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A Review on the Impact of Pollution

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ABSTRACT

This is a research paper focused on assessing the Client's Engineer (PMC) managers/senior engineer's perceptions of sustainability management issues relating to a civil engineering project in tamilnadu. In order to consider more implicitly the questions and issues raised, this empirical groundwork utilised an interpretive perspective. The scope for this research was the PMC managers/senior engineers of a single civil engineering project situated in bargur, tamilnadu. The paper suggests that developments of this kind may benefit from a greater awareness and transparency of implementation of environmental management standards, whilst delineating the issues of significant costs and associated concerns, and the effects on environmental mitigation opportunities through the use of appropriate management strategies. Very little research has been conducted in this area in tamilnadu and the paper exposes weak aspects of environmental management in Doha, which is previously unexplored in today's demanding civil engineering environment.

KEYWORDS: *Environment; Projects; Civil Engineering; Management, tamilnadu*

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I. INTRODUCTION

Most writers observe that construction activities have a great effect on the environment in which they are situate. An environmental assessment is carried out on almost every construction activity today, which is done to assure that the construction activities and practices that are carried out minimize environmental damage. As such, considerable attention has been given to environmental impacts of construction sites because of the destructive impacts where construction appears to be a major focus for polluting agents as they affect the sustainability capability of the area and pose a serious risk for contamination. This is often through air, water and land contamination risks. Clients and operating contractors don't always pay specific attention to environmental matters and thus the construction managers environmental knowledge needs to be enhanced and actions monitored to help mitigate such impacts. Further, site management of environmental matters requires more than just a cursory evaluation as the site can quickly suffer from the effects of pollution and mismanagement. It requires a considered and integrative assessment, to reassure the integrity of the environment and the sustainability of the ongoing construction activity.

II. DETERMINING THE ACTIVITY OF CONSTRUCTION

Development of an environmental management plan is often the first step towards managing the environmental effects of construction. This assessment process has been utilised for almost 50 years and has now been accepted world-wide as the "norm" as part of a larger international programme of planning and assessment tools underpinning environmental evaluations of construction

projects. There would appear to be a wide variety of ways in which environmentally impacting activities of construction can be specified. One way would be through an Environmental Impact Assessment (EIA) – for example in the UK or EU (Directive 85/337; 2011/92/EU as amended by EC Directive 97/11/EC) or its equivalent-leading to an Environmental Statement of proposed construction activity. Its main aim is to obtain judicial planning approval from the local authorities overseeing the project – where the project is likely to have a significant impact. However, some writers take a different view and assess the various environments and their impacts – such as Ecosystem, Natural Resources, and Public Health impacts. The assessment framework determines the quality and environmental orientation of the project. Of importance is that cognizance is taken of the legal and regulatory framework underpinning the environmental assessment and to mitigate any raised issues that arise from developing the environmental statement. Environmental impacts can occur as a result of the use of a resource or the pollution of a resource. An impact could also be foreseen (and planned for) and thus be avoidable; or unforeseen or cumulative leading to loss of plants, animals, soil pollution, dust, soil compaction and/or erosion, water pollution, air pollution, injuries and health debilitation (humans and animals). Most causes of impacts relate to inadequate planning/management and not observing the requirements of the EMS.

