THE ROLE OF LOCAL GOVERNMENT IN SUSTAINABLE WASTE MANAGEMENT

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Abstract - The role of local government organizations in managing public service with regards to waste management in a sustainable manner aims to enable all related sectors to accelerate the waste problem solving and give high importance to waste problem management. The waste management has been announced to be a "National Agenda" since 2014 which having "ROAD MAP" to manage solid and hazardous waste. Operations have been implemented following measures as described in the road map continually so as to encourage people to change the way to manage their solid waste. Reduction the amount of solid waste from the point of origin is an important guideline to reduce solid waste problems sustainably especially the collaboration of all people to strongly solve the problem by uniting power to be "Pracharat" no matter from business, government or people sectors in a sustainable manner.

Department of Environmental Quality Promotion has collaborated with private sector to implement waste –free communities to sustainability under the Zero Waste Project (Sa-ard Buri) with the 3 objectives as follow:

1. To create social trend in changing the model of municipal solid waste management by broadening zero waste concept in a community to be zero waste society.
2. To encourage people's participation in solid waste management as well as collaboration form communities, local government organizations, and private sectors to be in harmony with Pracharat administration guidelines.
3. To inspire communities or viewers through a continuous presentation process and pictures of activities in implanting zero waste.

The situation of solid waste management and solid waste problem solution in Thailand has been carried out continually following the roadmap on solid waste and hazardous waste management as 1. To dispose accumulated and uncollected solid waste at waste disposal sites in critical locations (old waste), 2) To make a new and appropriate model for solid waste management (new waste), 3) To set regulations and measures to manage solid and hazardous waste by proposing regulations and Acts on solid waste, electrical appliance waste and industrial waste management, 4) To develop self-discipline to people of the country for a sustainable management. Problems and impacts of the huge amount of solid waste are 1. The impact on people's quality of life especially environmental problems, 2. The distribution of toxicity that harm people's health, 3. traffic problems, 4. The reduction of water drainage as solid waste clogs drains and causes flooding, 5. Solid wastes are the breeding ground of germs, 6. Coastal erosion problems, 7. Problems of overflowing waste, 8. Problems related to the efficiency of solid waste.

Keywords - The role of Local Government, Public service, waste management

I. INTRODUCTION

Currently, Thai people generate solid waste 27.40 million tons per year or about 75.046 tons per day. The solid waste per capita is 1.13 kilograms/day; they are correctly eliminated only 11.7 million tons, the rest of 7.18 is incorrectly eliminated. Recycling and reuse of solid waste is 8.52 million tons accounted for 31 percent out of the amount of municipal solid waste of the whole country. Therefore, it turns to be "accumulation of municipal solid waste" in some areas. The uncollected solid waste is 5.34 million tons that turn to be pollution problems, the breeding ground of germs, the distribution of toxic substances to do harm to people's health including it clogs drainage system and causes flooding.

Encouraging people to change and adjust their behaviors in managing their solid waste by reducing the amount of solid waste from upstream is a vital guideline to decrease the huge amount of solid waste in Thailand in a sustainable manner especially the participation of all people that can strengthen problem solving through "Pracharat power-uniting" no matter they are in business, government or people sectors to achieve sustainable solutions to solid waste management problems.

Mr. Ratchada Suriyakul na Ayutthaya, Director General of Department of Environmental Quality Promotion, said that the government commanded all related sectors to accelerate solving solid waste problem and gave high importance to solid waste management and announced it to be "a national agenda" since 2014 by determining "ROAD MAP" for solid waste and hazardous waste management with implementation that follows the measures as stated in the road map continually.

In addition, the cabinet had the resolution for " National Solid Waste Management Master Plan (2016 – 2021)" and assigned Ministry of Natural Resource and Environment to handle an action plan "Thailand Zero Waste according to the Participatory State Principle (Pracharat Line)", a one year action plan (2016 – 2017), so as to be an operational guideline for

a short-term solid waste management under the mentioned master plan for driving Thailand to Zero Waste Society based on the implementation of 3Rs – Pracharat principle by encouraging solid waste management from upstream in a sustainable manner; reduce, reuse, and recycle. The participation of all sectors; government, private and people, shall lay a foundation of solid waste management in efficient and sustainable manners.

In order to move sustainable solid waste management forward, Department of Environmental Quality Promotion collaborates with private sector to implement waste-free communities to sustainability under the project of zero waste to sustainability (Sa-ard Buri) with the 3 objectives:
1. To create social trend in changing the model of municipal solid waste management by broadening zero waste concept in a community to be zero waste society.
2. To encourage people's participation in solid waste management as well as collaboration form communities, local government organizations, and private sectors to be in harmony with Pracharat administration guidelines.
3. To inspire communities or viewers through a continuous presentation process and pictures of activities in implanting zero waste.

