



## Environmental management practices among small and medium manufacturing enterprises in Nakuru town, Kenya

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### Abstract

This paper discusses the findings of a study on environmental management strategies among small and medium manufacturing enterprises (SMEs) in Nakuru Town, Kenya. This paper discussed one of the objectives of identifying the specific actions taken by SMEs to reduce the environmental impacts originating from their activities. Stratified and simple random sampling procedures were used to select the thirty two (32) manufacturing SMEs in Nakuru Municipality. It was observed that the implementation of the environmental management strategies among small and medium-sized manufacturing enterprises in Nakuru was minimal. Environmental practices such as engaging in environmental audits, developing an environmental policy, having designated environmental officer and implementation of EMS are still very low or non-existent. However resource conservation efforts take priority with most SMEs making efforts to reduce operational costs through energy and water conservation. It is concluded that SMEs are less concerned with environmental issues and that the lack of financial and technical capacity limit enterprises' ability to engage in sound environmental management practices. There is need therefore, for SMEs to address the limiting factors such as capacity building so as to support sustainable environmental practices.

**Keywords:** small and medium manufacturing enterprises, environmental awareness, environmental attitude, environmental management practices, environmental sustainability, and resource use efficiency

### 1. Introduction

Small and Medium sized Enterprises (SMEs) are identified as one of the leading group of economic activities globally (UNEP 2003) [15]. The SME sector contributions towards economic growth through employment creation and provision of essential goods and services. According to UNEP (2003) [15], 90% of all the businesses in the world are SMEs and are responsible for 50-60% of total employment. However, though it is widely accepted that SMEs play a significant role in the economic development globally, they also exert considerable pressure on the environment corporations, a large number of SMEs can exert considerable pressure on the environment (Gadenne *et al.*, 2009; Sa' nchez-Medina *et al.*, 2014) [3, 12]. The SMEs consume substantial resources and also produce a significant share of industrial waste, pollution and resource depletion Literature further shows that ensuring environmental compliance is a substantial challenge for small and medium-sized enterprises worldwide.

Brigitte *et al* (2014) [1] described environmental practices as practical operationalization of actual environmental behaviors of firms. These concern all activities undertaken by SMEs that reduce the impact of their operations on the environment. Every activity in any enterprise from raw material inputs, production process, packaging, to waste disposal, are related to environmental issues. These management practices include environmental audits, pollution prevention plans, environmental training for employees, total cost accounting, life-cycle analysis, hiring a designated environmental

manager, and environmental standards for suppliers (Sroufe *et al.*, 2002; Julien 2006; Lawrence *et al.*, 2006) [13, 5, 6]. It is also important to have a designated staff in the firm with knowledge of the environmental regulations to be responsible for environmental matters (Netregs 2003; Julien 2006) [9, 6]. However, the concept of sustainable business practice for many SMEs remains elusive despite the huge emphasis on environmental sustainability (Lawrence *et al.*, 2006) [6]. SMEs are usually faced with a myriad of difficulties in dealing with environmental issues which are associated to size related constraints such as finance, technical and human resources that hinder the implementation of adequate environmental control measures (Redmond *et al.*, 2008; Mazur 2012) [11]. In comparison with the larger enterprises, most of SMEs are lagging behind in addressing environmental concerns (PEG, 2015) [10].

Kenya has a fairly well developed large to small scale industries with the SMEs playing a key role in economic development (UNIDO 2013) [15]. It is estimated that the SME sector accounts for 18.4 % of the GDP and contributes 80% of total employment (UNIDO 2013) [15]. Since the enactment of EMCA of 1999 (Revised 2015), Kenya has been keen on environmental management for sustainable development. However, not much concern emphasis has been put on the operations and practices of the SMEs. The paper narrates the environment management practices adopted by small and medium-sized manufacturing SMEs in Nakuru Municipality in light of environmental sustainability.

