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Participation in Household Garbage Sorting of Baan Lao Yai Community, Kudchum District, Yasothon Province

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Abstract The objectives of this study were to: 1) explore socio-economic factors of the informants and participation in household garbage sorting of Baan Lao Yai community, Kudchum District, Yasothon Province, and 2) investigate socio-economic factors having relationships with the participation in household garbage sorting of the informants. The sample group in this study consisted of 60 persons obtained by purposive sampling. A structured interview schedule was used for data collection administered with the sample group. Obtained data were analyzed by using the Statistical Package for finding frequency, percentage, mean, and standard deviation. F-test and t-test (independent simple) were also conducted. Results of the study were as follows:

1. Most of the informants (53.33%) were male, 65 years old and above (28.53%), lower secondary school graduates (28.33%), and engaged in agriculture (58.33%). Less than one-half of informants (41.67%) seldom perceived information about garbage sorting. All of informants (100%) perceived the information through social group member and news broadcast tower. Most of them had a high level of knowledge and understanding about garbage ($\overline{X}$=3.55) and garbage sorting ($\overline{X}$=3.45).

2. The informants participated in household garbage sorting at a high level in 3 aspects:76y 1) coordination in problem solving ($\overline{X}$=3.60); 2) coordination in practice ($\overline{X}$=4.00); and 3) reduction of an amount of garbages ($\overline{X}$=3.71).

3. The informants having the difference in sex, age, frequency in information perception, and a level of knowledge/understanding about garbages had no difference in the participation in household garbage sorting.

4. As a whole, the informants having the difference in educational attainment had a statistically significant difference in the participation in household garbage sorting at .01. Base on its details, there was a statistically significance difference at .01 between educational attainment of the informants and the coordination in problem solving.

5. As a whole, the informants having the difference in a level knowledge and understanding about household garbage sorting had a statistically significance difference at .01 in the participation in household garbage sorting. Based on it details, it was found that the difference

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in a level of knowledge and understanding about household garbage sorting had statistically significance difference at .01 in the coordination in problem solving.

Keywords: participation, household garbage, garbage sorting, information perception

Introduction

At present, an amount of garbage has been increasing every year. In 2013, an amount of garbage 26.77 million tons or about 73,335 tans per day. This was due to the expansion of the community and increase in number of population. The Ministry of Natural Resources and Environment has put the garbage problem into the national agenda with the following stretigies: 1) nourishment of the recycle society; 2) the managment of product/package refuse system; 3) local administrative organization clustering; 4) waste to energy processing; 5) research and development of effective technology; and 6) public-private partnership: PPPs (Department of Environmental Quality Promotion, 2015). All of these strategies are implemented in every province. In the case of Yasothon province, there are garbages about 258 tons per day (104.15 tons in municipalities and 154.14 tons in local administrative organizations). In Yasothon province had a number of population for 537,583; 55,558 in municipalities and 482,025 in local administrative organization. The production rate of garbages was 0.48 kg. per head per day on average; 0.62 ton per day in municipalities and 0.32 ton per day in local administrative organizations (Office of Natural Resources and Environment, Yasothon province, 2014). Of the amount of garbages, it could be managed in accordance with the sanitary principle for only 55 tons per day or 21 percent of the amount of garbages. This ineffective garbage management resulted in waste money for the management of Yasothon province has determined the project implementation on one-stop service garbage management. This is particularly on the encouragement of discipline on garbage sorting for reuse. That is, there are some 11 small communities implementing this project at the household level. Interestingly, the local administrative organization needs not to provide them garbage can, garbage truck, and garbage disposal place. Most people there use garbage sorting method, utilization and sometimes burning. This activity is under the responsibility of Kudchum Pattana municipality, Kudchum district, Yasothon province. It is also in connection with the mixed-garbage disposal system comprising recycled material sorting, plastic bag washing, compost pellet, bio-extracts, small Klein burning, and control burring. (Office of Kudchum Pattana Municipality, 2015). It was found that the community under Kudchum Pattana municipality which best practice in this respect in Baan Lao Yai community (Division of Public Health and Environment, 2015). Therefore, the study on the

participation in household garbage sorting of Baan Lao Yai community, Kudchum district, Yasothon province can be part of sustainable garbage problem solving in the future.

Objective of the Study

Spacifically, this study aimed to explore:

1. Socio-economic attributes of the informants and participation in household garbage sorting of Baan Lao Yai community, and
2. Socio-economic factors having relationships with the participation in household garbage sorting of informants.

Scope and Delimitation of the Study

1. Population and Sample Group

1.1 The population in this study were 292 people living in Baan Lao Yai community (Office of Natural Resources and Environment, Yasothon province, 2015).

