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Integrating EMS to improve sustainable development in Nigeria

Abstract
Environmental Systems Management (EMS) is an explicit set of arrangements to manage an organisation's interaction to ensure that environmental impacts are controlled and continual improvement in environmental performance is maintained. The benefits of EMS include cost savings concerning energy, water, waste and transport; management of environmental risks assurance of legal compliance: demonstration of commitment and responsibility to clients, regulators and the public being a pre-requisite for doing environmental businesses. EMS drives home sustainable development, in consonance with the global concern for the state of the planet – a concern that has been vigorously enunciated since the 1987 Brundtland Commission's publication, 'Our Common Future'. Sustainability challenges companies to produce higher levels of output while using lower levels of input, and generating less waste. With the benefits of the EMS in improving environmental sustainability, there is the need to ascertain how to integrate EMS in sustainable development. The elements of an EMS play an important role in improving environmental performance. This paper examines the implementation of environmental management systems (EMS) as a way of responding to environmental challenges. The paper reports on the current role of EMS in sustainable development in Rivers State, Nigeria.

Introduction
"Sustainable development is the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs"(World Commission on Environment and Development, 1987). The EU Sustainable Development Strategy deals in an integrated way with economic, environmental and social issues and addresses putting sustainability into practice at all levels from the international context to local voluntary organisations (Boyd *et.al.* 2010). Sustainability challenges businesses to produce higher levels of output while using lower levels of input and generating less waste. However, despite the invaluable benefits of the concept of sustainable development, the concept only represents an ultimate goal, which will need constructive strategies to translate it into practical reality.

Business and the Environmental Challenge
At the heart of sustainable development is the environmental challenge. Businesses aim to respond to this challenge by improving their environmental performances. The factors that encourage businesses to respond to the environmental challenge include environmental efficiency, pressure from stakeholders and the influence of the government. It has become a obligation for industries to meet the requirement of the stakeholders not only in the financial performance of an organisation's product or service quality and market share, but also in the organisation's environmental performance (Boyd et al., 2010).

Responding to the environmental challenge brings about comparative advantage with its components, which include improved materials efficiency, improved product quality, improved community relations, improved media coverage, assured legal compliance, increased staff commitment, reduced risk exposure, lower insurance premiums, and cheaper finance (Welford and Gouldson, 1993). Thus, an organisation should define its environmental performance in terms of how it interacts with the environment.

Organisations are also not only to be concerned about performance, which they control directly, but also with wider environmental performance of the whole supply chain.

Environmental Management Systems

EMSs are explicit sets of arrangement and procedures to ensure environmental performance of organizations (Bragg et al., 1997). Setting up an EMS starts with the identification of performance goals and objectives; and then it moves to address those goals and objectives, which cause significant impacts. In achieving environmental performance, the identification of aspects and impacts provides the baseline for EMS. Environmental aspects are 'elements of an organization's activities, products, or services that can interact with the environment', while environmental impacts are any 'change in the environment whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products, or services'(ISO 14001, 2004).

The ISO 14001 is an auditable standard for EMS, which provides a framework for performance improvement, control and regulatory compliance as well as a means of demonstrating commitment to customers and stakeholders. The ISO 14001 standard can be used to help in achieving the wider global goal of sustainability as outlined in Agenda 21 by the Brundtland Commission in *Our Common Future* (World Commission on Environment and Development, 1987). The concept of continual improvement built into EMSs ensures that companies are constantly learning from their experiences to improve their future environmental performance (Wells and Galbraith, 2000).

Environmental Impact Assessment (EIA) is one of the environmental management (EM) tools that complement the EMS. EIA is predictive; it is one of the most proactive of all the EM tools. EIA aims to avoid adverse effects on the environment during the project design phase and builds mitigation measures where these effects are unavoidable. EIA can influence the environmental performance by focusing an organisation on opportunities for improvement, thereby facilitating increased efficiency, reduced waste, reduced risk, improved stakeholder relationships, utilisation of clean technologies and marketing of waste materials. In designing an EMS the data generated in the process of an EIA contributes and will have considerable harmony and integration required for an EMS. The ISO 14001:2004 stipulates that organisations must identify the environmental aspects of its activities, products and services that it can control and those that it can influence; and determine the aspects that have or can have significant impacts on the environment (ISO 14001:2004). EIA has an obvious role to play in this. Although EIA is used in the context of specific development projects, with the advent of the Strategic Environmental Assessment (SEA), environmental and sustainability considerations are now integrated into decision-making. This development moves EIA in the direction of being a 'sustainable instrument' (Therivel, 2004). This suggests that though EIA is a useful environmental tool, it has not yet reached its full potential. Thus, integrating EIA into EMS provides industries with capability to improve, on a continuous basis, environmental performance and move towards sustainability.

