

IMPROVING ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS IN MALAYSIA

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Abstract

Environmental Impact Assessment (EIA) is a planning tool to identify, predict and evaluate potential environmental impacts and mitigation measures in the early stages of proposed projects. Although EIA has been implemented in Malaysia for over 25 years, the EIA practices have yet to achieve the parameters of effective environmental management and sustainable development. Hence, this research aims to improve the EIA process in Malaysia. Three objectives were utilised in this research which are to recognise the fundamentals of EIA process and procedures applied in Malaysia, to analyse the issues in relation to the EIA preparation and submission conducted in Malaysia and to propose a set of recommendations to further improve the current EIA process in Malaysia. Mixed methods approach was embarked composed of qualitative instruments via document review and semi-structured interviews and quantitative instrument utilising questionnaire survey. Key issues on the EIA process in Malaysia were gathered from qualitative data collected. Analysis of data collected resulted to recommendations on the key issues regarding EIA. 25 proposed recommendations to improve the EIA process were contextualised and validated via questionnaire survey. Ergo, this research established an improved EIA process in Malaysia towards sustainable development to ameliorate the EIA practices in Malaysia.

Keywords: Environmental impact assessment (EIA), Malaysian EIA process, mixed method research, qualitative research, quantitative research

Abstrak

Penilaian Kesan Alam Sekitar (EIA) telah menjadi alat utama untuk mengenalpasti, meramal dan menilai potensi kesan alam sekitar dan langkah-langkah mitigasi pada peringkat awal projek-projek yang dicadangkan. Walaupun EIA telah dilaksanakan di Malaysia lebih daripada 25 tahun, amalan EIA masih belum mencapai parameter pengurusan alam sekitar yang berkesan dan pembangunan mampan. Oleh itu, penyelidikan ini mempunyai matlamat untuk menghasilkan proses EIA yang telah dinaiktaraf di Malaysia. Terdapat tiga objektif iaitu untuk mengenalpasti asas-asas berkenaan proses dan prosedur EIA yang diguna pakai di Malaysia, untuk menganalisa isu-isu berkaitan dengan penyediaan dan penyerahan laporan EIA yang dijalankan di Malaysia dan untuk mencadangkan satu set cadangan untuk menaiktaraf proses EIA yang sedia ada di Malaysia. Pendekatan kaedah campuran telah digunakan yang mempunyai instrumen kualitatif menggunakan semakan dokumen dan temu bual separa berstruktur manakala instrumen kuantitatif telah menggunakan kajian soal selidik. Isu-isu utama dalam pengendalian proses EIA di Malaysia telah dikenalpasti melalui data kualitatif terkumpul. Analisa data yang telah dikumpulkan telah menghasilkan cadangan-cadangan bagi menyelesaikan isu-isu utama berkenaan proses EIA di Malaysia. Terdapat 25 cadangan untuk menaiktaraf proses EIA yang telah disahkan menggunakan kajian soal selidik. Oleh itu, penyelidikan ini telah menghasilkan sebuah proses EIA di Malaysia yang telah dinaiktaraf seiring dengan pembangunan mampan untuk memperbaiki penggunaan EIA di Malaysia.

Kata kunci: Penilaian kesan alam sekitar (EIA), proses EIA Malaysia, kajian kaedah campuran, penyelidikan kualitatif; penyelidikan kuantitatif

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1.0 INTRODUCTION

The environmental awareness in Malaysia has started in 1974 where the Environmental Quality Act (EQA) was enacted [1]. The Act is to prevent, minimize and regulate pollution level and also to intensify the environment in Malaysia [1]. Consequently, the Department of Environment Malaysia (DOE) was established in 1975 under the provisions of the EQA to manage environmental administration in Malaysia [2-3]. Nonetheless, Malaysia has yet to adopt any mandatory EIA legal system into new developments even with the existing EQA.

This, however, does not hinder the environmental assessments from being carried out voluntarily despite the non-enforcement of the mandatory EIA [4]. Evidently, a number of 34 EIA reports have been submitted to DOE voluntarily prior to the EIA legal system ranging from the year 1981 until 1985 [5]. In 1987, the Handbook of Environmental Impact Assessment Guidelines was published and a provision under the EQA, which is known as the Environmental Quality (Prescribed Activities) (EIA Order) has been gazetted in the same year [2]. The EIA order became mandatory and is fully effective to new developments that are classified under the prescribed activities from 1 April 1988 [3], [6-8].

2.0 PROBLEM STATEMENT

Following the footsteps of various developed countries, Malaysia began to adapt the EIA practice into the local legal regimes in 1974 [9]. Malaysia is one of the earliest countries that have adapted the EIA practice for four decades. Nonetheless, the practice of EIA in Malaysia and other developing countries are considered far behind in comparison to the developed countries [10-12]. Among numerous developed countries, four developed countries have significantly adapted effective EIA practice in their respective nations. Canada, Australia, New Zealand and the Netherlands have effectively implemented EIA due to the robust application of public participation, the meaningful consideration of alternatives and cumulative impacts proposed in the EIA reports submitted [13-14]. In comparison with the four countries, the level of effectiveness of the implementation of EIA in Malaysia is rather questionable.

Problems endured in regards of the EIA application are essential to be addressed and solved to ensure effective application of EIA. This research has managed to identify several issues that deter effective application of EIA in Malaysia. One of the prime obstacles endured by Malaysia is the public participation element in EIA [1-2], [6], [15-19]. Public participation is one of the key elements in EIA where public engagement takes place to determine the success of an EIA report [2], [20]. Even though public participation is incorporated into the formal provision of EIA in Malaysia, it has been found that the

effectiveness of public participation practices in Malaysia is arguable [13], [16], [20]. This is because public participation in Malaysia is mandatory to be conducted in Detailed EIA while it is encouraged to be conducted in Preliminary EIA. According to Briffet *et al.* [6] and Marzuki [7], high percentage of Preliminary EIA reports submitted were approved without any public participation. Developers often regard public participation as a nuisance due to the public engagement sessions to be conducted to fulfil the requirements of public participation. Moreover, public often assume that their opinions are meaningless. Public participation practices in Malaysia are often manipulated and often disregarded in decision-making stage [15-17].