The target group participating in the Zero Waste project to sustainability (Sa-ard Buri) is waste-free communities that Department of Environmental Quality Promotion has implemented since 2010 – present. Communities are selected to be the national level winner, the first runner- up, and the second runner-up, totally 63 communities that submit application forms with their pieces of work for the contest. The first round selection includes 12 teams and the committee shall make consideration from their presentation. The last 4 team will be selected to win the award. The winner shall be presented with a trophy and a price of 100,000 baht (Sorana Thepnow, 2018).

II. OBJECTIVES

To enable all associated sectors to accelerate solutions to solid waste problems and give high importance to solid waste management problems as has been announced to be a "National Agenda" since 2014 with the determination of "ROAD MAP" on solid waste and hazardous waste management that has been implemented according to measures as stated in the road map continually.

III. SCOPE

Local government organizations and the role in managing public service with regards to sustainable solid waste management

IV. LITERATURE REVIEW

The role of local government organizations in managing public service Local government organizations are one of important governmental mechanisms based on decentralization that perform their duties in providing public service so as to respond to people's needs in each local area. There are laws that govern and empower local government organizations. Generally, the laws define the power and duty of each local government organization such as Public Health Act, B.E.2535 (1992), Determining Plans and Process of Decentralization to Local Government Organization Act, B.E. 2542 (1999), Provincial Administrative Organizations Act, B.E. 2540 (1997), etc. Moreover, considering each local government organization has role and duty by the state constitution is put as a first priority because it is the highest law that establishes self-government according to the intention of local people and determines the framework of power and duty as a state of the highest law for local government organizations.

Pimchana Sriboonyaponrat stated that in order to access the laws, flexibility in governmental framework should be provided. Governmental agencies need to have a structure as a framework for having the right direction and clarification of public service management and work achievement in flexible and speedy manner without losing any control which is a factor of 4M's of management (Pimchana Sriboonyaponrat, 2017).

Situation of solid waste management in Thailand
The amount of solid waste generated from communities across the country in 2003 was similar to that of previous years which accounted for about 14.4 million tons or 39,240 tons per day. Solid waste generation rate rose compared to the year 2002. Encouraging people to separate waste is to reduce the amount of solid waste and parts of them have been reused and recycled. The amount of solid waste, in particular city areas like Bangkok, reduces almost 300 tons per day. Typically, it happened in particular by tricycle waste collectors that bought waste at homes with recycling rates of 18 percent in 2002 and rose to 19 percent in 2003. The top 3 materials being separated were steel, paper, and glass. The management of collecting solid waste from homes, communities, and public areas still faces problems of efficiency of waste collection due to restriction in collection service, therefore, a service model cannot be developed. However, city area service has high rate of solid waste collection while the amount of uncollected solid waste reduces.

With regards to the situation of solid waste in Thailand, the information from Waste and Hazardous Substances Management Bureau, Pollution Control

Department revealed that the amount of solid waste reached 26.85 million tons per year or about 73, 560 tons per day and nearly 50 percent of the mentioned waste were incorrectly disposed including uncollected in different areas which caused various crisis such as problem of overflowing waste which can be seen from the increasing amount of solid waste at 0.6 million tons. When there is huge amount of solid waste, the consequence is that 433 disposal sites are not adequate to dispose solid waste with good hygienic and sanitary management methods. Open burning of solid waste is treated and can spread the fire throughout landfills in many areas. Based on these solid waste problems, government sectors and related agencies including private and people sectors have implemented to solve the problems both provincial and national levels.

Solutions to solid waste management problems in Thailand have been continually implemented according the road map on waste and hazardous waste management with the following four stages:
1. Disposing of accumulated uncollected waste at waste disposal sites in critical locations.
2. Creating a new and appropriate model for solid waste management (new waste), determining specific sites for disposal of hazardous waste, promoting a center point of waste management and disposal (Cluster). Besides, Ministry of Natural Resource and Environment collaborates with Ministry of Interior to establish a role model local government organization under the project " 1 province, 1 role model local government organization", totally 88 places so as to raise a campaign for reduction and segregation of solid waste at the point of origin or from homes and encourage private sector to invest solid waste into clean energy which at present open for operation in Bangkok, Hat Yai, and Phuket and 3 places are under construction in Nong Khai, Khon Kaen, and Phattalung provinces.
3. Setting regulations and measures for solid and hazardous waste management by drafting rules and acts on solid waste management related to electrical appliance waste and industrial waste, etc. and
4. Instilling discipline in people of the country aiming for sustainable management by reducing the use of plastic bags on the 15th and the 30th day of the month, implementing learning development (Department of Environmental Quality Promotion, Ministry of Natural Resource and Environment, 2017).

