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Attitudes, Behaviors and Information Perception for Waste Management in Community Households in Kuet Chang Sub-District, Mae Taeng District, Chiang Mai Province

By

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Abstract

The purpose of this research was to study the attitudes, behaviors and information perception for household and community waste management in Kuet Chang Sub-district, Mae Taeng District, Chiang Mai, as well as to find the socially innovative community waste management guidelines for sustainability. The sample size was determined using a non-probability sampling method for the households located in Kuet Chang Sub-district, Mae Taeng District, Chiang Mai, totaling 8 villages. Krejcie & Morgan table was used to determine the sample at the 95% confidence level and a sample of 336 households was obtained. Data collection using questionnaires. The results showed that the attitude towards the problem and waste management was at a high level. The behavior on waste management in the household and community was at a moderate level. While the perception of the information factor was at a moderate level and the community waste management was at a low level. The hypothesis test on the relationship between the problem attitudes and waste management, household and community waste management behaviors, information perception, participation in waste management in the community, and waste management patterns in community relations. The guidelines for social innovations for community waste management for sustainability should focus on the factors in community based solid waste management (CBM), consisting of 4 factors as follows: 1. Solid waste management process. 2. Community participation. 3. Community leader. And 4. Community social capital.

Keywords: Attitude, Behavior, Information Perception, Waste Management

Introduction

In 2018, Thailand hosted an International Workshop on Future of Social Disruption and Sustainable Development Goals (SDGs) by brainstorming the opinions of the academics and experts and experts in the perspective of foreigners towards Thailand on technology and innovation development that suitable for the context of Thai community and society in 2019-

2021 and in line with the Sustainable Development Goals (SDGs), which found that the top priority issue in the field of environmental conservation was Municipal solid waste (MSW) that should develop the guidelines, promote and support the innovation for society. Social innovation refers to the new processes, activities, tools, products or services that are primarily aimed at meeting the needs of society, developed and disseminated through the social enterprises (Mulgan et al., 2007). In order to create a systematic innovation, it has to cover the processes of thinking skills, policies and guidelines for development that focus on the development of social capabilities of the individuals, organizations, and governments under the development process that contributes to the sustainability of the society, economy and the environment (National Innovation Agency (National Innovation Agency (Public Organization), 2018). In the past, the government, by the Ministry of Interior and the Ministry of Natural Resources and Environment, had a policy to manage solid waste and determined the country's solid waste management master plan and the master plan on the prevention and correction of pollution from waste and hazardous waste for a period of 20 years (2018-2037). As well as the action plan "Zero Waste Society" in accordance with the "Pracharat" guidelines using the 2Rs principle, reduce, reuse and recycle, that including the policy of refraining from handing out the plastic bags of the department stores, supermarkets, and convenience stores to the consumers to reduce the environmental problems from January 1st, 2020 onwards in accordance with the National Solid Waste Management Master Plan (2016-2021). Including the "clean province" policy of the local administration to prepare the action plan, set the policies and directions for waste management in the area, encourage all sectors to participate in the reduction and segregation of solid waste at the source. These policies aim to reduce the total amount of solid waste in the country to be reduced by 5 percent from the rate of solid waste in 2019 and the indicator of reducing the amount of solid waste to be reduced by 10 percent from the rate The generation of solid waste in 2020 and the recycling rate of 30% in 2020 (Pollution Control Department, 2019). The solid waste management goal in Chiang Mai province required that the community solid waste by properly managed in accordance with the academic principles for 70 percent in 2020. Also including local administrative organizations to have the 40 percent of solid waste and hazardous community waste at the source in 2020 (Chiang Mai Provincial Office for Local Administration, 2019). For the waste management, the local government organization with the wrong landfill should take the corrective action, shut down or improve the waste disposal site that is not technically correct according to the sanitation principles (Department of Local Administration Promotion, 2019). Kuet Chang Sub-district, Mae Taeng District, Chiang Mai Province is one of the important tourist areas of Chiang Mai, located in the national park area with a river flowing through every village. The community is a semi-urban and semi-rural community, located in the Kuet Chang Subdistrict Administrative Organization, consisting of 8 villages with a total population of 5,309 people, of which about 60% of the population are local people and 40% of ethnic groups, comprising 5 tribes, namely, Lahu, Hmong. Paka-Kyaw, Lisu and Akha tribes. In the past, Kuet Chang Sub-district Administration Organization had a 5-year local development plan 2018-2022 in the development strategy for natural resource and environmental management and strategies for controlling, preventing and solving the problems of garbage and pollution in the Sub-district. However, the plan does not specify the methods, procedures and practices for each type of waste management for responsible agencies and people in the area. As a result, Kuet Chang Sub-district is still facing the problem of forest fires, illegal incineration of garbage, smog problem, not proper sanitary landfill, including the invasion of forest area for garbage dumping and along the river and streams, which is one of the natural resources of the community's watershed area and is considered one of Chiang Mai's economic area in terms of tourism, which includes the activities such as elephant camps, elephant trekking, white water

