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GENDER PERSPECTIVE OF COMMUNITY PARTICIPATION IN SOLID WASTE MANAGEMENT; A CASE OF BALANGODA URBAN COUNCIL, SRI LANKA

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Abstract: This Sociological study attempts to analyse how gender becomes manifest as determining factor of the participation of community in solid waste management.

This is an explorative study is based on the methods of observation, stakeholder analysis, semi structured questionnaire survey (200) and in-depth interviews (10) with key informants to collect qualitative and quantitative data in Balangoda urban council, Sri Lanka. The samples were selected on stratified basis and data were analyzed quantitatively and qualitatively. The secondary information was mostly collected from the sociological literature and relevant studies of solid waste management.

The results of the study have shown women tend to express higher levels of concern for the environment than men considering the more care more towards the health and safety of their families and communities. Women play different roles in identities in a given society especially their tasks in the domestic set up. Masculinity is expected to be more focused, competitive and independent while feminity is highlighting sensitivity and more concern for others. Therefore most distal causes to alter environmental behavior are gender and gender identity of an individual.

Keywords: solid waste management; community participation; gender; environmental behaviour; gender identity;

Introduction

The present global community is facing many survival challenges due to the alarming environmental crisis. The increasing waste generation and improper waste disposal practice have become the crucial problem among these crises. Although the studies of this nature are largely analyzed by the technological or natural scientific perspectives, the solid waste crisis and its sustainable management very much related with socio-cultural and political factors and forces. In particular, solid waste management is identified to be an important part in ensuring the protection of the environment and human health with respect to rapid increase of waste generation rates among urban communities. Due to accelerated growth of urban population, urbanization, increasing economic activities and lack of proper solid waste management practices it is not uncommon to see that many in the developing countries confound the process of managing the solid waste. Research on solid waste management in developing countries has been approached from a wide range of perspectives, in the process technical aspect, systems analysis, economic aspect and some of social dimensions were highlighted. (Horen ; 2004). This paper is based on a sociological study which attempts to analyze what are the gender factors that determine community participation in managing solid waste among urban communities in Sri Lanka. Community-based approaches to environmental problems have become widespread, at the time of 1990s since there is an emerging global agreement, highlighting that the implementation tasks of sustainable development should be based on local-level solutions and through community participation. The existing

knowledge and data reveals that community participation is not a simple matter of faith, but a complex issue involving different ideological beliefs, political forces, administrative arrangements, and varying perceptions of what is possible (Desai, 1995). Review of the past studies revealed that the relationship between waste generation and socioeconomic parameters vary by country to the next. Moreover family members and household income, age, education and knowledge about recycling are the factors, which determine the waste generation (Rafia et al., 2008). In addition to the socioeconomic factors such as persons per dwelling, cultural patterns, education, and personal attitudes could also be part of the cause (Bandara ; 2008). The number of employed people in a household appears to be a contributing factor to waste generation and also the average amounts of solid waste generated per households of different income levels can be used to predict the total amount of solid waste generated within a municipality (Bandara et al,2007 ,Sugirtharan and Siwakumar ; 2010). However, the amount of solid waste generated by a country is proportional to population and living standards of the people (Wertz, 1976). The current rate of waste collection by the local authorities in Sri Lanka is estimated to be about 2,694 metric tons per day. Overall, the problem of waste disposal is essentially an urban problem which depends on a number of factors such as socio-economic conditions, public attitudes towards reuse and recycling of waste, and geographical and physical factors (Ministry of environment and natural resources 2005). Currently there are no any usable laws or regulations that deal specifically with the dumping of non-hazardous solid waste, there is no definition for "illegal dumping". According to most local authorities, the national Government has to supply the necessary resources for proper collection and disposal of solid waste. Due to lack of resources, solid waste is only collected frequently along main roads. Moreover, it is difficult to mobilize community support for a participative waste collection and recycling programme since most of the people feel waste management is a task of government. And they would only be willing to take actions themselves if it generates sufficient benefits. However activities such as selling sorted garbage are only working where the households are in very low income levels. (Laven V.Z.& Sriwardena N, 2000). Yet, present study is a sociological anylysis which explores community participation in solid waste management. The rationale of effective public participation is clearly based on the fact that everyone generates waste and can be affected directly and indirectly if waste is not well managed. Solid waste (SW) can be hazardous to man and the environment if not appropriately managed (Squires, 2006:2).

