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The Need for Environmental Management (EVM) in the Construction Industry

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Abstract: *The environment is an important part of the construction industry, even for legal entities (i.e companies), everyone's life is the same. The survival of companies in the construction industry should not destroy the environmental balance, but should contribute greatly to the sustainable development of a country. The social value of environmental goods and services is changing so rapidly that estimates may be out of date before they are available. In striving to meet the needs for efficient environmental management and "zero waste" in construction, it is not difficult to see that effective environmental management in construction is a challenge. Construction resources are limited and if we don't use them well they will soon run out. To rationally use construction resources, environmental management is necessary. It is our basic responsibility to establish precise coordination and balance between the needs of our construction industry and environmental processes. Survey research method was adopted and data were mainly collected from secondary source.*

Keywords: *Sustainable Development, Environment, Construction Resources, Construction.*

INTRODUCTION

Environmental management is a completely dynamic and emerging concept. Environmental management involves the management of the company's surrounding environment. It represents the organizational structure, sequence of responsibilities, processes and prerequisites for the implementation of the company's environmental policy. The environment brings together all organisms and inanimate forces that function in nature, including humans. The basic function of good environmental management is to set goals; information management; decision support; environmental management organization and planning; environmental management plans; piloting, implementation and control; communication; internal and external audits, etc. The current state of economic development, including environmental conditions, makes it necessary to broaden managers' understanding of the natural environment. Economic development emphasizes the path to industrialization, and environmental pollution in the coming year will be an ecological nightmare. Therefore, the ecological consequences must be taken into account when establishing an industrial unit. Technology can be used today to reduce environmental pollution, and it must be used to correct excessive ecological barbarism and minimize environmental degradation. For all this, correct accounting and reporting of environmental information is imperative, which can lead to good "environmental stewardship. According to Das (2018), the rapid development of industrialization worldwide has seriously threatened the ability of mankind to maintain ecological balance. Industrialization is a prerequisite for economic growth in any country, but unplanned industrialization and industrial waste discharge can cause pollution or environmental degradation. The successful delivery of a construction project depends on the sustainability requirements defined in the construction contract. It also depends on the nature and efficiency of the organization's environmental management. Project specifications usually define the sustainability requirements and standards of the project and are part of the contract between the customer and the contractor. The fact that the contract cannot be fulfilled unless the specifications are met underscores the importance of such requirements and standards, as well as the environmental management framework that it adheres to in any particular construction project. Technical specifications may include not only references to verification methods for sustainable products and materials, but also references to verification methods for the performance, successful completion, and labor of sustainable construction projects. All development activities are directly related to natural and environmental resources. Economic development that does not take into account environmental factors can lead to environmental crises The ecological role of business sectors responsible for their business activities in the environment has become particularly evident in the world market, especially in Nigeria. In a country like Nigeria, the management of the environment and natural resources has become more urgent and all industries have felt the need for sustainable development management. Furthermore, global recognition and acceptance of the importance of

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environmental issues has promoted the development of a new field of management, namely "corporate environmental management". The environmental management system is part of the general management system. The destructive effects of human economic activities on the environment in the name of a sustainable global economy are not recent.

REVIEW OF RELATED LITERATURE

Concept of Environmental Management

It is observed that construction projects carried out by companies that incorporate environmental management systems (EMS) into their projects can identify risks at an early stage, thereby helping to reduce costs and cost overruns, so that the projects can be completed in a timely manner. The research also shows that the products are better Have confidence, competitive advantage, save money, sustainable consumption of resources, improve occupational health, reduce greenhouse gas emissions, reduce the generation of solid and liquid waste, improve process efficiency and reduce waste treatment costs (Chen, 2004; Svatikova *et al.*, 2012). EMS is indispensable as a tool for reducing environmental impact and instilling sustainability. Active management of the environmental aspects of the project during the construction, operation and dismantling phases is part of business risk management. For the sustainable development and growth of the global and national economy, which depends on the rapid growth of infrastructure, it is important to understand how to reduce the environmental impact of construction projects.