III. METHODOLOGY

To investigate the issues generated within a non-site civil engineering context, a deeper, more involved approach was considered appropriate that required personal discussions on such critical and important issues. In order to consider more implicitly these generated issues, this empirical foundation exploited an interpretive approach. An assessment of environmental issues targets personal components raised out of individual experiences and is therefore an area of interest where qualitative methodology is most appropriate to generate this type of data. This was an attempt to understand the perceptions of managerial experiences at site. The Client's Engineer (PMC) managerial staffs were considered specialist knowledge agents and actors as their opinions and experiences influenced the perception of such engineering practices, and the development and application of building appropriate site based management knowledge. The research used a semi-structured interview conducted with the PMC managers/senior engineer's, who provided an appropriate element of context and flexibility and this was further aided by applying an inductive/theory building approach. Additionally, using Glaser's sampling processes, a total of 14 PMC managers/senior engineers were thus determined as the resultant sample frame which could also be considered convenience sampling according to Harrel and Fors; and meets the saturation requirements of Guest, Bunce and Johnson and thus takes the sample frame beyond an empirically expected level. Each interview was audio recorded for future analysis. Interviews were conducted in English and took approximately one hour. All interviews were conducted through Skype and recorded digitally after gaining explicit permission and was later transcribed verbatim using NVivo 12 (a qualitative software package) using the approach indicated by Bailey.

The structure of the outcome is greatly influenced by the emergence of the key-themes and sub-themes. The preferred strategy for the analysis of the primary data was to use the stated research question, which was used as a guide to providing the outcome (based on Yin). The research methodology used was considered a mixed methodology approach and was determined to create the best possible narrative of the situation in question. The application of the overall research methodology produces construct validity based upon the realism paradigm; and preferring to use the terms of credibility and dependability which are accepted by many qualitative researchers in place of reliability by applying Guba's constructs and leading to the Lincoln and Guba's notion of "progressive subjectivity".

Figure 1: Research Outcomes

IV. RESEARCH OUTCOMES

The outline of the research outcomes for this study is shown in Figure 1 above. The framework supported by appropriate literature, illustrated below in Table 1, consists of five (5) main themes, and fourteen (13) sub-themes. The outcomes are stated below where the discussion focuses on the sub- theme elements within each key theme. The discussion format used in this paper reflects the

respondent's voice through a streamlined and articulated approach for reporting. Thus, the style adopted for reporting and illustrating the data is greatly influenced by Gonzalez and also to a greater extent Daniels et al. And is discussed below, focusing on the raised research question and the resultant themes. Table 1, below illustrates the respondent references for each subtheme.

Table 1. Research question, themes and references

Research Question	Main Themes	Sub-Themes	No. Refs
What are the Sustainability Issues and Impacts at the Construction Project for the Contractor and how can these be mitigated?			
	Contractor Management Operating Strategies	Environmental Management Spending	22
		Dealing with contaminated water and land	17
		Failure of Contractor to act when pollution is revealed	19
		Contractor does not utilise a due diligence system	15
		Contractor does not observe environmental policy or EMS system requirements	12
	Client Management Strategies	Lack of will of the authorities to prevent water pollution	21
		Failure of Client to act when told about the issue	24
	Costs of Contractor Mismanagement of Pollution	Worker Based Issues	13
		Site Pollution Cleanup	11
	Management Responsibility	Lack of understanding of need to prevent water pollution	16
		Client Protection	13
	Pollution Issues	Variety of Types of Pollution	21
		Pollution Assessment	14

Table 1 above indicates the minimum responses for each identified sub-theme.

Table 2. Major themes and respondents

Major Themes	Respondent Number
Contractor Management Operating Strategies	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13
Client Management Strategies	3, 4, 6, 7, 9, 10, 12,
Costs of Contractor Mismanagement of Pollution	2, 5, 6, 7, 11, 13
Management Responsibility	1, 4, 6, 7, 9, 11
Pollution Issues	2, 3, 5, 6, 8, 10

Table 2above indicates the major themes and respondents

V. RESULTS

The results are presented below using the research question as a pointer and supportive empirical evidence through indicated extractions as in Gonzalez, (74). Consequently, considering the research question-What are the Sustainability Issues and Impacts at the Construction Project for the Contractor and how can these be mitigated? The results are stated as five (5) main themes, and thirteen (13) sub-themes as indicated below, where each sub-theme theme is placed with each corresponding main theme.

