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# Evaluating the Performance of Environmental Protection Agency (EPA) in the Ghanaian building constructional industries

**(a case study area Kumasi and Sekondi Takoradi Metropolises)**

Peter Paa-Kofi ,Yalley,[1] Emmanuel Opintan-Baah [2] Jacob Ofori Darko[3]
*1,3 College of Technology Education, University of Education,Winneba, Kumasi, Ghanan*
*2, Building Technology Department, School of Engineering, Takoradi Polytechnic, Takoradi*

***Abstract:*** *A study was conducted with the purpose to ascertain the extent of enforcement of the Environmental Protection Agency (EPA) Act in the Ghanaian Construction Industry. A literature review focused on environmental management and impact assessment, the Environmental Protection Agency Act and their relationship with the construction industry. Closed-ended and open-ended questions were posed and sent to purposive sampled construction industry stakeholders in the Kumasi and Sekondi-Takoradi Metropolises. Also a structured interview was conducted for an official from the Environmental Protection Agency in Kumasi and Sekondi-Takoradi. It emerged from the studies that more than 50% of the stakeholders, most of who were in the building sector, had never obtained an Environmental permit. Again it was noted that most of the stakeholders in the construction industry were aware that obtaining an Environmental permit was not a prerequisite for the execution of building projects. It was concluded that that a lot more had to be done by the EPA regarding monitoring of construction activities and the enforcement of the Environmental Protection Agency Act. The strict enforcement of the Environmental Protection Agency Act, increase in publicity on Environmental Management, reduction in the duration between applying for an environmental permit and receiving it and banning the use of environmentally unfriendly materials were the recommendations made after the research; as these would help improve environmental quality in the Ghanaian Construction Industry.*
**Keywords***: Environmental Protection Act, Permit, Construction industry, Ghana.*

## I INTRODUCTION

Environmental Management involves the controlling of human interaction with the environment with the aim of preserving and sustaining the environment. One of man's major interactions with the environment is construction, which has never stopped since creation. Construction's lifecycle begins when raw materials are extracted from the earth, followed by manufacturing, transport and use, and ends with waste management including recycling and final disposal. The building and construction sector is a significant consumer of raw and natural materials.

It also produces wastes that contribute to the emission of greenhouse gases which are potentially damaging to the natural environment. Construction and post-construction activities generally consume 50% of global material resources and specifically, 70% of global timber products. In addition, 45% of all energy generated is used to heat, ventilate and light buildings and 40% of water is used for sanitation and other uses in buildings. The current population increase of 73 million per year will also place higher demands on the consumption of raw and natural materials [1]. This therefore calls for the need to study into the activities of The Environmental Protection Agency so as to ascertain how the Environmental Protection Agency Act is being enforced in the Ghanaian construction industry.

This study delves into Environmental Management in the Ghanaian construction industry in order to ascertain compliance with any laid down environmental management procedures in the planning and execution of building projects; and also suggests ways of improving compliance of the Environmental Protection Agency Act in the Ghanaian construction industry. This will be done through the following objectives:

- To study the Environmental Protection Agency Act of Ghana and its enforcement with regard to the construction industry.
- To find out if the stakeholders in the Ghanaian construction industry are aware of environmental management procedures and are complying with the Environmental Protection Agency Act, and
- To suggest means of improving the enforcement of the Environmental Protection Agency Act of Ghana in the construction industry by the Environmental Protection Agency.

## II Environmental management legislation in Ghana

The Environmental Assessment Regulations, LI 1652, was promulgated in 1999 [2] to give complete legal status to the Ghana Environmental Impact Assessment procedures. The Regulations require that all development activities likely to impact adversely on the environment must be subjected to Environmental Assessment. The objective of the LI is to ensure that such development activities are carried out in an environmentally sound and sustainable manner.

The requirements of the LI, however, place enormous responsibilities on all stakeholders in development in Ghana. The nature of the responsibilities varies for different stakeholders, depending on their statutory functions, areas of jurisdiction of implementing or regulatory agencies, planning authorities, financial intermediaries or institutions providing training or consultants providing services in EIA.