1.2 The sample group (informants) in this study consisted of 60 persons obtained by purposive sampling, one person per household.

2. Variables

2.1 The independents variables included sex, age, educational attainment, information perception about household sorting, and knowledge/ understanding about garbages and garbage sorting.

2.2 The dependent variable was participation in household garbage sorting of Baan Lao Yai community, Kudchum district, Yasothon province.

3. Time Span, data were collected during February-March, 2016.

4. Content, there were 3 aspects of the participation in household garbage sorting of Baan Lao Yai community: 1) coordination in problems solving; 2) coordination in practice; and 3) coordination in the reduction of an amount of garbages.

Conceptual Framework

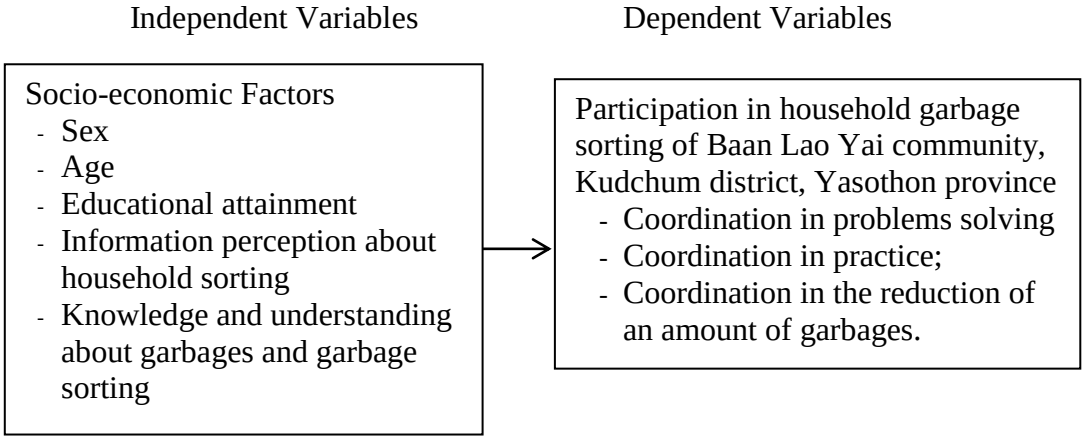

Figure 1. Conceptual framework of the study

Methodology

1. Data were collected from 60 households, one person each. A structured interview schedule was used for data collection. It consisted of 5 parts as follows:

Part 1. Socio-economic attainments of the informants
Part 2. Information perception about garbage sorting
Part 3. Knowledge and understanding about garbages and garbage sorting
Part 4. Participation in household garbage sorting
Part 5. Suggestions

2. The research instrument was inspected by 5 specialists for finding validity and consistency of the question items (IOC=0.87). It was in the form of check list, open-ended question, 5-rating scales, and criteria of an opinion level. The computation was on the basis of mathematical equation: the width of interval = a highest score-a lowest score/a number of intervals. An obtained distance of each interval was 0.80 (Roengprapan, 2000) as shown below:

Score	Mean span	Level of opinions/participation
5	4.21 – 5.00	highest
4	3.41 – 4.20	high
3	2.61 – 3.40	Moderate
2	1.81 – 2.60	Low
1	1.00 – 1.80	Lowest

3. The research collected data by researchers. Prior to this, they had asked permission and coordination for data collection from the Office of Natural and Environment, Kudchum district, Yasothon province.

4. The statistical package was used for data analyses for finding frequency, percentage, mean, and standard deviation. F-test and t-test were also conducted.

Results

Socio-economic attributes of the respondents

Table 1. Socio-economic attributes of the respondents

Items	Frequency (n = 60)	Percentage (%)
Sex		
Male	32	53.33
Female	28	46.67
Age) year(		
Below 25	2	3.33
25-34	9	15.00
35-44	6	10.00
54-44	14	23.33
55-64	12	20.00
65and above	17	28.33
Education attainment		
Elementary school	16	26.67
Lower-secondary school	22	36.67
Upper-secondary school	16	26.67
Junior degree	3	5.00
Bachelor's degree and above	3	5.00
Main occupation of the family head		
Agriculture	35	58.33
Trading	20	33.33
Hired-worker	5	8.33

According to Table 1, findings showed that most of the informants 53.33)% (were male, 65years old and above28.33) %(, lower-secondary school graduates36.67) %(, and their main occupation was engaged in agriculture 58.33%)