EMS refers to the organization's management, planning and recording of its environmental problems. It is "a system and database that integrates procedures and processes for personnel training, monitoring, summarization and reporting professional information on environmental performance to internal and external stakeholders in the company." Waste management is indispensable in the entire project life cycle a part of. Environmental management is not considered part of providing quality services. ISO 9001 certification for quality service delivery is increasingly becoming the pursuit of governments and private companies in developing countries. ISO 14001 is directly related to environmental management systems, but it has not yet been implemented in many companies, especially in construction companies in emerging economies. The purpose of the construction environmental management plan is to describe how the construction project will avoid, minimize or reduce the impact on the environment and surrounding areas. The construction environmental management plan generally specifies the implementation of the following environmental commitment measures: environmental statement, environmental policy or environmental plan, planning condition requirements, Article 106 agreements, or other legislative requirements. They are "active" documents that are periodically reviewed and updated throughout the project life cycle. According to Huovila & Leinonen (2000), the construction industry has the greatest impact on nature and the environment, generally causing harmful effects on nature, and knowledge of environmental management and adoption will be minimized by reasonably minimizing its impact. The most important measurable environmental impact of the construction industry is emissions from energy consumption. Construction, materials manufacturing and building use account for almost half of total energy consumption. Construction technology can also be used to repair the environment and restore it to its natural state. Having the tools to set environmental goals and manage how to achieve these goals in design, construction, operation, decommissioning and disposal will eliminate the effects of resource depletion and harmful emissions, and will require that biodiversity be maintained throughout the life cycle of installation. Minimizing (non-renewable) energy use and adopting adaptability and long life in good indoor conditions are necessary environmental practices. Incorporating environmental issues into building infrastructure and development can solve construction-related problems, minimize the consumption of non-renewable resources, improve the natural environment, and eliminate the use of toxins. This is an amazing solution and great value for money! Considering that more infrastructure networks have not yet been built or expanded in developing countries, the future of problems related to degradation and irresponsible use of natural resources becomes dire. Given that the existing coverage area is small and the ecological footprint is too large, if developing countries continue to develop unsustainably, the consequences will appear unappealing. Figure 1 describes the needs of any business organization or system (such as the construction industry) for environmental management.

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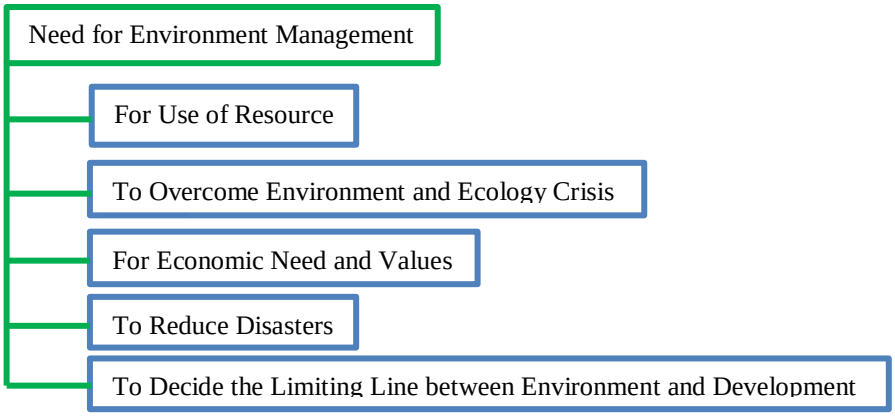

Figure 1: It describes the needs of any business organization or system
Source: Huovila & Leinonen (2000)

Construction Environmental Management Plan and Scope

The structure of the construction environmental management plan can be as follows:

