer under supervision of municipal council supervision. The school programs are a kind of an extension of the preschool programs which share more information on Solid Waste Management systems used in developed countries.

However, the support of the foreign volunteer was important to conduct the awareness programs although it was the duty assigned to him. The municipal council used him as a strategy to attract people for the programs as he is a foreigner. The community showed a natural persuasion to participate in these programmes, because talking with a foreigner in their native language was considered a novel experience for them.

Further, the solid waste management division of the Kandy municipal council organized an awareness program for the Public Utility Week of the Provincial Council. It provided the community with knowledge on; severity of the problem of solid waste, ongoing solid waste management programs, formal waste collecting methods, formal and informal disposing methods used in Sri Lanka and other countries, the waste dumping site in *Gohagoda*, solid waste management methods in developed countries, 3R concept, welfare arrangements for solid waste management section, political support and the role of the environment committee.

Majority of respondents mentioned that the municipal council provided awareness on solid waste management and that programmes were successful. The municipal council conducted these programmes in two different methods: door to door awareness programs and community gatherings. Although these programs are not oriented towards environmental education they provided awareness on the ongoing solid waste management system. This can be considered as a positive aspect of the Kandy municipal council in relation to solid waste management. However, the formation of environmental committees and their active participation is decisive for the conduction of these awareness programs.

2. The Formation of Environmental Committees

The awareness programs on solid waste management are mainly conducted under the coordination of the environment committees. It is a specialized committee founded by municipal council which primarily addresses the activities related to solid waste management of the area. It consist is similar to any other normal committee and the village administrator of the division is the chairman of the committee. Vice chairman, Secretary, Vice secretary, Treasurer and Committee members are the other members of the committee. According to Community Health Assistants, there are committee members in each and every road. It is their duty to together once a month and discuss the problems related to solid waste management in their village administrative division. The committee has an annual meeting once a year with the participation of all members. The role of the environment committee is substantial in



empowerment of the community in relation to solid waste management in the area.

The role of the environment committee is directed to the empowerment of the community in relation to solid waste management. The environmental committee mainly organizes *Shramadane* programmes in the area. In addition, the environment committee jointly works with Dengue prevention programs conducted by the Ministry of Health, *Janavasa* committee and *Civil Arakshaka* committee in the area. In accordance with the above fact, Abeyewickreme *et al.* (2012) have stated that waste management has led to a significant reduction in dengue vector densities due to the removal of the places where water is being collected as, waste is a preferred breeding place for the vector. It has been successful with the establishment of partnerships among local authorities; the involvement of communities and households. This study illustrated the importance of local authorities and its coordination with the increasing responsibilities of households for the effective and sustainable control of dengue vectors. The environment committee coordinates all these activities along with the above mentioned committees and activities. Therefore, the role of the committee has been expanded than the early days of its establishment. The community inform the environment committee about their problems related to waste collection and illegal waste throwing practices. Therefore, it has caused to solve the solid waste management within the area without taking it up to the top level officials. The role of the Community Health Assistant is substantial in the committee because they coordinates the work between the municipal council and the community. It has helped to develop a close relationship with village administrator of the division. On the other hand, it can be considered as an advantage to them to make a close relationship with the community.

The environment committee can therefore, be considered as a Social Capital of the community as it provides social networks and reciprocity by making a common platform for the community to open up their voice for their own betterment. In other words, it provides a sense of responsibility and ownership to the community which is directly connected with empowerment. More elaborately, the environment committee appears as a place where the empowerment of the community can be identified with sharing control, ability to participate, influence on decisions and allocation of resources (Holcombe, 1995, cited in Claridge, 2004). It is an avenue which creates synergy and power to allow everyone collectively in building local capacities, involvement in decision making and empowerment. In other words, the environment committee is the place where

the active community participation in solid waste management can be seen in the actual world.

The environment committee has been formed with the aim of raising community empowerment. However, it depends on the level of participation of the community. The study found that community participation for the environment committee is not in a satisfactory level in the area of study.

While only a certain amount of respondents were members of the environment committee, a similar amount of residents were unaware about it. Some of the respondents have not heard about the environment committee. Even though, nearly half of the respondents have heard about it, they do not have its membership. Similar findings were revealed from the study conducted by *Araen et al.*, 2015 in Nigeria related to the collaboration on solid waste management in their area. The study found only few residents who agreed to collaborate with their neighbors and traders on solid waste management. However, the majority of residents did not agree to collaborate as it was difficult to make an agreement on how to deal with solid waste. A similar findings was made in the present study. Among all the members, very few of them play an active role in the committee by holding designations. There are several reasons behind the above finding. Although the municipal council is aware about the impact of the environment committee on the community, they do not pay enough attention to these types of commonly important collective activities. On the other hand, the conveying method used by the municipal council to make the community aware about the environment committee has to be more effective, other than simply informing. It should be conveyed with some enthusiasm by emphasizing the importance of the committee for managing the problem of solid waste. If it does not happen, the residents would not be interested to spare their time for collective actions.