A five year national Environmental Assessment Capacity Development Programme (GEACaP) [3] had been initiated with financial assistance from the Netherlands Government. This was to assist all relevant institutions to meet their respective obligations under the LI 1652, and to promote sustainable development in Ghana. An important aspect of the programme is the development of Environmental Assessment Sector Specific Guidelines for eight sectors, namely; Transportation, Mining, Tourism, General Construction & Services, Energy, Manufacturing, Agriculture and Health. Eight networks made up of representatives from relevant stakeholder institutions have been formed to facilitate the development of the guidelines for these sectors. The Energy Sector Core Team comprised representatives from the Environmental Protection Agency, Ministry of Energy, Energy Commission, Ghana Atomic Energy Commission and the Energy Foundation. The key objectives of their task included:

1. Defining the screening criteria for environmental assessment for energy sector investments.
2. Determining the scope of Environmental Impact Assessment (EIA) for the sector.
3. Providing systematic procedures on Environmental Impact Statement (EIS) preparations for the sector.
4. Providing guidelines on common potential impacts and mitigation measures. The vision of the lawmakers with respect to regulations was realized in the Environmental Assessment Regulations of 1999, which deals with the various procedures to be followed in obtaining environmental permit, procedures for filing complaints, offences and penalties.

## III Overview of the Environmental Management System in the Construction Industry in Ghana

The Environmental Management Act (EMA) provides a more flexible authorization framework, increases enforcement options and uses modern environmental management tools to protect human health and the quality of water, land and air in Ghana. EMA also enables the use of administrative penalties, informational orders and economic instruments to assist in achieving compliance. The Environmental Management Act, Ghana requires by law that, any activities taken under Agriculture, Energy, Forestry and wildlife, General construction and services, Health, Manufacturing industry, Mining, Tourism and Transportation [4] sectors conduct Environmental Assessment. Also any undertaking approved for development, by the EPA is required to submit an Annual Environmental Report (AER), Environmental Management Plans (EMPs) and Environmental Impact Statements. Management of any undertaking in the above mentioned sectors is required to conduct periodic, systematic and objective evaluation to assess the environmental effectiveness of the operational and management systems of that undertaking. The management of the undertaking may appoint an independent expert to conduct the audit in order to be fully informed of the true status of the environmental management programme in place. However, the EPA is charged with the responsibility to conduct its own audit termed "Compliance Audit", to verify and inform itself about the compliance status of an undertaking [4].

## IV Environmental Impact Assessment

The aim of EIA is twofold: firstly to ensure that the project has been planned in an environmentally friendly manner and that appropriate mitigation measures and safeguards have been integrated into the projects design. And secondly to provide sufficient information for the evaluation of the EIA so that EPA can issue a permit. The EIA in the construction sector should include: Ecological impact assessment, Environmental health impact assessment, Hazard and risk impact assessment, Social impact assessment, Water quality impact assessment and Air quality impact assessment.

### 4.1 Ecological impact assessment (EIA)

Ecological impact assessment should indicate the general character of the existing site in terms of fauna and flora; landscape and geological features, lakes, creeks, march, mangroves, coral, forest and bush, and aesthetics. It requires that an ecological inventory of at least the most prominent and common species with major plant and animal habitats, particularly habitats critical to the preservation of threatened endangered species be conducted. This should cover the geographical relationship of species on the sites. EIAs

are unique in that they do not require adherence to a predetermined environmental outcome, but rather they require decision makers to account for environmental values in their decisions and to justify those decisions in light of detailed environmental studies and public comments on the potential environmental impacts of the proposal [5]. Artificial features of the site as existing, such as roads, railways, buildings and other facilities relating current uses to the local ecology: agricultural activities. The undertaking should indicate the possible mitigation of effects by technical or financial measures or by redesigning. There is a need for stronger foundation of EIA practice through training for practitioners, guidance on EIA practice and continuing research [6].

**4.2 Environmental health impact assessment (EHIA)**

Its looks into the aspects of the proposed development, which might present adverse risks to the health and well-being of the community, either near or far, in the short term either directly or indirectly. It is widely held that EHIA offers unique opportunities for the protection and promotion of human health [7] [8]. Environmental health impact assessment should entail emissions from the proposed development that might have a detrimental effect on the quality of air or water to the detriment of human beings either directly or indirectly through the food chain. Also an inventory of pollutants with details of the handling or dispersal of these should be included in the assessment. This assessment should include solid waste from the development and their management; possible dust and grit from waste piles; disposal area, vehicles, roads, ad-tipping operation. And the levels of noise blast and vibration that may occur, during the day, night, or weekend. The overall effects of the project on the health of neighbouring communities should be indicated.