On the other hand, another problem detected in EIA practice in Malaysia is the integration of cumulative impacts assessment in the EIA reports of proposed projects. It is vital for an EIA to address cumulative impacts for a proposed project as the multiple projects might not only pose minor risks to the their environment but pose significant risks to the surrounding environment in combination with other activities [6],[18]. The cumulative impacts are often neglected due to the fact that prediction of impact towards the sole environment of the proposed project is carried out to only satisfy the legal EIA requirement [11]. The level of effectiveness in the implementation of EIA in developing countries including Malaysia has yet to be upgraded to achieve the recognised international practice and environmental protection benefits of EIA application [11], [21]. Therefore, this research will recognise the fundamentals of the EIA process in Malaysia in comparison with effective implementation of EIAs in Canada, Western Australia and New Zealand.

In the year 1987, two achievements have been accomplished by the Government of Malaysia whereby the Handbook of Environmental Impact Assessment Guidelines was published and the Environmental Quality Order gazetted [2]. In this handbook, nineteen prescribed activities has been listed and any project that falls under any of these nineteen prescribed activities is required to perform an EIA report [6-7]. This requirement promotes a flaw that limits an EIA report to be required to only nineteen listed prescribed activities [7]. Any activity, that is not under the purview of the nineteen prescribed activities which have severe environmental impacts are neglected from preparing an EIA study [1], [6]. Under the nineteen prescribed activities, sizes of each development are spelled out which further limits the developments that require an EIA report [7]. The EIA requirement that emphasizes the size of development creates a major issue whereby the guidelines are being circumvented and abused by the developers [6], [22]. The developers avoid preparing an EIA report by submitting multiple mini projects under different subsidiaries companies [7], [22].

The EIA Guidelines published by the Department of Environment Malaysia is a general guideline to suit diverse industries in preparing an EIA report. Thus, this

promotes another weakness whereby the guideline is regarded to be too general [11], [23-24]. Other than that, three authors stated that there is lack of specific guidelines to assist the preparation of EIA reports for diverse industries [11], [23-24]. One general guideline has created various way of composing an EIA report in accordance to the type of development. Thus, resulted poor quality and inconsistency of EIA report submitted to the DOE [15]. In addition, the evaluation of the analyses made for the EIA report is often regarded as inconsistent, unsystematic and lack of scientific-based methods [18], [24]. Maintaining a high quality of EIA reports is one of the essential factors to ensure an effective implementation of EIA process in Malaysia [18]. Thus, this research will analyse the approved and rejected EIA reports submitted to the DOE to gather the success factors of an EIA report conducted in Malaysia.

The Malaysian community has overlooked the importance of the EIA as a planning tool for a better development. Many developers and industrialists in Malaysia have perceived EIA as a nuisance and a stumbling block for them to complete their developments on time [19], [25]. The general avoidance, lack of knowledge and flagrant abuse of the legislation have increasingly demoting the credibility of the EIA [3], [26]. These are evidences from the ineffective EIA process in Malaysia. Even though the local EIA process has been established since 1980's, the robustness of the impact towards the local progress in sustainable development is yet to be established. The knowledge, exposure and interest on the topic of EIA are relatively low especially to the industry players and also to the local community [7], [25]. The democratic principles of the EIA and the social agenda of the environment protection among the Asian countries have been relatively low in comparison to the US or the UK [7], [24]. Thus, this research will investigate the barriers to further improve the current EIA process implemented in Malaysia thus propose recommendations to improve the EIA process in Malaysia.

3.0 AIM AND OBJECTIVES

This research aims to improve the EIA process in Malaysia. The objectives of this research are;

1. To recognise the fundamentals of EIA process and procedures applied in Malaysia,
2. To analyse the issues in relation to the EIA preparation and submission conducted in Malaysia, and
3. To propose a set of recommendations to improve the current EIA process in Malaysia.

4.0 MALAYSIAN EIA SYSTEM

The Department of Environment (DOE) only authorizes registered EIA consultants to prepare the EIA reports [9], [27]. To note, there are two types of EIA reports in the Malaysian EIA process, which are the Preliminary EIA and the Detailed EIA [23-24]. Only one of the two is to be prepared and submitted to the DOE. The EIA consultants are required to adhere to the mandatory steps (Figure 1), regardless of the size and types of the projects, when preparing and submitting the reports.

The Environment Impact Assessment Order 1987, which is a provision gazetted by the Malaysian Government has produced a guideline, 'Handbook of Environmental Impact Assessment Guidelines'. This guideline steers and act to screen whether the proposed project can be identified as 'prescribed activity' before they undergo the Malaysian EIA process [13], [23], [27]. Projects of nineteen categories that are prescribed such as agriculture, industry, infrastructure, quarries and railways are identified as a 'prescribed activity'.

As the 'prescribed activity' is identified, the EIA consultants begin the Preliminary Site Assessment, which is more known as 'Penilaian Awal Tapak' (PAT) [13], [28]. The main aim of PAT is to assess the suitability of a proposed site for the EIA project before the submission of the EIA report to the DOE.

Both Preliminary EIA and Detailed EIA entail similar components of an EIA report which are the analysis of potential environment threats, determination of suitable project options and mitigation measures to reduce the adverse impacts of proposed project towards the surrounding environment [13], [23]. Nonetheless, both EIA reports hold different depths of reports and are applicable to different types of projects based of the lists of prescribed activities.

