

論文内容の要旨

Increasing waste production is a serious problem for every country with substantial waste management initiatives. It is an issue of universal concern not only for developed countries but also for developing nations. In the Southeast Asian countries, there are four treatment methods for municipal solid waste: landfill and open-dumping sites; incineration; composting, and recycling/recovery. In Asian countries, landfilling is the dominant method of municipal solid waste treatment. The insufficiency of waste treatment capacity is a considerable challenge that must be solved by cultivating concern for waste problems, especially in developing countries. Disposing of waste in landfill sites has caused severe pollution. In fact, increasing waste is tantamount to the expansion of landfills, which is a serious issue given that allocating land for this purpose leaves no room for other activities. This challenge can be addressed by establishing waste reduction as a strategic policy. One of the methods to improve the quality of the environment is to reduce the quantity of solid waste dumped into landfills. Source separation with recycling is a promising method which contributes to solving the problem related to landfill pollution and severe environment degradation. Preventing the wasteful use of a common resource such as land necessitates the promotion of effective waste reduction policies. Nevertheless, there are many policies issued for waste management improvement but Vietnam is still facing severe environmental problems, especially pollutions from open dumping and unsanitary landfills. There should be appropriate measures to improve waste management. Thus, this dissertation aims at finding out the way to contribute to enhance the capacity of waste management to solve waste problems by waste separation behavior (WSB) improvements.

In Thua Thien Hue province in Vietnam, there are two major waste-related problems. *First*, the waste treatment capacity of major landfilling facilities in the province is inadequate to handle the amount of waste forecast to be generated in the future. Many landfill sites in the area have less than 10 years remaining before they reach full capacity. *Second*, a tremendous amount of waste is disposed in landfills, accounting for 93% of the total waste - a percentage higher than the average of Vietnam's central region and the entire country. Based on the national policy called "National Strategy for Integrated Management of Solid Waste Until 2025 and Vision towards 2050", Thua Thien Hue government enacted the policy "Solid Waste Management Master Plan till 2030 and vision 2050" to manage waste in the province. From which, the project prioritizing community-based composting (CCP, for short) was implemented at two selected sites: Huong Xuan ward and Quang Tho commune. The project mandated that the actors involved (i.e., local authorities, assistance groups, and residents) separate out organic waste for composting. The direct objectives of CCP are to promote the separation of organic waste for composting to minimize the discharge of municipal solid waste from rural areas into landfills and develop know-how regarding this composting measure in all other rural areas. This project was conducted in one year from November 2016 to December 2017. Two periods were implemented in CCP because of changes in the scheme underlying the waste collection system in Huong Xuan and the expansion of the number of participating households in Quang Tho. The different outcomes of CCP in Huong Xuan and Quang Tho regarding the organic WSB led us to discover the factors influencing WSB with CCP and without CCP. Thus, there are two studies conducted:

Study 1 scrutinized psychological perspectives regarding WSB for composting during CCP and proposed an adapted institutional analysis and development framework for analysis of the policy implementation. The relationship between the local authorities and the residents in waste management was evaluated when CCP was implemented. A case study-based designed has been applied in this study. The purpose sampling was carried out. By using new self-constructed approach and following the institutional analysis and development (IAD) framework of Ostrom integrated with self-determination theory and theory of planned behavior, the action arenas, patterns of interaction, and outcomes under the policy of waste management of Thua Thien Hue province as well as the attributes of the communities were analyzed. Surveys and follow-up surveys were conducted during 2016 to 2019, namely:

- ✓ The relevant participants were recruited to join the interviews in July 2016. The vice-chairpersons of the People's Committee and cadastral employees of Quang Tho and Huong Xuan were invited before CCP was started. They were CCP's direct managers.
- ✓ Follow-up surveys were conducted with further interviews with representatives of social organizations, village leaders, and waste collectors after CCP implementation. The chairman of the Farmer Association in Huong Xuan and the chairwoman of the Women Union in Quang Tho joined in the interviews.

Successful interviews were conducted with the village leader in Huong Xuan and the waste collectors in both Huong Xuan and Quang Tho. In-depth interviews were also held with five residents in each community who were chosen as representatives of the community's households.

- ✓ Surveys in August and September 2017 as well as in February and March 2018 established the basic socio-economic data for the adapted IAD framework analysis. These surveys were also the basis for the next study in this research. Details of these surveys are presented in the next part.
- ✓ In-depth interviews with the representative of technical experts were carried out in 2019.

Content analyses of qualitative and secondary data were conducted to examine the framework's relevant components.

Study 2 tried to determine factors influencing WSB without CCP by examination of societal perspectives according to the typical characteristics of rural areas. To reach the aim of this study, data was collected by surveys. One survey was conducted in August and September 2017, then primary data were collected during February and March 2018. The household-head¹ or sub-household-head² who is representative of the household was interviewed using the questionnaire package. The questionnaire package was designed based on the consideration of influential factors on waste separation in previous studies and the results of the preliminary surveys. This package includes thirty-two questions in 5 sections which were developed using the 5-point Likert-scale. WSB is considered as the entire household's view, therefore, the observations of social demographic factors were associated with WSB. Data was collected successfully in 298 households, which were divided into livestock and non-livestock groups on the basis of livelihood activities. Data was analyzed using an independent samples t-test and multiple regression.

The main findings of the whole research were that:

First, the CCP was successful in Huong Xuan. Its reasons are summarized as follows:

(1) Happiness and enjoyment of psychological states of the residents existed in conducting the waste separation. With the self-determination theory, it was identified as intrinsic motivation, with the highest level of autonomous motivation;

(2) Other actors, social organizations (Farmer Association and Women Union), village leader, and waste collector also felt autonomous motivation.

(3) Autonomy support activated the intrinsic motivation of the residents during waste separation performance. This support was initiated by the local authority, led to generation of autonomous motivation of the other actors, enable them to give autonomous support to the residents.

Second, the CCP was not successful in Quang Tho. After the CCP was finished, however, it was found that residents with livestock did waste separation as habit. Its reasons are summarized as follows:

(4) The typical characteristics of rural areas were confirmed as very important influences on perspectives of waste and WSB of the residents, namely: 4a) the livestock group exhibits more positive attitudes toward waste separation, greater concern for subjective norms, a stronger awareness of the negative effects of waste, a more well-developed perception of the encouragement of waste separation, and higher waste separation performance than does the non-livestock group; 4b) the presence of a garden—a common feature characteristic of rural areas in Vietnam—is a very significant and powerful factor that affects the locals' waste separation habits.

In summary, beyond the attributes of the communities, the success of WSB emphasized the roles of the key persons, specifically in CCP case, village leaders and waste collectors. The basic psychological needs of the residents in waste separation actions should receive attention. The findings of this research demonstrate the need to advocate local authorities' autonomy support to the assistants and then, to the residents for their autonomous motivation for waste separation in the rural areas. By this mean, the policymakers can promote and increasingly encourage people's WSB. In fact, support from local authorities and their assistants for the residents is a necessity in successful waste policy implementation.

¹ Household head refers to a person whose name is in the household book.

² Sub-household head refers to a person who is wife/husband/oldest child of the household head.