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"Gheorghe Asachi" Technical University of Iasi, Romania

ECOLOGICAL FOOTPRINT APPLIED IN THE ASSESSMENT OF CONSTRUCTION AND DEMOLITION WASTE INTEGRATED MANAGEMENT

Isabela Maria Simion[1], Cristina Ghinea[1], Sebastian George Maxineasa[2], Nicolae Taranu[2], Alessandra Bonoli[3], Maria Gavrilescu[1,4*]

[1]"Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, 73 Prof. Dr. docent Dimitrie Mangeron Street, Iasi 700050, Romania
[2]"Gheorghe Asachi" Technical University of Iasi, Faculty of Civil Engineering, 43 Prof. Dr. docent Dimitrie Mangeron Street, Iasi 700050, Romania
[3]DICAM, Alma Mater Studiorum University of Studies of Bologna, 2 Risorgimento Street, I-40136 Bologna, Italy
[4]Academy of Romanian Scientists, 54 Splaiul Independentei, RO-050094 Bucharest, Romania

Abstract

Construction and demolition waste (C&DW) are the result of inefficient and unsustainable use of natural resources and energy in production processes and other human activities, leading to economic losses. In this paper, the Ecological Footprint (EF), as a new indicator and methodology in environmental sustainability assessment was used to calculate where and how the humans induce impacts on the environment, in particular due to the generation of C&DW. Ecological footprint makes a relationship between two factors - the amount of land required to dispose per capita generated waste. The study proposes the calculation of EF to develop a sustainable C&DW integrated waste management in European countries, considering the methodologies developed for solid waste management. For the development of the proposed analysis, four C&DW management scenarios were proposed based on the actual situation of C&DW in 2009, in Iasi, Romania and Bologna, Italy. The evaluation is based on Life Cycle Assessment (LCA) methodology, assisted by SimaPro software that calculates the EF using indicators like ***CO_2***, ***land use*** and ***nuclear*** footprints. The research showed that the EF could be used as an indicator able to evaluate the sustainability of C&DW integrated management systems in various countries and locations, being recommended as a decision making support tool..

Key words: CO_2 emission, construction and demolition waste, Ecological Footprint, environmental impact, land use, waste management

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*Author to whom all correspondence should be addressed: e-mail: mgav@tuiasi.ro