

The participation of community-based organizations on waste management in the city municipal of Medan

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Abstract. Waste is currently main problem experienced by cities all over the world. The waste has brought negative impacts on public health, environment, development and social of the cities. However, there must be solutions to overcome the piles of waste in case the individual citizens or community-based organization wisely deal with the problem. In the municipal area of Medan in the Province of North Sumatra, there is sort of organization established by community-based organization (CBO) so-called *Bank Sampah* or Waste Bank which is placed as a platform for the member to do business of waste materials by collecting them from households around, sorting the materials into waste categories and ended up by purchasing and selling them to make some money. The organization is not merely a platform for doing a business of waste materials yet the media for other social activities and efforts of reaching social and family welfare. The study is conducted in some sites of such organization activities in the city, and there are some observations of how the community run the business and in the same time arranging other social activities. The study tries to portray the activities and analyzes the means and the significancy of the CBO on reducing waste problems in the city.

Keywords : waste management, community-based organization, voluntary, profit, benefit

1. Introduction

Medan is the third biggest city throughout Indonesia and is also the capital city of the North Sumatra Province which is as well the four biggest province in the country in the term of the population number. The economic growth and the development of the city as well as the region within last three decades have made the city as the main gate of the country in the western part particularly in the term of business, trades and industries. On the economic aspect, the city is also such a melting pot of international trades among some ASEAN countries such as Malaysia, Singapore, Thailand and Indochina peninsular countries such as Vietnam and Cambodia. The city is furthermore selected as Indonesia representation in the regional economic cooperation which is so called Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT) since mid-1990's.

To support the economic growth and the regional development, the central government has just completed the construction of a new international airport which is Kualanamu International Airport that replace the position of older airport, Polonia International Airport, that is regarded



insufficient to support the flow of domestic and international passenger related to the city and the regional economic growth and development. Moreover, the high way linking the city with some other important cities and towns in the region has been developing and the construction of the public facilities will be completed by the end of 2018.

On the socio-cultural aspect, the city is also placed as the center of excellent in the region, main tourist destination sites, the center of domestic business and furthermore -without any plan- the city has been becoming the job seeker destination from villages and town within the province and neighborhoods. The impacts brought by the economic growth and development of the city as well as the massive growth of industry area in the same time bring about socio-cultural impacts in the city such as the much dense of the city, a significant increase of the population, criminals and the degradation of the environment.

Table 1. Brief Profile of The Municipal of Medan

No	Description	Number
1.	Number of Sub-District	21
2.	Number of Neighborhood	151
3.	Number of Sub- Neighborhood	2,001
4.	Population	2,191,140
5.	Government Official	18,090
6.	Area Coverage	265.10 km ²
7.	Workforce	974.951
8.	Jobless	92.437
9.	Non-Workforce	639.033
10.	Annual Budget	IDR. 4,042 Trillion

Source: National Bureau of Statistik (2016)¹

Waste is part of environmental problems brought by the economic growth and the city development particularly by the worse consumption pattern of the city inhabitants, the busies of industries activities and the lack of public consciousness on the needs of a clean environment. Solid waste in the city is made up of organic wastes (food and garden wastes) mainly associated with household and market waste; broken glasses, plastics, polyethylene, rubber, scrap metal, wood, paper and other inorganic wastes associated with the industrial and commercial sectors. Waste management is mainly the responsibility and under the authority of the government particularly the local government at municipal or district level to deal with. In the context of decentralization system of the governance or local autonomy, the municipal city of Medan as the local government must be in charge in dealing with waste and implementing the waste management system in the city. It is in line with the Law No 23/2014 on Local Government, Law No. 8/2008 on Waste Management and other regulations.

However, in the context of strategic government, the party who responsible for dealing with the waste management is not merely the local government but also the responsibility of all parties or elements ranging from the business, industries, individual citizens and communities. All elements need to participate in waste management. This paper describes and analyzes the real participation of so-called the community-based organizations (CBO's) in the implementation waste management in the municipal city of Medan, North Sumatra Province, Indonesia.