The following fact was revealed while considering the amount of participation of the residents for voluntary activities. A *Shramadane* campaign has been organized mainly as a Dengue prevention programme under the headship of the environment committees and the Ministry of Health. Half of the residents participated in this voluntary activity while another half of them did not. The severity of the problem caused for the increased participation of the residents. Therefore, it is important to use enthusiastic conveying methods to enhance the participation of the community for collective actions. The residents would then like to spare their time for such activities. Their willingness for such activities in the future is also considered important for the sustainability of these programmes.

The majority of respondents showed their willingness to participate in voluntary activities in the



future. A certain amount of respondents did not like to join with them in the future especially due to their physical disabilities. A few of them were uncertain about their participation because they had a busy life style. However, these findings revealed the importance of utilizing attractive mechanisms to receive a higher participation of the community for such commonly important matters. It made the active involvements of the committee possible by holding different designations.

However, the participation of the members for meetings is in a satisfactory level. The majority of them participated in the last three meetings held by the committee without considering whether they hold designations or not. Out of all respondents, a very few of them hold designations in the committee and the majority of them were committee members. Among the respondents who hold designations, the majority of them belong to the age category of more than 60 years. There is a tendency for such people to spend their time for commonly important matters.

The views of the committee members of the environmental committee on its efficiency in managing the problem of solid waste in the area is decisive for the sustainability of the committee. Nearly half of the respondents from the members of the environment committee believed that environment committee is efficient in managing the problem of solid waste in the area.

Although it is an avenue for managing the problem of solid waste in the area, the study found that the community has a fewer participation for the environment committee and that their awareness on it is very low. Therefore, in real practice, the environment committee is not much popular among the community. The reason is that, the communication methods used by the municipal council for gathering people for collective actions are not much powerful and attractive. It is important to use powerful means of communication instead of addressing the public with the use of a loudspeaker during the day. People often give priority place to fulfill their individual sentiments rather than addressing commonly important matters. They are unaware that they are the primary waste generators and it is their responsibility to make a contribution in managing it effectively. It is the main reason why a selected community such as elders and retired people participate in these activities. Such people seem to have real intensions to find solutions for commonly important matters and make a contribution to solve the problem. Nevertheless, the study found that female associations also provide knowledge and engage in activities related to solid waste management since the majority of them were the members of the environment committee.

The community participation of an environment committee in the village administrative division has successfully operated due to the substantial roles played by the chairman of the committee, the village administrator and the Community Health Assistant. They have gathered the residents and organized various programs related to solid waste management including competitions for school children, award giving, song, beautification projects in the area, plating flowers in selected places and maintaining them and *Shramadane* programmes. Although some residents did not participate in all the events organized by the committee due their busy life styles, they tended to provide either monetary or material support for the events which can also be considered as a kind of a participation for the activities. Nevertheless, later on, the activities of the committee were not active as it were in the beginning due to the lack of enthusiasm of the community.

Therefore, it is clear that, creative methods should be adopted to induce the more participation of the community in collective events and these methods should be amended time to time in order to maintain the interest of the community. The same idea has been executed in Japan as "Association of Residents" (Iijima, 2015). Waste separation is another programme which is important for community participation.

3. Separation of Waste

Waste separation at the place where it is being generated is another programme aiming to minimize the waste generation at the limits of the municipal council. This is one of the globally accepted components of solid waste management (Tchobanoglous and Kreith, 2002). The Kandy municipal council has adopted this strategy since 2014. According to the discussion made with the officer in charge of the solid waste management unit of the Kandy municipal council, the solid waste generated within the limits of the municipal council should be separated by the community into two main categories as degradable and non-degradable waste before handing them over to the garbage collectors. The non-degradable waste is again separated into four categories as plastic-polythene, paper-cardboard, glass and other. The municipal solid waste is divided into six categories as degradable, paper, plastic, glass, metal and other (Tchobanolous & Kreith, 2002). However, Kandy municipal council has categorized the waste as above by considering the nature of waste generation.

Waste separation programme is successfully continuing in the zone where a study has been conducted. As stated by the officers of the municipal council, labourers, village administrators and respondents have actively participated in the programme. All most all of the respondents tend to



separate waste before they are being disposed without any gender, education, income or ethnic variation.