A. Main Theme – Contractor Management Operating Strategies

In order to acquire a picture of the status of the environmental issues at site in relation to this theme, management approaches to managing environmental problems appeared to lack appropriate legal, financial or practical implementation. Further, the focus for such issues is firmly located in the lack of Client understanding. In terms of Environmental Management Spending, this is typified by one respondent (3) who suggested that, I think that the Contractor should manage this problem better. They have the money, but they just won't spend it on the workers living accommodations and facilities

B. Main Theme – Client Management Strategies

The project appears to have persistent issues with water pollution and the Client's lack of will to act. This predisposes negative attitudes to industry best-practices and results in a project oriented to possible failure through an in-transient Client.

C. Main Theme – Costs of Contractor Mismanagement of Pollution

The Contractor appears to ignore their responsibilities for managing health and environmental issues at site. There is the perspective that adherence to ignoring pollution issues may attract international attention as the monies associated with its improper management resulting in worker illnesses and polluted camp and work site are being siphoned off unreasonably as profit.

D. Main Theme – Management Responsibility

This aspect appears to be flawed as the Contractor pursues a management strategy that keeps it firmly in contradiction with the Engineer's views on managing appropriately. Further, there would also appear to be issues rose relating to Client protection which suggests a corrosive relationship for any individual requiring financial transparency and environmental avocation.

E. Main Theme – Pollution Issues

Manu pollution issues appear prevalent at site and the Contractor does not appear to want to reduce its effects or at least document/assess the pollution through the application of appropriate environmental methodologies.

VI. RESULTS

In order to take this inquiry forward, the discussion concentrates on the raised question to help address the outcomes. The outcome illustrates the conceptual development and relationships perceived to correspond to the features informing sustainability management. A lack of management understanding may also be a result of insufficient scientific data regarding pollution and its management. Construction creates enhanced environmental risks, high levels of nonpoint sources and this need to be managed appropriately. Client protection may be a result of major stakeholder pressure and related to financing issues.

VII. CONCLUSION

The Contractor, the Client and the environmental overseeing entity has failed this construction sites requirement for sustainable development, which has also had a negative effect on worker and local health patterns. Building in a safe working environment has also been negatively impacted by the strategically negative intent of the Contractor and therefore the need to maintain sustainability through construction processes using environmental benchmarking tools such as LEED becomes a realistic educational necessity for Contractor management. Further elucidated problems of contractor management such as no base-lining of soil pollution levels before construction or during construction phases; lack of engagement in an EIA process; and the lack of interest in assessing and dealing with pollution problems at site must all be mitigated through a streamlined sustainability process focusing on generating appropriate environmental data in order to help diminish environmental impacts of the construction activity through appropriate strategic decision-making.

VIII. REFERENCES

[1] Hendrickson, C. T., and Horvath, A., 2000, "Resource use and environmental emissions of U.S. construction sectors, ".J. Constr. Eng. Manage., 126(1), pp. 38-44

[2] Rubin, E.S., and Davidson, C.T., 2001, Introduction to Engineering and Environment, McGraw-Hill, New York, US.

[3] Hardy, A., 2007, "Environmental Design of Buildings, " Ekistics, 23(136), pp. 181-187.

[4] Bossink, B.A., and Brouwers, H.J., 1996, "Construction Waste: Quantification and Source Evaluation, " Journal of Construction Engineering and Management, 122(1), pp. 55- 60.

[5] Shen L.Y., Lu W.S., Yao H., and Wu D.H., 2005, "A computer-based scoring method for measuring the environmental performance of construction activities, " Automation in Construction, 14(13), pp. 297-309

[6] Howard, N., 2000, Data for Sustainable Construction, Center for Sustainable Construction, CR258/99, BRE, UK

[7] Li, X., Zhu, Y., and Zhang, Z., 2010, "An LCAbased environmental impact assessment model for construction processes, " Building and Environment, 45(3), pp. 766-775.

[8] Poon C.S., Yu A.T., and Ng L.H., 2001, "On-site sorting of construction and demolition waste in Hong Kong, " Resource, Conservation and Recycling, 32(2), pp. 157-172.