الجامعة الإسلامية العالمية ماليزيا
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
يونيورسيتي إسلام انتارابغسا ملايسيا

A STUDY ON THE EFFECTIVENESS OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR HOUSING PROJECTS

BY

ROSLINDA BINTI ALI

A thesis submitted in fulfilment of the requirement for the degree of Masters of Science (Built Environment)

Kulliyyah of Architecture and Environmental Design
International Islamic University
Malaysia

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ABSTRACT

This study is carried out to accomplish the following objectives: 1) to review the history of EIA and its implementation in Malaysia; 2) to review the effectiveness of EIA system implemented in Malaysia and specifically in housing projects in Malaysia; 3) to identify environmental problems that arise from both housing projects with and without EIA; and 4) to measure the behaviour of residents nearby toward the arisen problems in both researched areas. To achieve all the above objectives, a comparison was made between housing projects with and without the EIA. A total of two hundred and thirty-one residents who stayed nearby both researched areas were selected as respondents to assist in this study. Data gathered from the survey were analyzed using the Chi Square Test of Independence and the Spearman's Rank Order Correlation (Spearman's Rho). From the results of the analysis, it can be concluded that EIA had been effective in minimizing/curbing adverse environmental effects. The results had shown that respondents from housing area without EIA were faced with more problems compared to respondents from housing area with EIA. Problems occurred in housing areas with EIA were temporary in nature and resolved by the time the construction phase ended. In contrast with housing areas without EIA where most of the problems faced by the respondents were permanent; whereby the problems that existed during construction, persisted even though the construction had ended. The results of the study also indicated that the non-working group faced more environmental problems compared to the working group as the non-working group spent most of their time at home, near the development areas. The results also revealed that the level of awareness of the public about the environment was still low despite of their educational background. Therefore, greater efforts should be made to generate awareness on environmental conservation issues to the public. Also, stricter regulation should be enforced whereby all housing developments must have an EIA study irrespective of the size of the development area that are likely to have potential negative impact, to ensure that the environment will not be exploited by any irresponsible parties. In general, this study has managed to prove that the EIA has been effective and would be a good planning tool to protect, conserve and preserve the environment.

ملخص البحث

أجريت هذه الدراسة لتحقيق الأهداف التالية: ١. مراجعة سجل نظام التأثير البيئي ومدى نجاعة تطبيقه في ماليزيا، ٢. مراجعة مدى فعالية هذا النظام وبخاصة في المشاريع الإسكانية، ٣. تحديد المشاكل البيئية الطارئة في المشاريع السكنية المتبعة لهذا النظام أو الخارجة عنه، ٤. تقييم سلوك القاطنين في البيئتين تجاه المشاكل البيئية الطارئة. ولتحقيق كل الأهداف السابقة الذكر أجريت مقارنة بين المشاريع الإسكانية التي تعتمد نظام تقييم التأثير البيئي والتي لا تتبع نفس النظام. ولقد تم اختيار ٢٣١ مقيماً في البيئتين للمساعدة في إجراء هذه الدراسة. لقد تم تحليل المعلومات التي جمعت من خلال الاستبيانات الموزعة باستعمال اختبار "Chi-Square"للاستقلالية، ومعامل ارتباط سبيرمان. ومن خلال تحليل النتائج تبين ما يلي: إن استعمال نظام تقييم التأثير البيئي ساعد في تقليل أو التخلّص من الآثار البيئية السلبية. ولقد أظهرت النتائج أن المقيمين في المناطق المتبعة لنظام التقييم البيئي أقل عرضة للمشاكل البيئية بخلاف سكان المنطقة الأخرى. كذلك فإن المشاكل التي يواجهها أصحاب المنطقة الخاضعة للنظام تكون مشاكلها آنية سرعان ما تختفي بانتهاء مدة إنجاز المشروع بخلاف المنطقة الأخرى، فإن المشاكل التي واجهتها الفئة القاطنة ا كانت دائمة، بل تفاقمت بعد الانتهاء من المشروع. كما تبين أيضا ارتفاع معدل تأثر العاطلين عن العمل المقيمين ذه المنطقة بسبب طول بقائهم ا بخلاف الأشخاص العاملين. وأظهرت الدارسة انخفاض مستوى الوعي بالمشاكل البيئية لدى الجمهور، بغض النظر عن مستواهم التعليمي، مما يستدعي بذل المزيد من الجهد لتحسيس المواطن ذه القضايا. كما يجب سن قوانين صارمة تجبر الجهات المكلفة بإنجاز المشاريع الإسكانية على اتباع نظام التقييم البيئي لمواجهة الآثار السلبية الناجمة عن مثل هذه المشاريع حتى لا تستغل البيئة استغلال سيئا من أي طرف كان. وعموما فإن هذه الدراسة بينت نجاعة استخدام نظام التقييم البيئي في حماية والحفاظ على البيئة.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Built Environment).

