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Evaluation methodology of eco-efficiency for various waste treatment options

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Eco-efficiency is one of the environmental indicators in the environmental aspects that minimize environmental impacts and create greater economic values for products and services. This study conducts the much needed review on the environmental efficiency of Korea's waste treatment facilities by analyzing their economic and environmental performances. Economic performance was evaluated using the treatment facilities revenue per treating one ton of waste minus the operational costs as the indicator and environmental performance was determined by conducting a life-cycle assessment (LCA) for calculating the weighted environmental impact per one ton of waste. The factors that significantly affected the environmental efficiency evaluation for each waste treatment method were analyzed and listed which can be used as an index to improve the environmental and economic performances of the treatment facilities. It may not be appropriate to perform simple comparisons between the environmental efficiencies of individual facilities as their revenues and operational costs, which are used as economic indicators can vary greatly depending on the location, condition and operation standards of individual facilities. Therefore, the environmental efficiencies of waste treatment facilities need to be compared among the same facilities or analyzed specifically for individual facilities when identifying and suggesting areas for improvement. As such, three comparison coefficients were proposed for understanding how the environmental efficiency of each waste treatment facility can be improved in comparison to others namely, the improvement comparison coefficient, benchmark comparison coefficient and capacity design comparison coefficient.

Biography

Sora Yi has completed her PhD at University of Tokyo and Postdoctoral studies from the Asian Natural Environmental Science Center. She is the Director of Division for Living Environment, Korea environment Institute. She has published more than 38 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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