The Nigerian environmental setting: Environmental Laws

The environmental problems of Nigeria are numerous. A prominent one is pollution through oil exploitation, which has resulted to serious environmental degradation, especially in the Niger Delta. Oil production in the Niger Delta contributes to global warming because of excessive gas flaring. Deforestation is another grave environmental problem in Nigeria. Others include inadequate sanitary infrastructure, open defecation, slums and squatter settlements, ineffective drainage systems, poor management of sewerage treatment infrastructure, and so on. There has been rapid urbanisation in Nigeria, which has contributed to increased waste generation with poor disposal system and its attendant

poor quality of air and water. Farming activities also disrupt the natural environment, exploitation of wood and uncontrolled logging leads to deforestation. Erosion problems are seen all over the coastal zones. Pollution results as the cities lack proper solid waste management. In addition, mining activities have degraded the environment bringing about environmental hazards. There are a whole lot of laws, legislation and regulations on EM in Nigeria. The downside is that these laws are not strictly enforced due to lack of resources, political will, weak enforcement mechanisms, and inadequate work force. With all these drawbacks, it is difficult to attain sustainability of the Nigerian environment. In a research to assess the sustainability levels of companies in Rivers State, Nigeria, with the aid of a systems suite of sustainability indicators, Popoola (2012) deduced that the companies did not meet the required standard for sustainability even though there was noticeable evidence of constructive EM in some of them.

Methodology

This study made use of both primary and secondary datasets with the aid of questionnaires and informal discussion with environmental officers and organisations responsible for managing the environment in Rivers state. The study employed purposive sampling, as most of the industries were known. Fifty companies - which include small and medium-sized enterprises (SME), were selected and questionnaires were administered to them, out of which 25 responded. As part of the questionnaire administration, an 18-question evaluation of the policy, planning and implementation elements of an EMS was carried out. This was achieved with the formulation of a performance scoring system. The scoring system has four defined points of reference, which are 0, 3, 7 and 10. A score of 0 represents no evidence of the element; a score of 3 represents the threshold of implementation evidence or constructive management; a score of 7 denotes a mark of achievement which means that there is evidence of constructive implementation; while a score of 10 represents full implementation i.e. evidence of exceptional and well developed EMS element.

Results: ISO 14001 adoption and EMS Implementation in Nigeria

Not many companies in Rivers State (4) are ISO 14001 certified. The multinational companies like Shell, Total etc are certified but not the SMEs. Three of the four companies are subsidiaries of ISO certified companies in Europe. Out of the 25 industries interviewed, retail companies make up 16% followed by Pharmaceutical companies and transportation with 12% of total respondents (Figure 1). Evidence from the survey conducted indicates that the majority of the industries lack standardised EMS. This is evident more in the current EM practice (Figure 2) that shows EIA to be the most used tool (16%). Indeed, 12% of the industries do not have any form of EM tools in place. This study went further to ascertain the motivation for the adoption of specific EM tools. Figure 3 shows the result of this assessment. Noticeable in the result is the response that organizations with parent companies/industries resident mainly in Europe is a determinant factor for the development of the EM tools. An Example of these companies is the oil and gas industry.