Waste(s) is a term for unwanted materials. The term can be described as subjective and inaccurate because waste to one person is not waste to another. The word waste refers to refuse (resources that are to be discarded that are perceived as useless). The University of Florida defines solid waste as "garbage, refuse, sludge or other discarded materials, liquids, semi-solids or contained gaseous materials". Solid waste includes garbage, construction debris, commercial refuse, liquids or other materials in containers, sludge from water supply or waste treatment plants or air pollution control facilities, and other discarded materials (Squires, 2006:23). Anschütz (1996) defines Solid waste as discarded non-liquid materials from households, industrial and commercial establishments, institutions, and streets, that do not have value any more in the eyes of the first generator or user (Anschütz, 1996:12).

Since the members of a community have different roles, their tasks are different at different levels of participation process of SWM. .At the individual level, residents are responsible as users. cleaning around homes, using the primary waste collection points correctly, practicing source separation in dustbins, using the drinking water supply properly, spontaneously

exchanging information in the neighbourhood on health risks and cleanliness of public spaces are the some of actions which they can involve (Bulle,1999:20). Apart from individual responsibility, Making people are collectively responsible and getting them to participate in more or less organized activities like meetings, clean-up campaigns, and awareness-raising activities. And also this Participation can make material or financial contributions. Things like by making equipment (dustbins, containers) and physically participating in services (cart operators sweepers, etc.) or by regular payment of fees for services towards improving the environment are some of them (Bulle,1999).

Apart from this, there are several degrees in participation of different community members. In particular the poorest or most marginalized groups have equal access to information or are sufficiently represented by community leaders or organizations may obstruct the participation of those groups. Specially the women in many situations women are the first to be affected by a deterioration of the environment and are most willing to participate in projects that improve their living conditions. However, religious barriers, traditions, social hierarchy, low rate of literacy, or the burden of domestic tasks may impede their participation in such projects (Moningka 2000:13).

Moreover the success of community participation in solid waste management depends on other actors involved, such as the municipality, community-based organizations (CBOs), micro enterprises, and local leaders. "In particular, the municipality plays a vital role since in most countries the local government is responsible for the delivery of basic services, like waste collection and disposal and for the implementation and enforcement of environmental legislation. If, for instance, the municipality does not collect the waste separately, it has no use for the community to separate their waste. In addition, Local leaders play another important role in community participation. Encourage people to pledge for waste collection, to make sure that people pay the fees, to stimulate the separation of waste, and to monitor the performance of the service level are some of their responsibilities. In addition they should act as a negotiator for local authorities, supervise the performance of local authorities and private enterprises, and act as a pressure group to obtain services from the local authorities" (Moningka 2000:13).

Current State of SWM in Sri Lanka

Improper management of solid waste has serious environmental and health consequences. Since the disposal of solid waste has been a prior environmental issue in Sri Lanka at present such practices brings widespread environmental pollution as well as the spread of diseases. Therefore, having proper environmental planning require strengthened environmental efforts and cooperation between municipalities, private sector, and both civil society and the communities of the respective areas. Accordingly, SWM is one of leading issue among most of developing countries since it requires an integrated approach which includes Waste generation, Pre-collection and storage, Collection, Transportation, Treatment (incineration, recycling, composting etc),and up to final disposal (Squires, 2006). Current rate of waste collection by the local authorities in Sri Lanka estimated at 2683 tons. However, the total MSW generated in Sri Lanka is assumed to be around 6,400 tons per day (ARRPET 2004). Western province marked the highest solid waste generation per day (0.4kg) while the Sabaragamuwa province accounts comparatively lowest per capita solid waste generation marking 0.25 kg per day.