rafting, bamboo rafting, visit the ethnic tribal villages, as well as the establishments of hotels, accommodation, homestays, restaurants, coffee shop and so on (Kuet Chang Sub-District Administrative Organization, 2019).

Therefore, knowledge of community waste management of Kuet Chang Sub-district, Mae Taeng District, Chiang Mai Province, which is a semi-urban and semi-rural community that has many tourist activities, and is a forest area in the national park, is used to solve the problem of waste management in the area by developing the appropriate processes. In addition, the information can also be used to formulate the policies of organizations or government agencies involved in solving problems of the community in both short and long term. In this study, the research team was interested in study the attitudes, behaviors and information perception for waste management for household and community waste management. The results of the study can be used as the information to determine the guidelines for community waste management in the area and to determine the guidelines to develop waste management processes or extend to the other communities with problems in waste management in the future.

Research Method

This research is quantitative research that study the concepts and related researched, which can be summarized as follows: 1.) The core of 4M's management is a framework of factors affecting waste management as follows: 1.1) Man factor, such as personnel in the local government offices (leadership/ potential/ knowledge/ intention/ determination/ public mind), stakeholders who involved in waste management in the area (knowledge and understanding of waste management), people in the area (knowledge and understanding of waste management, volunteering, and so on) and people outside the community. 1.2) Money such as the budget of the local government and the external support. 1.3) Material such as equipment and waste management tools, innovations/ technology in waste management, collection, loading and unloading vehicles or management facilities. And 1.4) Management such as the national and local administration executive's policies, organization management, supervising, monitoring, evaluating operational activities, public relations, provide knowledge to personnel/ people, the participation of the executives, personnel/ people in the community and other factors such as the situation of COVID-19 and so on. 2.) Community solid waste management model refers to the principle of operation related to solid waste management to be effective as the goal is to be able to collect solid waste to be disposed of academically and efficiently, which the waste management can be divided into four parts as follows: garbage dump, garbage collection, reusing part of the solid waste that still be able to use, and final disposal. 3.) Guidelines for proper disposal of waste according to the academic principles in each form are as follows: 3.1) Landfill is the oldest waste disposal. In the past, the trash would be thrown in pits or dumped in piles or even buried, which is common in most parts of the world (Godswill et al., 2020). Garbage disposal by landfill method involves dumping solid waste in an area that is suitable for handling waste. There are measures to prevent various impacts that may occur to the living things and the surrounding environment. However, landfill disposal is still common and suitable for various local contexts in Thailand. 3.2) Composting is the decomposition of organic matter from solid waste by using biological processes of microorganisms to decompose them into minerals that are relatively stable, have a black color, are relatively dry and have some nutrition that can be used to improve soil quality (Pollution Control Department, 2019). 3.3) Incineration is a method for the disposal of solid organic waste that the waste is burned at a very high temperature of 600- 1700 degrees Celsius, depending on the technology, reducing the amount of solid waste by 80-95%. This incineration is carried out on both a large industrial and community scales. However, incineration is a waste disposal method that results in