## 2. Methodology

A cross sectional research design was used to collect data through the administration of structured questionnaire. The survey involved manufacturing and processing industries with less than 250 employees within the Nakuru town, Kenya. The respondents were either owners of the industry, managing directors, technical managers or administrative staff. There were 104 registered manufacturing industries in Nakuru Town (Nakuru Integrated Development Plan 2014). Industries were classified as food and beverage, plastic, chemical, paper and pulp, textiles and animal feeds. The questionnaires were administered across each stratum on 32 SMEs. The questions were structured to capture relevant information related to attitude, awareness and practices. The industries were stratified into five strata namely food and beverage, animal feeds, plastics, chemicals and textiles. Random sampling was then used to select industries from each stratum as it offers every member of the population.

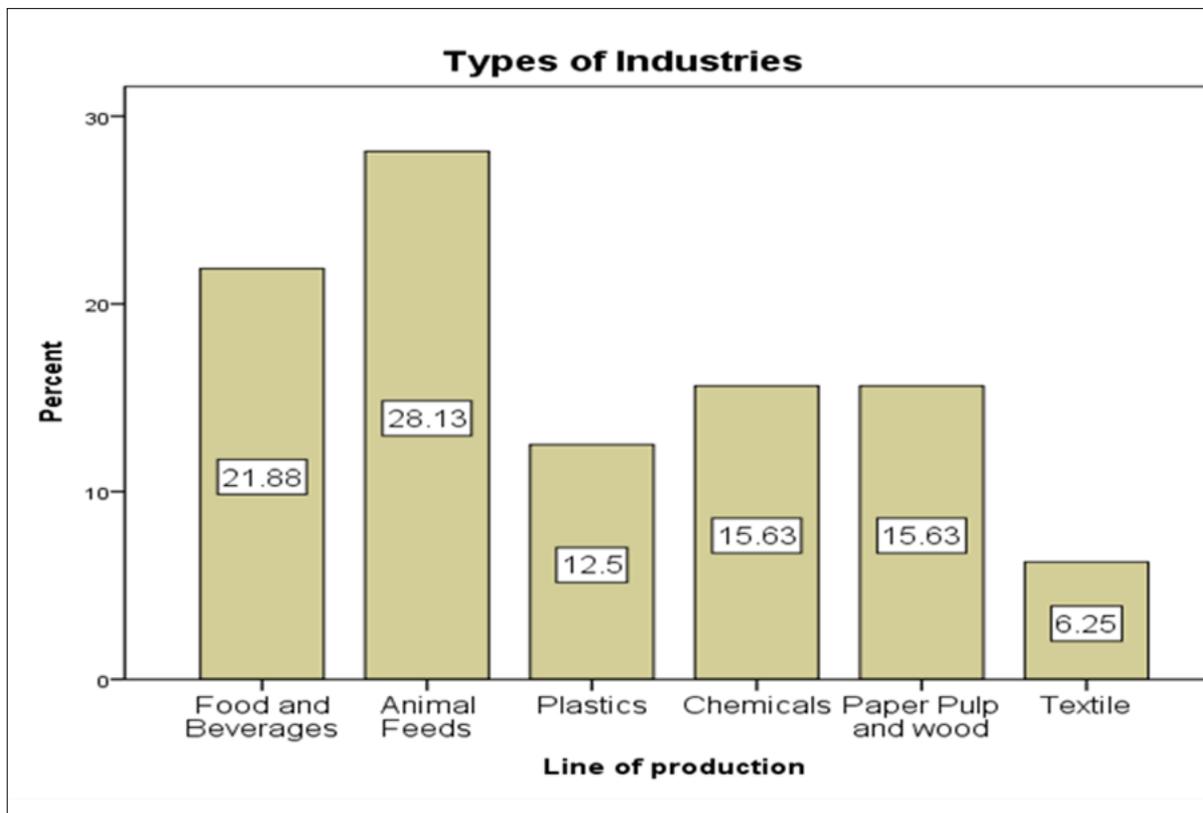
## 3. Results and discussion

The study found that based on number of employees, 19% were micro (less than 10 employees), 50% had 11-50 employees and 31% had 51-250 employees (table 1).

**Table 1:** Relative Sizes of the SMEs

Category	Number of Employees	Frequency	Percent
Micro	1-10	6	19%
Small	11-50	16	50%
Medium	51-250	10	31%
	Total	32	100

Figure 1 below shows the distribution of industries across different sub-sectors of the manufacturing industries. 21.9% of the industries were involved in food and beverage processing, 28.1% in animal feeds, 12.5% in plastics, 15.6% in chemical, 15.6% in pulp paper and wood, and 6.3% textile industries.



