

Nisa Muangeng 2013: Assessing Environmental Impact of House Demolition and Demolition Waste Management through LCA. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Assistant Professor Cheema Soralump, Ph.D. 110 pages.

This study aims to assessing environmental impacts from house demolition and waste management, the life cycle assessment is employed as a tool for assessment and based on database of SimaPro 7.1 program and CML baseline 2000. The functional unit is 1 Sqm of function area of housing unit. The housing unit chosen for study was a reinforced concrete house, functional area of 150 Sqm, life time span 50 years. The scope of this study consisted of 3 steps; house demolition, transportation and the procedures for waste management. Waste management can be classified into 3 categories; reuse, recycle and landfill.

The results showed that the most of demolitions of houses in Thailand used labor force rather than heavy machines. Therefore, diesel is mainly consumed by the backhoes for demolished of structures which was 2.014 liter/Sqm. After demolition, that bricks and concrete debris are the main composition, they are 471.78 kilogram/Sqm (87.50% of total waste). Upon analyzing list of demolition waste management, it suggests that demolition wastes are managed by landfilling at 89.28%, reusing at 9.36% and recycling at 1.36%, respectively. The results of the environmental impact assessment found that the highest environmental impact which was 97.31% from demolition waste management followed by waste transport at 2.19 %and demolish at 0.5%, respectively. The fuel consumption and emissions from the landfilled caused the high environmental impact from demolition waste management while reuse and recycle can mitigate environmental impact. Therefore, increasing the reuse and recycling of demolition wastes are suggested to reduce the environmental impacts from waste management.

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Thesis Advisor's signature