**4.3 Hazard and risk impact assessment**

The choice of the location for the project, in particular the proximity of dwellings, other centres of employment, other vulnerable facilities such as schools and hospitals, and storage areas for inflammable and explosive materials must be detailed in the report. O'Brien [9] argued that risk assessments ignore qualitative differences among risks. **Flyvbjerg, Bent** [10] was of the view that risk assessments may drop out important non-quantifiable or inaccessible information, such as variations among the classes of people exposed to hazards. Furthermore, Commoner and O'Brien claim that quantitative approaches divert attention from precautionary or preventative measures. Any proposed buffer zones, and any other planning restrictions like equipment-fuelling areas, routes of pipelines, electrical equipment, and transmission lines out ought to be outlined.

**4.4 Social impact assessment (SIS)**

Social impact assessment is meant to indicate the possible changes in circumstance, which are likely to result in social discontent, unhappiness, increased illness, and a loss of productivity, leading to loss of income. SIS requires details of the consequences of the severance of communities by the project, both physical and psychological. The effects of the project on general lifestyle of the people need to be assessed. Social Impact Assessment can be defined in terms of efforts to assess or estimate, in advance, the social consequences that are likely to follow specific policy actions (including programs and the adoption of new policies), and specific government actions. It is a process that provides a framework for prioritizing, gathering, analyzing, and incorporating social information and participation into the design and delivery of developmental interventions. It ensures that development interventions: (i) are informed and take into account the key relevant social issues; and (ii) incorporate a participation strategy for involving a wide range of stakeholders. [11]

**4.5 Water quality impact assessment (WQIA)**

Water quality impact assessment report should include the characteristics of the water resources at risk; the topography and ecological characteristics; seasonal and annual flows; rainfall and run-off; storage facilities; and other features and the use of the present water resources. Water quality impact assessment should clearly establish the likely effects of soil disturbance during the construction phase and, subsequently, mitigation measures to be adopted. The likely effects of run-off from surfaces sealed and unsealed; mitigation measures to be adopted. The economic and social effects of prospective changes in watercourses, water quantity, and water quality for the wider community

## V RESEARCH METHODS

The first part of the study for was a comprehensive review of published works and electronic (internet) presentation on environmental impact of construction industries. Combination of quantitative and qualitative research methodology was used in this research. Data obtained for this research was limited to stakeholders in the construction industry namely: Clients, Contractors, Engineers, Quantity Surveyors, Architects, and Site Supervisors in the Kumasi and Sekondi-Takoradi Metropolises through face to face questionnaire approach. Structured interview was conducted for personnel from the Environmental Protection Agency (EPA), the

implementing agency of the Environmental Protection Agency Act. The sample for the questionnaire was selected by the Stratified Random Sampling procedure; where the population was divided into clients, contractors, engineers, etc. and from these groups, respondents were selected randomly. A sample size of thirty was therefore selected for the administration of the questionnaire. For the interviews the sample was selected by the purposive sampling method. This was because officials of the EPA in the opinion of the researchers were the most suitable source of information since they are the enforcers and monitors of environmental protection act. Here, a sample size of four was selected.

## VI QUESTIONNAIRE SURVEY

In order to maximize the response rate, face-to-face questionnaire approach as well as the usual approach of leaving questionnaires to the respondents to answer were used in the administration of questionnaire. The questionnaire consisted of four sections in the following order:

Section A: The background of the respondents, this section of the questionnaire was to gain general information about the respondents.

Section B: Assessing the awareness of the respondents on environmental management in the Ghanaian construction industry. These Questions were intended to help the researchers to determine the degree of awareness of respondents on environmental management procedures in the Ghanaian construction industry.

Section C: The adequacy of environmental management in the Ghanaian construction industry. Questions were structured to assess the knowledge of respondents on environmental management in the Ghanaian construction industry and also to find out if respondents were complying with the Environmental Protection Agency Act.

Section D: Suggestions of steps to be taken to improve environmental management in the Ghanaian construction industry. The questions were framed to obtain information on the opinion of the respondents on how to improve environmental management in the Ghanaian construction industry. Using a Likert scale from 'strongly agree' to 'strongly disagree', respondents were given the options to suggest how to improve environmental management in the construction industry in Ghana. Details of the statements and their responses are tabulated in Table 4.

## VII STRUCTURED INTERVIEW

Structured interview questions were designed for the officials of the EPA to obtain first-hand information from the professionals in charge of environmental management in Ghana.

## VIII RESULTS AND DISCUSSION OF RESEARCH DATA

The results from the fieldwork (the questionnaires and the interview) are presented and analyzed in this section.

