

# **Integrating Environmental Concerns in Enterprises and Businesses for Sustainable Development**

INNOCENT NGARE  
School of Environmental Studies  
Department of Environmental Education  
Kenyatta University  
[ngare.innocent@gmail.com](mailto:ngare.innocent@gmail.com)  
KENYA

EVELYN WEMALI  
School of Environmental Studies  
Department of Environmental Education  
Kenyatta University  
[wemalieverlyn@yahoo.com](mailto:wemalieverlyn@yahoo.com)  
KENYA

CECILIA GICHUKI  
School of Environmental Studies  
Department of Environmental Education  
Kenyatta University  
[ceciliagichuki@yahoo.com](mailto:ceciliagichuki@yahoo.com)  
KENYA

NATHAN GICHUKI  
School of Biological Sciences  
University of Nairobi  
[nathangichuki@gmail.com](mailto:nathangichuki@gmail.com)  
KENYA

ISSAC KIPKEMOI  
School of Geographical Sciences  
Bristol University  
[ikipkemoi@outlook.com](mailto:ikipkemoi@outlook.com)  
UNITED KINGDOM

JOSEPH KARANJA  
School of Environmental Studies  
Department of Environmental Education  
Kenyatta University  
[sirjosephkaranja@gmail.com](mailto:sirjosephkaranja@gmail.com)  
KENYA

**Abstract:** - Small and medium enterprises (SMEs) have become a major driver of economic growth and development in Kenya. Government agencies, development partners and non-governmental organizations have invested considerable resources and effort in promoting business innovations and enterprises. However, environmental concerns and even sustainability issues have in many instances taken a back stage. This paper seeks to highlight the drivers of SMEs, types of SMEs, their general environmental impacts and recommend some strategies and tools that can be used to ensure environmental integrity, human health and sustainability of benefits arising from SMEs. Review of documented evidence indicated that the major drivers of SMEs are economic recession resulting in job losses in large industrial and commercial companies, unfavourable climate which affects livelihoods and natural resources; and inflation and reduced incomes from employment and sale of agricultural products. As a result unemployed people even workers in formal employment engage in small business to improve their income. SMEs tend to have low capital outlay and lack adequate safeguards against environmental impacts and sustainability. There is also growing trend of applying new innovations and technology to venture into new enterprises. These enterprises are spread over a number of economic sectors, such as energy, agriculture, transport and communication, and financial services. Among these are Ecopreneurs, who have established individual businesses or social entrepreneurs who have established business have been driven by profit generation and environmental concerns. These include merchants of solar panels, builders of biogas units and waste recycling facilities to generate new marketable products or services. Integration of environmental concerns in business enterprises can be achieved through a number of strategies: creation of environmental awareness, planning for mitigation of anticipated adverse environmental impacts, adopting cradle to business design, the triple accounting and some eco-industrial park principles. The existing discrepancy between economic and environmental accounting can lead to wanton destruction of global commons, especially natural resources and systems that maintain and/or generate new resources. It is therefore prudent for all business enterprises irrespective of their size to integrate some aspects of environmental protection in their business plans.

**Key words:** - Small Microfinance Enterprises, Entrepreneurship, Environment, Ecopreneurs, Business

## 1 Introduction

In most of sub-Saharan Africa, large industries are lacking and small scale industries make almost 95% of all firms [7, 13]. In Kenya, the growth of small and medium enterprises (SMEs) was driven by poor economic performance of the formal industrial sector during the recession and liberalization of the 1980s. Large business enterprises began to adjust to the prevailing economic realities by becoming lean through retrenchment and downsizing. The effect of this was massive job losses and reduced capacity to absorb labour in the formal sector. SMEs have since experienced rapid growth and have become a major driver of economic growth and development in the country [12].

The rapid growth of SMEs in Kenya has created employment and improved economic returns of many thousands of entrepreneurs, especially for the youth and helped to alleviate poverty in many low and medium income households [8]. These benefits notwithstanding, growth of SMEs has increased environmental burden through environmental degradation and unsustainable exploitation of natural resources. A large number of enterprises

rely on exploitation of natural resources, such as land, water, wood, fisheries and other natural products.

Business enterprises tend to maximize profits and other benefits. Environmental concerns and even sustainability issues take a back stage and are often not planned for or budgeted for in the business plan [19]. This paper seeks to highlight the environmental costs of SMEs and recommend some remedial actions for environment protection and rehabilitation.