- Introduction: the general purpose, scope and structure of the document.
- Scope of work and project description-development information.
- Environmental requirements and control and planning policies, environmental impacts, risks and mitigation, procedures for monitoring the construction process in accordance with environmental objectives, pollution control measures, records of environmental risks.
- Consents, commitments and permits: appropriate environmental legislation, planning conditions and any other consent or permit.
- Management plan specific to the management plan, for example; ecology, noise and vibrations, etc.
- Communication-external and internal negotiation. The basic scope of the plan should consider the following subject areas, depending on individual projects:
  - Air Quality
  - Water quality and drainage
  - Noise and vibration Chapter
  - Geology and Soil
  - Landscape and visual impact Chapter
  - Nature Protection
  - Archaeological and cultural heritage
  - People and communities Chapter
  - Waste
  - Vitality Chapter
  - Transportation
  - Material

Purpose of the Construction Environmental Management Plan

The purpose of the construction environmental management plan is typical:

- Highlight the requirements of the construction stakeholders.
- Ensure that the urbanization complies with current environmental regulations.
- Summarize the requirements of the environmental management system (according to ISO 14001).
- Explain in detail the mitigation measures promised in the environmental statement and how to implement them on site.
- Ensure that adverse effects are minimized during the construction project.
- Describe any required site-specific method statements.

The Need for Environmental Management in the Construction Industry

- In terms of use of resources: construction resources are limited, if they are not used well, they will soon be exhausted. To rationally use construction resources, environmental management is necessary. It is our basic responsibility to establish precise coordination and balance between the needs of our construction industry and environmental processes.
- Overcoming environmental and ecological crises: Environmental management is the need of the industry. Current development has reached a serious environmental and ecological crisis that, if it continues, will have a catastrophic impact on the environment. The whole earth will be destroyed.
- Sustainable development: Environmental management is necessary for construction and development without destroying or excessive use of natural resources and reducing pollution and natural degradation. Considering the well-being of future generations, appropriate decisions must be made regarding the use of the environment.
- Necessity and economic value: Environmental management is necessary to provide new directions for our needs and economic value,

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while maintaining a clean environment in the industry.

- Disaster reduction: Environmental management can reduce the risk of disasters such as floods, forest fires, earthquakes, desertification, traffic accidents and global warming. We need to explore the connection between environmental systems and disasters, as well as the synergy between man-made disasters and natural disaster.
- Determination of the boundary between environment and development: Environmental management is essential to delimit the boundary between construction, development and the environment. E.g. If our development needs to cause global warming or the depletion of the ozone layer, then we must not use materials to change our way of development. We can adopt a policy of afforestation. Therefore, environmental stewardship helps companies and other organizations to increase public trust and is related to obtaining fair evaluations. The degraded environment requires diligent management.

Benefits of Environmental Management for Construction Companies

Through environmental management, companies can enjoy the following benefits: Concept of environmental management (Das, 2018)

- Pollution control is a hot topic and environmental stewardship shows how well companies control pollution.
- Environmental management is another type of concern. Provides insight into industrial development, economic progress and social welfare of a country and the fulfillment of social responsibilities.
- Environmental management helps meet organizational responsibilities and increases environmental transparency. With the help of environmental management, sustainable development is possible because it helps to include the ecological capabilities of the company.
- Negotiation between management and society helps organizations to seek to strategically manage new problems with different users.
- Environmental stewardship supports green reporting to effectively combat all negative public opinions in the global economy. Strong environmental lobby groups have been found to oppose environmentally unfriendly industries.
- Environmental Management improves performance through better management of environmental costs, which benefits the natural and human environment.
- Environmental management forces the business sector to fulfill its commitments to introduce and change and, therefore, it seems to be responding to new factors. Countries that value the ecological aspects of activities are becoming increasingly popular, especially in Western countries.
- Environmental management reflects inappropriate production and consumption patterns, abuse and low use of resources and assets (such as water).
- With the help of environmental management, the optimal allocation of scarce resources in the economy is possible.
- Environmental management is essential for measuring a country's economic development, social welfare, industrial development, pollution control, and meeting government needs; however, the system is still in its infancy, and not all countries can develop such a system. But over time, the system will gradually develop, conduct research, and will meet the requirements of its origin.
- It reduces or eliminates many environmental problems by applying environmental management to make impressive decisions.