8.1 Analysis and Discussion of Data Obtained from the Questionnaire

In all, 30 questionnaires were distributed to potential respondents who are stakeholders of the construction industry. Out of these, 20 were received representing 67% responding rate. The respondents were made up of the following: three clients, five Contractors, three Engineers, three Quantity Surveyors, two Architects, and four Site Supervisors

8.2 Section A of the questionnaire

This Section was mainly meant to categorize responses. Table 1 records the details of the responses to Section A of the questionnaire

It could be seen from Table 1 that a very large proportion of the respondents (95%) had been involved in building projects for the past five to fifteen years. About (60%) of the respondents were of Middle level management, with the remaining 40% being at top management level. Though the researchers wanted to have a sample covering all three levels indicated in Table 1. However, there were some difficulties in getting respondents who were artisans or site operatives. This level of respondents were not ready to participate in the survey for various reasons.

**Table 1. Questions and Responses obtained in Section A of the questionnaire**

| Questions | Purpose | Number of respondents and their Reponses0 | | |
|---|---|---|---|---|
| Which of the following project categories have you been involved in? | To help in classifying the respondents. | Building Projects | Major Civil Eng. Projects | Minor Civil Eng. Projects |
| | | **19 (95%)** | **2(10%)** | **8 (40%)** |
| How long have you been involved in the construction industry? | This question was meant to elicit how long a person has been working. | 1-5yrs | 6-15yrs | 16 yrs and above |
| | | **7 (35%)** | **10 (50%)** | **3 (15%)** |
| In which category does your position in your organization fall? | The objective of this question was to find out whether environmental awareness exists at all the levels indicated as response options. | Top level | Middle level | Artisans |
| | | **8 (40%)** | **12 (60%)** | **0** |

### 8.3 Section B of the Questionnaire

Eleven respondents making 55% of the total respondents agreed that their construction activity disturb one or more acres of land or water body due to water runoff (Table 2). However, only 6 out of 11 of them have ever obtained an Environmental Permit from the EPA, for discharge of storm water runoff from their construction site. Thirty percent of the respondents said they do discharge dredged material (i.e. material that is dredged or excavated from waters) or fill material (i.e., material that replaces an aquatic area with dry land or changes the bottom elevation of a water body) to waters of Ghana. A third of the respondents whose activities affect the water bodies obtain permit for their construction activities. Construction activities of Three quarters of the respondents emit dust into the atmosphere of which about half of the number obtain permit for their activities.

**Table 2. Questions to assess the Awareness of Environmental Management in the Ghanaian Construction Industry**

| S/N | Question | Purpose of the Question | Answer options | | |
|---|---|---|---|---|---|
| 1 | Do you perform clearing, grading, or excavation activities? Do you build roads, golf courses, playing fields, homes, or buildings? Are you involved in demolition activities? | A response to these questions will be analysed against a response to question three of section A to evaluate the respondents' awareness of environmental management. | Yes 9 **(45%)** | No 11 **(55%)** | |
| 2 | Does your construction activity disturb one or more acres of land or water body due to water runoff? | | Often 2 **(10%)** | Seldom 9 **(45%)** | Never 9 **(45%)** |
| 3 | If so, do you obtain permit coverage for discharge of storm water runoff from your construction site? | To assess if EIA on water quality and are prepared for approval before and during construction activities | Yes 6 **(55%)** | No 5 **(45%)** | |
| 4 | Do you discharge dredged material or fill material to waters of Ghana | This was to ascertain whether laws to protect water bodies in Ghana are enforced. | Yes 6 **(30%)** | No 14 **(70%)** | |
| 5 | If so, do you have a permit under EPA Act 490 | | 2 (33%) | 4 (67%) | |
| 6 | Do you generate or handle hazardous wastes | Resource Conservation and Recovery Act (RCRA). | 0 | 20 (100%) | |
| 7 | If so do you adhere to the regulation and requirement of Resource Conservation and [1]Recovery Act (RCRA). | | N/A | N/A | |

| | | | | | |
|---|---|---|---|---|---|
| 8 | Is there a dust emission at your constructions site? | The purpose of these questions were to find out if EIA report on Air quality are submitted for approval and eventual permit | 14 (70%) | 6 (30%) | |
| 9 | Do you have a shop/garage space heater fuelled with used oil? | | 0 | 20 (100) | |
| 10 | If yes, do you have air permit | | N/A | N/A | |
| 11 | Do you know what green building[2] is? | | 10 (50%) | 10 (50%) | |
| 12 | Are you going green? | | - | 20 (100%) | |