Currently, the DOE has created two periods of client charter for Preliminary EIA which are the three weeks and five weeks client charter [29-30]. According to Notice No.4 published by the DOE, the client charter refers to the time taken for the DOE to review an EIA report submitted to the DOE [29]. The differences between the three and the five weeks client charter are that the three weeks client charter is only applicable to certain types of prescribed activities entailed in Notice No.8 by the DOE. The three weeks client charter utilises an EIA checklist provided by the DOE and does not have to go through the One Stop Agency (OSA) meeting [30].

On the contrary, there are additional steps required in the preparation and submission process for the Detailed EIA as presented in Figure 1. There are two additional steps required in a Detailed EIA which are a Term of Reference (TOR) has to be submitted prior to the submission of the Detailed EIA and the EIA report will be displayed for public views and comments [2], [13]. Furthermore, the display of the Detailed EIA allows the public to include their insights and comments on the proposed development and these public inputs will be inserted in the EIA report [2], [13]. Figure 1 illustrates the process of EIA in Malaysia.

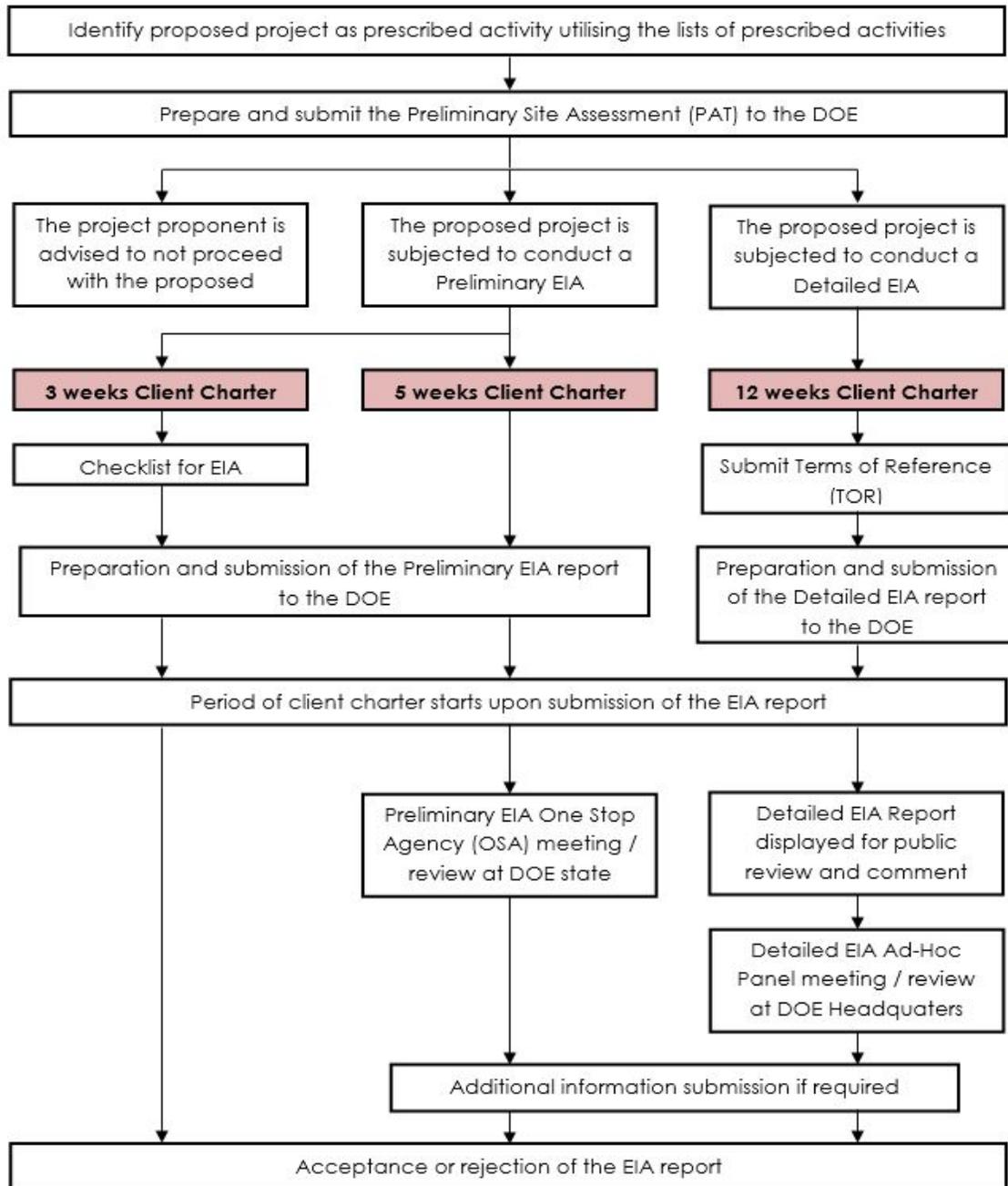


Figure 1 The flowchart of the Malaysian EIA Process. Adapted from [27], [28-30]

5.0 RESEARCH METHODOLOGY

This research focused on two types of the most common physical developments in Selangor. First were the residential projects and second the combination of residential-commercial projects. Thirty nine percent of the total developments in the state were residential and residential-commercial constructions (Local Authorities and Selangor Town and Country Planning Development, 2014).

In the data gathering, the present research employed a combination of qualitative and quantitative research techniques that were conducted in nine stages (Figure 2). A preliminary research was conducted with a preliminary interview with the Department of Environment Malaysia (DOE). The interview was to investigate and verify the problems that hinder the implementation of Environmental Impact Assessment (EIA) in Malaysia. The DOE is the main body that assess and produce final result of each EIA reports submitted to them.

