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Management of Garbage Problems with Participation of the 21 Dormitory Buildings' Community

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ABSTRACT

When the community grew as the population increased, it was resulted in waste increased. The problems of solid waste affect the environment and people's health. The study area of a community of 21 dormitory buildings near Thammasat University Rangsit Campus, the residential area has found rubbish overload from the tank waste, provoked smell and being a source of disease carriers such as rats and roaches. For this reason, the residents should bear in dealing with solid waste that occurs without dependence on government unilaterally in waste disposal. In addition, the rapid growth in the number of dormitories surrounding Thammasat University Rangsit Campus has ignited in an attempt to fix the problem, garbage overload. Questionnaire survey of the residents showed up with a random sampling method. The residents who live in buildings affected by high, medium, and low impacts of garbage overload tanks are chose for surveying questionnaire. In addition, the store owners and the manager of the buildings are surveyed to find out their opinions and recommendations on garbage campaign management. The results showed that most of the residents had been not satisfied with the management of garbage disposal. They would like to have an exchange of solid waste recycling as a reward rather than in cash and are willing to cooperate with the campaigns when they could earn some kind benefits.

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1. Introduction

A local community's garbage disposal has been expanded to a current situation due to a population increase. This provoked problems of garbage spilled out which impacted on the environment and affected also health of the public. Therefore, people who live in the community

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should pay attention on the contribution of solid waste management rather than dispose garbage away from their backyards. Therefore, it should not be unilaterally depended on the local government management.

A case study was selected an area nearby Thammasat University Rangsit Campus with a number of 21 resident buildings, so-called “the 21 Dormitory Buildings’ Community”. There are three types of the dormitory buildings: type A, B, and C. Each building of type A and type B consists of 8 floors with 19 dormitory rooms per floor. Type C has 8 floors with 33 dormitory rooms per floor. A total number of the residents is estimated to be 6,000 persons in year 2015. Garbage generated from this community would reach 6.6 Tons a day, estimated with 1.1 kg/capita day (Zurbrugg, C., 2002). Meanwhile, the local government has not formulated measures for garbage disposal to serve further fast development of the community.

Following this considerations, the research study aims to investigate garbage generated from the community of 21 dormitory buildings due to its future problems faced on garbage management. For this reason, and also it comes to our social responsible considerations within the environmental concerns surrounding of Thammasat University Rangsit Campus, Pathumthani province.

2. Methodology

2.1 Current Garbage Situations and Problems

Garbage overloading tanks have appeared where the garbage storage allocated in the community. It provoked smell and being a source of disease carriers such as rats and roaches including wastewater occurred in the surrounding area. By observing, the garbage tanks are not sufficient due to mal design, since, dormitory rooms are available. Some of the buildings (C2 and C8) are recently construction finished. There are areas provided for shop and food court in the plaza, and a building for parking as well. Plan view of the community is shown in Figure 1.

2.2 Satisfaction and Participation of Garbage Campaign Management

This work uses questionnaire as a tool to survey individual dormitories regarding their satisfactions of the buildings’ community management on garbage disposal and their willingness to participate to which type of campaign management of garbage recycling.

2.3 Questionnaire Survey

A questionnaire consists of a series of questions (open-ends or closed-ended questions) which

divided into 3 parts. Those are part I: Respondent general information; part II: Management of garbage disposal including knowledge, behavior, and profitability concerned on garbage recycling; part III: Recommendations on preferable garbage campaign.

