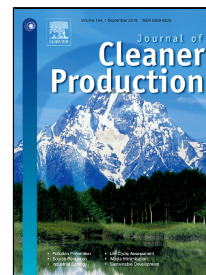


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ECO-INNOVATION PRACTICES IN THE BRAZILIAN CERAMIC TILE
INDUSTRY: The case of the Santa Gertrudes and Criciúma clusters

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ABSTRACT

Researchers and companies have presented a growing interest in eco-innovation. From an academic perspective, it is necessary to increase the number of studies performed in developing countries. Furthermore, the way in which a company can integrate innovation and sustainability into its industrial activities remains an open topic. In the ceramic tile industry, several environmental impacts can be generated throughout the production chain. This paper aims to identify how practices of eco-innovation have been implemented by ceramic tile producers of Santa Gertrudes, São Paulo State, and Criciúma, Santa Catarina State in Brazil, clusters that are responsible for approximately 80% of Brazilian production. The results show that most eco-innovations implemented are incremental and that process and product eco-innovations are consolidated in both clusters. This evidence shows that the clusters face unexplored opportunities for structuring organizational actions that may help companies organize their efforts towards sustainability. Another finding is that eco-innovation deployment in Brazilian ceramic clusters is mainly driven by specific legislation (e.g., particulate matter emissions) and market requirements (e.g., retailer audits).

KEYWORDS: Eco-innovation, cluster, environmental practices, ceramic tile, environmental performance

1. Introduction

The adequate use of raw materials and efficient energy, the implementation of renewable sources of materials and energy and the control of atmospheric pollution are some challenges faced by businesses, governments and society towards sustainability and a circular economy in a world where chemicals are ubiquitous in everyday life (Lozano et al., 2018).

In the ceramic tile chain, several environmental impacts can be generated from the stage of raw material extraction to industrial processes, commercialization, consumption, maintenance and final placement (CPRH, 2010). The environmental impacts are mostly related to the incidence of atmospheric emissions (dust particles and gases), high energy consumption, the use of materials with toxic substances, the emission of pollutant liquids, the generation of solid waste and the inappropriate disposal of packaging and finished products (CETESB, 2008; CPRH, 2010).

At the industry level, the development of eco-innovations establishes a mechanism for achieving sustainability (Díaz-López and Montalvo, 2015). Bossle et al. (2016) emphasize that innovation and environmental sustainability are core concepts and that both must be well integrated with the management and coordination activities of companies. Thus, eco-innovation can be understood as the development, assimilation or exploration of a product, service, productive process or management method that is a novelty for an organization (Kemp and Pearson, 2007). When compared to pre-existing alternatives, eco-innovation presents better results for reducing environmental risks, pollution risks and negative impacts linked to the use of the resources involved (Kemp and Pearson, 2007).

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