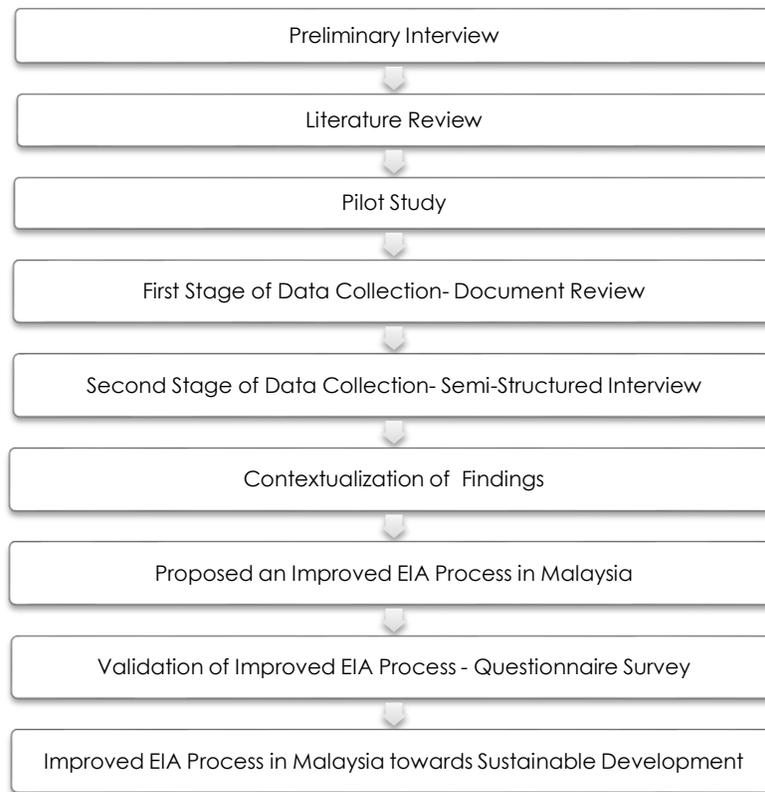


Figure 2 Research Methodology

The preliminary interview provided a basis for the literature review of this research. The literature review was then carried out to explore the essence of Environmental Impact Assessment (EIA) and its application in Malaysia. After the literature review, a pilot study was conducted to ensure the reliability of the research instrument for the second stage data collection.

The data collection was conducted in two stages where the first was document review and second in-depth semi-structured interview. The documents reviewed were the Preliminary EIA reports as they were able to give a greater impression on the overall process of EIA submission than the DEIA reports. The 2007 until 2013 Preliminary EIA reports were selected as the fourth edition of the EIA Handbook of Guidelines, which is the latest edition, published in 2007. Moreover, the Preliminary EIAs were reviewed as they

were produced by the EIA consultants for projects resided in the state of Selangor, Malaysia.

Table 1, Table 2 and Table 3 explain the reasoning behind the review of Preliminary EIA reports for residential projects that resided in the state of Selangor, Malaysia. Table 1 shows that more projects were being developed around the peninsular Malaysia that requires the Preliminary EIA rather than the Detailed EIA. The percentage represented for the approved and rejected reports for the PEIA are 68% and 32% while for DEIA are 75% and 25% respectively. It is apparent that the PEIA facing a greater problem judging from the lower approval rate and a higher rejection rate to be compared to the DEIA. Conclusively, the focus on PEIA draws a greater significance to this research towards the EIA submission process in Malaysia.

Table 1 Total number of Preliminary EIA and Detailed EIA reports approved and rejected by the DOE in the peninsular Malaysia (2007- 2013)

Type of reports	Preliminary EIA (PEIA)	Detailed EIA (DEIA)
Approved reports	1096	66
Rejected reports	520	22
Total	1616	88

Table 2 Approved and rejected Preliminary EIA reports (2007 – 2013)

State / Average	Approved PEIA	Rejected PEIA
Johor	30	17
Kedah	9	7
Kelantan	20	3
Melaka	8	1
Negeri Sembilan	7	2
Pahang	18	7
Pulau Pinang	19	9
Perak	12	8
Perlis	1	0
Selangor	21	10
Terengganu	9	3
WP Kuala Lumpur	1	0
WP Putrajaya	0	0

Table 2 represents the average number of approved and rejected PEIA in the states of peninsular Malaysia retrieved from the official website of Department of Environment Malaysia. From Table 2, it can be concluded that both Johor and Selangor have the two highest numbers of approved and rejected Preliminary EIA reports submitted to the DOE. From the two choices of states, the researcher has decided to select Selangor as the state of choice to conduct due

to the fact that Selangor has the highest population distribution among the states in Malaysia according to the Distribution Report of Population and Demographic Characteristics of 2010. This is shown by Table 3. The researcher believed that with the highest population, Selangor promotes a greater impact of projects towards the surrounding community and environment.

Table 3 Population distribution by state, Malaysia

State	WP Putrajaya	Perlis	Melaka	Negeri Sembilan	Terengganu	Pahang	Kelantan	Pulau Pinang	WP Kuala Lumpur	Kedah	Perak	Johor	Selangor
Population distribution	0.07	0.23	0.82	1.02	1.04	1.50	1.54	1.56	1.67	1.95	2.35	3.35	5.46

Eleven Preliminary EIA reports were collected and reviewed systematically utilising the Handbook of Environmental Impact Assessment Guidelines (fourth edition) 2007. The Preliminary EIA reports were analysed utilising a review checklist that were extracted from the Handbook of Environmental Impact Assessment Guidelines 2007. The data collected in this first stage were compiled and synthesised to contribute to the preparation of interview questions for the second stage qualitative research.

The second qualitative data collection method which represents the main data collection tool used in this research was the semi-structured interview. Interview is one of the most common applied data collection methods in a qualitative study [31]. Qualitative interview is suitable for researchers that aim

for an in-depth understanding of a particular research area and to document it correctly by verifying certain matters with the thoughts and opinions by the research subjects [32-34].