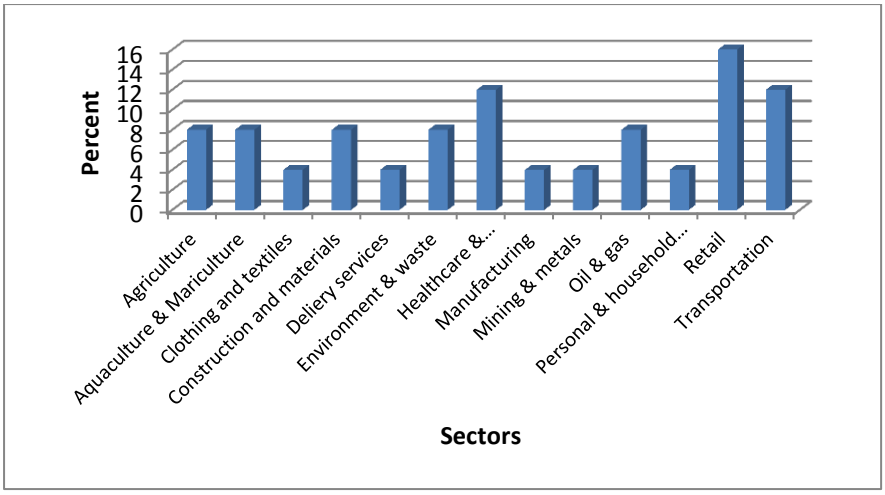

Figure 1: Sector of Industries

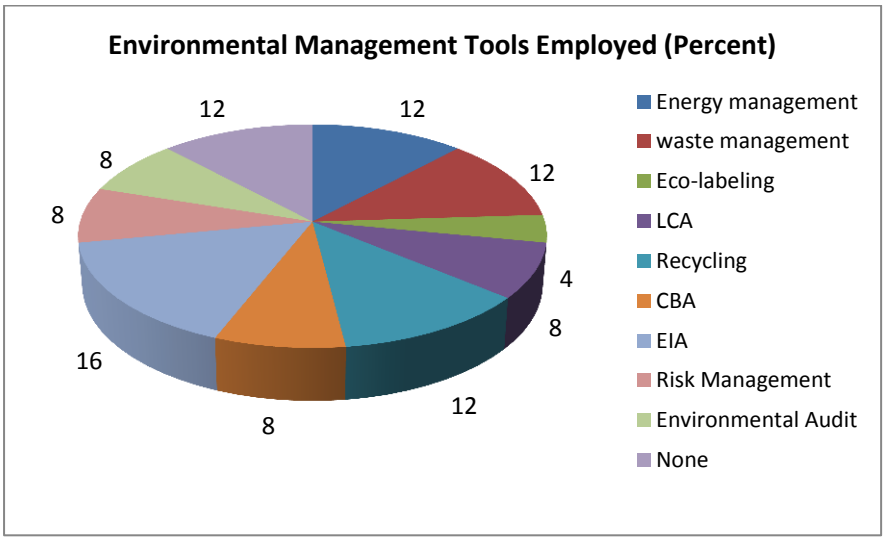

Figure 2: Current EM Practices in Operation

(LCA = Life Cycle Assessment, CBA = Cost Benefit Analysis, EIA = Environmental Impact Assessment)

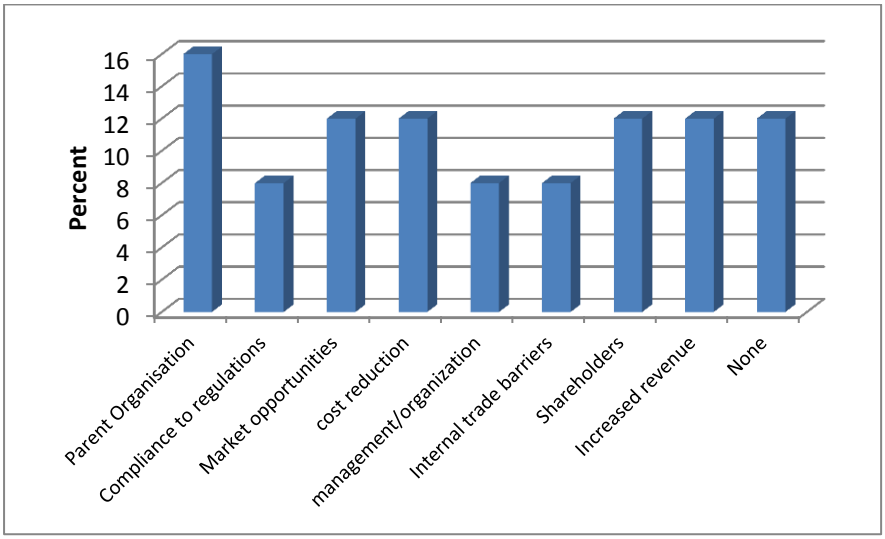

Figure 3: Motivation for Implementing EM Tools

Answers to the question meant to ascertain the awareness level concerning the benefit that could be derived from ISO 14001 certification show that, cost reduction and international acceptance of products rate highest (See Figure 4). International acceptance is very important as this brings about increased international trade leading to foreign exchange and employment opportunities thereby improving the economy. Obstacles exist in the acquiring the ISO 14001 certification and setting up an EMS as 16% of the respondents cited high initial cost. SMEs are not able to afford the cost of registration, consultancy expertise and auditing among others.