### 1.2 Drivers of business enterprises

Among the key drivers of business enterprises are poverty and unemployment. Poor people and those with formal employment initiate small business to cushion themselves against difficult macro-economic environment [10]. Climatic elements, such as severe and sporadic droughts as well as floods may cause losses in livelihoods and assets thereby leading people to seek for business opportunities to cushion themselves against those disasters [6]. Similarly, climate change impacts on human health, environment and various economic sectors, such as transport, water, agriculture, energy and tourism are negatively impacting on medium

scale industries and businesses, leading to job losses.

Workers in formal employment tend to engage in small businesses to augment their income and to have security in the case of being laid off. In the face of the growing risk of losing formal employment, especially in the private sector, many working class individuals run small business in Kenya so as to maintain or augment family income. A simple model can be used to illustrate the role of Small Microfinance Enterprises in from an underdeveloped level to a level of persistent and high growth. As outlined in Figure 1, it points out that a pattern where SMEs start playing a particularly important role when an early growth stage has started to materialize.

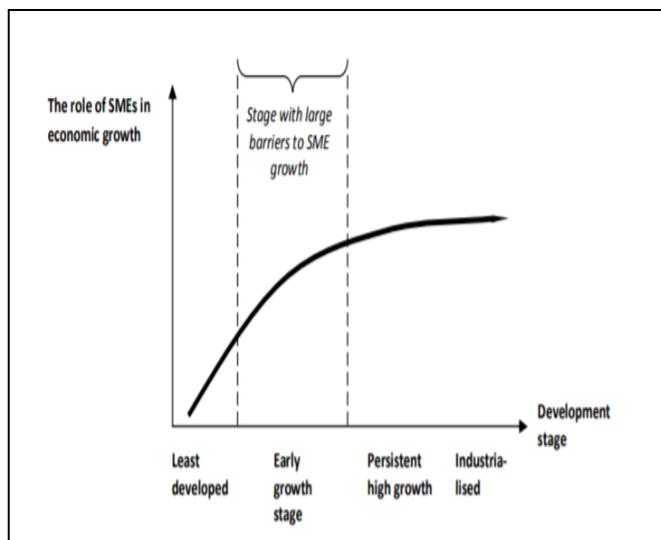


Figure 1: SMEs and economic development

### 1.3 Environmental associated with SMEs

Most small business are characterised by low capital outlay and hence attract many risk takers without any business experience or vision. The businesses lack a well thought-out business plan and adequate safeguards against environmental impacts and sustainability. Consequently, they can cause small but cumulative environmental degradation [9]. There are several environmental concerns that are associated SMEs. Land degradation and soil erosion occurs where small business are concentrated, especially in fragile/high biodiversity areas. Degraded and eroded land can result from intensive land use and exposure without adequate land conservation measures.

Most small businesses established in the rural areas are dependent on natural resources, such as land for

crop production and livestock rearing. There are small businesses based on the exploitation of water resources, such as water kiosks and vending [4]. There are also some small businesses that depends on exploitation of wood, medicinal plants, fish and other wild animal resources, such as honey bees, silk worms and birds. Growing demand for natural resources is creating competition, leading to unsustainable exploitation [3].

SMEs generate pollution, which affects people, air, soil, water and biological resources. Pollution of water resources degrades its quality and threatens aquatic life. Similarly, degradation and loss of natural forests threatens biodiversity and ecological services to people who are dependent on such forests. Demand for land for settlement and farming is leading to wildlife habitat encroachment and an increase in human-wildlife conflict. Increasing bush meat trade around the protected wildlife reserves has been reported as major driver of wildlife poaching.

Entrepreneurs, their customers and business operations generate solid waste, which if not collected may accumulate at the site of the business. Despite local efforts being made to minimize, destroy, treat and recycle solid waste, large amounts is still accumulate on land and water. With increasing trends in urbanization, industrialization, international trade and travel, various types of imported products and technology are likely to spread solid waste to different parts of the country, including areas which hold most of the country's biodiversity.

