ITEMS INFLUENCING HOUSEHOLD RECYCLING

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Abstract- with an increasing trend of waste generation worldwide, an effective waste management is needed. Recycling is one of effective methods to reduce waste. In this paper, 18 items are extracted from a number of literatures, both in developed and developing countries. These items, both qualitative and quantitative, are found influencing positive recycling behavior. Examples are attitude towards ecological behavior, age, garbage fee, and family income. These items will later be used in questionnaire survey development to gather data for further analyses.

I. INTRODUCTION

Nowadays, waste has an extremely effect to environment in terms of pollution. The major cause comes from an ineffective waste management. Figure 1 shows the global trend of waste generation from 1900 to 2100.

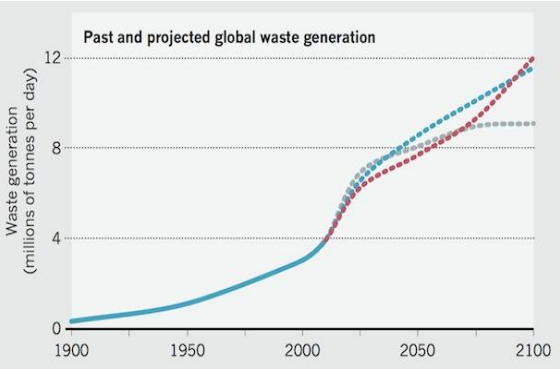


Figure 1 - Past and Projected Global Waste Generation

A scenario that assumes current demographic and per capita waste production trends will continue (blue line) projects waste to peak sometime after 2100, as does a scenario with even greater population growth (red line). Only a scenario with a smaller, wealthier world population and more environmentally-friendly consumption behaviors (grey line) enables peak garbage to occur this century.

The wealthier and environmentally-friendly behaviors of householders can reduce a waste generating. Both have a similar simple basic process that everybody can do, recycling. The willingness and cooperation in recycling affects both wealthy and environmentally-friendly, and will result in waste reduction.

II. ITEMS INFLUENCING HOUSEHOLD RECYCLING

Waste recycling is one of effective waste management. It helps reduce gas emission caused by wastes. It reduces the need for raw materials so that the natural resources can be preserved.

Effective recycling depends on various factors. Based on the literature review, 18 items influencing household recycling are as followings.

A. Attitude Towards Ecological Behavior
Householders who concern more on environment issues tend to recycle more. Those who concern with the environment have a strong influence on recycling behavior.
B. Saving Landfill Space
Landfill space is the area of the land that is built up from deposits of solid refuse in layers. Recycling wastes help saving landfill space as it reduces wastes sending to drop-off centers. A research by Waste Management Inc. stated that recycling saves money, and in turn reduces the amount of trash going to the landfills.
C. Distance to Recycling Spot
Distance to the recycling spot is another factor influencing recycling behavior. Householders who have recycling spot near to their home appear to be willing to recycle. Moreover, if there are enough available recycling facilities, it could lead to more recycling as householders feel that it 1s a convenience activity.
D. Amount of Recyclable Materials
Some materials are mostly use in daily life, such as newspaper; this influences householders to reduce and recycling. The more recyclable materials, the higher recycling rate.
E. Transportation to Recycling Spot
Some materials are bulky and uneasy to transport, such as glass, metal, and household appliances. It might need some support from local authority.
F. Household Space
In developing countries, people who live in medium sized houses with two or three bedrooms have significant effect in recycling. In developed countries, single family dwellings are more likely to recycle

than multi-family dwelling. The reason might be that multi-families do not have available space for recycling.

G. Family Influence (Internal Influence)

Family influence might have the effect on recycling behavior. Omran et al. mentioned that recycling behavior will be compelled by spouse or a relative.

H. Social Influence (External Influence)

Social pressure is a significant driver of recycling behavior. Communities can support and motivate members to recycle.

I. Education

Johnson and Parrott stated that people with a college education will recycle more than people with a high school education. Starr agreed that higher education level will have positive effect with recycling rate.

J. Recycling Knowledge

The greatest different between recyclers and non-recyclers is their knowledge about recyclable materials. People will recycle if they have recycling knowledge.

K. Incentive

External incentives could lead people to recycle more. According to Latif et al., incentives and rewards have significant and direct effect on both recycling behavior and intention to recycle.

L. National Law Enforcement

If recycling is mandated, then the recycling rate will be increased. Therefore, this might be leaded to intend to recycle. Also, the strong recycling laws are effective in transforming people from non-recyclers to diligent recyclers.

M. Age

When people grow up and have more maturity and responsible, they tend to recycle more even when they have full-time job.

N. Family Income

In developed countries, it is found that people with higher income tend to recycle more than people with less income.

O. Habit

Habit occurs when recycling is performed with minimum effort. An effective recycling program, such as adequate provision of recycling bins, encourages and facilitates the public recycling habits.

P. Gender

According to Saphores et al., women are more willing to take wastes to drop-off recycling center than men. Also, women are more likely to separation solid wastes than men.

Q. Available Time

People tend to recycle more when they have more available time as recycling is time consuming process.

R. Garbage Fee

The recycling and reuse methods should be adopted if garbage fees increase, in order to reduce the cost.

A summary of the 18 items are listed below.

1. Attitude towards ecological behavior
2. Saving landfill space
3. Distance to recycling spot
4. Amount of recyclable materials
5. Transportation to recycling spot
6. Household space
7. Internal influence
8. External influence
9. Education
10. Recycling knowledge
11. Incentive
12. National law enforcement
13. Age
14. Family income
15. Habit
16. Gender
17. Available time
18. Garbage fee

The above 18 items will be used to develop the questionnaire survey in order to extract the data for further analyses. However, the analysis results are not yet detailed in this paper.

III. EXAMINATIONS OF THE 18 ITEMS BETWEEN DEVELOPED AND DEVELOPING COUNTRIES

Examining the 18 items influencing the recycling behavior reveals the same trend between developed and developing countries. For example, householders tend to recycle more if the distance to recycling spot is short. Therefore, local authority should provide different channels to recycle so that recycling is convenience to do so.

There are, however, some different trend between developed and developing countries, such as education and family income items. In developed countries, people with a college education will participate more in recycling program than people with a high school education. In developing countries, people with lowest education level have higher recycling rate.

IV. CONTINUING STUDY

A total of 18 extracted items will be used to develop the questionnaire survey to collect data for the exploratory factor analysis and the structural equation modeling to examine key recycling factors and investigate the relationships between those factors to better plan for recycling program.

CONCLUSION

Waste is an important issue as the trend of waste generation increases rapidly. In this paper, 18 items influencing household recycling behavior are extracted from a number of literatures. These items reveal some similarities and differences in perception

between developed and developing countries. Similarities are, such as, in distance to recycling spot, recycling knowledge, and incentive items. Differences are, on the other hand, in education and family income items.

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