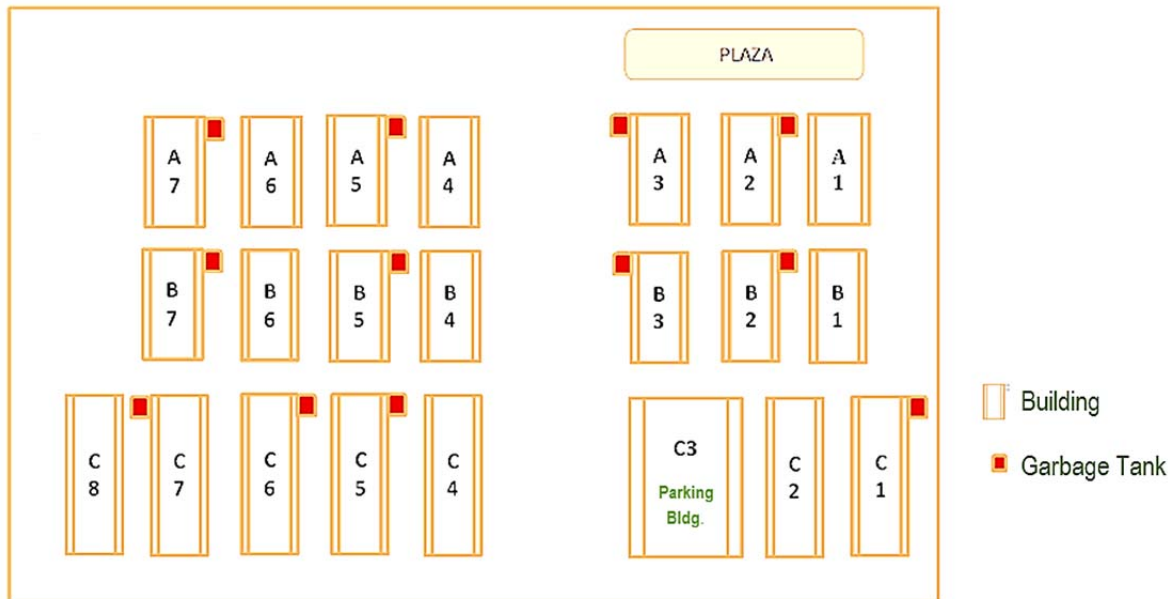


Figure 1 Plan view of the 21 dormitory buildings' community

A pre-test surveying was handed out to 10 respondents, one respondent per dormitory. In the questionnaire, individual recycling behaviors were divided into routine, seldom and never practices, as defined in the following:

Routine: do collect as a question posed on daily basis.

Seldom: do collect as a question posed in once on several days.

Never: do not collect as a question posed.

2.4 Inclusion Criteria and Sample Size

In this study, random method is used for questionnaire survey of 98 respondents as a sampling number based on Yamane's formula (1967). The residents who live in buildings affected by high, medium, and low impacts of garbage overload tanks are chose for surveying questionnaire. In addition, the store owners and the manager of the buildings in study area of "the 21 Dormitory Buildings' Community" are surveyed to find out their opinions and recommendations on garbage campaign management.

3. Results and Discussion

Respondents classified by gender, ages, and education levels in order to compare among the

store owners and the manager of the buildings are illustrated in Table 1. Most of the respondents are ages ranged from 20 to 30. There are 98 respondents of 98 sampled residents, giving a 100 % response rate. Of these 98 respondents, 55 women and 43 men responded to a face-to-face questionnaire. Survey data collected showed that 84 % were educated in undergraduate level and 16 % were in graduate level.

Table 1 Respondents classified by gender, age, and education compared to store owners & manager

Number of Classification	Residents	Store Owners	Manager
Gender			
Female	55	5	0
Male	43	0	1
Total (percent)	98 (100)	5	1
Age			
< 20	0	0	0
20 to 30	98	0	0
> 30	0	5	1
Total (percent)	98 (100)	5	1
Education			
College/Training	0	5	0
Undergraduate	82	0	0
Graduate	16	0	1
Others	0	0	0
Total (percent)	98 (100)	5	1
Income per month (Baht)			
Low (<10,000)	6	0	0
Lower middle (10,000 to 15,000)	28	0	0
Middle (15,001 to 20,000)	55	0	0
Upper middle (>20,000)	9	3	0
High (>30,000)	0	2	1
Total (percent)	98 (100)	5	1

On the basis of monthly disposable income per capita from the surveyed residents, most of residents are lower-middle income (10,000 to 15,000 Baht) and middle income (15,001 to 20,000 Baht). Note 30 Baht is about 1 U.S. Dollar.