**Fig 1:** Types of Manufacturing Industries in Nakuru Town

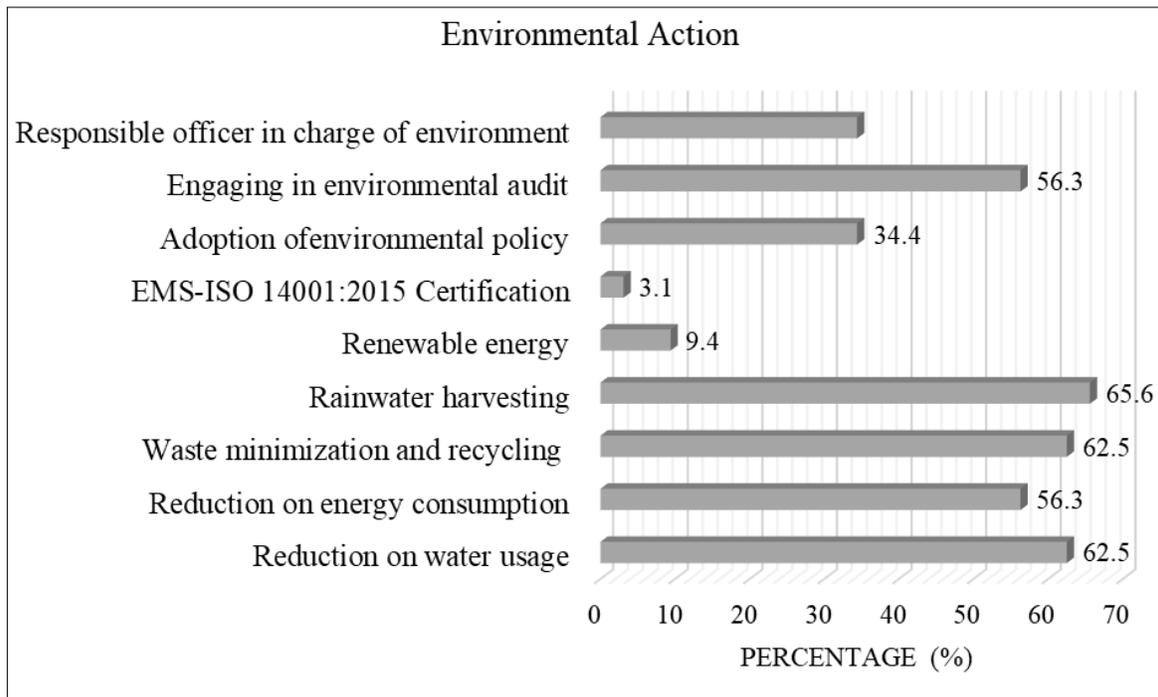
Based on the number of years the firms have been in operation, 28.1 % were less than 5 years old, 38.5% were

between 5-10 years old, and 34.4% were more than 10 years. (Table 2)

**Table 2:** Age of SMEs based on years of operation

Age of the Firm	Percentage
0-5 years	28.1%
6-10 years	38.5%
Above 10 years	34.4%

Environmental practices were assessed based on specific actions taken to protect or mitigate the impacts of the SME on the environment. The results are presented in figure 2.



**Fig 2:** Environmental Practices applied by SMEs

The results show that only 34.4% SMEs have a designated staff responsible for the environment. For firms to manage their environmental issues well, it is important that an officer in the firm is to be responsible for environmental matters. However, this study reveals that although some SMEs have designated staff in charge of environmental issues, the capacity in majority of the firms is still low. The finding concurs with (Netregs, 2003, Studer *et al.*, 2005, Lawrence *et al.*, 2006) <sup>[9, 14, 6]</sup>, and Williamson *et al.*, (2006) <sup>[16]</sup> further suggest that in SMEs, the role of environmental officer/manager is usually carried out by either the owner or staff members such as the human resource managers. However, many often they do not possess necessary skills to implement good environmental practices and therefore spend less time on green issues. The lack of a responsible person in charge of environment can be attributed to costs implications or lack of information. The results therefore points out at failure by most SMEs to recognize the role played by environmental officers in tackling pertinent environmental issues.