The majority of respondents separate waste into four categories (degradable-non degradable (paper/plastic-polythene/glass)). As instructed by the municipal council a certain amount of respondents follow all waste separation categories (degradable-non degradable (paper/plastic-polythene/glass/other)). Yet, a certain amount of residents follow basic two categories (degradable-non degradable) waste separation by having all non-degradable waste into one. Other category includes metal, garments, coconut shells. However, the majority of residents collect those types of waste together with other categories for their convenience. A study in Nigeria recorded a different finding that waste is not sorted by its residents before disposal (Adogu *et al.*, 2015). Yet, the community follows a kind of waste separation as a result of the solid waste management programme carried out by the municipal council.

However, the majority of respondents mentioned that they do not have problems related to waste separation. Only a very few of them mentioned that they are having problems related to waste separation. Similar to this data, a majority of respondents revealed that waste separation does not take time and effort. Only a few number of respondents believed it as difficult as they consider it as a waste of their time and effort. However, among the respondents who have problems related to waste separation mentioned that they face difficulties due to lack of space available in their households. In addition, they face practical difficulties with children since their children tend mix the waste. This is common among the families who have more than two children. Similarly, residents who employed have problems related to time. Although the residents face these kinds of problems they try to separate the waste before it was handed over to the municipal council. This finding links with their awareness of law related to waste separation.

According to the bylaw of Kandy municipal council ordinance 2013/06/28, waste should be separated before handing them over to the municipal council. As per this bylaw, legal actions can be taken for those who are not following the law. As the study found, a majority of residents are aware about the law of waste separation. Only a certain amount residents did not know about the law. The reason behind the satisfactory level of awareness of the community is, the awareness provided by the municipal council. The above finding clearly reflects the satisfactory involvement of the community towards waste separation by following the rules imposed by the municipal council. The study found the following three main reasons for community involvement in waste separation.

1. Awareness programs
2. The compactor does not collect mixed waste
3. Monitoring procedure of the environmental police

The municipal council provided awareness to the community on waste separation. Similarly, strategically the compactor driver does not collect bags with mixed waste. They often collect the waste after checking up the content of the bag relevant to the day of waste collection. If they find any bag with mixed waste, they leave the bag by the road. On the other hand, the driver of the tractor and labourers are not following this method as much as the compactor driver and labourers do. The reasons is their less motivation for the duty. The environmental police monitor the waste disposal activities of the community and due the fear for them, the community tend to separate waste. The community has no alternative, except for handing over their waste bag to the labourers of the municipal council. This is because the residents live in a limited land plot and cannot maintain a waste disposal mechanism on their own. Therefore, the community tend to separate waste before it was handed over to the labourers of the municipal council.

Nevertheless, the study found that there are some residents who handover mixed waste bags to the municipal council although the community health assistants and labourers have informed them several times not to do so. At such situations, the labourers had to separate the waste in those waste bags before handing them to over the compactor. Similarly, some people blame to labourers without separating their waste. Such occasions, they try to use the political powers they have. Nevertheless, with the mediation of both community health assistants and the environment police such kinds of incidents have been lessened at present.

Although there are some exceptions, the programme of waste separation is successfully operating in the area of study area. As stated by Subash (2006) waste separation is, one of the individual actions done by community for the successful participation on the process of solid waste management. However, the study found that the community engages in waste separation just because they have no other alternative other than handing the separated waste over to the municipal council. Although a majority of residents mentioned that they do not have problems related to waste separation it seems that they do not engage in the process heartily.

In relation to the programme of waste separation, a waste bucket has been introduced by the municipal council to store degradable waste due to the problem of monkeys and dogs in the area. This waste bucket can be bought at a reasonable price. Most of the people who live close to the main road



and those who live by the side of the roads use the buckets. This bucket is mostly beneficial for the people who are employed and leave houses early in the morning. The introduction of a waste bucket for non-degradable waste is an example for a place where the municipal council listens to the problem of the community and hand over the responsibility and ownership to the community themselves.

However, the municipal council introduced this waste bucket due to the problems raised by the community in keeping waste. Their mediation is very much important to continue this programme in a better way. People who are suffering from problems related to animals mainly requested for buckets from community health assistants. The municipal council introduced this method as a solution for the problem of animals and according to the findings of the study the involvement of the community is positive in places where it is necessary.

Similarly, the study further found that the residents followed different methods to store degradable other than the method introduced by the municipal council. The majority of them used a plastic bucket of their own together with a shopping bag. A very few of them used garbage bags and a certain amount of residents used mixed methods to store organic waste until they are being dispatched by the municipal service. Only a few of the residents stored organic waste in the bucket distributed by the municipal council. This finding showed a relationship with the level of income of the residents.

The majority of residents who used the waste bucket distributed by the municipal council belonged to the category of high income earners. The municipal council does not show any opposition when the residents use other methods to store waste. They allowed community to use the most convenient method for them. The study also found that some residents used this waste bucket to store rice and sugar instead of using it to store waste.