Figure 5 reveals other obstacles to setting up EMS in Rivers state. The last part of the study assesses the implementation of EMS in the 25 companies. This paper admits that very few of these companies have fully functional EMS system, but there are evidences of the operation of elements of an EMS. Results of the evaluation indicate that the extent of the adoption of the elements of an EMS is low for the 18 elements assessed. See Figure 6.

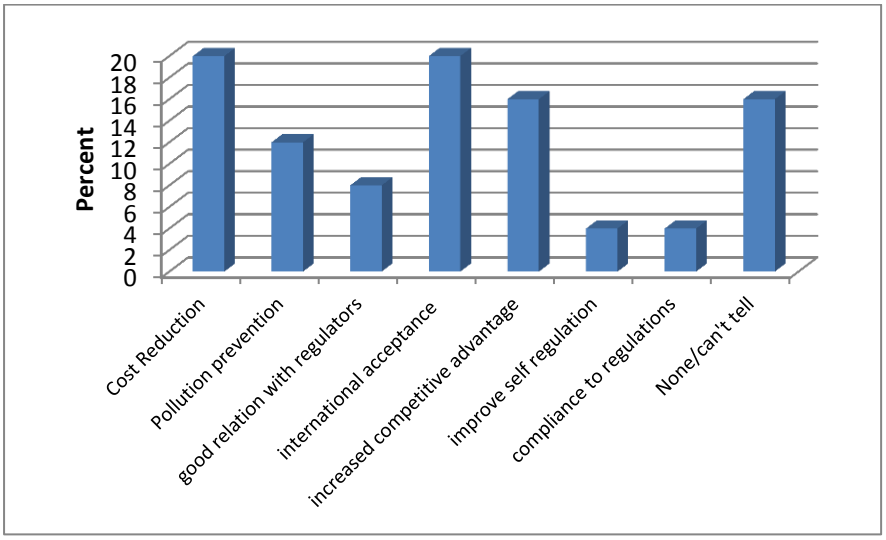

Figure 4: Awareness of benefits of EMS

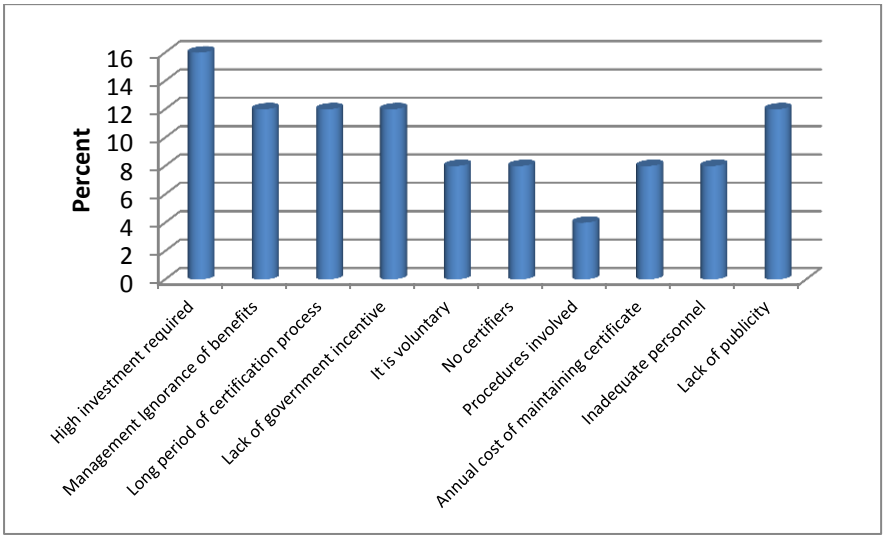

Figure 5: Obstacles to acquiring ISO 14001 certificate

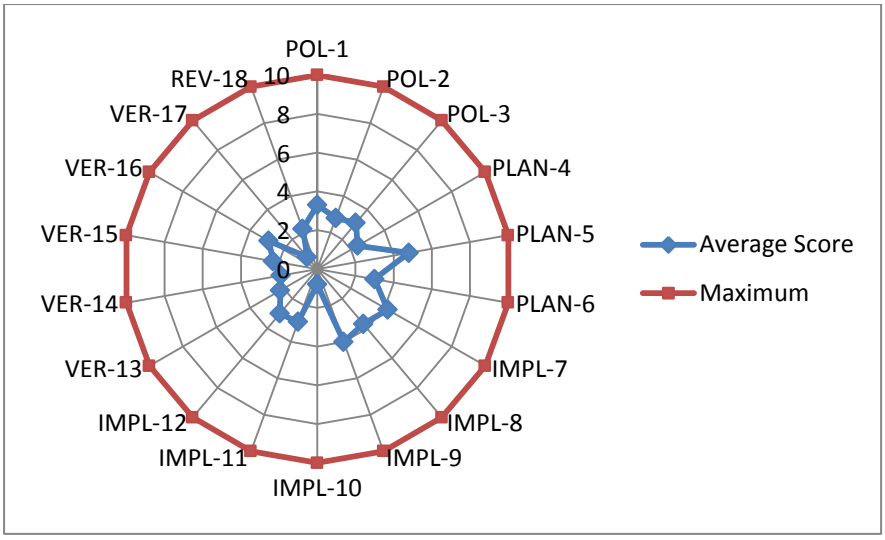

Figure 6: Assessment of EMS Implementation

POL-1	Environmental policy exists
POL-2	Policy appropriate to business
POL-3	Policy includes key commitments
PLAN-4	Significant environmental aspects identified
PLAN-5	Process to identify legal requirements
PLAN-6	Environmental objectives and targets
IMPL-7	Roles and responsibilities established
IMPL-8	Training needs identified
IMPL-9	Internal communication process
IMPL-10	EMS documented
IMPL-11	Operational control procedures
IMPL-12	Emergency procedures exist
VER-13	Monitoring and measurement
VER-14	Compliance evaluation
VER-15	Non-conformity procedures
VER-16	Records
VER-17	EMS audits
REV-18	Management review

Conclusion

There is more focus on political issues, employment and the economy than the environment in Nigeria. The adoption of the EMS in Nigeria is still at its infancy compared to what obtains in the developed countries. EMS has not taken off to full flight because financial opportunities and insurance markets are yet to recognise the importance of the tool for ensuring continual improvements. Many companies in Nigeria