emissions problems and also unable to remove heavy metals that contaminated with waste (Godswill et al., 2020). 3.4) Biogas refers to the gas produced by bacteria that do not require air or oxygen (Anaerobic Bacteria) react to decompose organic substances such as waste water, food scraps, vegetable and fruit scraps, rice straw, animal manure, human excrement, and so on, which creates a combustible gas mixture that can be used as a cooking gas. In biogas fermentation systems, not only producing gas that can be ignited, but the material discharged from the organic biogas fermentation system can also be used for other purposes such as making fertilizer (Ministry of Public Health, 2017). 3.5) Refuse Derived Fuel (RDF) refers to solid waste that is combustible by taking municipal solid waste through various management processes such as separating combustible materials, tear or cut the solid waste into smaller pieces, which will have higher calorific value or better fuel properties. The direct use of collected solid waste due to its more consistent chemical and physical composition. The advantages of fuel waste are its high calorific value (when compared to the waste collected), easy for storage, transportation, handling, as well as low environmental impact (Department of Alternative Energy Development and Efficiency, 2020). 3.6) Recycle/ reuse is a guideline for reusing waste materials such as plastic containers and beverage containers. The materials used can be processed into new products, which most of the recycled materials are steel, aluminum such as beverage cans, aerosols, plastic bottles of PET, PVC, PP, PS and LDFE types, paper such as cardboard boxes, newspapers, magazines, books, and so on. The same material makes it relatively easy to recycle into new products, the material for this recycling process can be collected separately from the general waste using bins and garbage trucks, which in most communities the owner of the waste must separate the different materials before collecting (Godswill et al., 2020). 3.7) Pyrolysis refers to the change of chemical composition by heating with temperatures above 430 degrees Celsius in anaerobic conditions. The plastic molecules are broken down into smaller fragments to convert raw materials from a sublime solid state to steam, oil and synthetic gases, and condense to a liquid state, which the resulting product is oil (Godswill et al., 2020). Krejcie & Morgan table was used to determine the sample at the 95% confidence level and a sample of 336 households was obtained (Krejcie & Morgan, 1970). The data were collected from the households by a simple random sampling method according to the sample size. Because the data is an important source of information, then the respondents must voluntarily provide the information.

Research Instrument

The tool used in this research was a questionnaire, which was a checklist form that can be divided into five parts as follows: Part 1 The condition of the respondents was a check List with 8 items consisting of gender, age, status, education, occupation, family members, status of residence and length of stay. Part 2 Questionnaire on attitudes towards problems and waste management. The questionnaire was a Likert's rating scale, which level 5 means the level of agreement is at the highest level until level 1 means the level of agreement is at the lowest level. Part 3 Questionnaire on household and community waste management behaviors, consists of the generation of solid waste behavior, solid waste sorting behavior, garbage collection behavior, reuse/recycle of solid waste behavior, and waste disposal behavior. The questionnaire was a Likert's rating scale, which level 5 means the level of agreement is at the highest level until level 1 means the level of agreement is at the lowest level. Part 4 Questionnaire about the perception of information. The questionnaire was a Likert's rating scale, which level 5 means the level of perception is at the highest level until level 1 means the level of perception is at the lowest level. Part 5 Questionnaire on community waste management, consists of operations in the community and cooperation from external agencies.

The questionnaire was a Likert's rating scale, which level 5 means the level of operation is at the highest level until level 1 means the level of operation is at the lowest level. The test for the validity and the test for the confidence of the questionnaire by the alpha coefficient criterion is not less than 0.70. Test results from a non-sample population with an alpha coefficient of 0.979 were considered acceptable and data could be collected with the sample (Pongwiritthon et al., 2020).

Data Collection

The research team conducted data collection by questionnaire with the sample number as specified above and use the data obtained from the data collected for statistical analysis in order to bring the data to draw conclusions and discuss the research results to achieve the research objectives.

Statistics used in the Research

The research team had determined statistics that are appropriate and consistent with the statistical data to answer the research objectives, which the statistics used in data analysis are as follows: 1.) Basic descriptive statistical analysis used by the research team to describe the properties or characteristics of the distribution of variable data by using the SPSS program for determining the measurement as the percentage, mean and standard deviation. 2.) Hypothesis testing statistical analysis, hypothesis testing used by the research team to analyze the questionnaire responses using the One-way ANOVA (F-test) statistic and analysis of factors affecting behavior change in community waste management, correlation analysis by Pearson correlation coefficient.

