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Occupational health and safety management in municipal waste companies: A note on the Italian sector

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ABSTRACT

The environmental hygiene sector is a high risk industry in terms of the public health and safety of employees. This study analyses the level of maturity of the occupational health and safety (OHS) management system in municipal waste companies in Italy. The results show that the training and involvement of employees and operational activities are the most developed aspects, while OHS policy and performance measurements need further improvement. Overall companies have a sufficiently developed level of maturity in terms of their OHS management system. An analysis of contextual factors reveals that organisational factors are more correlated with the OHS management system maturity level than external factors. Companies located in the south of Italy have a low level of maturity in terms of OHS management. Audits by public authorities exercise a punitive role and legislative pressure is not considered by all the companies as a key factor in OHS development.

1. Introduction

OHS in the workplace influences the private and social lives of individuals. The aim of health and safety management is to improve working conditions and peoples' health in the work place. The effectiveness of OHS management depends on managerial, cultural and normative factors (EU-OHSA, 2010). All organisations have a moral obligation to ensure that employees and all other people affected by the company's actions remain safe at all times (Miller and Haslam, 2009). Legal reasons for OHS management relate to the preventative, punitive and compensatory effects of laws that protect workers' safety and health (Hale et al., 2015). OHS management can reduce costs related to injury and illness among employees, including medical care, sick leave and disability benefit (Tappura et al., 2015). OHS management can also increase (or decrease) a company's reputation and its image among stakeholders (EU-OHSA, 2010). Several studies have been carried out to verify the effectiveness and the effects of OHS management and of the related managerial system; for example, the relationship between OHS management and company performance (Fernández-Muñiz et al., 2009), the integration of OHS aspects into company culture (Granerud and Rocha, 2011). Furthermore, it has also been underlined the importance of analysing the association between OHS management and contextual factors in order to identify organisational and environmental conditions linked to OHS management (Rosness et al., 2012).

OHS management has also been examined in different sectors (McDonald et al., 2000; Parejo-Moscoso et al., 2013). OHS management in the environmental hygiene sector on the other hand, has rarely been investigated despite the fact that employees who work on the road are exposed to different risks caused by chemical, biological, physical agents that influence their health and safety (Kuijer et al., 2010; Giusti, 2009). In the environmental hygiene sector, waste collection and road sweeping can be performed in many ways (Seadon, 2010). Collection activities may be manual, aided by machinery that can pick up great loads, completely mechanised or mechanised with the aid of workers (Kuijer and Frings-Dresen, 2004). Although the workers themselves perform the same duties, the work environment can change drastically on a daily basis and even during the same day, due to the changeable conditions of the outdoor environment. As such, workers are subject to risks from work on the road and from machine-interactions (INAIL, 2009). The lack of OHS management studies in the environmental hygiene sector contrasts with the medical and epidemiological literature, which classify the environmental hygiene sector as high risk with regard to health and safety problems.

In light of the above considerations, our study analyses: (1) the level of maturity of OHS management of municipal waste companies, and (2) whether contextual factors influence this level. The

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analysis was carried out through surveys on a sample of 29 waste management companies and through 10 direct interviews. The results demonstrate a sufficiently developed level of maturity of OHS management and the influence of organisational factors on its maturity. This paper contributes to the OHS management literature by empirically addressing OHS management in the previously neglected sector of environmental hygiene, and the factors associated with the development of OHS management.

The paper is structured as follows: Section 2 presents the theoretical context and the research hypothesis. Section 3 describes the data collection and research design. Section 4 analyses the results. In Section 5, the discussion, limitations and future research opportunities are presented.

2. Hypotheses development

An OHS management system is a set of policies, strategies, practices, procedures, roles and functions associated with safety (Fernández-Muñiz et al., 2007). OHS management system standards, such as CSA Z1000-06 and BSI OHSAS 18001-07, define management systems as, respectively:

- A set of interrelated elements to establish and support an OHS policy, its objectives and targets, and the means to achieve them (CSA Z1000-06);
- Part of the overall management system that facilitates the management of the OH&S risks associated with the business of the organisation. This includes the organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the organisations' OH&S policies (BSI OHSAS 18001-07).