2. Research Method

The objective of the research is to describe and analyze the public participation particularly the CBOs on waste management in the municipal of Medan. The research also intends to show findings and

bring about recommendations to make a sustainable participation of CBOs on waste management system in the city. The method of research is qualitative where in-depth interviews, observations, literature study are the main techniques of collecting data. The questions during the interview are related more to some indicators of public participation in waste management. The interviewees of the research are informants from the Waste Bank management, governments, medias and civil society institutions. The observation is conducted on some sites of the Waste Bank in the city as well as on some waste bank activities.

3. Literature Review

3.1 *The concept of waste management: The needs of elements to Participate*

Waste management is viewed as part of a generation, collection and disposal system (Seadon, 2010:1640)². Staniskis in Davidson (2011:6)³ proposed that “waste management methods cannot be uniform across regions and sectors because individual waste management methods cannot deal with all potential waste materials in a sustainable manner”. It is obviously caused by the fact the profile, the socio-cultural and economic life of the society are different each others. It is furthermore the methods, the level of participation and the involvement manifestation are again different from one community to other. It is, for instance, the participation of people on public work such as mutual aid is much bigger than of people living in town or city. In this context, it is regarded relevant the villagers are eager to do a communal work where it is their own culture and the ability to pay workers on such work are low compared to that of people living in town or city where they are more pragmatic, well-being and cross-culture. Yet, the needs and the ideas of including society and community on waste management are principally the same. There is a need of the community to take initiatives or being the platform of involving people on public works.

The national data reveals the composition of waste in Indonesia consists of 25% of organic waste, 10 % of paper, 18% of plastics, 12% of woods, 11% of metals, 11% of cloths, 11% of glass and 12% of other materials (Trimurni & Dayana, 2016)⁴. Looking to the compositions, the average compositions of the waste are not that difficult to manage. Medan is the biggest contributor to the waste volume in the North Sumatra Province which daily generates about 1,500 tons of waste volume comparing to other districts within the region which is only about 76 tons per day in the district of Karo⁵. Those number is only based on the number of transferred waste from intermediate collection points (TPS) to central dumpsite/landfills (TPA) excluding those of volumes burnt by residents, sold to agents, recycled by residents or even thrown out to some rivers around the area.

Trimurni & Dayana (2016)⁶ furthermore proposed the proper waste management system consists of the participation and the existence of five sub-systems which are (i) sub-system of technic which is related to the availability of technical plans to deal with the piles of waste in the city, (ii) sub-system of institution which is related to the availability of governmental or non-governmental organization to deal with the waste problems, (iii) sub-system of finance which is related to the availability of budget to cover the financial needs of waste management, (iv) sub-system of law which is related to the needs of the proper and certain regulation to conduct waste management, and (v) sub-system of public involvement which is related to the need of participation or engagement of public or individual citizens.

The public involvement is subsequently much related with the conception of strategic government where all elements or every single people within society or community must take part on the waste management system. The government is certainly a party who must take part more on the waste management particularly in the position of the regulator and take policy on waste management. In line with the local governance regulation as well as the waste management regulation, the government at each level has their own authorities and functions. According to the Law No. 8/2008 on Waste Management Article 7, Article 8, Article 9, the authorities and functions of each government are elaborated as follows:

Table 2. Division of Authorities Among Level of Government on Waste Management

Level of Government	Authority
National	1. Regulating policy and national strategy waste management. 2. Stating norm, standard, procedures and criteria for waste management. 3. Facilitating and Developing Cooperation among local government, partnership and networks on waste management. 4. Applying coordination, guiding and controlling over local government performance on waste management. 5. Taking policy on disputes of among and between local governments on disputes.
Province	1. Regulating policy and strategy of waste management in accordance with national policy. 2. Facilitating cooperation among or between local governments in the province, partnership and networks on waste management. 3. Facilitating settlement of disputes among or between local governments in the province.
District/ Municipalities	1. Regulating policy and strategy of waste management in accordance to national and provincial policy. 2. Conducting waste management in the district/municipality in line with the norm, standard, procedures and criteria stated by national government. 3. Supervising and controlling of waste management conducted by other parties. 4. Stating location for intermediate landfill, integrated sanitary landfill and ultimate landfill. 5. Monitoring and Evaluation the sites of ultimate landfill regularly in each six months for twenty years.