Parallel to the introduction of waste buckets to store degradable waste, the municipal council has also distributed colour bags to store the major categories of non-degradable waste for free of charge. The orange color bag is used to store polythene and plastic while the blue color bag is used to store paper and cardboard. The red color bag is used to store glass and at the same time their own disposal bag is used to store other waste such as coconut shells, tins, plates. The municipal council has informed the community to use relevant bags when disposing waste and their main intention is to make the colours familiar with the type of waste that is being disposed.

However, the involvement of the community to use colour bags is not in a satisfactory level. Only a moderate amount of residents used it directly while a certain amount of residents used them with shopping

bags. The usage of the colour bags is popular among high income earners.

As labourers mentioned, the community does not use colour bags. Even the labourers who collect waste with the help of handcarts and three wheelers face difficulties when transferring the waste bags from one to another. The labourers, cannot directly lay the waste bag into the compactor or tractor as they have to return the bag to the relevant household once again. Hence, it is easy for them when the community uses their own waste bags as they do not have to return them back.

According to the study, there are two reasons behind the less usage of colour bags in storing non degradable waste. The main reason is that, these bags are not durable. The second reason is that the labourers of the municipal council take the bag along with the waste and they do not return it back. The labourers of the municipal council do not encourage the community to use these bags since they themselves face practical difficulties when the community uses them. However, the usage of these bags is relatively high among the people living in main roads compared to the people living in sub ways.

Yet, colour bags have been distributed by the environment committee of each village administrative division. The responses of the residents are significantly different in relation to their awareness on the environment committee and the use of colour bags. The majority of residents mentioned that they received waste bags from the municipal council to store non-degradable waste. The residents have taken the colour bags distributed by the environment committee although they are unaware about the committee. The main reason is that, these bags have been distributed free of charge and the community has get together to get them without any intension of managing the solid waste.

Although a waste bucket and color bags have been introduced by the municipal council to store waste at the level of the household storing waste is not a problem for the majority of residents. Only a certain amount of them have problems related to the storage of waste. As they pointed out, they face this problem mainly due to the lack of space available to store several types of waste in one place. In addition, they have to face problems due to animals such as monkeys, rats, dogs and cats. They further mentioned that they are unable to store waste for few days due to its nature as it has a bad odor and some other related matters. Nevertheless, the mediation made by the municipal council for storing waste is appreciable because it helps to manage the problem of solid waste to a certain extent. This waste separation program is linked the with scheduled waste collecting service of the municipal council.



4. The Scheduled Waste collecting Service

The municipal council carry out a scheduled waste collecting service. It is done according to a time table in relation to the solid waste management programme, using a compactor, tractor, three wheeler or a handcart. Degradable waste is being collected every other day in a week whereas non degradable waste is being collected once a week in every weekend. When the labourers of the municipal council visit a neighborhood to collect waste, they inform it to the community using three different modes: horn, whistle and calling.

The participation of the community especially their awareness on both the time table and the mode of waste collection is very important to successfully continue this programme. The efficiency of services provided by the municipal council leads to the active participation of the community for the programme.

In relation to the scheduled waste collection service conducted by the municipal council, the awareness of community on waste collecting time table is considered very important to induce the level of participation for the programme. This is mainly because it is the responsibility of the community to discharge waste according to the relevant days assigned by the municipal council.

According to the findings of the study, a majority of residents mentioned that they are aware about the waste collecting timetable operating in the area. However, their real awareness is bit low than they actually mentioned. When asked about the waste collecting days of their area, the residents were successful in providing answers. All most all respondents were aware about both the waste collecting mode (compactor, tractor, handcart or three-wheeler) and the informing method (horn, whistle or calling).

When comparing all the facts related to waste collection (awareness on waste collecting time table, waste collection mode and informing method) the majority of the residents seemed to be satisfied with the waste collection service of the municipal council. Only a very few number of residents were not satisfied with the collection service rendered by the municipal council. A certain amount of residents had mixed ideas related to the collection service and mostly their ideas were negative. As a whole, the majority of residents had positive views towards the waste collection service. However, a certain amount of residents had negative views towards the existing service of waste collection mainly due to the following reasons.

1. The informing method used for waste collection are not audible enough
2. Lack of a regular waste collection service

3. Labourers do not come to collect waste from houses
4. The waste collection service is not punctual
5. Do not collect waste properly.