Business incubation is regarded as an intervention measure aimed at speeding up industrialization through commercialization of inventions and innovations. The government through the Ministry of Industrialization and Enterprise Development has established policy strategies and agencies to promote business incubation and enterprise development. In Kenya's Vision 2030, the ICT business innovation and incubation is planned for establishment at Konza Techno City. Nairobi Industrial Technology Park is underway as a joint venture between the Ministry, Jomo Kenyatta University of Agriculture and Technology as well as relevant national and international companies. There are also SME parks that have been planned for establishment in all 47 counties. The establishment of those SME parks will have numerous economic and social benefits to millions of Kenyans. However, they are also likely to

increase the national environmental burden and affect other systems of production.

### 1.3.1 Innovations and enterprises to consider in environmental entrepreneurship

Business enterprises can be divided into Ecopreneurship and Social entrepreneurship, both of which should lead to sustainable entrepreneurship. These categories reflect the attitude and motivation of the entrepreneurs when they organize and implement their small businesses.

*Ecopreneurship*, is also referred as eco-capitalism or environmental entrepreneurship, which is a new market-based approach to identifying opportunities for improving environmental quality and capitalizing upon them in the private sector for profit [16]. Ecopreneurs therefore establish businesses that are not only driven by profit, but also by a concern for the environment. For instance, people establish nurseries of fruit trees and agro-forestry trees for sale. Thus, while they generate income from the sale of the seedlings, they also help to generate awareness of the significance of planting trees and ultimately improve the environment.

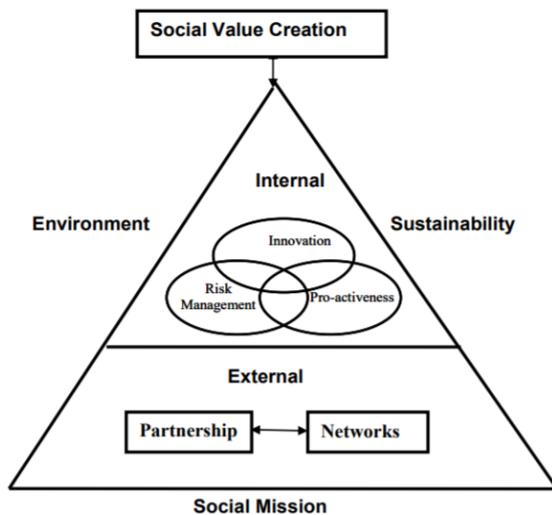
The development of innovative technologies has opened up opportunities for ecopreneurs to apply technology to establish sustainable or green businesses. This trend has created a full range of opportunities for entrepreneurs. These include creating green-technology, using technology to promote environmental sustainability by making the existing businesses more environmentally friendly and taking advantage of the benefits. The development of new and innovative technologies is complimentary to the development of green enterprises and enables Ecopreneurs to continue developing enterprise that are environmentally sustainable. These environmentally friendly enterprises have evolved to address human in different economic sectors.

- a) *Energy Related Enterprises*. Energy related enterprises, such as installation of solar panels for generating energy needed for lighting, heating and powering small machines, such as lap top computers, television sets, mobile phone chargers and water pumps. They also include manufacturing of energy-saving jikos, cookingstoves and production of biogas

energy used for cooking and lighting in the rural areas.

- b) *Food production and processing enterprises*. In Kenya, agribusiness has been rapidly growing, especially in organic farming of high demand crops, such as tomatoes and other vegetables as well as high value crops, such as grapes, straw berries, mushrooms and ginger. Food processing enterprises, such as production of dried fruits and vegetables as well as making of health foods, such pastes and fruit juices have also been growing in Kenya, especially in suburbs of major urban areas. These enterprises are creating employment opportunities for the youth and generating income for the entrepreneurs.
- c) *Solid waste recycling enterprises*. Eco-enterprises have evolved in solid waste recycling, especially in urban areas. The solid waste recycling chain involves collection; transportation to a central point, sorting and grading, and transportation to industrial recyclers. This includes recycling of organic waste material to generate manure for sale to urban gardeners. It also involves recycling of plastic, paper, glass, metal and rubber to make new and marketable products. These enterprises create jobs during collection, value addition and marketing of the new products. The small waste based enterprises generate income for all the people involved in the value chain addition, reduce poverty and insecurity as well as reducing accumulation of solid waste in the urban areas [1].
- d) *Social service enterprises*. Social service enterprises aim to solve environmental problems affecting a community in a sustainable manner. Small business enterprises involving community based organizations have evolved to address local problems, such as community water supply and sanitation in urban areas. Communities supported by non-governmental organizations have initiated eco-toilets and biogas production units using human and slaughter house animal waste in the rural areas and the urban informal settlements, such as Kibra and Dagoretti respectively in Nairobi.