The Problems Faced By Effective Environmental Management in Construction

The problems faced by those seeking to successfully implement any environmental management system are closely related**.**

The role of collaborative software in proactive construction environmental and waste management

Through the continuous implementation of the environmental management system, the relevant personnel on the construction site must be able to prevent waste in a better way. In a lean culture of continuous improvement and collaborative work environment, active environmental management and on-site waste management require the right tools to execute. A very effective way to achieve this goal and actively manage waste to meet standards and certification requirements is through digitization and the use of automated workflows for construction management software and mobile applications, traditionally paper-based. Paperless solutions can be used to capture, store, verify, report and share corporate environmental data/information as part of overall environmental management, including on-site waste management systems. Comprehensive environmental and waste management systems will benefit from digitization and can be deployed on-site via mobile devices. The most collaborative building solutions will take advantage of cloud work and automation and the ability to share information, and will be specifically developed for on-site or on-site and office use.

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Using Collaborative Construction Solutions for Environmental and Waste Management

Project information and data can be stored in the cloud. This allows you to access it anytime, anywhere on a mobile device at the site, as easily as on a PC in the office, and allows you to communicate and share with collaborators on site, in the office, or anywhere in between. Useful collaborative construction Solutions for environmental management and waste management will include;

- Integrated information/data management (documents, drawings, contact details and so on)
- Paperless information / data sharing capability
- Paperless reporting capability
- Multi-OS and multi-device interoperability

Meeting the need for efficient environmental management and 'zero waste'

When striving to meet the needs of efficient environmental management and construction "zero waste", it is not difficult to see that effective construction environmental management is a challenge. There is a real need for efficient, flexible, collaborative, easy-to-use, and cost-effective processes and solutions in the industry. Here, we explain three areas where construction stakeholders can consider meeting these needs: certification, compliance with environmental standards, and implementation of an environmental management plan.

Obtaining Environmental Management Certification

First, construction stakeholders, including contractors, can seek environmental management system certification, such as the International Organization for Standardization (ISO) 14001 (or the European Union Ecological Management and Audit Scheme (EMAS), LEED Environmental Design and Energy Leadership Program for Green Buildings, or building research Institutional Environmental Assessment Method (BREEAM): Environmental management certification has the following benefits:

- Provide more sustainable product and service delivery
- Improve cost control and reduce the number of accidents through sustainable paperless processes
- Improve identification , Control and reduce risks
- Improve employee training, development and communication
- Provide evidence of commitment to sustainability standard
- Compliance with laws and regulations
- Improve environmental performance by effectively using resources and reducing waste
- Higher and faster success rates when implementing process changes

Compliance with Environmental Management Standards

Second, construction stakeholders (such as contractors) may seek to comply with sustainability standards, such as the ISO 14001 standard. They must also comply with waste regulations (such as the EU Waste Framework Directive and the 2008 Site Waste Management Plan Regulations). Environmental compliance refers to compliance with laws, regulations, standards, and other environmental requirements, such as site permits. Environmental issues have recently led to a significant increase in the number and scope of compliance requirements in the global regulatory environment. Environmental issues and compliance activities are increasingly in line with corporate performance goals and integrated into daily work processes and processes to avoid conflicts, overlaps and productivity gaps. Therefore, compliance requires compliance with the following conditions:

- Program management or progress tracking to ensure that is completed at the correct location, parameters and frequency
- Preprocessing, calculation, and verification of data that meet the alarm level or report
- Generate routine compliance reports for the authorities.