Table 2. Information perception about garbages and garbage sorting

Items	Frequency (n = 60)	Percentage (%)
Information perception about garbages/ garbage sorting and cleanliness keeping from concerned agencies		
- Seldom 3-2) month/time(	25	41.67
- Rather often 4-3) month/time(	24	40.00
- Always 2-1) month/time(	11	18.33
Sources of information about garbage sorting from concerned agencies (More than 1 answer is allowed)		
- Local newspaper	10	16.67
- Social group members	60	100.00
- News broadcast tower	60	100.00
- Municipal personnel	41	68.33
- Information board/Advertisement board	13	21.66

According to Table 2, findings showed that most of the informants seldom and rather often information about garbage sorting and cleanliness keeping from concerned agencies 41.67)%(, and 40)% (respectively. Sources of the information were social group members and news broadcast tower 100).00%(, followed by municipal personnel68.33) %.(

Table 3. Knowledge and understanding about garbages and garbage sorting

Items	A level of knowledge and understanding (n = 60)		
	$\bar{X}$	S.D.	Description
- Garbages	3.55	1.01	High
- Garbage sorting	3.45	0.98	High

According to Table 3, findings showed that most of informants had a high level of knowledge/understanding about garbages) $\bar{X}$ = 3.55 (and garbage sorting) $\bar{X}$ = 3.45.

Participation in household garbage sorting

Table 4. Participation in household garbage sorting

Items	A level of participation (n = 60)		
	$\bar{X}$	S.D.	Description
1. Coordination in problem solving			
1.1 Provision of garbage problems to concerned agencies when attending a meeting	4.03	0.80	High
1. 2Immediate notifying personnel of concerned agencies when facing the problem in garbage sorting	3.68	0.74	High
1. 3Giving suggestions about a guideline for garbage problem solving to the municipality/the community	2.48	1.01	High
1. 4Assisting neighbors when they have garbage problems	3.97	1.00	High
1. 5Persuading neighbors to keep an eye on garbage problems	3.83	0.96	High
Total	3.60	0.44	High
2. Coordination in practice			
2. 1Sorting garbages before dumping	4.87	0.34	Highest
2.2 Littering garbages in a garbage can provided by the Municipality	2.55	1.33	Low
2. 3Preparing a garbage can by yourself	4.78	0.41	Highest
2. 4Avoiding garbage littering in the public area	4.90	0.30	Highest
2. 5Garbage disposal is done by burning in your residential area	2.30	0.69	Low
2. 6Garbage disposal is done by burying	4.27	0.88	Highest
2. 7Food leftover is fed to domestic animal, earthworm, etc.	4.65	0.48	Highest
2. 8Making garbages to be bio-fertilizer	3.28	1.25	Moderate
2. 9Participating in cleanliness keeping activities	4.45	0.76	Highest
Total	4.00	0.25	High
3. Coordination in the reduction of an amount of garbages			
3. 1Reuse of good plastic bags	3.75	1.00	High
3. 2Reuse of clean food/water bottles	4.05	0.79	High
3.3 Sorting glass/plastic bottles	4.83	0.37	Highest
3. 4Covering the ground by using leaf/grass	4.30	0.69	Highest

residues or making it to be compost			
3. 5Using a cloth bag rather than a plastic bag when purchasing something	2.87	1.04	Moderate
3. 6Using a degradable container such as a bamboo basketry	2.52	0.79	low
Total	3.71	0.29	High
Overall	3.77	0.22	High

According to Table 4, findings showed that the informants had a high level of the participation in household garbage sorting. On the basis of the coordination in garbage problem solving, it was found that the informants had a high level of the participation $(\bar{X}$ =(3.60 , except giving suggestions about a guideline for garbage problem solving which was found at a low level $(\bar{X}$ = (2.48. In terms of the coordination in practice, as a whole, it was found that the informants had a high level of the participation $(\bar{X}$ = .(4.00 Based on the participation in the reduction of an amount of garbages, as a whole, it was also found at a high level $(\bar{X}$ =.(3.71

A Comparison of the participation in household garbage sorting of the informants having the difference in socio-economic attributes

Based on results of the study, the following were found:

1. The informants having the difference in terms of sex, age, frequency of information perception and level of knowledge/understanding about garbage had no difference in the participation in household garbage sorting.

2 .As a whole, the informants having the difference in education attainment had a statistically significant difference at 01.in terms of the participation in household garbage sorting. Based on its details, it was found that education attainment of the informants had a statically significant difference at .01 in terms of the coordination in garbage problem in garbage problem solving.

.3As a whole, the informants having the difference in level of knowledge/understanding about household garage sorting had a statistically significant at .01 in terms of the participation in household garbage sorting. Based on its details, it was found that the difference in a level of knowledge/understanding about household garbage sorting had a statistically significant at .01 in terms of the coordination in garbage problem solving.