The informing method used to collect waste (horn, whistle, calling) is not audible enough to the residents especially for residents who live in hilly areas. Further, the residents mentioned that, the municipal council does not collect waste on some days and therefore, the service is not punctual. Hence, they face difficulties, to keep waste in their houses and waiting until the labourers come to collect waste. The main problem in keeping waste is that, they cannot keep waste bags outside of their houses due to the problems of animals. Some residents mentioned that they do not like to keep a waste bag in front of their houses as it is not decent. Therefore, they have to waste time until the labourers come to collect waste and also have to change their regular activities due to this problem. The other problem is that the labourers hesitate to come to collect waste from houses situated in hilly areas and therefore, the residents have to go down to handover the waste bag to the labourers. Due to the problems related to the absence and lack of punctuality of the labourers, the residents have to face great problems. Finally, the residents mentioned that the labourers, sometimes do not collect waste properly and it leads the environment to be unclean.

Nevertheless, the labourers mentioned that they had to face difficulties when collecting waste from the households. As it revealed, some people are not aware about the informing methods used to collect waste and as a punishment, the labourers do not collect them. Nevertheless, according to the point of view of the community, the horn is not clear for the people who live in hilly areas. The most important idea put forwarded by the community the labourers visit their houses only on some days. In other words, they do not have a proper and systematic collection service. From the point of view of the municipal council it has happened due to the problems related to resources that are available and it has caused difficulties to build up trust between themselves and the community.

Although there are some residents who do not follow the rules related to waste collection imposed by the municipal council, involvement of the majority of residents is satisfactory. The level of communication between the municipal council and residents is important for this satisfactory level of involvement. The community health assistants act as facilitators between the municipal council and the community in this process. Therefore, the residents communicate mainly with them.

The majority of residents are satisfied with the level of communication between themselves and the



municipal council. It leads to a higher level of community participation. As they mentioned, are allowed to inform the community health assistant directly if there are problems related to waste. In order to improve this relationship, both the office hot line and mobile phone numbers of the community health assistants have been given to the community to contact them where necessary. The identity cards are also given to them for the due recognition. Community participation can be induced by effective communication. Effective communication of the community members develop a broad understanding of an issue (Shukor, 2011). The present study reestablishes this fact in relation to the role played by the community health assistants and the community. However, they suffer due to the problems such as lack of physical resources as they do not have properly established office buildings with good sanitary facilities. Both labourers and the community health assistants had to use common wash rooms and they are also used by both males and females. Moreover, some of the residents mentioned that the community health assistants are not much active at present than the time that they worked during the probationary period. It seems that they just spend their time going here and there in their respective village administrative division and without doing much work. However a majority of residents have fulfilled their duty.

The Labourers connect with the community as the primary persons who collect waste from households. The study found that the residents provide different benefits to them. The labourers do not ask any monetary or material benefits from the residents as the municipal council informed them not to do so. The municipal council has strictly reacted against them in such cases. The residents willingly provide them with some benefits. Such benefits may mainly include food. Other than that, clothes and money are sometimes provided for the labourers. The community has positive views towards providing benefits. According to the residents, since the labourers collect their waste, they must provide benefits for them. The community follow this tradition especially during the festival season or *Sinhala Aulth Awruddha*. Yet, some residents mentioned that the labourers sometimes asked monetary benefits in order to collect waste. The study found that this practice is existing especially in hilly areas. The people who live in such places often give benefits to the labourers. However, the community gives benefits to labourers as an incentive.

The municipal council has provided identity cards for the labourers. The identity card is useful for labourers to stand as a service provider of the community and they have used it as a mode of defense from the community where necessary. These

are some of the strategies used by the municipal council to increase the service they rendered to the community. However, the labourers are doing their work with the limited facilities available for them. They do not have proper places to fulfill their cleaning needs after their service time and no proper system to take vaccinations in due period.

Further, a public health inspector is also working for the zone and he monitors all these activities. However, as he has to work for two zones at the same time, he faces great difficulties with the heavy load of work. There are only three public health inspectors working for the activities related to solid waste management in all five zones of the Kandy municipal council. Nevertheless, he often attempts to make a good environment in the zone by monitoring and investigating activities related to solid waste management. He manages both physical and human resources to provide a better service to the community under the authority of the scavenging officer and the municipal engineer.

Parallel to the scheduled waste collection service, the municipal council is also trying to popularize the composting practices among the community.

5. Popularizing the Composting Practice

The municipal solid waste is largely consisted of degradable waste (World Bank, 2012). According to the Master Plan of Solid Waste Management in the Kandy Municipal Council (2013), degradable fraction of waste is in a high level. In the study area, this fraction is mainly generated in households (ibid). Composting is a viable option which provides numerous positive outcomes for both the natural environment and social beings. Composting requires a simple technology and it is environmentally friendly (Tchobanoglous and Kreith, 2002). It adds an economic value for it at the end. The Kandy municipal council is trying to popularize the method of composting among residents in order to reduce the amount of degradable waste which is going to the final disposal site. In order to fulfill the above objective, two types of compost bins are being distributed in the area of study. These compost bins are distributed under the *Pilisarua* National project and *Thakarura* compost bins.

