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授与した学位	博 士
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学位授与の要件	環境生命科学研究科 環境科学専攻 (学位規則第 4 条第 1 項該当)
学位論文の題目	Analysis and modeling of household solid waste separation behavior towards recycling promotion in Da Nang City, Vietnam (ベトナム・ダナン市におけるリサイクル推進に向けたごみ分別行動の分析及びモデリング)
論文審査委員	准教授 松井 康弘 教授 藤原 健史 教授 川本 克也
学位論文内容の要旨	
<p>This dissertation consists of six chapters, the contents of individual chapters are shown as follows:</p> <p>Chapter 1 introduces the research background, overview of solid waste management in Da Nang City, Vietnam, and the scope as well as objectives of the study. The outline of whole study was also presented in this chapter.</p> <p>In Chapter 2, the literature review relating to this study was presented. The methods for behavior modelling, the influencing factors of the waste separation behavior were introduced by studies in Vietnam and other countries. In addition, the methods for measuring the effect of a waste separation program were also shown. Thereafter, the remained problems of past studies were pointed out aimed to clarify the novelty and originality of the proposed research. Finally, the research framework was proposed.</p> <p>Chapter 3 described the household solid waste (HSW) separation behavior and its structure models in the whole city of Da Nang. The methodology including the research area, sampling method, outline of questionnaire survey, and data analysis for modeling was presented. By questionnaire survey, the separation behaviors of leftover food and 13 recyclable categories were shown. The factors influencing these waste separation behaviors was analyzed and discussed based on the developed models. This survey was conducted in 2016 and was considered as a basis framework for later survey in 2018 (chapter 4).</p> <p>Chapter 4 was the main section of the dissertation. It described the structure models of the HSW separation behavior and the effects of WSS program on behavior and its influencing factors in 6 areas where WSS program was implemented by city authorities in Da Nang city. The survey was conducted in 2018. The methodology including the outline of questionnaire survey, the differences from past survey in 2016 and data analysis for modeling and measuring the effects of WSS program was presented. The results showed the separation behaviors of leftover food and 14 recyclable categories. The influencing factors of the behavior were explored by the modeling. The impact of WSS program on the changing of waste separation rate and the influencing factors was clarified. Besides, a comparison of the surveyed data by time series (in 2016 and 2018) was conducted. Thereafter, the weaknesses and strengths of existing WSS program were highlighted and the promotion measures were proposed aimed to improve the waste separation behavior.</p> <p>In Chapter 5, prediction of the effect of promotion measures, which were suggested in Chapter 4, on the waste separation rate and waste separation amount for 14 recyclable categories were presented. The predictive changes of waste separation rate by each promotion measures were estimated by the predictive models for 14 recyclable categories. The potential waste separation amount was also calculated for each recyclable category.</p> <p>Finally, Chapter 6 summarized the main conclusions of the dissertation. The recommendations for future research were also described.</p>	

論文審査結果の要旨

ベトナムでは、近年の経済発展に伴って急速に廃棄物の発生・排出が増加してきており、家庭ごみの分別・リサイクルの推進が大きな課題となっている。2015年に公布された政令においては、廃棄物を①リユース・リサイクル可能物、②生物分解可能物、③その他の3つに分別することが規定され、今後ごみの分別・3Rの推進に向けた戦略的な計画策定が必要と考えられる。

本研究は、ベトナム・ダナン市において一般家庭の資源化物の分別に焦点を当て、市民の分別行動とその影響要因を実態調査し、要因構造モデルを構築した。また、ダナン市が試験的に実施した分別促進プログラムについて、市民の行動と影響要因に対する影響を体系的に明らかにするとともに、分別行動の要因構造モデルに基づき、様々な普及啓発プログラムを徹底することによって期待される参加率・リサイクル量の変化を予測した。

ベトナムでは、資源化物の分別プログラムの導入・市民の行動変容が大きな政策課題となっており、本研究で提示する知見は、ベトナムにおける持続可能な社会構築に向けた計画策定に資するものと期待される。

本研究はベトナムの既往研究に見られない有望な萌芽的研究であるが、同国廃棄物マネジメント分野の評価の枠組みを提示する研究事例として高く評価できるものであり、博士学位に値する内容と判断する。