Source: Law No. 8/2008 on Waste Management (Article 7, Article 8, Article 9)⁷

4. Results and Discussion

The participation of stakeholders in waste management as early mentioned includes the participation of the business and industries. In the context of municipal area such as Medan, the industry or business must also take in part on waste management where they are obviously the parties who generate waste at big amount volume. Besides the need for processing the industry material within their factories properly and eco-friendly they are hoped to allocate some amount of fund to waste management system in the city in the example by putting budget on corporate social responsibility (CSR). In the context of waste management in the municipal of Medan, there are a lot of industrial areas surrounding the city and region particularly that of Medan Industrial Complex (KIM) in the northern part of the city and the KIM Star situated in the southern part of the city. The government must provide certain regulation to make the industries and business contribute funds on waste management.

Individual citizen on the larger context is needed to participate in waste management system as well. There must be sort of collective consciousness on handling piles of waste and its problem in every household a living area such as the office or home. For the household waste or domestic waste in particular, there are some activities can be taken by the householder or individual citizen to deal with domestict waste which is generally called as 4R (reduce, reuse, recycle and recovery). Reduce is the effort to minimize the use of products generate wastes. Reuse is the activity to use goods or materials more times as long as they are possible to use. Recycle is the activity of modifying goods

those are unusable before to be possible to use. Recovery is the effort of reuse which are still possible to use.

The community must also take part on waste management system by at least making such a communal convention to handle the waste problem in their living areas. The kind of wastes in this context is mostly domestic waste where they do not need a very sophisticated technology to run. In the context of waste management in the municipal city of Medan, the embryo of the community participation has been existed notably by the establishment of some waste banks in some areas of the city. According to the government data in 2016, there are at least 17 waste banks within the city though the amount of waste volume to handle is still very limited.

4.1. *Bank Sampah: The real participation of CBOS on Waste Management*

There are a lot of definitions of community-based organizations (CBOs) proposed by social scholars and are given the different names in different places and cultures. In the context of city municipals in Indonesia including Medan as the research location, the CBOs is always translated as “*kelompok masyarakat/organisasi masyarakat*” or group of community. In another word, the CBO is sometimes translated also as “*Lembaga Swadaya Masyarakat*” which closely means to a non-governmental organization. According to Abegunde (2009: 237)⁸ CBOs are “localized institutions in that their spheres of influence hardly extend beyond their immediate communities or neighbourhood”. In a broader sense it is defined as the non-profit and non-governmental organization “because all members contribute economically towards the fulfillment of their responsibilities to the immediate environment and not depend on government before fulfilling these (Claudia in Abegunde 2009: 237)⁹”.

In the context of Indonesia as well as in the city municipal of Medan, the organization is specifically based on the existing religious, neighborhood, occupation or even youth the organization. The emergence of such waste bank, in this case, is the development of the existing organization. In the level of the neighborhood, for instance, the waste bank is the development of the activities within Governmental Women Group (PKK) or even the youth organization in the neighborhood level. The advantages of the new organization or the waste bank in the context of the organization sustainability is the fact the organization's members have been recognized and communicated each other.

In the year of 2013, the government of the municipal of Medan through the Board of Environment introduced the concept of *Bank Sampah* or Waste Bank in 2013. The waste bank is simply defined as the concept of collecting dry waste such as papers, cans, polyethylene, rubber, scrap metal, wood and plastic generated by households through increasing the public participation and enhancing the economic values of the waste. The purpose of the establishment of the waste bank is part of solutions to reduce the volume of wastes in the community level and becomes part of the waste management system. The establishment of the waste bank itself is starting from the phase of socialization, training, implementation, companionship, evaluation and development. The socialization phase is conducted through initial dissemination of the waste bank and the benefits of the facilities to the society. The training phase is intended to share the detailed knowledge on the waste bank establishment, the system, management and the mechanism of implementation. The implementation phase is establishing and running the process of the waste bank independently where the residents collect the household's wastes while the companionship phase is the activity of accompanying the society by the local government about the waste problem solving occurred in the field. The evaluation phase is conducted to portray the potentials and the progress of waste bank performances while the development phase is placed to make the waste bank as the business unit, small saving and loans activities and developing the waste bank organization.