3.1 Recognition toward the Participation of Garbage Campaign Management

Majority of the residents have not approved of classified garbage collection (Table 2). On an average of 56 % of the residents do not understand the significant of classified garbage collection and are not willing to classify their daily garbage before disposing it. But only 20 % on the average are willing to practice classified garbage collection in their dormitory rooms. This figure of recognition of the residents is much higher than those of the store owners, and the manager in the

buildings' community, respectively.

Table 2 Recognizing of residents, store owners, and manager towards the classified garbage collection.

Participation Rate, %	Residents	Store Owners	Manager
Routine collect	20	0	0
Seldom collect	24	60	0
Never collect	56	40	100
Total (percent)	98 (100)	5	1

For economic incentive, residents in low income are willing to collect recyclable materials. This result is corresponding to the recycling behavior in a big city in China that individuals in lower income households were more active in recycling (Li, S., 2003). In Korea household survey data from Hong, S. (1999) indicates that a rise in waste collection fee induces households to recycle more wastes. In addition, more frequent recyclable pickup services accompanied with increasing in waste collection fee is effective to reduce total amount of waste generated.

Our study survey shows that all residents (100 % of respondents) would like to have an exchange of solid waste recycling as a reward rather than in cash. And almost all of the residents (91 % of respondents) prefer the building owner to conduct various activities in garbage campaign with regard to their flexibility to participate. Thus, the residents there can join a few policymaking oriented suggestions for transferring the strategy of garbage management from passive control to active source control and promoting the classified garbage collection.

3.2 Respondents' Opinions on the Existing Garbage Management

The majority of respondents are unhappy with the garbage tanks' area of the community where is a place of disease carriers like rodents, cockroaches, flies and mosquitoes. Other problem issue of the community related to solid waste is the overflow of garbage from the tank. Whereas, respondents satisfied with the environment is minimal. Because those respondents who are affected by unfavorable environment are not seen as a problem bothers.

Some residents' opinions based on profitability are wishing to see the development of community in a better way. They desire to have profitability from solid waste recycled and realize that each one is a part of the community. Some of them urge to follow such garbage campaigns as soon as possible and wish to join as well. In a contrast opinion, one could not trust on the building owner to conduct any garbage campaigns because he believes that the building owner does not pay attention on the garbage management.

The manager of the buildings responds that the garbage collection services are provided 3 times a week by local government. This is usually a problem of any operating offsite the buildings' vicinity. The problems provoked herein are the less budget concerned to garbage disposal, the lack of knowledge about solid waste management, and the building design has not taken into account the environmental criterion. The waste problem in the buildings' community was similar to the case of Rayong Municipality (Kritjaroen, T., 2011) due to rapid increases in population; lack of proper disposal units; limited budget and landfill areas.

The store owners are willing to cooperate in the garbage campaign to reduce solid waste and help the environment clean because they believe that it is better to trade and service with a clean environment. When stores keep sanitary, people in the community has confidence and comes to shop more. On the other point of view, the store owners are worried that residents in the community would not cooperate in reducing the use of foam food boxes because of the convenience of carrying foam food boxes to their rooms.

4. Conclusion

This study has met its aim of understanding some of the opinions from the residents, the store owners and the manager of the 21 dormitory buildings' community. The residents are not satisfied with existing garbage management. And they declare cooperation with any campaigns on the conditions that the administrative of the residence has organized to return some income or benefits in various ways from the solid waste campaign. The residents believe that their own cooperation by working together can make a clean environment but still worry the building owner does not really make the campaign happen.

The study reveals that the manager of the buildings does not understand the problem of garbage management. The manager also does not pay attention to garbage management that would contribute to a quality of good livable community, either in short-term or long-term. On the other hand, the store owners are willing to participate and support such garbage campaign management in order to get a livable community.

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