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INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

“INTEGRATING CLEANER PRODUCTION INTO SUSTAINABILITY STRATEGIES”

Analysis of the Emergy Indicators for the Installation of a Landfill in the Southern Region of Minas Gerais

FRIMAIO, C. A.^{a*}, FRIMAIO, G.^c, CECÍLIA, M. V. B.^c, FRIMAIO, A.^b, SILVA C.C.^b

a. Universidade Federal do ABC

b. Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais

c. Universidade Paulista

**Corresponding author, cafs_sp@msn.com*

Abstract

More than 50% of Brazilian cities place their urban solid wastes (USW) in places with no previous treatment and adequate control, according to data from Instituto Brasileiro de Geografia e Estatística (PNRS/IBGE, 2002), although Law 12.305 (PNRS, 2010) forbids the existence of dumps and encourages more environment-friendly treatment techniques. In this sense, a study was made simulating a landfill implantation that contemplates some cities in south Minas Gerais, with residuals are placed in open dumps, based on studies of the emergy synthesis from São João Landfill in São Paulo. The calculations were made regarding the population average of each city in a period of 12 years. For the annual solid waste generation rate per habitant it was used data from Panorama de Resíduos Sólidos do Brasil (ABRELPE, 2011), that corresponds to 341,275 kgRSD.year/hab of waste. This paper concludes that approximately 5.45×10^6 m³ of biogas and $2,72 \times 10^6$ m³ of CH₄ (Methane gas) would be produced. The indicators in emergy point that the landfill system simulated for south Minas Gerais area is not sustainable because it would use 73,98% of the resources coming from the economy. Although it is worth highlighting that without the implantation of a landfill in this area and the use of inputs from the economy the impacts to the environment would be much more overwhelming.

Keywords: Emergy; landfill; sustainability; environment; Landfill waste