The community participation for composting goes hand in hand with their level of awareness. The awareness of the community on composting is high in the area of study. The majority of residents were aware about composting. The residents were especially aware about the ingredients that can be used for composting and the benefits that they can receive. The municipal council is also providing awareness on composting to popularize it among the community.



According to the study, the majority of residents mentioned that the municipal council provided awareness to them on composting. These programmes caused to have a better level of awareness. This establishes the fact that information and awareness cause to increase the level of involvement of the community.

The municipal council has distributed both types of compost bins in the area of study. However, it was revealed that the compost bins distributed under the *Pilisaru* National project is more popular than *Thakakura* compost bins in the area of study. Some knowledge is required to operate and continue the *Thakakura* compost bins. An idea put forward by the Japanese volunteer who promotes *Thakakura* composting in the Kandy municipal council is mentioned below *Thakakura* composting programme has failed since it needs people to have some knowledge when using it.

The compost bins distributed under the *Pilisaru* project is sold at half a price of the market value. It is a reward for the community which increases their motivation for composting. A certain amount of residents are engaged in home composting. Very few of the residents used composting but now they are not in operation. It is mainly due to the problems that they face while using the bins. Some of the problems would include bad odor and worms and their busy life style. Similar findings revealed from the study conducted by Lekammudiyane and Gunatilake (2010). According to their study, the most abundant problems associate with the compost bin was leachate problems, unpleasant smell and worms. Yet the majority of the resident, do not have any kind of involvement for composting. As they revealed, that they do not have enough space for it. Since the study area is situated in an urban setup, most of the people have limited land area. Therefore, practically, they do not have a place to keep or maintain compost bins.

A certain amount of residents use plastic compost bins distributed by the Kandy municipal council. Yet, few of them use their own composting facilities. However, the motivation of the community for composting is beneficial for the municipal council as they have to collect a less amount of degradable waste from the community. In order to popularize the composting practice, the community health assistants monitor the compost bins distributed by them providing knowledge to maintain the bins properly.

Considering the collected data, it was clear that the municipal council attempts to popular the composting among the residents using strategies such as providing a reasonable price rates providing awareness on composting and monitoring compost bins. In addition, they provide rewards, information, awareness and backup support. Yet, the involvement of the community is below the average level due to

the limited land area they live and the busy life style they spend. This finding is different from the previous study conducted in the Galle municipal council by Anthony and Bandara in 2008. As the study showed, the majority of residents actively participated in the composting program (Anthony and Banadara, 2008 cited in Bandara, 2011). Moreover, the level of participation is high among those who have large land areas. However, it is clear from the present study that fewer participation for composting is due to the limited land area where the residents lived.

Further, a study conducted by Lekammudiyane and Gunatilake (2010) shows that the waste disposed to the waste disposal sites were reduced after the introduction of the composting technology. When applying this matter to the present study, it was revealed that composting resulted in changing the waste disposal methods of the residents. More elaborately, the findings revealed that after the introduction of the programmes by the municipal council, a certain amount of resident handover only the non-bio degradable waste to the municipal council service. However, the majority of them handover both degradable and non-degradable waste to the municipal council service. This is a positive trend found in the study that the residents have an aspiration (even for a certain extent) to be responsible for the waste that they dispose. Related to the practice of composting, the municipal council is trying to familiarize the concept of recycling among the community.

6. Familiarizing the concept of Recycling

The Kandy municipal council operates a special waste collection service which collects selective recyclable material from the community. This service mainly collects plastic, polythene, paper and cardboard. It attempts to minimize waste, together with social inclusion and generation of jobs for low-income earners (ibid). The Kandy municipal council has established collecting centers to collect recycling items within the limits of the municipal council. These centers are identified as, "*Sampath Piyasa*" and they are situated in Kandy, *Katugasthota* and *Gohagoda*. The center situated in Kandy mainly target the residents who live close to Kandy. It was established in 3rd February 2012 from a peti cash of Rs. 20,000. The centre is open for the community in all seven days from 10.30 a.m to 6.00 p.m. the main objective of the center include the reduction of the amount of waste going to the *Gohagoda* dumping site and thereby reducing environmental pollution.

The prices of the items are ever changing based on the market price. The collecting items are sold to the buyers of recycling items following a tender procedure. Cardboard, box boards, iron, tin and water bottles are mostly received from the people. The labourers of the Kandy municipal council



often sell items collected from the community. In addition, the governmental institutions bring their recyclable items to this place. However, the involvement of the community to use the recycling items is not in a satisfactory level.