……
Mansor bin Ibrahim
Supervisor

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Built Environment).

……. …….....
Muhammad Abu Eusuf
Examiner

This thesis was submitted to the Kulliyyah of Architecture and Environmental Design and is accepted as a fulfilment of the requirements for the degree of Master of Science (Built Environment).

…….....
Maisarah binti Ali
Deputy Dean
Postgraduate and Research

This dissertation was submitted to the Kulliyyah of Architecture and Environmental Design and is accepted as fulfilment of the requirements for the degree of Master of Science (Built Environment).

……...
Mansor bin Ibrahim
Dean
Kulliyyah of Architecture and Environmental Design

DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Name:

Roslinda binti Ali

Signature ……. Date ……..

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DECLARATION OF COPYRIGHT AND AFFIRMATION OF FAIR USE OF UNPUBLISHED RESEARCH

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All praises due to Allah, for the strength He has given me to complete this research and produce this thesis. *Alhamdullilah,* after all the pains and hardship, I manage to overcome everything and produce this thesis within the time duration of my study.

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LIST OF ABBREVIATIONS

DBKL	Dewan Bandaraya Kuala Lumpur
DOE	Department Of Environment
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statements
EMP	Environmental Monitoring Plan
EQA	Environmental Quality Act
ES	Environmental Statements
MBJB	Majlis Bandaraya Johor Bahru
NEPA	National Environmental Policy Act
NGOs	Non Governmental Organizations
PMR	Penilailan Menengah Rendah
SPM	Sijil Pelajaran Malaysia
SPSS	Statistical Package for Social Sciences
SRP	Sijil Rendah Pelajaran
TARDA	Tana and Athi Rivers Development Authority
TOR	Terms Of Reference
USA	United States of America
3MP	Third Malaysia Plan
5MP	Fifth Malaysia Plan
6MP	Sixth Malaysia Plan
7MP	Seventh Malaysia Plan
8MP	Eighth Malaysia Plan

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

This study focuses on the effectiveness of Environmental Impact Assessment (EIA) for housing projects. This research was initially developed from researcher's personal interest in EIA. EIA is seen as a planning tool in helping to conserve the environment. Nonetheless, the effectiveness of EIA implementation is still in question. Although studies have been carried out locally and abroad regarding this, there is still no straight answer to the question of effectiveness of EIA. There are many conjectures in matters related to the EIA. Among them is whether the EIA system implemented worldwide has been effective; has the implementation of EIA served its purpose in helping to conserve the environment; and whether conducting an EIA study is now just a formality. The answers to these conjectures remain unresolved. For that reason, the researcher decided to study on the effectiveness of EIA particularly in housing projects. Housing was chosen as a study topic as it is an important element in human life. Housing is a basic need for humans; as shelter from the weather and wild animals. It is also as a place to relax, interact with family members and to perform religious obligations to God. Other than that, housing developments also constituted a considerable amount of investment to our national economy.

1.2 BACKGROUND OF RESEARCH

For the past thirty years, the EIA has developed rapidly in both developed and developing countries. These countries either practiced EIA formally, i.e. enforce EIA

through legislation or informally, i.e. no legislation made to enforce EIA (Abdullah, 2001). In some cases, the laws and administrative regulations establishing EIA seem to be working well, while in others, the laws are almost completely ignored. Some just do an EIA report in a perfunctory manner and only to meet requirement imposed on project proponents (Ortolano, 1993: 352).

An EIA is considered to be effective when environmental effects are taken into consideration by project decision makers in the course of planning (Ortolano, Jenkins & Abracosa, 1987). An effective EIA depends on the EIA system that is in place in a country. Although the concept of effective EIA is widely accepted, the term 'effective EIA' is too general to be useful in measuring effectiveness. Ortolano et al. (1987) has introduced a more practical definition. He measured EIA effectiveness in terms of five dimensions, as shown in Table 1.1, i.e. procedural compliance; completeness of EIA documents; method to assess impacts; influence on project decision; and weight given to environmental factors.

A study on the effectiveness of EIA for housing projects was carried out using two out of the five dimensions defining effective EIA. They are procedural compliance and completeness of the EIA documents (Table 1.1). It was also a comparative study between housing projects, with and without EIA, done in order to prove EIA as an important tool in preserving the environment.

Table 1.1

Dimensions in Defining 'EIA Effectiveness'

Procedural compliance	Did the EIA comply with applicable rules and regulations? For example, an EIA undertaken in accordance with the National Environmental Policy Act (NEPA) would not be in procedural compliance with the act if it failed to consider the environmental impacts of alternatives to the proposed projects. An examination of alternatives is required by both the act itself and the regulations promulgated to implement it (CEQ, 1986).

