

# A positive analysis on the behavior disposing biodegradable waste of households

## —A case study in Hanoi city, Vietnam—

Kengo Yamanaka

*Key Words: Separate Collection of Biodegradable waste of households, Behavior on Source Separation, Social Capital, Provision for Waste Management, Waste Prevention, Composting, International Cooperation*

### 1. INTRODUCTION

Separate collection of biodegradable waste of households is conducted to solve the environmental problem that the waste disposal causes in the local government of urban area in many countries. Households must cooperate with such a separate collection, but that of the burden is bigger than a conventional waste disposal. If all households want own profit, they don't cooperate with the source separation (SS). Consequently, local environmental problem will turn worse with social dilemma. Many studies analyze this phenomenon and clarify determinants of the behavior on SS, but there are two problems at least in these analyses. One problem is that there are few case studies in the urban area of the developing countries that have much more serious environmental problems than developed countries. Recently, some international cooperation helped some local government in developing countries including Hanoi city try a project to collect separately biodegradable waste of households to improve their environment. The other problem is that there are few case studies that analyze for performance of the project. So, this study conducts a positive analysis approaching the two problems as a case study of the JICA's project in Hanoi city, Vietnam.

### 2. APPROACH

At first, this study showed the hypothesis of the behavior on SS of biodegradable waste considered the characteristic of the study site. Then, analyzing the data which are collected from the waste sampling of households and questionnaire survey of households, the determinants of the behavior on SS and the quantity discharging biodegradable waste of households are clarified. Finally, the performance of the project to collect biodegradable waste separately is evaluated by two indexes which are the effect on waste prevention and collecting quantity of separated waste suitable for composting.

### 3. RESULTS AND DISCUSSION

As a result of a positive analysis on the behavior on SS, some factors about social capital and provision for waste management are proved to be the determinants. The factors about social capital, such as frequency discussing some topics about environmental problems in a meeting of the local community, and intention to follow the instruction about the SS from waste collection workers in the local community, promote the behavior on SS. The factors about feasibility evaluation, such as retention of containers for SS in houses, perception of information about time of the separate collection, understanding the rule of SS, and little generation of biodegradable waste of households, strongly influence the behavior on SS.

As a result of positive analysis on the quantity discharging biodegradable waste of households, the performance of the project is mostly evaluated. The more frequently households drain water from biodegradable waste and the more numbers of households are, the smaller the quantity per person of biodegradable waste generation becomes, and the effect on waste prevention is recognized. In addition, the quantity per person of biodegradable waste increases when households separate the waste. The effect on waste prevention isn't recognized, however, the composting effect on local environment can be recognized, because an accuracy to separate waste suitable for composting from households waste is very high of 95% and a ratio of quantity to separate it from total quantity of households waste is 18%.

From the above, the project to collect biodegradable waste separately supported by JICA's international cooperation can contribute to solve the local environmental problems.