There are also numerous informal service enterprises whose activities generate considerable solid and liquid waste, which pollutes the environment. These include motor vehicle and motor repair garages, food and beverage kiosks as well as outlets for other services, such as entertainment, telephone cards and financial services. These small businesses individually generate little solid waste but over time, waste tends to accumulate in their immediate surroundings. Entrepreneurs of such small business enterprises need to be made aware of the environmental implications of their business activities. The following model can be used on social enterprise on environment and sustainability that emphasize on three key pillars; environments, sustainability and social [2].



Source: Adapted from Weerawardena and Mort (2006, p32)

Figure 2: Social enterprise on environment and sustainability model [18]

### 1.3.2 Integrate environmental concerns tools in small business enterprises

#### i. Business design

The Cradle to Cradle is a common environmental approach to business product design that seeks to reduce waste by designing continuously recycled products by the economy. However, this contrasts from that of "cradle to grave" design which includes single use products. They also include products made from different types of materials and hence cannot be effectively separated in order for proper recycling. This design is founded on natural ecosystem process, it doesn't create waste but rather every output is an input for another organism or production system. Cradle to Cradle design can be achieved through using environmentally friendly

raw materials that have no negative cumulative effects on the environment. Materials can be composted to form useful products. Environmentally friendly enterprises should therefore be designed to produce durable or recycling products [11].

#### ii. Triple bottom line accounting

This is a method of accounting that takes into account the business impacts on the environment. It involves a combination of both traditional accounting methods of assessing profit with those that measure social and environmental benefits of the enterprise [5]. The social impacts can be evaluated from the usage of the products produced by the enterprise (e.g. consumption of fish or mushrooms in an area where they were not in the food menu). Environmental impact can be evaluated from new waste loading relative in comparison with the baseline loading at the beginning of the enterprise.

#### iii. Eco-industrial Parks

Eco-industrial parks are areas with industrial or business companies with synergistic linkages for sharing or exchanging materials and energy. In so doing, waste material or energy from one company forms the raw material for another company in the same industrial ecosystem. Participating companies increase efficiency of material and energy use, and hence minimize wastage of resources and negative impacts on the environment. This concept of eco-industrial parks can be extended to business parks, where several businesses operate in one geographical area [17]

In Kenya today, establishment of business parks has become a popular approach to spur industrial development in the counties [14]. However, the environmental burden of such parks is not usually well considered and planned for. Eco-business parks can reduce demand for raw materials and energy, minimize waste accumulation, reduce environmental burden and reduce costs of production of marketable goods.

The benefits of eco-business parks include cost savings and new revenue. There are also shared services, reduced regulatory burden and increased competitiveness. The participating enterprises can enjoy cleaner and healthier environment. They would also minimize conflict with the existing environmental law. Government would benefit from increased tax revenues as well as reduced

costs of environmental rehabilitation and health damage. Eco-business parks are good for environment as they reduce demand for finite resources, diminish global and local pollution, enhance environmental health and increase the use of renewable energy and materials. They also give time to for natural ecosystems to recover and resources to regenerate [15].

#### iv. Environmental Management Plan

Business enterprises should a simple but effective environmental management plan, including environmental audit and monitoring components. The plan should audit and monitor environmental impacts of materials and energy flowing into the business premises, and the by-products or waste flowing out from the business operations. Continuous or periodic evaluation of actual and potential long-term effects of any business enterprise on the environment is important. The environmental monitoring entails continuous and systematic collection of data on key environmental indicators. The environmental data should be analyzed and used for decision making.

Addressing environmental issues in a business enterprise or Business Park is good if made cost-effective to ensure reduced cost of doing business and achieve economic sustainability. This is especially so when environmental conditions of the project area appear to be deteriorating after the business project implementation.

## 2 Conclusion

Business innovations and enterprise development strategies should recognize environment as key pillar supporting all forms of social and economic development. Environmental degradation by a business enterprise increases costs of doing business and reduces the prospects of its sustainability. The existing discrepancy between economic and environmental accounting can lead to wanton destruction of global commons, especially natural resources and systems that maintain and/or generate new resources. It is therefore necessary to integrate environmental concerns in the planning and implementation of small business enterprises and in the business parks planned for counties.