Table 1.1 - *Continued*

Completeness of EIA documents	The adequacy of an EIA depends, in part, on its completeness. It is neither necessary nor feasible for an EIA to elaborate on every conceivable impact that may accompany a proposed project. What is important is that significant impacts be considered. This is not an easy thing to judge, since what is significant depends on the context of a project. Hirji and Ortolano (1991) assessed completeness by measuring an EIA consistency with the scope of work issued in consultants' impact assessment contracts. Completeness could also be measured by analyzing the extent to which an EIA covered topics of concern to agencies and individuals affected by a proposed project. Such measurements could be made if the EIA process involved public and interagency review and a public record of the comments generated during the review existed.
Methods to access impact	In addition to completeness, the adequacy of an EIA also depends on the appropriateness of methods used to predict and evaluate impacts. This can only be appraised by experts in the disciplinary specialties germane to a particular EIA. Like completeness, it is difficult to gauge the adequacy of methods used because peer evaluations of impact assessments are not generally conducted. (For reference to evaluations of the technical and scientific quality of EIAs, see Culhane [1990: 694-695].) In some contexts, such as the EIA process set up by NEPA, the adequacy of an EIA has been defined by courts (e.g., Anderson, 1973: 207-223)
Influence on project decisions	The influence of an EIA on decision-making can be gauged using case studies. Many influences have been recorded. At one extreme, EIAs have led only to minor project modifications designed to mitigate (i.e., offset) adverse effects. This is common in assessments undertaken after a project has been designed in detail. At the other extreme, an EIA may lead to outright rejection of a proposed project, or it may play a significant role in determining a project's location or design.
Weight given to environmental factors	An effective EIA is one that places appropriate weight on environmental factors relative to the technical and economic factors that have traditionally governed project planning. The measurement problem here involves judging what weight is appropriate. In case studies conducted by Hirji and Ortolano (1991), it was not difficult to gauge appropriateness of weights because the cases involved extremes. Sometimes environment was given no weight at all, despite the existence of EIA. At other times, environmental factors played a dominant role in decision-making. In the federal EIA programme in the United States, courts have sometimes judged what constitutes appropriate weight. However, judges are often wary of ascribing weights and challenging the decisions (as opposed to the decision processes) of federal agencies proposing projects.

Source: Ortolano, L. (1993). p. 352-353

1.3 PROBLEM STATEMENT

Over the past years, Malaysia still experiences a tremendous pace of development. However, most development carried out in Malaysia especially housing projects are carried out without EIA reports. This can be perceived from housing estates dispersal in Kuala Lumpur in year 2000 taken from data gathered by Dewan Bandaraya Kuala Lumpur (DBKL). A total of two hundred and forty-two units of housing estates were

constructed in year 2000 but only twenty-seven units or 11.16% from the total practised EIA in their construction (Appendix A). The same scenario happened in Johor Bahru. In year 2000, a total of twenty-eight applications for housing development were submitted to Majlis Bandaraya Johor Bahru (MBJB) for 'Planning Approval'. Of the total, only four applications (14.29%) submitted have EIA reports. The rest were without EIA reports (Appendix B).

From interviews conducted by the researcher with the developers; three out of five developers preferred to develop a place without an EIA report. They are of the opinion that conducting an EIA study is a waste of time, money and not beneficial. The same situation can also be construed from a research done by Zainudin (1994). In his research, he conducted a survey on the effectiveness of EIA enforcement towards the related agencies e.g. Department of Environment (DOE) and quarries operators. The results indicated that 50% of the developers believed EIA is a burden to them. Hasmah (1993: 29) in her article *'EIA-Malaysia's viewpoint'* stated that many of the project proponents still perceived the EIA as a 'stumbling block' to development and carrying out an EIA study and the review process would delay project approval and implementation. Subsequently, rather than going through all the hassle, developers prefer the easier way, i.e. develop without the EIA.

Unfortunately, the developers fail to see EIA as a planning tool to help them to predict environmental impacts and in addition, to preserve the environment and from suffering a greater loss if any damage were to occur during construction work. There are many complaints reported in newspapers over the past years regarding development without a proper EIA or without an EIA at all. Many of the complaints were regarding factories and quarries. Residents of Bukit Rahman Putra in Sungai Buloh, Selangor had complained of the effects of air pollution caused by emissions

from a factory producing road tar products in Taman Perindustrian SB Jaya (Appendix C). In Jeram, Kuala Selangor, residents complained of offensive odour due to disposal of solid waste by an illegal factory near a residential area (Appendix D). Still on complaints on factories, a resident had reported to *Berita Harian* that a factory located near two schools in Meru, Klang, namely, Sekolah Menengah Kebangsaan Meru and Sekolah Kebangsaan Sungai Binjai had caused discomfort to the school members (Appendix E). Members from both schools suffered not only from the offensive odour and air pollution but the pollution also affected the administration of both schools. In Kuala Lumpur, an operating quarry producing mixed cement caused dust, noise and air pollution to the residents of Jalan Dutamas 3 (Appendix F). An article in *The Star* dated 21 September 2005 reported that three rivers in Negeri Sembilan were polluted due to rapid development near the rivers (Appendix G). The problem was aggravated when, garbage, including domestic and animal wastes was dumped into the rivers.