Besides, with the rapid change of consumption patterns fostered by improved living standards and more liberal and growth oriented industrial policies the quantity of solid waste has been increasing over the years (ARRPET 2004). Therefore, it is common practice done by the public and

some local authorities dumping them on roadsides and some other places like marshlands, wet lands or reservations. Thus, the most common method of solid waste disposal still remains to be open dumping. For that reason it is one of prior issues of local authorities to take them as responsibility for accomplishing solid waste management of their own.

In developing countries like Sri Lanka, these factors are further affected by inadequate financial resources, inadequate management and technical skills within municipalities and government authorities. Study done using the cases of SWM project at national level Sri Lanka reveals that less positive attitudes of the community, less attention to increase community awareness, absence of community participation in strategy planning and development, inflexible legal frameworks are some major drawbacks in solid waste management (Karunasena and Amarathunga: 2010). Further there is a huge gap between waste generation and collection. LAs which collects waste more than 100 ton per day is only 3 out of 311 total number of Local authorities in Sri Lanka, while which collects waste less than 1 ton per day is 111, recording 35.7% of all LAs by the year 2005 (There are 330 local authorities in Sri Lanka in 2007) (NSWMSC Annual Report, 2007).

Community Participation

The existing knowledge on participation and empowerment cuts across disciplines including economics, anthropology, sociology, political science and geography. However many authors have found that it has obscures real meaning out of the participation where it applied. The concept of participation sometimes has been used as a tool of 'empowering', as a techniques-based approach, participation as an approach, an ideology, a specific ethos for community development; and participation as a method, a set of guidelines and practices for involving communities or the general public in specific planning activities at all (Claridge; 2004). Therefore this inherent goodness of the notion of participation, it has become a substitute for many meanings. This could be summarized as participation as an end or as a means to an end. Where participation is interpreted as a means it generally becomes a form of mobilization to get things done, when participation is identified as an 'end' the objective is not a fixed quantifiable development goal but a process whose outcome is an increasingly 'meaningful' participation in the development process (Moser ; 1983). When participation is seen as an end, major importance is given to the process of participation itself which includes institutional development, capacity building and upgrading abilities to respond to local needs (Mohamad ; 2003). Present study used the participation as more instrumental meaning rather than and transformative mean or it appears more end outcome than as a mean. Handling the waste around localities community participation is widely required because solid waste management is a maintenance system, people should have to participate for place the garbage in a specific bag or bin, to bring it to an agreed point, to separate it in decaying and non-decaying waste, minimize the generation, proper disposal etc. therefore it receives a larger attention than past. However the way participation is defined largely depends upon the context and background in which it is applied. At some context exclusion of any involvement in the decision making process consider as participation while another setup people's involvement in the entire decision making process implies participation (Kumar 2002). It brings people together in creating and making decisions about their environment and they are actively involved in the process, hence participation helps Promote sense of ownership and control among the people.

The term participation can be defined as the "[a]ct of being involved in something" (Wates, Handbook of community planning 194). Gunilla et al 1991 have identified participation derives three separate meanings, one is participation has to be active and secondly people have right and

responsibility in making choices about the decision which affect their lives. Finally there should be a mechanism to implement those choices made by the people. Riflin et al (1998) defined, "Community participation is a social process whereby specific groups with shared needs living in a defined geographical area actively pursue identification of their needs, take decisions and establish mechanisms to meet their needs" (Gunilla et al 1991: 200).

Research Problem

What are the factors that determine the effective participation of community in Solid waste management?

The main objective of this paper is to explore the gender aspect of community participation in SWM as the case study of of Balangoda UC Sri Lanka.