Table 5 . A comparison of sex of the informants and the participation in household garbage sorting

Items	Sex				t.	Sig.
	Male (n = 32)		Female (n = 28)			
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
- Coordination in garbage problem solving	3.57	0.48	3.62	0.39	0.47-	0.63
- Coordination in practice	4.03	0.28	3.97	0.19	0.96	0.34
- Coordination in the reduction of an amount of garbage	3.69	0.27	3.74	0.30	0.60-	0.54
Total	3.76	0.22	3.78	0.22	0.21-	0.83

Table 6 . A comparison of age of the informants and the participation in household garbage sorting

Items	Age (Year)						F.	Sig.
	Lower 25	25-34	35-44	54-45	64-55	65and above		
	$\bar{X}$ (S.D.)	$\bar{X}$ (S.D.)	$\bar{X}$ (S.D.)	$\bar{X}$ (S.D.)	$\bar{X}$ (S.D.)	$\bar{X}$ (S.D.)		
- Coordination in garbage problem solving	3.70)0.42(	3.53)0.20(	3.73)0.41(	3.47)0.53(	3.80)0.40(	3.54)0.47(	0.96	0.44
- Coordination in practice	4.16)0.23(	4.12)0.24(	3.87)0.14(	4.00)0.30(	4.00) 0.27(	3.97)0.21(	0.96	0.44
- Coordination in the reduction of an amount of garbage	3.83)0.23(	3.74)0.23(	4.00)0.42(	3.71)0.20(	3.68)0.28(	3.62)0.30(	1.66	0.15
Total	3.90)0.14(	3.79)0.08(	3.86)0.24(	3.72)0.22(	3.82)0.20(	3.71) 0.27(	0.87	0.50

Table 7 . A comparison of education attainment of the informants and the participation in household garbage sorting

Items	Education attainment					F.	Sig.
	Elementary school	Lower-secondary school	Upper-secondary school	Junior degree	Bachelor's degree and above		
	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(		
- Coordination in garbage problem solving	3.62 0.38)	3.51 0.51))	3.68 0.28))	4.20 0.00))	3.00 (0.20)	**3.72	0.00
- Coordination in practice	4.02 0.26))	4.04 0.25))	3.99 0.24))	3.88 0.29))	3.77 (0.11)	0.95	0.43
- Coordination in the reduction of an amount of garbage	3.73 0.28))	3.76 0.30))	3.73 0.27))	3.55 0.19))	3.33 0.16))	1.84	0.13
Total	3.79 (0.19)	3.77 0.25))	3.80 0.17))	3.88 0.03))	3.37 (0.04)	**3.21	0.01

**Statistically significant level at .01

Table 8 . A comparison of the frequency of the information perception and the participation in household garbage sorting

Items	Information perception of informants			F.	Sig.
	Seldom 3-2)month/time(	Rather often 4-3)month/time(	Always 2-1)month/time(		
	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(		
- Coordination in garbage problem solving	3.57 (0.42)	3.60 (0.40)	3.63 (0.57)	0.07	0.92
- Coordination in practice	4.03 (0.22)	3.98 (0.31)	3.97 (0.15)	0.30	0.74
- Coordination in the reduction of an amount of garbage	3.70 (0.30)	3.73 (0.31)	3.72 (0.22)	0.09	0.90
Total	2.77 (0.21)	3.77 (0.23)	3.78 (0.24)	0.01	0.99

Table 9 . A comparison of a level knowledge/understanding about garbages and the participation in household garbage sorting

Items	level knowledge/understanding about garbages					F.	Sig.
	Lower	Low	Moderate	High	Highest		
	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(		
- Coordination in garbage problem solving	4.20 (0.00)	3.37 (0.65)	3.57 (0.47)	3.63 (0.32)	3.69 (0.36)	1.22	0.31
- Coordination in practice	4.22 (0.00)	3.88 (0.15)	3.97 (0.25)	4.05 (0.26)	4.03 (0.27)	0.98	0.42
- Coordination in the reduction of an amount of garbage	3.33 (0.00)	3.77 (0.32)	3.70 (0.26)	3.78 (0.33)	3.60 (0.17)	1.22	0.31
Total	3.91 (0.00)	3.68 (0.21)	3.75 (0.25)	3.82 (0.20)	3.77 (0.21)	0.80	0.52

Table 10. A comparison of a level knowledge/understanding about garbage sorting and the participation in household garbage sorting

