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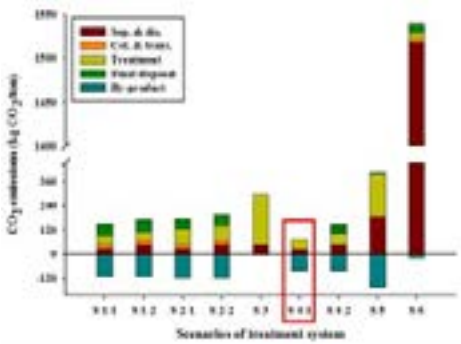
Analysis of zero energy effect through food waste recycling in residential on-site composting facility

Kyounghee Lee[1], **Sunsoo YooYonsei**[2] and **Jeoungik Oh**[3]
[1]Domyoung E&C, Korea
[2]Yonsei University University, Korea
[3]Land and Housing Institute, Korea

In particular, the environment is a daily issue that is brought home to anyone, so that it is necessary to establish the infrastructure to drive technological development, despite the cost incurred to some extent. Therefore, it is needed to consider profitability of business as well as social and public aspects. This study intends to apply the feasibility evaluation and commercialization strategies to the waste resource recycling technologies with the trends of CO_2 emissions reduction and waste-energy zero house, which are discussed at home and abroad. Therefore, it discuss an empirical case of resource cycling of multi-family housing complex that environmentally friendly processes the waste from creation to final processing within the complex. The technology collects the food waste created in the housing complex in a pleasant and convenient way, produce compost/biofuels and thereby create the self-sufficient community housing complex. This subject evaluates CO_2 emission of on-site composting facility which is a miniaturized version of a large-scale composting treatment facility, in order to accommodate a treatment capacity of less than 100 kg/day. This facility is installed in the apartment complex to avoid the need for separate collection and transportation by not discharging the food waste outside of the complex. In addition, this solves the odor and leachate problems associated with conventional collection and transportation, as the discharged food waste is treated immediately. As a result, the CO_2 emission reduction effect to be excellent because, although the CO_2 emission is slightly higher in the treatment stage than that in the large-scale composting facilities, this is more than offset by the fact that the collection–transportation and final disposal stages are omitted because of the smaller operation than those of large-scale composting treatment facilities. Through the this study, it aims to evaluate the benefits as economic values in connection with the social benefits including carbon emissions and energy use reduction, renewable energy production and local community vitalization. Through this study, it aims to evaluate the social benefits including carbon emissions and energy use reduction, renewable energy production and local community vitalization.



Biography

Kyounghee Lee has a master's degree in advanced wastewater treatment and her doctoral thesis is "Characteristics of Particle Size Distributions of Dusts Generated by Explosive Demolition and Their Effects on Water and Soil Quality". For more than 15 years, she has participated in various R&D projects in civil-environmental engineering field, and specialized on life cycle assessment and greenhouse gas emissions evaluation. In recent years, she is focusing on developing a LCA-based decision making support system & feasibility evaluation system.

khlee1975@nate.com