Community Participation in SWM in Sri Lanka

Municipal SWM is an important part for ensuring protection of the environment and human health. In respect to the increasing amount of waste generation, infrastructure and resources for waste collection are lacking most part of the country. Therefore scattering and dumping of garbage is widespread. Specially the country is lacking proper facilities for final disposal of most of the solid waste produced by households and business categories. The problem becomes serious when the open dumping cause blocked drainage channels, creation of breeding places for vector diseases. And too it cause pollution of ground and surface water. Moreover, open burning at low temperature causes atmospheric pollution and may cause serious health problems.

In 1999, the estimated average solid waste generation in Sri Lanka was 6500 tonnes /day. With a 1.2% population growth rate, total MSW generation in 2009 was approximately 7250 tonnes/day. In 1999 the average per capita MSW generation was 0.89 kg/cap/day and has been predicted to reach 1.0 kg/cap/day by 2025 (Menikpura and Gheewala 2009). In Sri Lanka the responsible organizations in the government levels include, CEA and ministry of environment and forestry at national level along with provincial councils MC and UC and Pradeshiya Sabha (PS) are in the action. Though there are established rules and regulations for proper removal of solid waste materials, inefficient service impede the proper management of most levels in the management process. This is obvious in most local authorities in Sri Lanka. They have failed to deliver the required levels of waste management service due to different reasons. Including shortage of efficient vehicles and skilled labour is the major cause besides the illegal dumping on road sides, forest areas and river banks where that no strict rules can handle have created the issue more bad. This has largely destroyed the value of the environment over the most part of urban areas in Sri Lanka (Mahees et al ; 2011).

Within the management process door to door collection is being performed by most of municipal councils. Increasing the efficiency in that process community participation is recognized as important factor by planners and policy makers at present. However they lack the knowledge of community mobilizing up to ending point of the management process. Therefore it limits only up to introduction of various project in to village and end up with

having no results which has been targeted. Aiming a successful management is quite hard to achieve with the heavy burden on the municipalities where the only the waste management is not in their agenda. Despite this, some municipality in the country plays a highly positive role in stimulating community-based solid waste management. In cases where other groups are involved in the management those municipalities assist community-based solid waste systems in different ways. They tend to provide the facilities, assist the management with promotion of positive waste handling behaviors and introduction of rules and regulations also financial assistance are some of major works.

In order to evaluate the current situation of SWM in Sri Lanka the case of Balangoda UC is selected. Since the municipalities are quite similar all over the Sri Lanka, expect some socio economic characteristics it is likely to generalize research finding to the SWM process in the municipalities Sri Lanka. In the process of SWM collection, transportation and final disposal practices are much more similar among those.

Results and Discussion

It is a common feature that women have a close relationship with the environment in most developing countries (Bell; 1997). Women make her environmental knowledge of minimizing waste generation within their household premises mainly through the rational economizing of purchasing of food, technological management of available food and changing of behavior related to over-consumption (Mahees et al 2008). Social construction on gender role assigned women to be responsible making the home and surroundings clean. Waste management is primarily depends upon cleaning. Present study does not imply this Participation for a single action. It's varying from picking a surrounding waste item to a waste bin to practicing individual preferred waste management method. Most in the developing world women and men have different ways of handling waste in private and public. Household waste management is often the unpaid work of women, but when it is mechanized (in the delivery cycle) it is paid. In most case men take over this work. This is an aspect of participation of SWM where men and women act differently. However a large proportion of waste management in developing countries is not mechanized instead collected, sorted, recycled and sold by hand. In many counties tasks of waste segregation and many of them are done by women. In some Indian cities this is up to 80% (Sankoh et al ; 2013). Waste handling disproportionately touches the lives of women, particularly in some developing and transitioning countries (Bell J ;1997). Gender relations are context specific they have varied across historical periods and culture to the next. Women are more likely to be involved in daily contact with the waste in their homes, and perhaps because women tend to be among the most marginalized groups of some societies. Women generally play much more important participation in the waste management process. Women as educators, consumers and as house worker she has to mainly deal with the waste handling. Managing housework, including the disposal of waste, mainly a task of women and she decides the goods which need to buy for the family. In a way she can determine the type of waste generated at household level. As an educator she makes socialize values and habits of her children.

