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Environmental sustainability of recycling waste of electrical and electronic equipment in United Kingdom: A case study of refrigerators

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This growing concern as well as the drive for environmental sustainability has given rise to the adoption of recycling as an end of life management approach for WEEE in the UK. However, there is the argument that recycling as an end of life option for WEEE may not be as environmentally beneficial as originally believed, as it is said to pose both environmental and health challenges. This study aimed to evaluate the environmental sustainability of recycling WEEE in the United Kingdom, with particular focus on refrigerators. This study applied three statistical tests, towards achieving the study's objectives.

Correlation analysis was conducted to determine the extent to which the WEEE recycling target (75%) is achieved in the United Kingdom. The analysis revealed that there is a 96.4% achievement of the WEEE recycling target, thus reducing the environmental damage caused by land filling. The relationship between the volumes of constituent materials derived from recycling and volume of constituent materials required for production was calculated, which indicates the degree of reduction in environmental burden posed by virgin resource extraction. Similarly the analysis revealed that there is a 96.4% relationship between both variables, thus suggesting that reduced quantities of virgin materials are required for production, which in turn reduces the environmental impact associated with virgin resource extraction. Life cycle analysis was performed to determine the environmental burden of the recycling process based on adopted impact categories which includes climate change, abiotic depletion, ecotoxicity and human toxicity. The result of the life cycle analysis revealed that at present and in the near future the environmental burden of recycling refrigerator is within controllable boundaries, but there is a possibility that the case might change in the future, if proper approaches are not adopted.

Findings from this study reveal that the recycling of refrigerator is environmentally sustainable; however there is room for improvement to maintain or improve this status. Based on the findings, recommendations were suggested towards improving the recycling process and minimizing environmental burden in order to promote environmental sustainability of recycling WEEE.

Biography

Nnamdi Adubasim has completed his Master's Degree in Environmental Management from Coventry University, United Kingdom. He also possesses a Bachelor's Degree in Urban and Regional Planning from the University of Nigeria, Nigeria and is currently the HSE Advisor of Conad Industrial Services Limited, Portharcourt, Nigeria where he is resident. He carried out a research on the "environmental sustainability of recycling waste of electrical and electronic equipment in the United Kingdom with focus on refrigerators. He is looking forward to pursuing a PhD in Environmental Management with specialty in sustainable waste management. He is interested in reading, travelling to experience new culture and meeting people.

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