The involvement of the community to use recycling items depends on their awareness of the centre. Nearly half of the residents know about the recycling items collecting centre. However, the majority of them do not know about it. The residents have mainly received the awareness from the municipal council on this regard. They have especially received knowledge from the community health assistants. Although the community is aware about the recycling items collecting centre, a less number of them sell their items to it. The main reason for this behavior of the residents is that they do not have much necessity to sell the recycling items as the municipal council collects all non-degradable waste during the weekends. Nevertheless, a preference is shown by the people own vehicles to use this collecting centre more than the others.

The majority of residents who have sold their items to the collecting centre are satisfied with its service. They also suggested to have a centre for their zone. However, the involvement of the community for the recycling items collecting centre is not in a satisfactory level.

Nevertheless, the study found that there are some objections related to the collection of recycling items. The labourers of the municipal council are the main sellers of the centre. They sell non-degradable waste material collected from the households. Nevertheless, the profit goes to labour welfare once again. It revealed that portion of profit earned by the centre is used for the welfare of the labourers even though collecting recycling items is not a popular activity among the residents. Apart from the recycling items collecting center, the municipal council has prohibited the open burning and dumping.

7. Prohibition of Open Burning and Open Dumping

The Kandy municipal council prohibited has open burning within the limits of the municipal council. Although it is a common practice at present, it causes a set of environmental impacts by emitting environmentally harmful gasses and soot to the environment (Bandara, 2011).

Although open burning is prohibited, the residents are still practicing it. However, as the study found, half of the residents follow the rule imposed by the municipal council. Yet, another half of the residents still practice it. The residents mainly burn plant leaves as the municipal council does not collect branches and leaves which are being collected from the home gardens of the residents. Some residents burn polythene as well. It is linked with the ethnicity

of the residents. Muslims are engaged more in open burning than other two ethnic groups. This is because Muslims generate more waste and they have less awareness about the matter.

Open dumping is not found in the study area as it is prohibited in the area of the municipal council area. This was a common practice among the community before the introduction of the solid waste management program by the Kandy municipal council. As the study found, a certain amount of residents dumped their waste to the waste pits situated near to their houses and a very few of them dumped waste to the waste rooms situated near their houses. This practice has completely changed now. Yet, the officers of the municipal council mentioned that illegal waste throwing is still practiced by the outsiders of the Kandy municipal council area. Legal actions have been taken against them by the environment police with the support of the community health assistants and the residents by filing cases in the court after the investigations. The environment police has played a substantial role with minimum human and physical resources and also with fewer dignity in return. Three police officers are in charge of the whole Municipal Council. They are involved with the matters related to the environment, conduct investigations and provide advices to the people in the households and the business units. However, a study in Nigeria recorded different findings on poor waste management practices. Among the residents of Owerri municipal council, 62.4% of them engaged in open burning whereas 66.3% of them were engaged in open dumping (Adogu *et al.*, 2015). Nevertheless, this much of poor waste management practices were not found in the Kandy municipal council area due to the rules imposed by the municipal council. In addition, after the introduction of the solid waste management programme and a rule to prohibit open burning, there is a reduction in open burning practices.

Before the introduction of the solid waste management programme, few of the directly burned their waste directly. A certain amount of the residents followed mixed methods including burning. They burned both degradable and non-degradable material including plastic and polythene. Nevertheless, after the introduction of the solid waste management programme, this practice has changed and a majority of the residents burn leaves at present. However, nearly half of the residents still practice open burning although it is prohibited to do so.

Considering the current waste disposal practices of the community, the majority of them have built up a trust on services rendered by the municipal council. Their satisfaction towards the services of the municipal council is crucial to increase



the level of participation of the community for the programs organized by the municipal council.

4.2. Trust and Satisfaction of the community towards the Municipal Council and its services for Solid Waste Management

The satisfaction of the community towards the solid waste management services of the municipal council and their trust towards managing the solid waste problem effectively plays a vital role in increasing the level of participation of the community for solid waste management programs conducted by the municipal council. Hence, it is important to provide a satisfactory service for the community in order to increase their level of participation.

The majority of residents are satisfied with the service provided by the municipal council for solid waste management. It is caused due to the trust towards the municipal council for managing solid waste.

Nearly half of the residents trust the municipal council in managing Solid Waste. Yet, this rate is relatively low compared to the satisfaction of the services rendered by the municipal council. Since, a certain amount of residents had no idea and some others had complicated ideas towards managing solid waste by the municipal council.