The analysis retrieved from the document review provided inputs that were incorporated in the interview questions for the semi-structured interviews. The researcher interviewed EIA consultants who were registered with the Department of Environment Malaysia (DOE) which were hired by the project proponent to prepare and submit the EIA reports to the DOE. Invitations for participation in the semi-structured interviews were sent out to all 300 registered EIA consultants via email. Out of 300 respondents, only 25 EIA consultants agreed to participate in the interview sessions.

Following the qualitative data collections, the quantitative element of the research was incorporated in the validation stage via questionnaire survey. The validation stage was performed by utilising a questionnaire survey conducted on 25 respondents. The questionnaire contained 25 proposed recommendations to improve the EIA process produced by this research. The questionnaire survey used a five-point Likert scale to evaluate the practicality of the proposed recommendations to improve the EIA process in the current field of environmental assessment in Malaysia. The survey form was distributed to the same group of respondents in the qualitative data collection, i.e. the 25 registered EIA consultants via email.

6.0 FINDINGS AND DISCUSSION

The researcher was able to collect five PEIA reports in 2007, one PEIA report in 2008, two PEIA reports in 2009 and three PEIA reports in 2010. The total of six PEIA reports from the year 2008 until 2010 comprises of mixed development projects while five PEIA reports from the year 2007 comprises of three residential projects and two mixed development projects. The Preliminary EIA reports were analysed by employing the review checklist and this analysis has shown that all eleven Preliminary EIA reports have incorporated the 20 criteria in the review checklist in each report. This is due to the fact that all eleven PEIA reports chosen were approved EIA reports. Conclusively, one of the factors of an EIA report being approved by the DOE is an EIA report must consists of every item listed under the EIA guidelines that are published by the DOE. Although the document review conducted was only limited to accepted PEIA reports, further analysis on

factors that contribute to a rejected or accepted EIA report was extended in the interview stage.

The second stage of data collection represents the prime data for this research that was retrieved via semi-structured interviews. The semi-structured interviews were held in a period of a month and have utilised a digital voice recorder and written notes for the purpose of data analyses. Apart from the semi-structured interviews, the researcher has attended a workshop seminar and four focus group discussions that were held by the DOE for additional data collection. Verbatim data was recorded and interview transcripts were returned to the respondents for finalisation. The analyses of qualitative data were performed using Microsoft Excel 2007 for structured data and qualitative software (Nvivo10) for unstructured data.

In the first stage of data collection, the researcher has conducted a document review on eleven approved Preliminary EIA reports to analyse the factors that contributed to the approval of EIA reports upon submission to the DOE. Nevertheless, the document review did not provide much result as expected by the researcher. Therefore, the researcher queried the group of respondents to explain on the factors that need to be incorporated in the EIA study to ensure approval and successful EIA report. Table 4 summarises the twelve factors that can be summarised pertaining to the approval of the Preliminary EIA reports. On contrary to the approved Preliminary EIA reports, half of the respondents have elaborated on their experience of having their Preliminary EIA submission being rejected by the DOE. Elaborations and explanations as to why the EIA reports were rejected by the DOE were given and itemised. Table 5 below summarises the factors that may lead to a rejection of the submitted Preliminary EIA report in Malaysia.

Table 4 Factors of approved Preliminary EIA submission

Factors of approved Preliminary EIA submission	Frequency (N)	Percentage (%)
The EIA reports follow the guidelines, requirements and standards given by the DOE	13	19.4
The EIA reports highlights the issues, residual impact and mitigation measures that are to be implemented by the project proponent	10	14.9
Addressing land or site related issues of the proposed development	8	11.9
Include sufficient information related to the project such as the aim or purpose of the project, the project description and the project concept	7	10.4
Maintaining the credibility and professionalism of the consultant in conducting their job as an environmental consultants	7	10.4
Aside from being professional, the consultants have to possess the appropriate level of expertise and the skills of an environmental consultant	6	9.0
Highlight the environmental standing of the project such as the list of impacted stakeholders, the impacts to the environment, stakeholders and surrounding and also the mitigation measures to reduce the impacts	5	7.5
Prior consultation with the DOE and related officers	5	7.5
Acknowledging comments and conduct appropriate amendments in accordance to the comments in the OSA meeting	2	3.0
Proper commitment from the project proponent to comply with the mitigation measures and requirement given by the DOE	2	3.0

Factors of approved Preliminary EIA submission	Frequency (N)	Percentage (%)
Suitable and qualified team members are vital in order to produce a high quality of EIA report	1	1.5
Consultants need to convince the review panel by providing appropriate justification during the OSA meeting	1	1.5
TOTAL	67	100

Table 5 Factors of rejected Preliminary EIA submission

Factors of rejected Preliminary EIA submission	Frequency (N)	Percentage (%)
Vital information in regards of the projects is missing in the report, especially for sensitive projects	11	22.0
Display of inaccurate information, wrong calculations and wrong use of system and methods are included in the report	7	14.0
Due to site suitability and site related issues	6	12.0
The report consists of high rate of plagiarism	3	6.0
Comprise of uncertainties in regards to the project	3	6.0
The consultants do not practice professionalism and maintain their credibility as trustworthy consultants and suffered from a 'paymaster syndrome' whereby they would neglect their duty as an environmental consultant and would just follow the client's wants mainly because the clients are paying them to prepare the report	3	6.0
The consultants do not own the skill or expertise in certain fields that they are not familiar with	3	6.0
Lack of commitment from the project proponent or client in supplying relevant information to the consultants	3	6.0
Irrelevant issues that are not needed in the EIA report	2	4.0
No prior engagement with the DOE and related government agencies	2	4.0
The project is categorised as a high risk project and does not have a significant contribution to the development	2	4.0
The consultant failed to conduct proper baseline studies for certain proposed developments	1	2.0
The EIA team consist of unqualified team members	1	2.0
EIA report containing the prohibited waste recycling method	1	2.0
The report does not represent the analyses of the every phase of a multiple phases project	1	2.0
Failure to submit the addendum within the time given	1	2.0
TOTAL	50	100