The problems mentioned above are those reported since early year 2005 regarding environmental pollution due to development done without proper EIA or without EIA at all. For all the reasons mentioned above, the researcher has decided to test the effectiveness of EIA through case studies on the housing sector.

1.4 RESEARCH OBJECTIVES

The aim of this research is to test the effectiveness of EIA through case studies on the housing sector. In order to achieve this aim, several objectives were formulated as follows: -

i. To review the history of EIA and its implementation in Malaysia;

ii. To review the effectiveness of EIA systems implemented in Malaysia and specifically in housing projects in Malaysia;
iii. To identify environmental problems that arise from both housing projects with and without EIA; and
iv. To measure the behaviour of residents nearby toward the arisen problems in both researched areas.

1.5 RESEARCH ASSUMPTION AND HYPOTHESES

Blaikie (2001: 58) stressed that decision on the appropriate methodology for a particular research starts with identification of the types of research questions. The identification of the research questions then leads to the establishment of the research objectives. Subsequently, the establishment of research objectives leads to the research assumptions. Eventually, the research assumptions are the factors that determine the most appropriate methodology for a particular research. In this section, the formulation of research assumptions and the hypotheses that will be used in this study are discussed.

Since the enforcement of EIA in 1985, the EIA procedure in Malaysia is seen as a tool that will improve environmental quality. Impacts that are likely to happen as a result from the proposed development were predicted and mitigation measures were taken to avoid these problems. This will directly or indirectly prevent environmental deteriorations. Jamaluddin (1993), in his study stressed that EIA is a process to prevent environmental deteriorations and to prevent greater loss from mistakes that happen in the course of planning and development of a project. A few assumptions were made before this research was carried out. The eventual analysis from this

research will act to verify the truth of these assumptions. The assumptions are as follows: -

i. Residents that stayed surrounding housing projects with EIA will have lesser environmental problems compared to those without EIA;
ii. Environmental problems that arise in housing projects with EIA are temporary compared to the ones without EIA; and
iii. Non-working respondents will face the problems more frequently than working respondents.

Two main hypotheses were developed to test these assumptions. The hypotheses will be tested using the Chi Square Test of Independence and the Spearman's Rank Order Correlation (Spearman's rho). The hypotheses are as follows: -

a. Chi Square Test of Independence

H_o: There is no difference in environmental problems faced by respondents according to their job status during and after construction in housing area with and without EIA.

b. Spearman's Rho Correlation

H_o: There is no relationship in health and environmental problems faced by respondents according to their job status during and after construction in housing area with and without EIA.

Further explanations on the methods used are discussed in Section 4.4 of Chapter Four and the analyses conducted are discussed further in Chapter Five.

1.6 SCOPE OF RESEARCH

This research was carried out in the State of Johor Darul Takzim, specifically in Johor Bahru and Segamat. Due to researcher's time constrain and limited budget, Johor was chosen as a project site as it was easier for the researcher to gather information needed for the research.

Secondly, housing projects with EIA were selected based on discussions between the researcher and the officer-in-charge at the DOE of Johor. As mentioned before, the EIA reports chosen for this study were based on procedural compliance and completeness of EIA documents. Procedural compliance here meant whether the project proponent had managed to comply with all the guidelines provided in producing an EIA report. On the other hand, completeness of EIA documents in this context referred to how precise the project proponent could predict significant impacts of a proposed project and ways of mitigating them. It was neither necessary nor feasible to elaborate every conceivable impact that may accompany a proposed project. What is more important is that significant impact is being considered (Ortolano et al, 1987: 352). Based on these two criteria and with the help of the DOE officer-in-charge of EIA in Johor, two EIA reports were selected for the purpose of this study. However, according to the officer-in-charge, all EIA reports that were approved were equally good and in compliance with 'A Handbook of EIA Guidelines' published by DOE.[1] If the report were not compatible with the guidelines provided, it would not have been approved in the first place.

Housing projects without EIA were selected based on similar criteria as housing projects with EIA. This is to ensure that comparison made later on is based on this similar background. All four researched areas were situated in low land areas

[1] Kamarudin Abdul Rahman, interview by author, Johor Bahru, Johor, 14 July 2004.