Majority of SMEs were found to be undertaking environmental audits (56.3%). Environmental audit are a regulatory requirements for all industries and even though there is a great effort on SMEs to comply with this requirements, apparently not all SMEs in the region are undertaking this important exercise. This is a matter of concern for all stakeholders and raises questions as to whether the relevant agencies are doing enough to ensure compliance with the requirement of the EIA/EA regulation of 2006. This may also reflect lack of information or resources on the part of manufacturing SMEs to engage in environmental audits. However, Mputhia *et al.*, (2012) <sup>[8]</sup> reported a significantly higher number of SMEs undertaking environment audit (93%) in Nairobi. The high involvement was attributed to high

awareness levels in the area of study coupled with stringency in enforcing EIA/EA regulation in Nairobi.

The results also points at a low response towards the adoption of a formal environmental policy as 65.6% of the small and medium enterprises are yet to adopt a formal environmental policy. Having an environmental policy in place is a key indicator of a business's attitude towards environmental improvements and therefore it should be a concern that SMEs have failed to appreciate the benefits of such initiative. Unsurprisingly, there is equally a low response in the implementation of environmental management systems (ISO 14001: 2015). Only 3.1% of the enterprises under study have achieved ISO 14001: 2015 certification whereas only 6.2% are currently implementing an environmental management system (Figure 4). About 62% indicated that they have plans to incorporate an EMS in their business while 28% have no plans to implement an EMS in future. The low implementation and subsequent ISO 14001:2015 certification is a major issue of concern for all stakeholders given the fact that vast environmental and social benefits by the implementation of ISO 14001 standard. This is a clear indication that the SMEs in Nakuru have failed to appreciate the benefits of an EMS in as far as environmental management is concerned. The result supports the point of view that SMEs are reluctant or less likely to implement environmental management systems than large firms as observed by Julien, (2006) <sup>[5]</sup> and Mckeiver and Gadenne, 2005) <sup>[3]</sup>. The finding are consistent with previous research on the implementation of the EMS (Netregs, 2003, Hillary, 2004; Studer *et al.*, 2005 Lawrence *et al.*, 2006) <sup>[9, 4, 14, 6]</sup>. SMEs tend to have a more restricted information base upon which to adopt environmental management practices (Julien, 2006) <sup>[5]</sup>, and are also more financially constrained (Gadenne & McKeiver, 2009; CEC, 2005; Hillary, 2004) <sup>[3, 4]</sup>.

Resource use efficiency practices cuts across all the industries

irrespective of the size with significant proportion of enterprise engaging in practices that are focused on reducing waste, water and energy related costs. More than half of the firms in Nakuru Town have put mechanisms to minimize waste generated through reducing, reusing and recycling of waste (62.5%), and reducing on resource utilities such water (56.3%) and energy (62.5%). There was also a high (65.6%) number of manufacturing SMEs that were harvesting rainwater as an alternative source of water therefore relieving pressure from the rapidly decreasing water resources. Clearly the SMEs appear to be more focused on conserving and efficient use of resources such water and energy and as well minimization of waste. However, the results note that such efforts are primarily aimed at reducing operational costs rather than achieve environmental sustainability. Similar findings have been demonstrated by European Commission (2013) <sup>[5]</sup> which indicated that majority (63%) of European SMEs act to become more resource-efficient in order to reduce costs. As a result, the growing number of SMEs taking resource efficiency actions indicated that their production costs significantly decreased.

#### 4. Conclusion

Based on the findings, we conclude that small and medium sized manufacturing enterprises in Nakuru Town are still lagging behind in adopting environmental management practices. The adoption of environmental management is low among small and medium manufacturing enterprise in Nakuru. Environmental practices such as engaging in environmental audits, developing an environmental policy, having designated environmental officer and implementation of EMS are still very low or non-existent. It was however observed that SMEs show better performance in resource use efficiency especially in energy, water conservation as well as waste minimization. It is concluded that SMEs are less concerned with environmental issues and that the lack of financial and technical capacity limit enterprises' ability to engage in sound environmental management practices. It is recommended that there is urgent need for both the county and the national government to support small and medium enterprises in integrating practices that will minimize negative environmental impacts through capacity building.

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