Implementing an OHS management system is the most efficient way of allocating safety resources for, since it not only improves working conditions, but also positively influences employees' attitudes and behaviours as well as promoting a culture of safety (Torp and Moen, 2006; Vredenburg, 2002). Bottani et al. (2009) show that companies with a more mature OHS management system have obtained a better health and safety performance than companies without a system or with a less mature level. An OHS management system stimulates and enables the inclusion of OHS issues in ordinary company management. Fernández-Muñiz et al. (2009) show that a more mature OHS management system reduces the rate of incidents and the amount of damage to people, machinery and material, thus enhancing working conditions and employees motivation. An OHS management system can raise a company's competitiveness because it has a positive effect on the image, reputation, productivity and innovation. Robson et al. (2007) indicate that both voluntary and mandatory OHS management systems have a positive effect on safety climate, safety performance, productivity and costs of accidents.

OHS management has become important in companies' and organisations' codes of ethics over the past 20 years (Chen and Zorigt, 2013). However, various factors can aid or obstruct the implementation of an OHS management system (Grote, 2012). According to the contingency theory, which views a company as an open system, there is no best way to organise and to lead a company, or to make decisions. Instead, the optimal course of action is contingent (dependent) upon the internal and external situation. Company processes, systems and decisions are linked to contingency factors such as the competitive environment in which the company operates, the technology it adopts, and the level of environmental uncertainty (Grote, 2012; Rosness, 2009). Therefore, the effective structural design of the organisation is where the structure fits the contingencies (Donaldson, 2001). This implies that it is also unlikely that there will be a single best approach to OHS that is equally optimal for every company, but that the approach which is taken in each case will depend on the specific situation.

In the literature on OHS management, a few studies have referred to the concepts associated with the contingency theory and the related contextual factors (Arocena and Nuñez, 2009; Bottani et al., 2009; Fernández-Muñiz et al., 2007, 2012; Ismail et al., 2012; Vinodkumar and Bhasi 2011). For example, Chen and Zorigt (2013) analyse five factors (act and regulation, stakeholder pressure, investment, integrated OHS and organisational culture) that influence the implementation of occupational health and safety management in mining companies. Vinodkumar and Bhasi (2011) empirically investigate the influence of certified management systems on the relationship between OHS management and safety performance in sectors of the chemical industry that have a significant risk of accidents. Their analysis suggests that employees of OHSAS 18001 certified companies, ISO 9001 certified companies, and those with no certification, perceive different levels of safety. Specifically, management commitment, employee training, communication and feedback and rules and procedures, which represent four of the six OHS management practices envisaged by the OHSAS 18001 certification, stimulate proactive conduct.

This low number of studies implies a lack of knowledge of the contextual factors that are important determinants of the effectiveness of safety intervention, and a lack of consensus on the taxonomy of relevant contextual factors. Rosness et al. (2012) call for more studies investigating the relationship between contextual factors (or synonymous concepts) and safety at work. Furthermore, theoretical insights from an organisational perspective could also help refine and improve current health and safety specialist knowledge (Zanko and Dawson, 2012).

Therefore, considering Taylor et al.'s (2011) taxonomy of contextual factors, we focus on organisational characteristics (OHS available budget, employees and trade union pressure, geographical location); external factors (market stakeholder pressure, legislative pressure and public authority audits) and the availability of implementation and management tools (OHSAS 18001 certification), as highlighted in Fig. 1. We adopt a Cartesian approach since the implementation of OHS management systems requires incremental changes (Granerud and Rocha, 2011), rather than the radical change that the configuration approach postulates.[1]

2.1. OHS available budget

Investment is a key driver for implementing and ensuring effective occupational health and safety management. For example, financial support by governments has contributed substantially to OHS projects. The growing use of OHS management systems

[1] Forms of contingency can be divided between *Cartesian* and *Configuration* approaches (Donaldson, 2001). The Cartesian approach is characterised by reductionism, while the Configurational approach takes a holistic view. The two approaches lead to divergent opinions about what constitutes a fit and how a fit is attained (Gerdin and Greve, 2004). The Cartesian approach seeks to understand organisations by analysing their constituent parts separately. The focus is on how individual contextual factors affect individual structural attributes and the fit between context and structure is a continuum that allows frequent, small movements by organisations from one state of fit to another. Each level of a contingency variable fits with a level of structural variable and they provide stepping-stones for organisational growth (Donaldson, 2006). The Configuration approach considers that the parts of an organisation take their meaning from the whole and cannot be understood in isolation (Meyer et al., 1993). Relationships can only be understood if many contextual and structural variables are analysed simultaneously (Drazin and Van de Ven, 1985). The Configurational approach underlines the idea of radical change or transformation. It claims that organisations can be conceived as configurations, or constellations, of tightly integrated elements (Demers, 2008).