From the semi-structured interviews, there are 24 issues that have been identified in regards to the current EIA process implemented in Malaysia. The issues addressed by both respondents and the participants in the workshop and focus groups comprised of the issues related to the project proponent, the DOE officers and government

agencies, deficiency of capacity building in DOE, the EIA requirements, the Preliminary Site Assessment (PAT), public participation, the quality of EIA report, the EIA consultants and also additional issues on the practice of EIA in Malaysia. Table 6 summarises the issues addressed on the current EIA process in Malaysia in accordance of its frequency and percentage.

Table 6 Issues on the existing EIA Process in Malaysia

Issues on the existing EIA process in Malaysia	Frequency	Percentage	Workshop
Lack of coordination between the DOE personnel and the DOE with the government agencies	9	14.5	✓
Public participation in Malaysia is relatively low and often serves as a formality	8	12.9	✓
DOE officers mostly generalists rather than specialists and the deficiency of capacity building in DOE	7	11.3	✓

Issues on the existing EIA process in Malaysia	Frequency	Percentage	Workshop
The public needs to be educated in terms of the importance of public participation	6	9.7	✓
Project proponents split their developments of more than the required land size to smaller sized developments to prevent them from preparing the EIA	5	8.1	✓
EIA requirement on certain land sizes to conduct an EIA report need to be revised	5	8.1	✓
Existing guidelines provided are too general and the checklists given are outdated	4	6.5	
Project proponents are mostly unaware of the importance and the rationale of implementing an EIA study	3	4.8	✓
Inexperienced PAT officers evaluating the PAT forms	2	3.2	
Critical problems in regards to existing policies that often lead to problems in the project level	2	3.2	
Standard of fee payments for the consultants	2	3.2	
Low knowledge on the scope of EIA by the officers in the government agencies	1	1.6	
The DOE needs to produce more standards for EIA studies at a more advanced level	1	1.6	
Lack of financial commitments from the Government	1	1.6	
Lack of specialists among the consultants	1	1.6	
Quantum of the qualifications for the consultants registration scheme emphasizes on the years of experiences instead of the amount of EIA prepared	1	1.6	
No registration scheme for the environmental consultancies companies	1	1.6	
Geo hazards study is missing from preparation of the Preliminary EIA report	1	1.6	
Lack of macro EIA implementation to ensure cumulative impact is analysed in an EIA study	1	1.6	✓
Lack of commitment from DOE in notifying the consultants on changes that are made to the current EIA process	1	1.6	
Late appointment of the environmental consultant			✓
PAT requirements for certain activities are impossible to meet			✓
Low quality of EIA report due to the scope of analysis being too narrow or incomplete and poor report writing skills			✓
The consultants are facing the 'paymaster syndrome'			✓
TOTAL	62	100	12

In consequence to the issues pertaining to the current EIA process, recommendations to improve the EIA process were discussed by the respondents, and also by the participants in the workshop and focus groups. Abundance of recommendations were given

and debated by both groups in relation to the EIA process and these recommendations are analysed collectively by the researcher. The recommendations given were compiled and presented in Table 7.

Table 7 Recommendations on the existing EIA process in Malaysia

Recommendations on the existing EIA process in Malaysia	Frequency	Percentage	Workshop
Targeted awareness campaign on the importance of EIA for the project proponents and related authorities	5	14.7	✓
Awareness programmes to educate the public on the EIA study and environmental protection	5	14.7	✓
Checklists, standard requirements, rating systems and specific guidelines on the preparation of the EIA report to be updated and published by the DOE	5	14.7	✓
Establishment of a professional body for the environmental professionals to improve the professionalism and the quality control	4	11.8	✓
Install the use of master or macro EIA	4	11.8	✓
The requirement of the eligibility for the registration scheme is to be based on the experience in the preparation of the EIA rather than the experience in the environmental field	2	5.9	✓

Recommendations on the existing EIA process in Malaysia	Frequency	Percentage	Workshop
Ensure uniform application of the procedures of EIA conducted by the DOE across all states in Malaysia	2	5.9	✓
Registration scheme for registration of environmental consultations companies	1	2.9	
'Friends of the Environment' programme needs to be publicised to improve public awareness towards the environmental protection specifically on the EIA process	1	2.9	✓
Clear definition of the size or quantum of the development projects to be provided and the requirement does not solely based on the size but also to the impacts imposed to the environment	1	2.9	✓
PAT to be a legal requirement before submission of the EIA report	1	2.9	✓
Format of the EIA report to be revised and simplified to provide a further understanding	1	2.9	✓
Produce special software for the preparation of the EIA report	1	2.9	✓
Financial assistance from the government on allocation for the environmental protection costs in local contract documents	1	2.9	
Establishment of procedures and criteria for delisting or penalising the EIA consultants for unethical conduct or incompetence			✓
Increase the number of personnel in DOE and training of the DOE officers			✓
Encourage the development of expertise among the DOE's staffs by developing a scheme that allows the DOE officers to choose their interested specialised subjects			✓
Conducting annual environmental conferences or seminars			✓
DOE would allow alternative evidences for activities that are not mapped in the local plan such as quarries and mining			✓
To include the scoping element into PAT to assist in the decision-making process by the DOE			✓
Conduct pre-consultations with the DOE on the scoping before conducting the preparation of the EIA report			
EIA report is to be more reader friendly where the executive summary should be non-technical and related requirements need to be incorporated where relevant			✓
Proper guideline for stakeholders' engagement to ensure better engagement process to be carried out by the project proponent and the consultants			✓
Allow a variety of reliable methods or medium for advertisement to encourage public participation, evidences on the engagements are to be included and submitted to the DOE			✓
Public engagements to be carried out at the project planning stage of a proposed development			✓
Environmental aspects and criteria to be incorporated into the structure plans or local plans			✓
The effort to incorporate environmental aspects in the training of engineering design should be suggested to the Board of Engineers of Malaysia to further induce the environmental influence in local engineering designs			✓
TOTAL	34	100	24