It came to light that none of the respondents agreed that their firms handled hazardous materials. Hazardous materials are waste that poses potential harm to human health and the environment)? Examples of materials at construction sites that may be classified as hazardous wastes include: spent cleaners (e.g., organic solvents), paints (including lead-based paint), used oil, paint thinners, wastes that contain ignitable and corrosive materials, and wastes that contain certain toxic pollutants

In summary, Section B was meant to evaluate and asses if environmental permit laws are enforced and try to ascertain the degree of enforcement and awareness. From the results it was depicted that the respondents had some awareness of environmental management and the environmental permit requirement, but some simply failed to obtain the required permit for various activities. This could be attributed to the procedure for obtaining an environmental permit. They were of the view that lack of publicity of the activities of the EPA, the duration of obtaining the environmental permit were some of the reasons that discourage them of obtaining environmental permit for construction activities. It was also realized that most of them thought it was not a requirement to get an environmental permit for construction activities.

8.4 Section C of the Questionnaire

For an assessment system to be seen as adequate, the one being assessed should at least be aware of the parameters used for the assessment, hence this section was designed to find out the level of awareness of the parameters for Environmental Assessment. It came out that only 15% of the respondents were fully aware of these parameters, although the majority of the respondents, 60% had a fair idea of the parameters for environmental assessments. This was deemed a positive sign in the opinion of the researchers. Another important characteristic of an adequate environmental management system is frequent visitation of sites by the assessor to monitor and ensure compliance. The researchers posed a question to find out whether EPA officials paid frequent visits to construction sites. The responses indicated a tie between EPA officials paying visits seldom and never. It would therefore not be wrong to say that the EPA had more to do in relation to site visitation to monitor and to ensure compliance with environmental issues. Even though, a greater proportion of the respondents (70%) said that the Environmental Assessment by EPA was fair, about 60% of the respondents were of the view that the process was slow.

**Table 3. Questions to assess the extent of awareness of Environmental Management Assessment parameters in the Ghanaian Construction Industry**

| **Question** | **Purpose of the Question** | **Options** | | |
|---|---|---|---|---|
| To what extent are you aware of the parameters on which construction projects are assessed environmentally? | This question tries to verify knowledge of the assessment procedure by the one being assessed. | Fully Aware<br>3<br>**(15%)** | Have a fair idea<br>12<br>**(60%)** | Not aware<br>5<br>**(25%)** |
| How often do EPA officials visit your site(s) to ensure compliance with environmental management procedures? | This question verifies the frequency of visits by officials of the EPA to construction sites. | Often<br>0 | Seldom<br>10<br>**(50%)** | Never<br>10<br>**(50%)** |
| Do you see the environmental assessment procedures in the construction industry to be fair to all parties? | This question is to test the fairness of the environmental assessment procedures to all parties involved in construction. | Yes<br>12<br>**(60%)** | No<br>8<br>**(40%)** | |

| | | | | |
|---|---|---|---|---|
| How would you rate the duration between putting in an application for an environmental permit and receiving it? | The responses to these two questions would aid the researchers to evaluate the perception of respondents in terms of the adequacy of environmental management in the construction industry | **Fast** 4 **(20%)** | **Slow** 12 **(60%)** | **Very slow** 4 **(20%)** |
| How would you describe the EPA performance in the environmental assessment procedure? | | Co-operative | Not co-operative | unpredictable |
| | | 4 **(20%)** | 2 **(10%)** | 14 **(70%)** |

***Section D of the Questionnaire - Steps to be taken to Improve Environmental Management in the Ghanaian Construction Industry***

This section was to solicit the views of the respondents on possible steps to be taken to improve environmental management in the Ghanaian construction industry. Nine steps were suggested on a Likert scale of 'strongly agree' to 'strongly disagree'. The respondents were given the choice to express their degree of agreement or disagreement on a particular statement. A total of 20 respondents were asked to read each statement carefully and tick in the spaces provided, the response that accurately represented their opinion.

In a nutshel at least 75% of the respondents agreed that publicity, amendments of the Act, and building laws, good assessment methods, fast tracking of the permit processes, tougher penalties for none compliance of the Environmental protection Act and banning the use of unfriendly materials were some of the ways that could be used to improve environmental management in the construction industry. It should be noted that, than 12 out of the 20 respondents laid emphasis on publicity of the activities of the EPA, reducing the duration of obtaining the environmental permit and banning of hazardous materials, by strongly agreeing to statements in items 1, 5 and 9 as shown in Table 4.