Considering the above findings, the residents who trust the municipal council in managing the solid waste problem had an optimistic attitude towards the municipal council and its ongoing programs. Moreover, they suggested to continue these programs in the future as well. However, more than half of the residents represented a pessimistic or neutral attitude. Among them, some of them had complicated views. The main reason behind this finding is that the residents do not have a complete trust towards the municipal council as to whether they have enough ability to continue these programs in the future with necessary changes that should be adopted timely. The community especially does not have a clear idea about the final disposal activities of waste. Therefore, it is important for the municipal council to consider important matters and should address those using creative methods in order to achieve the trust of the community.

5. CONCLUSION

The municipal council conducts several programs on solid waste management incorporating the community aiming to minimize amount of waste that is going to the final disposal site directing community participation and empowerment. The conduction of environmental education and public awareness programs are the main methods used in

this process. The municipal council conducts these programs targeting the community in dual ways with the use of its own strategies. The first way is organizing events based on environmental education. The municipal council organizes these types of events in order to disseminate the knowledge and practice them in real contexts. For that, they use creative methods in order to take attention of the general public including solid waste management. The second way is the conduction of continuous awareness programs on solid waste management targeting the residents, preschool children and school children. Door to door and community gathering methods were used to make the community aware on solid waste management programs conducted by them. The establishment of environment committee made this task easy by aiming more community participation. However, only a selected community often participated in these programs and few of the residents played active roles in the environment committee. Therefore, in real practice, environment committee is not much popular or not much effective among the community. The reason is that, the communication methods are not much powerful and do not use attractive methods to gather people for collective actions.

Waste separation is another ongoing solid waste management program conducted by the municipal council. The study found an active participation of the community towards waste separation by following the rules imposed by municipal council. However, it was not a wholehearted action, rather it appears mandatory, for them since the community does not have an alternative other than handing over the separated waste to the municipal council. Nevertheless, three facts; awareness programs, the behavior of the compactor driver and especially the monitoring procedure of the environment police were the positive causes for this satisfactory situation. Related to the waste separation programs, two other methods to store waste have been introduced by the municipal council. The waste bucket to store degradable waste until it was dispatched by the municipal council is the first method. The study found that it is much popular among the high-income groups, as it should be bought from the municipal council. The second method was colour bags to store non-degradable waste. It was revealed that the community does not have satisfactory involvement in using them due to the practical difficulties that they face. On the other hand, the labourers who handle handcarts and three wheels do not encourage the community to use them as the practical difficulties that they face when transferring waste from one to another.

The community shows an active participation for the programme of scheduled waste collection.



Their awareness on waste collecting days, collecting mode and informing method is satisfactory. Although the majority of residents have positive views towards the waste collection service of the municipal council, certain numbers have negative views too. The reasons, which were revealed by them, include the problems related to the audibility of the informing method, no regular waste collection, labourers not coming to collect waste from houses, less punctuality of the collection service and not collecting waste properly.

Popularizing the composting practice is another programme. The study found that, although the community has the awareness on composting, majority of them do not use it due to the lack of space to maintain a compost bin and their busy life style. However, the majority of the residents who have a compost bin are using the bins distributed by the municipal council.

Familiarizing the concept of recycling for the community is another program related to solid waste management. Aiming the task, the municipal council has established collecting centers of recycling items. However, the community awareness and usage is poor. The reason is the lack of necessity, since the municipal council collects waste. Moreover, prohibition of open burning is still practiced although the majority of them do not engage in it.

However, considering the community participation for all solid waste management programs, the study found that community participation is a kind of mandatory requirement rather than an intentional involvement.

Community health assistants are the main mediators who connect the municipal council and the community in relation to solid waste management. They play a facilitating role in environment committee, awareness programs, monitoring with environment police and monitoring compost bins. Also, they play a mediating role in day-to-day waste collecting problems. They are appointed to take quick actions for complains. Their role is to contribute to build optimistic communication between the community and the municipal council. Moreover, the labourers also like the community in relation to waste collecting as the majority of residents use to give benefits for their service having an optimistic attitude towards the service they offer.

Finally, all these relationships and services can be linked with the satisfaction of the community towards solid waste management services rendered by the municipal council and the trust of the community towards the municipal council in managing solid waste problem. The study found that the majority of residents are satisfied with the service. Yet, trust is relatively low, compared to the satisfaction they had

about the service as they had complicated views towards waste problem.

The study found various kinds of solid waste management programmes conducted by the municipal council and the involvement of the community and contribution towards them. With the introduction of the solid waste management program, the waste management practices of the community have changed and they tend to provide their waste to the service of the municipal council which caused to increase the trust towards the municipal council managing the solid waste problem. However, the community shows a less active participation for the collective actions rather than the individual actions if they do not receive any rewards with less or no empowerment. Even the individual actions appears to be a kind of mandatory requirement rather than a volunteer involvement.

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