A validation process was held utilising a questionnaire survey to validate 25 proposed recommendations to further improve the EIA process in Malaysia. A five-point Likert scale was used in the questionnaire survey to determine the practicality of the 25 proposed recommendations. The mean of each proposed recommendations are calculated and shown by Table 8.

According to Table 8, three proposed recommendations are verified as very important recommendations to further ameliorate the current EIA process implemented in Malaysia. Moreover, the verifiers have agreed that there are eighteen

proposed recommendations that are regarded as important which have the average mean of 2.00. Referring to Table 8, four other proposed recommendations were verified as moderately important in the effort to further improve the current EIA process in Malaysia. Conclusively, the twelve verifiers have validated that the 25 proposed recommendations are relatively important to improve the current EIA process in Malaysia. Therefore, it is essential to incorporate the proposed recommendations in the current EIA practice to elevate the effectiveness of the EIA implementation in Malaysia.

Table 8 Proposed recommendations to improve the EIA process in Malaysia

Proposed recommendations to improve the EIA process in Malaysia	1	2	3	4	5	Total	Mean
	Very Important	Important	Moderate Importance	Minor Importance	Not Important		
Revision on the EIA requirement	10	2	0	0	0	12	1.17
Improve communications and standardise the application of EIA procedures	8	4	0	0	0	12	1.33
Establish a professional body for the environmental consultants	8	4	0	0	0	12	1.33
Update the existing EIA guidelines and checklist	8	3	0	1	0	12	1.50
Increase the capacity and training of DOE officers	6	6	0	0	0	12	1.50
Establish a delisting and penalising system for EIA consultants	5	7	0	0	0	12	1.58
Conduct public engagement at the planning stage	6	4	2	0	0	12	1.67
Develop a scheme to promote specialization among the DOE officers	3	9	0	0	0	12	1.75
Set standard requirements and standard rating system for EIA	4	7	0	1	0	12	1.83
Allow reliable methods to advertise and conduct the public engagement	4	6	2	0	0	12	1.83
Publications of specific EIA guidelines	5	5	1	0	1	12	1.92
Organize targeted awareness campaigns on importance of EIA	4	5	3	0	0	12	1.92
Organize awareness campaigns on environmental protection to the public	5	4	2	1	0	12	1.92
Incorporate cumulative environmental impact analysis in EIA studies	2	9	1	0	0	12	1.92
PAT as a legal requirement	1	10	1	0	0	12	2.00
Produce proper guidelines to ensure better public engagement process	4	5	2	1	0	12	2.00
Advertise and publicised the 'Friends of the Environment' programme	4	5	2	1	0	12	2.00
Incorporate scoping element into the PAT submission	4	5	1	2	0	12	2.08
Allow alternative evidences for PAT submission	1	8	3	0	0	12	2.17
Organize awareness campaigns to further improve the level of participation	3	5	3	1	0	12	2.17
Revise and simplify the format of the EIA report to be more reader-friendly	2	5	3	2	0	12	2.42
Organize more annual environmental conferences and seminars	2	4	4	2	0	12	2.50
Revise the requirement for EIA consultants registrations	2	6	1	2	1	12	2.50
Establish registration scheme for environmental consultancy companies	1	4	2	5	0	12	2.92
Produce special software to standardise the format of EIA reports	0	5	2	4	1	12	3.08

Consequently, a step of contextualization of the qualitative findings was conducted. As a result, proposed recommendations for improving the EIA process was produced from the study. The proposed recommendations to improve the existing EIA process in Malaysia were then validated through a validation process via a questionnaire survey. Finally, an improved EIA process in Malaysia is established.

7.0 CONCLUSION

The establishment of the improved EIA process was drawn from the analyses of the two stages of data collection comprising of the document reviews and the semi-structured interviews. The results from the

data analyses have formed a basis for establishing an improved EIA process in Malaysia. Figure 3 and Figure 4 illustrate the proposed recommendation towards the current EIA process which were incorporated into the EIA process and also the EIA enablers.

It can be concluded that the establishment of the improved EIA process is caused by poor utilisation of the EIA as a planning tool, problems with the current EIA process on the preparation, submission and approval procedures and lack of support and awareness from various stakeholders and government agencies on the implementation of EIA in Malaysia. The improved EIA process is established after considering the issues on the current EIA process and the recommendations given to further ameliorate the implementation of EIA in Malaysia. As a result, EIA

process enablers were formulated to support the overall EIA process to ensure effective implementation of the proposed improved EIA process.

The establishment of the improved EIA process resulted to an extension of the EIA process enablers that encompasses the summary and the recommendations retrieved from the qualitative data analyses. As illustrated in Figure 3, the improved EIA process suggested that the PAT stage to be imposed the non-prescribed activities to ensure no proposed projects to be conducted on sensitive sites. Furthermore, the improved EIA process included six EIA process enablers to be enhanced in order to further improve the effectiveness of the EIA process implemented in Malaysia. The six enablers include the EIA requirements and EIA guidelines, public participation, awareness on EIA, human resource, EIA consultants' registration scheme and EIA report preparations as shown in Figure 4.