In the sample population, women participation is comparatively higher than the men. Female participation in waste management is significantly higher than male participation. Following participation was measured based on different questions in the survey. Where the garbage discharge, whether they categorize waste, do they find improper discharge is a problem, do they engage in mass activities in SWM and some relevant questions.

Table 1.1 Participation to SWM by gender

Gender	N	Mean	Std. Dev	Std. error	Sig. (p=0.05)
Male	37	1.660	0.649	0.089	
Female	33	1.891	0.315	0.046	0.024

The importance of women as consumers is reflected in the way they are participating to managing activities. Women as collective consumers are mostly responsible parties who are deciding the goods they buy in household level. So green consumer guides are helping them to make their own response to the waste management activities. Participation to the waste management mainly depends on the attitudes people holds towards the managing outcomes. Within the socially constructed setup of the culture Masculinity is expected to be more focused, competitive and independent while feminity is

highlighting sensitivity. In a way one's environmental attitudes and behaviors may have less to do with being male or female rather it is a matter of the meaning people have attached to masculine and feminine characters of the individual. As an extension of their caring roles women "naturally" care for the environment. "Women's priorities are usually oriented towards the good of the community thus placing more emphasis on the protection of the environment and the resources within it" (WEN,1989 cited from Jackson; 1993). It is common in both rural and urban setting women are engaging in community managing work. When there are community-based, labor-intensive tasks to be done, it is the women, not the men in the community, who are mobilised to undertake them. The reasons for this are that in the case of male domination of public services women mobilizing becomes high since they believe that if they fail to do such work it will remain undone their individual families will disadvantaged. Sp women are more responsive to voluntary public works (Jackson; 1993). The meanings we attributes to a given situation determined by societal regards and it is individual more than collective. In the study we find no significant difference among male and female in attitude towards the environment.

Table 1.2 Comparison of Environmental attitudes of male and female (household)

Gender	N	Mean	Std. Dev	Std. error	Sig. (p=0.05)
Male	33	2.361	0.831	0.14	
Female	37	2.90	1.01	0.17	0.017

At macro level, gender can be understood as a position in the social structure in which individual behaves according to the expected particular manner while micro level appears as an identity or the self-meaning that person attributed themselves to their gender identification. So within study community environmental attitudes becomes significance among male and female.

Table 1.3 Comparison of Environmental attitudes of male and female (business)

Gender	N	Mean	Std. Dev	Std. error	Sig. (p=0.05)
Male	28	2.459	0.677	0.13	
Female	45	3.037	0.921	0.14	0.003

Women and men stand differently to their environment. The way they respond to the environmental issues attitudes towards the environment, relationship they keep with the environment becomes different. A number of studies have reported that women report higher levels of environmental concern, but be less environmentally active than men (Mohai, 1992). Participation to the waste management activities are depend on how far they keep aware of the waste management methods and minimizing practices and to further practicing environmental friendly lifestyle. Though there is no significant difference among male and female regarding the awareness female awareness is higher than the male. Among the business categories and households female awareness is comparatively greater than male ones.

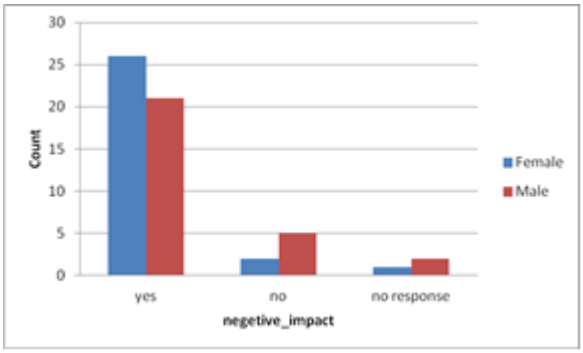

Fig. 01. Do you know the negative impact of improper discharge of waste in your area?