The establishment of *Bank Sampah* in some areas in the city municipality of Medan is the real participation of the community on the waste bank where the participation can be simply and generally defined as actions to take part on an a work or activity (Hornby, 2000: 961)¹⁰. The government of the city municipal of Medan has obviously regulated the waste management system in the city notably by the Local Regulation No. 6 of 2015 where the public or community can take part on the city waste management¹¹.

The establishment of the waste bank is initiated by the local government by carrying out series of a program to the communities. The first step is to undertake public dissemination or socialization about the concept and the benefits of the project to the community. The second step is to run training about how to establish a group of the waste bank, how is the system works, management of group and mechanism of implementation. The next step is implementation phase where the communities have independently collected and saved the waste at their waste bank. The further step is community companionship and evaluation where volunteers from government stay with the community to ensure the program properly runs and doing the evaluation. The last step is development where the group of the waste bank could be increased its level to be such microfinance group or other small business.

The dry-waste collected through *Bank Sampah* will be furthermore utilized for instance for organic fertilizer. Other services proposed through *Bank Sampah* are to pick-up piles of the waste door to door and to buying piles of waste in residents' households. The microfinance services through the *Bank Sampah* in Sicanang, for example, are conventional saving, educational saving, saving for English course, saving for healthcare insurance (BPJS), saving for buying cows during Islamic *Aidil Adha*, and others The mechanism or the work chain of *Bank Sampah* is described as follows:

Table 3. Waste Management Chain Conducted by The Waste Bank

No/Step	Activities	Remarks
1	Waste Sorting at Households	The household sort the domestic wastes into categories such as papers, plastics, irons and other metals.
2	Deposit to Waste Bank	The household brings all materials to Waste Bank site in the village.
3	Waste Weighting	The managements of the Waste Bank weight the volume of the waste and categorize them into waste categories those are recommended by the agent.
4	Waste Recording (Weight and Types)	The managements of the Waste Bank make notes and report of the waste volume and letting know the residents of their waste's volume.
5	Waste Sorting by <i>Bank Sampah</i> Caretakers	The managements of the Waste Bank sort the waste again and including them to other households wastes in each categorizes.
6	Selling to Agents	The managements of the Waste Bank sell the waste to the agent and the agents issue the report of the waste volumes per categories.
7	Selling by Agents to Big Factory	The agent sell the waste to big factories around the city.
8	Profits to Waste Bank & Residents	The agent gives some amount of money to the waste managements to be furthermore distributed to the residents who bring the waste to the Waste Management.

Source: Adapted from <http://blh.pemkomedan.go.id/>, 2016¹²

The activities of waste bank related on waste management for instance (i) processing the organic wastes in the traditional market around the city to furthermore produce to be organic fertilizer, (ii) the center of information and training for the community or organizational units of government who want to learn and manage wastes to be fertilizer or other products, (iii) providing waste transporting, selling the organic fertilizers those are produced by the waste bank in the level of neighborhood, produced by community, private and public companies.

The Waste Bank of Sicanang, for instance, allows the Waste Bank at sub-neighborhood, shops, public and private office, government institutions, school, house of religious worship to sell the waste to the waste bank. The advantage of the establishment of the waste bank is, for instance, to reduce the need of land of field for terminal waste collection, adding the economic value of waste and minimizing the dry waste to be buried in the soil. According to the government data in 2016, there are at least 17 waste banks within the city though the amount of waste volume to handle is still very limited.

Table 4. A Brief Profile of Existing Waste Bank in The Municipal of Medan

No	Name of Community/ Waste Bank	Adress	Number of Beneficiaries (Person)	Volume of Waste Collected (Kg/Month)
1	Nurul Umami	Medan Marelani	25	50
2	Pamen	Medan Baru	15	NA
3	Ritim	Medan Belawan	20	50
4	Sampah Jadi Mas	Medan Belawan	33	250
5	Sampah Waka	Medan Maimun	23	50
6	Usaha Citra Tani	Medan Marelani	15	NA
7	Boby Anugrah	Medan Marelani	18	NA
8	SMA 4 Medan	Medan Petisah	13	NA
9	Paud Fitri	Medan Deli	15	NA
10	P2S	Medan Belawan	8	NA
11	Beramarwah	Medan Tembung	NA	30
12	Mutiara	Medan Kota	134	175
13	Bestari	Medan Sunggal	35	20
14	Pusat Pasar	Medan Kota	20	10
15	Beramarwah	Medan Timur	8	NA
16	Quba	Medan Area	17	30
17	Parwitayasa	Medan Helvetia	8	NA