Despite the existence of a regulatory framework, such as Environmental Impact Assessments and Audit, to control adverse environmental impacts of business enterprises in Kenya, the national environmental burden and health risks to natural

ecosystems and people are likely to continue increasing. This is because small businesses largely perceive the environmental legislation as punitive and that addressing environmental concerns is a state responsibility that would eat into their profits. It is therefore necessary to start developing and adopting new and practical tools of integrating environmental concerns in small business enterprises. At national level, we should start adopting new indicators and corresponding measures of ecosystem health and human well-being, which should incorporate the contributions of economic, social and environmental sustainability indices. An environmental indicator of human well-being should measure change in the quality of the environment and human life.

## 3 Acknowledgement

We thank the team of reviewers and their comments at Kenyatta University, University of Nairobi and Bristol University for early development of this paper. Your contributions were insightful and helpful. God bless you all.

#### References:

- [1] Arora, D., Mahapatra, S., & Balasubramanian, M. (2014). Solid Waste Management & Social Entrepreneurship-A key to sustainable development. *International Journal on Applied Bioengineering*, 8(1).
- [2] Boon, E., Bawole, J. N., & Ahenkan, A. (2013). Stakeholder participation in community development projects: an analysis of the quadripartite model of the International Centre for Enterprise and Sustainable Development (ICED) in Ghana. *Community development*, 44(1), 38-54.
- [3] Cohen, B., & Winn, M. I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. *Journal of Business Venturing*, 22(1), 29-49.
- [4] Mayer, E. (2018). *The articulated peasant: household economies in the Andes*. Routledge.
- [5] Elkington, J. (1994). Towards the sustainable corporation: Win-win-win business strategies for sustainable

- development. *California management review*, 36(2), 90-100.
- [6] Hallegatte, S. (2015). The indirect cost of natural disasters and an economic definition of macroeconomic resilience. *Browser Download This Paper*.
- [7] Hatega, G. (2007, March). SME development in Uganda. Private sector foundation Uganda. In *a Local SMEs Conference on* (Vol. 14)
- [8] Jackson, T., Amaeshi, K., & Yavuz, S. (2008). Untangling African indigenous management: Multiple influences on the success of SMEs in Kenya. *Journal of World Business*, 43(4), 400-416.
- [9] Kamal, E. M., & Flanagan, R. (2014). Key Characteristics of Rural Construction SMEs. *Journal of Construction in Developing Countries*, 19(2), 1.
- [10] Maina, S. (2014). The role of entrepreneurship education on job creation among youths in Nigeria. *International Letters of Social and Humanistic Sciences*, (15), 87-96.
- [11] McDonough, W., Braungart, M., Anastas, P. T., & Zimmerman, J. B. (2003). Peer reviewed: Applying the principles of green engineering to cradle-to-cradle design.
- [12] Mutalemwa, D. K. (2015). Does globalisation impact SME development in Africa? *African Journal of Economic and Management Studies*, 6(2), 164-182.
- [13] Never, B. (2016). Behave and save: Behaviour, energy efficiency and performance of micro and small enterprises in Uganda. *Energy Research & Social Science*, 15, 34-44.
- [14] Roberts, P. (2004). Wealth from waste: local and regional economic development and the environment. *The Geographical Journal*, 170(2), 126-134.
- [15] Sarkar, A. N. (2014). Eco-industrial Clusters: Pathways for Evolving New Business Models for Eco-innovation and Green Growth. *Productivity*, 54(4), 421.
- [16] Schuyler, G. (1998). Merging Economic and Environmental Concerns through Ecopreneurship. *Digest Number* 98-8.
- [17] Valenzuela-Venegas, G., Salgado, J. C., & Díaz-Alvarado, F. A. (2016). Sustainability indicators for the assessment of eco-industrial parks: classification and criteria for selection. *Journal of Cleaner Production*, 133, 99-116.
- [18] Weerawardena, J and Mort, GS 2006, 'Investigating Social Entrepreneurship: A Multidimensional Mode'l. *Journal of World Business*, Vol. 48, No.1, pp. 21-35
- [19] Zorpas, A. (2010). Environmental management systems as sustainable tools in the way of life for the SMEs and VSMEs. *Bioresource technology*, 101(6), 1544-1557.