do not see the need for ISO 14001 certification because their products and services are consumed locally. Even with the environmental agencies, there are no structures to promote EMS. EIA is the tool that is mostly used by these environmental agencies and the companies but the sustainability potential of EIA has not yet been attained. EIA complements EMS and EMS ensures that industries move towards sustainability. Acquiring the ISO certificate is not a guarantee that sustainable development will be achieved in Nigeria, however, the manner in which aspects and impacts are managed, how companies set targets and achieve performance objective is critical to moving towards sustainable development.

References

Boyd, R., Frears, F., Hetherington, A., Moody, C. & Slater, P. (eds.) 2010. *Environmental Management and Assessment - Workbook 1,* Bath, UK: University of Bath: Distance Learning.

Bragg, S., Knapp, P. & Mclean, R. 1997. *Improving environmental performance: a guide to a proven and effective approach,* Cheltenham, CRC Press.

ISO 14001 2004. ISO 14001:2004 EMS Implementation.

Popoola, O. O. 2012. *Sea Level Rise and Sustainability of the Nigerian Coastal Zone.* PhD, Plymouth University, UK.

Therivel, R. 2004. *Strategic Environmental Assessment in action,* USA, Earthscan.

Welford, R. & Gouldson, A. 1993. *Environmental management and business strategy,* London, Pitman Publishing.

Wells, P. & Galbraith 2000. Promoting sustainable development through the adoption of ISO 14001 by small and medium-sized enterprises. *In:* Hillary, R. (ed.) *ISO 14001: Case Studies and practical Experiences.* Greenleaf Publishing.

World Commission on Environment And Development 1987. *Our Common Future,* Oxford, Oxford University Press.