**Table 4 suggested statements on improving the environmental management in the construction industry**

| **Items** | **Steps to be taken to improve environmental management in the Ghanaian construction industry** | **RESPONSES** | | | | |
|---|---|---|---|---|---|---|
| | | **STRONGLY AGREE** | **AGREE** | **NEUTRAL** | **DISAGREE** | **STRONGLY DISAGREE** |
| 1 | Increase in publicity of environmental management | 16 | 4 | 0 | 0 | 0 |
| 2 | Revision or amendment of the EPA Act and the environmental assessment regulations | 4 | 11 | 2 | 2 | 0 |
| 3 | Revision of Building Regulations | 7 | 9 | 1 | 3 | 0 |
| 4 | Developing specific assessment methods for the construction industry | 5 | 14 | 1 | 0 | 0 |
| 5 | Reducing the duration between putting in an application for an environmental permit and receiving it | 13 | 5 | 2 | 0 | 0 |
| 6 | Increasing or strengthening penalties for breaking environmental laws | 9 | 10 | 1 | 0 | 0 |
| 7 | Making environmental management a contractual requirement for contractors when tendering | 7 | 10 | 0 | 3 | 0 |
| 8 | Learning from other countries, like the UK, which are doing better in environmental management | 7 | 11 | 1 | 1 | 0 |
| 9 | Banning the use of environmentally unfriendly materials | 14 | 5 | 0 | 1 | 0 |

**8.5 Data Obtained from the Interview**

It was in the research programme to interview four officials from the EPA (two from each metropolis). One field officer from each case study area and two field supervisor also one each from each case study area. The first question posed was on how the EPA was faring with environmental management in the Ghanaian construction industry. To this the EPA officials answered that they were doing quite well but as usual there was more room for improvement. They went further to outline the environmental assessment procedure to the

researchers. They also stressed that the EPA would have to do more monitoring to ensure compliance of the environmental laws, which was a confirmation of what the stakeholders of the construction industry strongly agreed to as in Table 4. Asked whether the EPA's activities covered all sectors of the construction industry, the officials replied in the affirmative with an exception of residential buildings. The researchers also wanted to know why environmental permits were not required for residential buildings. The EPA officials explained that they were not mandated by law to issue permits for residential buildings, but the Town and Country Planning Department together with the Environmental Health and Sanitation Department of the District Assemblies were responsible of issuing of other permits for residential purposes. The officers further explained that it was the duty of these departments to ensure that, environmental management policies were adhered to before the permits were issued. The next question was on whether some changes or revisions to the EPA Act and L. I. 1652 would be helpful to achieve efficient environmental management in the Ghanaian construction industry. To this the EPA official answered 'yes'. When asked to recommend changes, they recommended that certain aspects of the Act and L. I. 1652 be revised for example introducing environmental assessment for residential buildings in Ghana as is done in the UK and the EU countries.

Finally, the EPA officials stated that previously they used to carry out a lot of publicity but that had reduced in recent times. It is therefore necessary to increase publicity as stated in the issues that arose from the questionnaire to stakeholders. On the whole the interview was very enlightening and confirmed some of the issues that came out during the administering of the questionnaire.

## IX CONCLUSION AND RECOMMENDATIONS

A study was conducted on the activities of EPA in the construction industry in Ghana, using Sekondi Takoradi and Kumasi Metropolises as a case study areas. A combination of quantitative and qualitative research methodology was used in this research. Data obtained for this research was limited to stakeholders in the construction industry namely: Contractors, Engineers, Quantity Surveyors, Architects, and Site Supervisors in Kumasi Metropolis through questionnaire survey. Structured interview was conducted for personnel's from Environmental Protection Agency (EPA).

It emerged from the studies that more than 50% of the stakeholders, most of who were in the building sector, had never obtained Environmental Permits. The study concluded that lack of specific enforcement of the Environmental Protection Agency Act in the building construction industry and the lack of frequent visits by the EPA to building construction sites are major factors affecting effective environmental management in the Ghanaian construction industry. Since the EPA is responsible for every aspect of environmental management, this means a second look should be taken at their activities.

It is therefore recommended that, EPA should increase publicity on environmental issues and their various activities related to environmental management; embark on regular visits to construction project sites and come out with environmental management procedures specifically for the building construction industry in Ghana.

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