Source: Adopted from the Board of Medan Environment <http://blh.pemkomedan.go.id/>¹³

The amount of money collected from retribution is not much comparing to the budget needed to undertake waste management in each district. There must be innovation to at least mitigating piles of the waste impacts. Besides implementing the “4R” (reduce, reuse, recycling and recovery) approach on handling waste, establishing *bank sampah* (waste bank) such as those of implementing by communities in Medan and Deli Serdang could be an alternative. According to the government of Medan, *Bank Sampah* is a concept of collecting dry-waste such as papers, cans and plastics derived from households by enriching community participations and increasing the value of the waste. The purpose of establishing the waste bank is one of the solutions to reduce waste at grassroots level as part of the whole system of waste management.

4.2. *The Sustainability of CBOs Programs on Waste Management: The Needs of Certain Regulation and Public Consciousness*

The sustainability of the public projects, for instance, the projects on waste management including those of directly by the community is pivotal. The assumption is reasonable since such projects are not commercial or business projects allowed parties to make some financial benefit. There must always be the voluntary actions and effort to make the public project meets the ultimate goals. The Brundtland Commission defined sustainable development as “development that meets the needs of present without comprising the ability of future generation to meet their own needs” . The National Task Force on Environment and Economy /CCRM of Canada proposed the sustainability development is “development which ensures that the utilization of resources and the environment today doesn't damage prospects for their use by future generation (Rees, 1998:21)¹⁴. Lynam and Herdt (1999:10)¹⁵ stated “the capacity of system to maintain output at a level of approximately equal or greater than its historical average, with the approximation determined by the historical level of variability”

The United Nation in 1992 (Nayaka, 1992:33)¹⁶ stated “a deteriorating urban environment is the enemy of sustainable development”. Protecting the environment is not an alternative to economic growth - it is a precondition of efficient economic development. It is much related to the sustainability of the community-based programs on waste management where one possible challenge ahead is the more deteriorating environment of the city linking to the massive industrial development and business growth. Another possible challenge is the change of the socio-cultural circumstance where the personal connectivity, cohesion and linkages are getting reduced partly caused by the change of communication pattern.

To ensure the waste management system as well as the waste bank work properly, there must be effort and greater perspective of so-called integrated waste management system. It is very relevant to the statement of Ahsan (2014:1)¹⁷ states “the integrated municipal solid waste management is defined by researchers and academics as the selection and application of appropriate techniques, technologies, and management programs to achieve specific waste management objectives and goals”. “Understanding the interrelationships among various waste activities makes it possible to create a plan in which individual components complement one another”. To achieve the integrated waste management system requires the certain regulation and public consciousness at large. The certain regulation is needed since there must be dispute potentials on waste management next time to come mainly linking to the economic potentials generated by the waste. The public consciousness is the condition where all parties including group and individual are aware of the impact of the waste on the environment as well as on other broader sectors such as health, city cleanness, land damage, pollution and so forth.

To step ahead to implement the integrated waste management in the city municipal of Medan, the local government has stepped ahead much far comparing to other neighboring cities or districts in the region where the local regulation on waste management was issued in 2015 notably by the Local Regulation No 6 of 2015. The regulation also stipulates and allows the public at large including industries, the business and civil society to take part. Moreover, there is also the possibility of government to annually allocate the amount of fund to the waste management sector.

5. Conclusion

The participation of each party and elements on waste management system in the city municipal such as Medan is pivotal. It relates much to the context of strategic government where each party and

elements should take part on the public programs and projects such as waste management. The establishment of some waste banks within the city municipal of Medan is regarded as the proof and the real participation and engagement of one element or party which is community-based organisation. The participation as such has also been adopted in the local regulation that in one hand the sustainability of the program can be easily achieved. The amount or the volume of wastes managed by the waste bank is indeed not that much, yet it is an initial step to involve more parties to involve on waste management effort. The last not but least is the collective or public consciousness and awareness on waste management is needed since these issues are also part of public participation.

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Regulation

Law No. 18/ 2008 on Waste Management

Law No. 32/ 2014 on Local Government