Items	Level knowledge/understanding about garbage sorting					F.	Sig.
	Lower	Low	Mode-rate	High	Highest		
	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(	$\overline{X}$)S.D.(		
- Coordination in garbage problem solving	- (-)	3.93 (0.26)	3.49 (0.55)	3.57 (0.36)	3.32 (0.35)	**4.64	0.00
- Coordination in practice	- (-)	4.05 (0.25)	4.04 (0.29)	4.00 (0.22)	3.86 (0.21)	1.22	0.30
- Coordination in the reduction of an amount of garbage	- (-)	3.79 (0.35)	3.75 (0.20)	3.70 (0.29)	3.56 (0.28)	1.17	0.32
Total	- (-)	3.93 (0.13)	3.76 (0.24)	3.76 (0.21)	3.58 (0.13)	5.05**	0.00

**Statistically significant level at .01

Discussion

According to results of the study, the following were conclusion and discussions:

More than one-half of the informants were males, 65 year old and above, lower secondary school graduates, and their main occupation was agriculture. This conforms to a data report of Kudchum Pattana municipality which states that the population rate in the municipality has almost the same number of male and females. Most of the people there are engaged in agriculture such as animal husbandry, rice growing, crop plant growing, etc. and vegetable growing after the harvest season (Kudchum Pattana municipality, 2015). Findings shows that most of the informants perceive information about garbage sorting and cleanliness keeping from social group members and news broadcast tower most. This may be because Baan Lao Yai community often hold village members meeting and they always meet one another. Besides, there is public relations through the village news broadcast tower which is a communicative channel easily to access them. Based on the interview with the informants, they show a high level of knowledge and understand about garbages and garbage sorting. It is also found that the informants had a high level of the participation in household garbage sorting in terms of 3 expects: 1) coordination in the garbage problem solving; 2) coordination in practice; and 3) coordination in the reduction of an amount of garbages. This may be because they always perceive information about garbage sorting and cleanliness keeping. Findings show that concerned agencies seldom visit the informants to give the information in accordance with the program of Kudchum Pattana municipality.

The informants having the difference in sex, age, frequency of information perception, and a level of knowledge/understanding have so difference in the participation in household garbage sorting. This may be because the family is the smallest social unit which family members can communicate one another easily and effectively. In fact, people in northeastern Thailand put the importance on respectfulness to the elderly; particularly the breadwinner teaching or suggesting something to family members. Thus, family members are willing to do good things as suggested by the breadwinner.

The informants having the difference in educational attainment have a statistically significant difference at .01 in the participation in household garbage sorting. Based on its details, it is found that educational attainment of the informant of the information has a statistically significant difference at .01in terms of the participation in household garbage sorting. This conforms to study of Chaipakdi (2011) on community participation in garbage management of Bueng Khonglong local administration organization, Nongkai province. It was

found that people having the difference in educational attainment perceive that there is a statistically significant difference at .05 in terms of community participation is garbage management. That is, those who are elementary school graduates and secondary school graduates have less participation than those who are bachelor's degree holders and above. This implies that educational attainment has an effect on the participation in household garbage sorting. This is because education also focuses on social responsibility.

As a whole, the informants having the difference in a level of knowledge/ understanding have a statically significant difference in the participation in household garbage sorting. Based on it details, it is found that is a statistically significant difference at .01 in terms of the coordination in garbage problem solving. This conforms to a study of Maneerat (2008) on household garbage management of people in Kohkaew local administration organization, Roi Et province. It was found the people there are a moderate level of knowledge about household garbages. It was also found that people having the difference in a level of knowledge about household garbages have a statistically significant difference in a level of household garbage management at .05. This implies that the informants having the difference in a level of knowledge/ understanding about garbage sorting have the difference in the participation in household garbage sorting. This may be because the informants perceive the garbage problem and the utilization of good garbage management. Thus, they have a high level of the participation in household garbage sorting.

Recommendations

1. Suggestions based on results of the study

According to results of the study, there is a statistically significant difference in household garbage sorting based on a level of educational attainment and knowledge/understanding about garbage sorting. The following are suggestions:

1.1 Concerned agencies should continually extend knowledge to people on household garbage disposal which will have an effect on good and appropriate garbage management. Examples of effective communicative channels are village news broadcast tower and social group members.

1.2 Continual promotion and support on activities related to environmental studies. This aims to make the youths realize on garbage problem and appropriate garbage management. This eventually makes them realize on the importance of participation and results in desired behaviors.

2. Suggestions for further research

2.1 It should have a study on developing a model of integrated participation in appropriate garbage management activities. This must be consistent with social activities and school environment studies so that the community will have effective household garbage management.

2.2 It should have a qualitative study on the participation in household garbage management in order to obtain in-depth social leader group, community leader, local people, and concerned government/private agencies.

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