This was the most significant question of the questionnaire posed in order to identify the level of awareness among the genders. The question was Do you know the negative impact of improper discharge of waste in your area? According to the findings, female has shown higher awareness than the male in the sample population. Again

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the next question was drawn from where there came to know about the negative outcomes of improper management. The answers were listed as Shown in the following graph. The result has shown women found their knowledge mainly through their experiences than men.

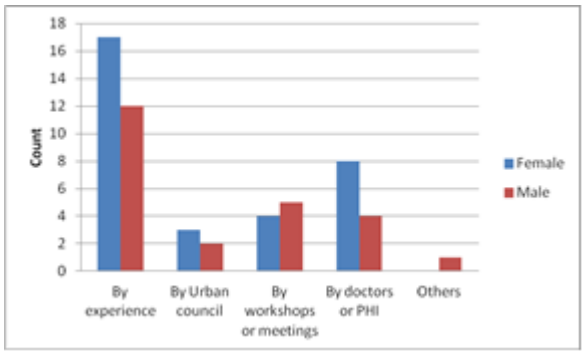

Fig. 02. If yes, how did you come to know them?

For eco-feminists the majority of activists in the grassroots movement are women. Many became involved when they experienced problems in their lives caused by environment. Through networking with neighborhood women, they began to link their problems to nearby hazardous waste site. "First World women threatening the reproduction of daily life, while direct access to food, fuel, and clean water for many. Third World women is imperiled by cash cropping on traditional homelands and by pesticides used in agribusiness First World women combat these assaults by altering consumption habits, recycling wastes, and pro-testing production and disposal methods, while Third World women act to protect traditional ways of life and reverse ecological damage from multinational corporations and the extractive industries.

Model (Fig. 03) has shown why women are actively participating managing their surrounding waste due to a constructed fearful situation. When they cannot responsible for their waste unexpected risks make them into constructed threat of being impure. Unlike men women committed to cleaning works as assigned with gender roles. When they fail to do so they must take entire responsibility comes from the threats to the individual families. This phobia can leads her to participate actively in managing solid waste around her environment. As main care giver, this influences women to be more concern of environment in order to secure future benefits of their children. For Vandana Shiva (1989) "Women naturally think of the next generation". So these responsibilities make women to be environmental friendly than men.

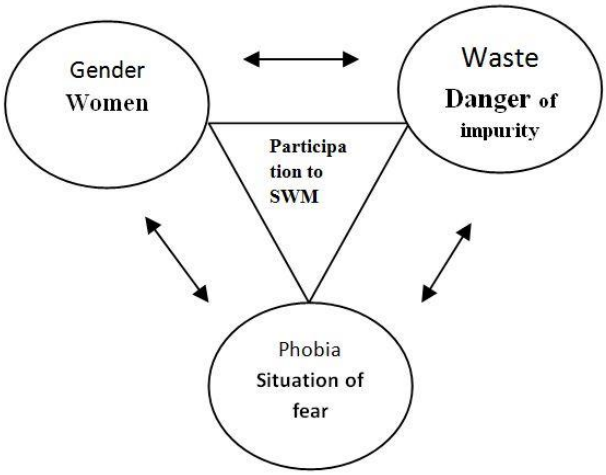

Fig. 03. Model of Gender waste Phobia

Within such background women are naturally worried and over care about the future risks. This can be the reason where women are often more likely than men to become involved in collective actions. Also this was evident in the sample population where women participation is higher in handling waste. For example most street committee leaders are women in the sample. They are responsible for their corresponding 25 households which they assigned.

Conclusion

Although community participation is determined by many different socio-cultural and political aspects, the gender factor is very crucial in the Sri Lankan local community context. The factors such as ethnicity, education and livelihood pattern are very influential in affecting the gender participation in solid waste management. However, social structural expectations attached to gender influence on one's behavior and also to the self-perception they hold in response to one's gender identity

and it causes to alter environmental behavior. Therefore community participation to SWM in Sri Lanka is defined or redefined according to gender, because gender at any level (micro and macro) simultaneously produced and influence to one's environmental behavior where community participation is also counted as another pro environmental behavior.

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