Research Result

The research on the attitudes, behaviors and information perception for waste management in community households in Kuet Chang sub-district, Mae Taeng district, Chiang Mai province, the results were found in each issue as follows: (1.) Information of the respondents showed that most of them were female, 188 people, representing 53.26%, aged between 49 – 60 years, 118 people, married status 205 people, representing 58.07%, graduated / or are currently studying at the most is primary school 188 people, representing 53.26 %. Most of them are farmers of 144 people, accounting for 40.79%, the number of family members was 5 people or more, 132 people, or 37.39%. The status of residence was owned a house of 244 people, representing 69.12%. The accommodation was a single-storey wooden house, 131 people, accounted for 37.11%, lived in Village Moo 1, Ban Muang Kuet 93 people, or 26.35%, the duration of living in the community 11 years or more, 338 people or 95.75 %. The monthly income of the most households was less than 5,000 Baht, 155 people or 43.91%. (2.) Attitude towards problems and waste management showed that in the overall picture, the respondents had a level of opinion, attitude towards problems and community waste management at a high level ($\bar{x}$=3.94), which can be sorted in descending order as follows: garbage piled up and not sorting will cause health problems in the community as the source of most dangerous diseases ($\bar{x}$=4.05), waste reduction and solid waste sorting is the duty of all members of the community ($\bar{x}$=4.03), and the dumping of solid waste into the ground, water sources or vacant land is caused by negligence and lack of awareness of the consequences ($\bar{x}$=4.15). (3.) Waste management behavior in the household and in the community found that, in overall, the respondents had a moderate level of waste management behavior in the household and the

community ($\bar{x}$=3.16), which can be sorted in descending order as follows: solid waste disposal behavior ($\bar{x}$=3.53), Behavior of reuse/recycle of solid waste ($\bar{x}$=3.39), garbage collection behavior/waste reduction behavior ($\bar{x}$=3.26), and waste reduction behavior ($\bar{x}$=3.21) were at a moderate level as shown in Table 1. (4.) The perception of information found that in the overall picture, the respondents had a level of perception of the factors of exposure to information at the moderate level ($\bar{x}$=3.17), which can be sorted in descending order as follows: You've heard the news about the reuse of materials ($\bar{x}$=3.33), you've heard the news about the use of solid waste ($\bar{x}$=3.26), you've heard the news about waste separation ($\bar{x}$=3.25). (5.) Waste management in the community found that, in overall, the respondents had a level of operation at a low level ($\bar{x}$ = 2.35), both aspects were at a moderate level, which were community operations ($\bar{x}$=2.89) and cooperation from external agencies ($\bar{x}$=2.62).

The results of the analysis of the relationship between sex, age, status, education, occupation, number of family members, status of residence, type of residence, village/residential community, length of stay and monthly income with internal factors such as attitudes towards problems and waste management household, waste management behavior and external factors, including the perception of information participation in waste management in the community, a community waste management model which were found in each issue as follows: 1) Overall gender factors were not related to internal factors and external factors. 2) Overall age factor was not correlated with internal factors, but was correlated with external factors (r=0.252**, sig.=0.000) with statistical significance at 0.01. In each aspect, there was a relationship in information perception (r=0.199**, sig.=0.000), participation in community waste management (r=0.223**, sig.=0.000), and image. The community waste management model (r = 0.255**, sig = 0.000) had a statistical significance at the 0.05. 3.) Overall status factors were related to internal factors (r= -0.292**, sig.=0.000). In each aspect, there was a relationship between attitude towards problems and waste management (r= -0.228**, sig.=0.000), and behavior in waste management in households and in the community (r =0-.234**, sig. =0.000) statistically significant at the 0.05 and correlated with external factors (r= -0.247**, sig.=0.000). In each aspect, it was related to information perception (r= -0.262**, sig.=0.000) and participation in community waste management (r= -0.156**, sig.=0.000), and the waste management model in the community (r= -0.240**, sig.=0.000) with statistical significance at the 0.05. 4) Overall educational factors were related to internal factors (r=0.252**, sig.=0.000). In each aspect, there was a correlation with attitude towards problem and waste management (r=0.240**, sig.=0.000), and on waste management behavior in the household and in the community (r= 0.193**, sig =0.000) with statistically significant at the 0.05, but was not correlated with external factors. 5) Overall occupational factor was related to external factors (r=0 .324**, sig.=0.000). In each aspect, it was related to the perception of information (r=0.367**, sig.=0.000), the participation in waste management in the community (r=0.257**, sig.=0.000), and the waste management model in the community (r =0.254**, sig.=0.000) with statistical significance at the 0.05, but no relationship with internal factors. 6) The factor of the total number of family members was not related to internal factors and external factors. Overall residence status factor was correlated with external factors (r=0.111*, sig.=0.037) at the 0.01 level of significance. In each aspect, it was related to information perception (r=0.143** sig.=0.007) and waste management model in the community (r=0.133*, sig.=0.013) with statistically significant at the 0.05, but was not correlated with internal factors. 7) Overall residential building characteristic factors are related to internal factors (r= 0.263**, sig.= 0.037). In each aspect, there was a relationship with the attitude towards problems and waste management (r=0.178**, sig.=0.001) and on waste management behavior in households and in the community (r=0.253**, sig.=0.013) with statistically significant at the 0.05, but was