Problems and impact from the huge amount of solid waste

1. There is impact on people's quality of life especially environmental problems from factories that dispose solid waste to natural water sources. Nitiphat Kittirakshakula (2017) stated that environment had direct positive impact on quality of working life as good environment enables workers to have good health, both physically and mentally, in perform their assigned tasks efficiently.
2. The distribution of toxicity that harm people's health,
3. Traffic problems.
4. The reduction of water drainage as solid waste clogs drains and causes flooding.
5. Solid wastes are the breeding ground of germs.
6. Coastal erosion problems.
7. Problems of overflowing waste.
8. Problems related to the efficiency of solid waste.

With regards to the previous local solid waste management, the amount of solid waste were more likely to be collected and the amount of uncollected waste decreased but the problem about improper disposal of waste without good hygienic and sanitary management method can be found. The municipal waste management is a guideline to manage the rising problems. Department of Environmental Quality Promotion emphasizes nearby communities to dispose solid waste altogether for long-term solutions and to reduce government spending on solid waste management. Private sector can play a role in involving with investment for solid waste management.

Notification of Ministry of Interior on solid waste management B.E. 2560 (2017) which came into force on 2 November 2017 defined that local government organizations have to carry out solid waste management according to the sustainable development in efficient and environmentally friendly manner. Local government organizations shall collect, transport, and dispose of waste according to correct principle and standards. Containers for loading solid waste have to be provided properly in public areas. The colors of solid waste containers have to be clearly separated as follow: blue color is for general solid waste, green color is for organic waste, yellow color is for reused waste, and orange color is for toxic or hazardous waste. In relation to disposal, it can be done differently such as sanitary landfill, making compost or biogas, incineration, or converting into fuels.

The assignment for collecting, transporting or disposal shall follow the guidelines as described in the notification of the committee for decentralization to local government organization about collaboration of public service management of local government organizations. If private agencies are assigned to implement or have participatory implementation for solid waste collecting, transporting or disposal, consideration has to be made on efficiency, worthiness, financial discipline, transparency, benefits of service receivers and providers including fair competition. Creating consciousness of participation in reducing the amount of solid waste and segregation of solid waste for reuse including

raising awareness and responsibility in managing solid waste at the point of origin should be undertaken so that homes and communities shall be nice living places, clean and beautiful like other civilized countries. Meanwhile, quality and balance of natural resources and environment can be preserved to serve sustainability accordingly (Suttipong Juljaroen, 2017). With reference to the previous implementation of solid waste management, most local government organizations could provide service of solid waste collection more, therefore, the problem of uncollected waste decreased. However, problems of improper solid waste disposal have been found though budget was allocated for constructing hygienic and sanitary disposal system. Some areas have not received supportive budget while the others have the hygienic and sanitary system but cannot dispose of waste as designed. Some areas are so excessively opposed by people that the disposal sites cannot be used. Previous projects were made without preparation for readiness to continually implement the system. Therefore, restriction on personnel and administrative organizations can be obviously seen. Moreover, the previous management was carried out separately; there are disposal sites that do not follow good hygiene practices and sanitary management methods throughout the areas which cause wasteful government spending especially during the country economic crisis resulting in budget allocation from the central part is restricted and not continuous being the obstacles for solid waste management.

CONCLUSION

In conclusion, based on the study about potential of establishing a center point for solid waste disposal in many areas of the country, it can be said that a model of municipal solid waste disposal center point is a guideline for waste management that would solve the rising problems. Emphasis is place on communities located nearby to take solid waste to be disposed altogether. Such of this guideline can help solve long-term problems and reduce government administrative burden on investment and management by supporting private sector to have their role in getting involved with investment and implementation. The model of investment and implementation of solid waste disposal center points can be undertaken with different methods such as private sector invest and implement on their own, the government invests with private sector, the government invests construction and allows private sector to implement, etc. Implementing solid waste management altogether requires collaboration from agencies to determine guidelines and direction to carry out and allocate budget by using a model of solid waste disposal center point leading to a concrete operation in the future. Meanwhile, it is a way to solve impact of problems based on long-term solid waste management with efficiency and good sanitary practices. It can help solve problems about insufficiency of disposal sites in communities especially the small ones while budget, personnel and disposal sites can be saved to serve quality of life and hygiene of people. Regarding the all-in-one municipal solid waste management, administrators of local government organizations should consider the model of waste management thoroughly to carry out the management in responsible areas by staring from surveying the amount of solid waste from different points of origin and forecasting the future amount including proportion or composition of solid waste in terms of physical and chemical aspects. These information can be used for making a plan and design for solid waste management system that can facilitate within 20 years which starting from the process of segregation, collection, transportation, utilization and disposal with the consideration of appropriate technology including selecting sites, models of management, and measures to reduce the amount of solid waste. Campaigns should be raised to reuse materials more and more with the consideration of investment amount and expenditure for implementing all approaches throughout the life of project.

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