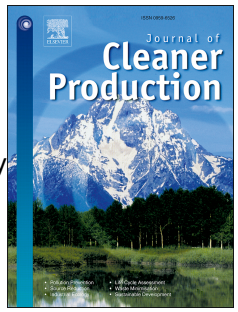
Accepted Manuscript



Co-processing of hazardous waste: The perception of workers regarding sustainability and health issues in a Brazilian cement company

André Gomes Guimarães, Paula Vaz-Fernandes, M. Rosário Ramos, Ana Paula Martinho

PII: S0959-6526(18)30749-2

DOI: 10.1016/j.jclepro.2018.03.092

Reference: JCLP 12350

To appear in: *Journal of Cleaner Production*

Received Date: 8 January 2017

Revised Date: 2 January 2018

Accepted Date: 8 March 2018

Please cite this article as: Guimarães AndréGomes, Vaz-Fernandes P, Ramos MRosá, Martinho AP, Co-processing of hazardous waste: The perception of workers regarding sustainability and health issues in a Brazilian cement company, *Journal of Cleaner Production* (2018), doi: 10.1016/j.jclepro.2018.03.092.

Co-processing of hazardous waste: the perception of workers regarding sustainability and health issues in a Brazilian cement company

André Gomes Guimarães[a], Paula Vaz-Fernandes[a,b,*], M. Rosário Ramos[a,c], Ana Paula Martinho[a,b,*]

[a] Department of Sciences and Technology, Universidade Aberta, Rua da Escola Politécnica, 141, 1269-001 Lisboa, Portugal

[b] CAPP, Centre for Public Administration & Public Policies, University of Lisbon, Rua Almerindo Lessa - 1300-663 Lisboa

[c] CMAF-CIO - Center for Mathematics, Fundamental Applications and Operational Research, University of Lisbon, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016 Lisboa

ABSTRACT

The practise of co-processing has been growing and is used to address socioeconomic, environmental, and energy issues. However, the uncertainties related to potential negative impacts on public health and the environment represent one of the major concerns of the competent authorities and scientific community. This research aims to assess the perception of workers in a cement plant in Brazil about sustainability (environmental, economic, social) and health issues related to the practise of co-processing, such as: pollution, conditions and safety of work, the environment, individual and collective health, employment opportunities, capacity building and training offered by the company, waste co-processing, public transparency, and active participation of the population in decision-making. A survey was conducted in a cement plant in Brazil using a questionnaire distributed to 50 workers, representing about 17% of a medium sized industry. The unit was chosen for its accessibility, as well as the fact that it is one of the 37 Brazilian industries that performs the task of co-processing and is not yet well known. Purposive sampling was used to include all workers whose work activities are directly linked to co-processing (16 workers), along with 34 representing all other plant sectors; in addition, seniority must be at least two years, and the worker must live in local communities or in surrounding cities. The results indicate positive perspectives toward most questions, except in the aspects related to the local population's knowledge about the practise of co-processing and those related to the population's participation in the decision-making processes: these aspects were both viewed negatively. The findings show that the perceptions of internal stakeholders (workers) of the cement industry are valuable in assessing the aspects related to co-processing, health risks, and environmental protection. The state environmental agencies must have the technical capacity to ensure that cement companies practise co-processing without endangering the health of workers and populations living near the industries as well as while preserving environmental conditions. The cement industry will be able to further reduce the environmental footprint of its operations and products in their final application and guarantee the safety of the workers and populations living near the industry through expertise and know-how. Sustainable cement production relies on well-educated and well-trained workers with highly efficient training programs and the creation of a supportive environment for workers; integrated pollution prevention and control with environmental management is a necessity in order to mitigate the negative effects. Populations living near the cement plant should have access to information on the environment and activities which pose danger, as well as the opportunity to participate in decision-making.