not correlated with external factors. 8.) Overall village/residential community factors were related to internal factors (r=-0.204**, sig.=0.000). In each aspect, there was a relationship with attitude towards problems and waste management (r=-0.156**, sig.= 0.003), and behavior in waste management in households and in the community (r=-0.188**, sig.= 0.003) with statistically significant at the 0.05 and correlated with overall external factors (r= -0.583**, sig.=0.000). In each aspect, it was related to information perception (r= -0.539**, sig.=0.000) and participation in community waste management (r= -0.486**, sig.=0.000), and the waste management model in the community (r= -0.537**, sig =0.000) with statistical significance at the 0.05. 9) Overall length of stay factor was not correlated with internal and external factors. And 10) Overall monthly income factor was not correlated with internal and external factors.

The test of the correlation hypothesis between problematic attitudes and waste management, household and community waste management behaviors, perception of information, participation in waste management in the community and the model of waste management in the community using the Spearman Rank Difference Method correlation coefficient found that attitudes towards problems and waste management were related to household waste management behaviors (r=0.348**, sig.=0.000), and information perception (r=0.220**, sig.=0.000) with statistical significance at 0.01. The behavior of household waste management was related to information perception (r=0.175**, sig.=0.001), the participation in waste management in the community (r=0.221**, sig.=0.001) and external factors in the waste management model in the community (r=0.145**, sig.=0.006) with statistically significant at 0.01. The perception of information was related to the participation in waste management in the community (r=0.611**, sig.=0.000) and the waste management model in the community (r=0.626**, sig.=0.000) statistically significant at the 0.01. The participation in waste management in the community was related to the waste management model in the community (r=0.722**, sig.=0.000) as shown in Table 2.

Table 1 Mean of household and community waste management behaviors

Household and community waste management behaviors	**Mean**
Solid waste disposal behavior	3.53
Reuse/Reuse of Solid Waste behavior	3.39
Garbage collection behavior	3.26
Reduce the generation of solid waste behavior	3.21
Total mean of household and community waste management behaviors	**3.16**

Table 2 Analysis of the internal relationship between problem attitudes and waste management, household and community waste management behaviors perception of information and the model of waste management in the community

Factors	**Attitudes towards problems and waste management**	**Household waste management behavior**	**Perception of information**	**Participation in waste management in the community**	**Community waste management model**
Attitudes towards problems and waste management	1	0.000	0.000	0.787	0.215
		0.348**	0.220**	-0.014	-0.066
		1	0.175**	0.221**	0.145**

Household waste management behavior	0.001	0.000	0.006
Perception of information	1	0.611** 0.000	0.626** 0.000
Participation in waste management in the community		1	0.722** 0.000
Community waste management model			1

**Statistical significance level at 0.01

Discussions and Conclusions

Attitudes, behaviors and information perceptions on waste management in community households in Kuet Chang Sub-district, Mae Taeng District, Chiang Mai Province for socially innovative community waste management guidelines have three issues that can be discussed as follows:

(1.) Attitudes towards problems and waste management and attitude towards problems and community waste management were at a high level and the waste management behavior in households and in the community was at a moderate level. This is consistent with the research of Phokhao (2006) that studied solid waste management behavior of people in Ban Phai Municipality, Ban Phai District, Khon Kaen Province. It was found that people had good knowledge about solid waste management. There was a low level of awareness about solid waste management and participation in solid waste management is at a good level. The Garbage management behavior of people in overall was at a moderate level. When considering each aspect, it was found that most of the people had solid waste management behavior in terms of reducing waste generation, reuse/recycle, and waste classification at a moderate level. And the factors affecting solid waste management behavior in terms of waste reduction and solid waste sorting were the awareness of solid waste management and participation in solid waste management. It is also consistent with the research of Phadungpien (2017), which has studied the factors affecting the efficiency of waste management of Phra Nakon Si Ayutthaya City municipality, Phra Nakhon Si Ayutthaya Province, which found out the factors as follows: (1) Punctuality waste collection (2) Availability of waste collection equipment (3) The adequacy of the number of trash bins in the community (4) Educating the public about waste and waste sorting, and (5) Public relations about waste collection time.