Implementation of Environmental Management Plan

Third, in order to meet environmental management standards, construction participants must have a strong environmental management plan (EMP). Effective EMP has the following advantages:

- Create a process to confirm environmental standards and requirements
- Establish means and methods to manage the environmental management process
- Define the responsibility and accountability of waste in the supply chain
- Promote and manage the collection of data and information related to environmental projects
- Reduce sustainability issues and solve time
- Eliminate or reduce waste, including paper, and help reduce stress in the work environment
- Improve team communication and collaboration on environmental issues.
- Improve project execution

RESEARCH METHODOLOGY

This research adopted mainly secondary data collection form of survey where relevant literatures were reviewed on the concepts being addressed.

CONCLUSION AND SUGGESTION

The environment is an important part of the construction industry, even for legal entities (i.e companies), everyone's life is the same. The survival of

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construction companies should not destroy the environmental balance, but should contribute greatly to the sustainable development of a country. The social value of environmental goods and services is changing so rapidly that estimates may be out of date before they are available. Planning for sustainability needs to estimate environmentally adjusted GNP. However, despite the theoretical flaws, the slogans of environmental management and environmental accounting have gained their inherent permanent benefits. In addition, the increasing recognition and acceptance of the importance of natural and environmental resources at the global and national levels has led to the development of environmental management. The valuation of environmental goods and services and the inclusion of environmental data at the national and corporate levels indicate different technologies. In many countries, disclosure practices related to environmental issues have become mandatory requirements. But in some countries, this kind of authorization is not ubiquitous. There is an urgent need to take action at the international level, especially the development of valuation techniques related to environmental issues. Each country can issue mandatory guidelines and include them in the company's annual report, including the environmental legislation of developed countries. The work dedicated to the development of environmental management will surely make environmental management occupy a more stable and effective position in the future, because it can greatly increase the value of the economy as a decision-making tool, especially in the determination of national policies. The implementation of environmental management is expected to produce changes in the attitudes and thinking of management. Despite the difficulties in environmental management, there is ample evidence that many countries in the world are sincerely trying to cope with new challenges and threats. Economic activities must not only be guided by "profit", but must also include "quality of life" and "ecological balance". Therefore, the key to sustainable growth is not to provide less, but to provide it effectively with the help of an environmental management system. In order to coordinate in accordance with accounting policies, comprehensive plans related to environmental management can be initiated for all types of companies. It creates a new atmosphere of environmental awareness in the corporate sector, and prepares and releases environmental balance sheets, paving the way for more serious attitudes among companies. Traditionally, many internal environmental costs have not been identified, allocated or allocated to activities. It is recommended that companies fully understand and control all environmental costs, including the above costs, through environmental management. Industry should internalize these costs by predicting and managing these costs. Environmental spending must be separated to improve decision-making and accountability for environmental responsibility. Each company must concentrate and reserve a part of the funds to achieve environmental and ecological balance. Unless the use of natural resources and the environment and their services are fully recorded, reliable and sustainable development cannot be achieved. Therefore, efforts must be made to incorporate the impact of environmental resources into all business functions of business enterprises. Today's technology can reduce environmental pollution and must be used to correct excessive ecological barbarism and minimize the degree of environmental pollution. The current disclosure practices of most corporate sectors in India do not fully reflect the impact of corporate performance on the environment.

As we catch up with the pace of industrialization and globalization, companies need to be more environmentally friendly and face challenges. Only environmentally friendly companies have a safe future. Companies seeking long-term profits should consider achieving green environmental protection in their business strategies and policies. The sooner precautions are taken to protect them, the better. The polluted environment needs continuous management. A large number of international environmental agreements have been negotiated to achieve sustainable trade effects. In addition, some countries, including Nigeria, are adopting unilateral measures aimed at protecting the environment, and these measures also have trade impacts on partner countries. There is no doubt that the Nigerian industry must choose a higher level of environmental standards in the future, because the country’s environmental protection needs such standards, as well as the needs of major trading partners. The Nigerian government has spent huge sums of money to eliminate water pollution, air pollution, and noise pollution. The Central Water Pollution Control Commission is working to reduce and control water pollution across the country.

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