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LCA as a tool or philosophy for Integrated Waste Management: opportunities in Portugal

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Solid waste has been an important subject of discussion for Portuguese people for some years. Within this subject some particular situations have been relevant: the discussion around strategies for dangerous industrial waste management for more than a decade (with the proposed solution changing with the govern staff each 4 years), the construction of the two first incineration plants for municipal solid waste (MSW) and the perspective of new plant(s), the pressure to accomplish the recycling rates for packaging waste and the diversion of organic waste from landfills dictated by European legislation, the need for a solution for industrial non dangerous waste and the exhaust of landfills for MSW which still are the main destinations for this waste.

Media, NGO's and politicians are the main promoters for the highlight of these topics for different reasons. Also during the last few years scientists have been involved in some specific questions related. The change in the approach of decision makers, the vast media influence of NGO's informing general public and the lack of technical and scientific information that is readable, understandable and consensual for different sectors of society have increased the entropy and the doubt around the discussions. Also the public's increased awareness regarding quality of life and its connection with a healthy environment has been noted.

Life Cycle Assessment (LCA) is seen as an important tool or philosophy to clarify, improve and gather reliable and systematic information on the scope of waste management, helping on several ways and at different stages of decision-making. The systematization of data obtained in the life cycle inventory phase is recognized as the main advantage of this approach. The subjectivity inherent to the impact assessment phase, which is frequently seen as a weak point of this methodology, is considered as an opportunity to ponder and evaluate different sensibilities and different opinions about environmentally critical aspects. The possibility of evaluating the contribution of each unit process within a system to the overall environmental burdens of that system, identifying the worst step and also main options for systems improvement, is also considered an important positive feature of LCA.

The objective of this paper is to present and discuss specific topics within the subject of solid waste management identified in Portugal as potential targets for the use of Life Cycle Assessment both as a technical tool and a philosophy.

An introductory overview of solid waste management in Portugal is made and future challenges for specific types of waste are identified. Alternatives and/or foreseen solutions are defined and in each situation opportunities and advantages for LCA use are described.