(2.) Attitudes towards problems and waste management were correlated with household waste management behavior and information perception at a statistically significant level of 0.01. Corresponds to Parinyasuthinan (2018), discussing the relationship between communication and development, behavior, attitude that while a country is developing or while a social development process or a process of social change is underway, the important functions of communication in society are the informative function, the persuasive function, and the educational function, with the objective of promoting (complement), supporting (facilitate) and

expand (extend) the development activities (Development activities). This type of communication is called development communication. In the community development process, people will be involved in finding problems and studying the causes of problems, which is a principle that focuses on people's participation in development so that people have feelings and attitudes towards problems and have a relationship with the behavioral aspects that are part of that development with government agencies to help in supporting what people want to use for development or beyond the capacity that people can recruit. It is also consistent with Kanjanapan (2019) stated that community media, includes all types of folk media that existing in the community may be the media that are available and used by the community today, such as broadcasting towers, community radio, entertainment media and ceremonial media. Activities media such as training activities that must be emphasized in the form of practical training that are ready to be implemented can be easily understood. Emphasis on intense activity-based training while clearly defining the steps in practice, such as demonstrations, opportunities for self-experimentation, and so on. Study trip media such as giving the target audience an opportunity to go, to see, and to touch on a subject or issue that is similar or the same as themselves. Therefore, problem attitude and relationship with development communication behavior is important to problem attitude and relationship with behavioral communication that aims to promote and expand development work in different fields to be carried out easily. By this communication, it will act as a mechanism that drives development work to progress in order to meet the objectives set and also causes a change in the knowledge and attitude of the audience.

(3.) Social innovations for community waste management for sustainability should focus on the success factors in community-based solid waste management (CBM), which consisting of the four factors as follows: (1) The process of solid waste management by sorting waste at the source from the household using the 3R principle: Reduce, Reuse, and Recycle, resulting in less waste for disposal and can be used again such as composting, wood vinegar or pet food and so on. (2) Community participation, which the participation of people in the community starts to listen and acquiring knowledge through the meetings and training on proper waste separation, listening to, giving opinions and take action. This allows the amount of waste to be reduced and can generate a substantial income from the waste. (3) Leadership of community leaders is an important part of various operations, which requiring commitment, strength, public mind, sacrifice, good human relations and developers and problem-solving skills. (4) The social capital of the community must arise from the availability of people, money, materials, management, care, and awareness of the problem. The relationship of people in the community that shows unity in the community and ownership of the area and public consciousness of the people in the community will result the affects the operation in terms of participation of people in the community in community waste management, such as waste banks, exchanges (food, raw materials), and so on.

Recommendations

From this study, there are suggestions for the benefit of community waste management for sustainability as follows: (1.) Make a community to change the behavior of waste management practices that each household should follow, which is an environmentally friendly waste management method as follows: 1.) Waste sorting before disposing. 2.) Put the garbage in a black rubbish bag before disposing. 3.) Adding more trash cans within the community. 4.) Public relations and training to educate about waste disposal. 5.) Maintenance and treatment of waste pits in the community. 6.) Refusing and reducing the use of plastic bags from stores. 7.)

Processing waste to generate income. 8.) Adjusting the behavior of oneself and family members to separate and dispose of waste in the right way. 9.) Creating values for people in the community to tackle the impact of waste. And 10.) Establishing rules and regulations within the community. (2.) Waste management that is suitable for the community in the community context as follows: 1. Adding more rubbish bins at various points within the community by separating the bins according to the type of waste. 2.) Determining the waste disposal area of each community is to properly and appropriately dispose of waste without affecting the environment. 3.) Creating value for recyclable waste. 4.) Provide public relations, communication and training on waste management. 5.) Set up cooperation within the community. 6.) Establishing a garbage bank and set up the rules and regulations and form a community waste management committee, and so on.

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