A revision on the EIA requirement and an addition to the EIA guidelines are the initial steps to be taken to further improve the effectiveness of the EIA implementation in Malaysia. Next, the PAT stage needs to be enforced legally to ensure any future activities, either prescribed activities or non-prescribed activities are screen before the preparation of EIA reports. Adapting from New Zealand and Canada, the public participation level in Malaysia are to be intensified by conducting it at an earlier stage of a proposed development, producing better guidelines on public engagement, organizing awareness campaigns and utilising social media to administer the engagements. Apart from that, awareness on the importance of EIA for the public and project proponents is crucial to enhance the effectiveness of EIA implementation in Malaysia. Exposure on the rationale of conducting an EIA is essential to ensure good quality EIA study to be

conducted by the EIA consultants on behalf of the project proponents.

Moreover, promoting the 'Friends of the Environment' programme to induce environmental awareness on environmental protection and EIA among the local communities. On the contrary, the human resources of the EIA consultants, the DOE officers and the government agencies play a salient role in ensuring effective implementation of the EIA process. The coordination between DOE with government agencies and among the DOE's internal officers are equally important to produce a well administered EIA process. Furthermore, the number of staffs and specialists among the DOE officers are to be added for the betterment of the DOE as an authority figure. Meanwhile, a professional body is recommended to be established to ensure the level of professionalism and the quality control of the environmental consultants in conducting their jobs. As a result, the professional body acts as an entity that will assist in ensuring a good quality of EIA reports being produced by the EIA consultants.

Additionally, recommendations to improve the requirement for the DOE's consultants' registration scheme and to extend the registration scheme to registration of environmental consultancy companies were included. Lastly, suggestions on the quality of EIA preparation were highlighted which involves incorporation of cumulative analysis into the current environmental analyses in an EIA report and to standardise and simplify the format of EIA report produce. All of the recommendations given to the EIA process and the EIA enablers are to be incorporated to further ameliorate the current EIA process implemented in Malaysia.

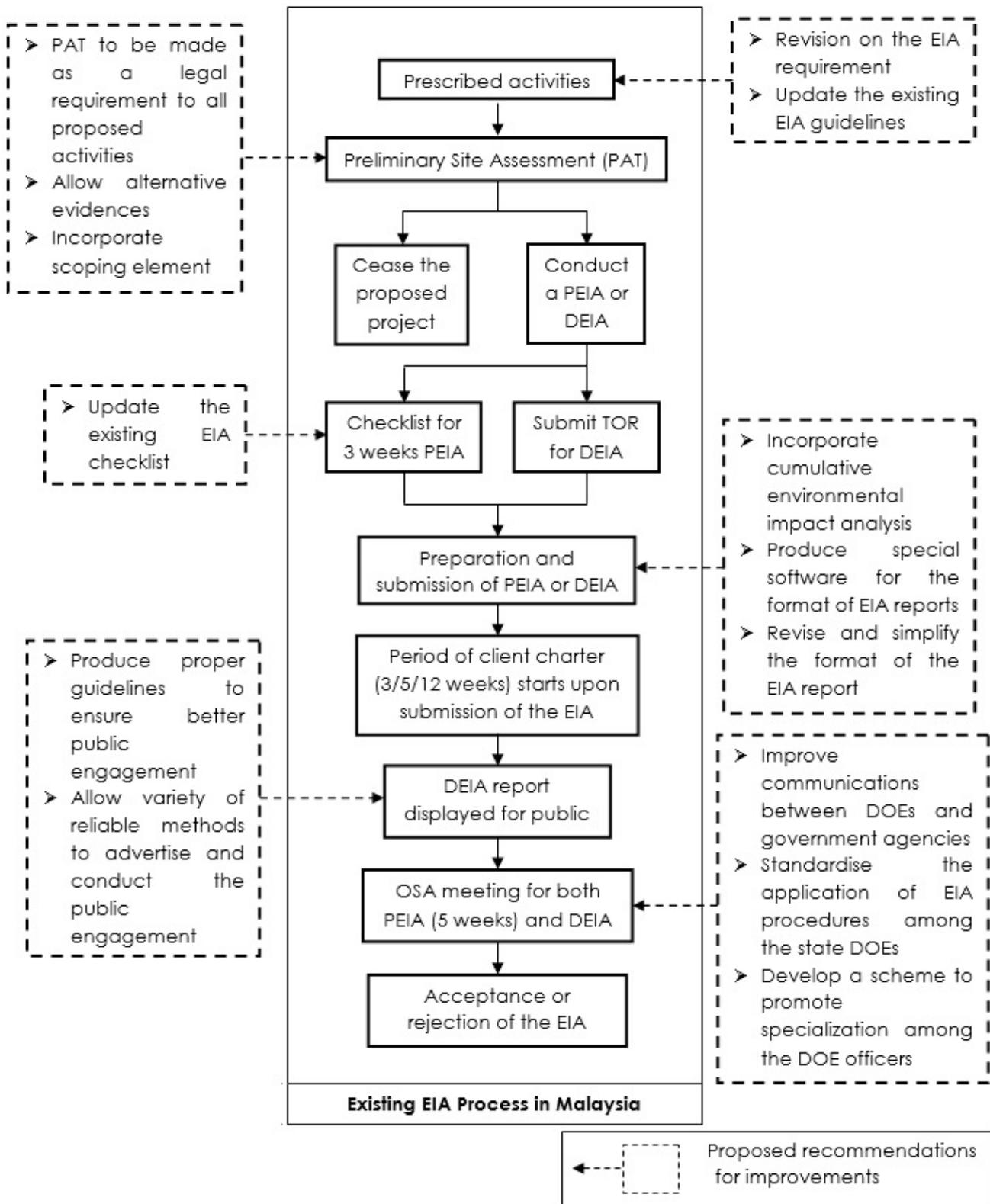


Figure 3 An improved EIA process in Malaysia towards sustainable development

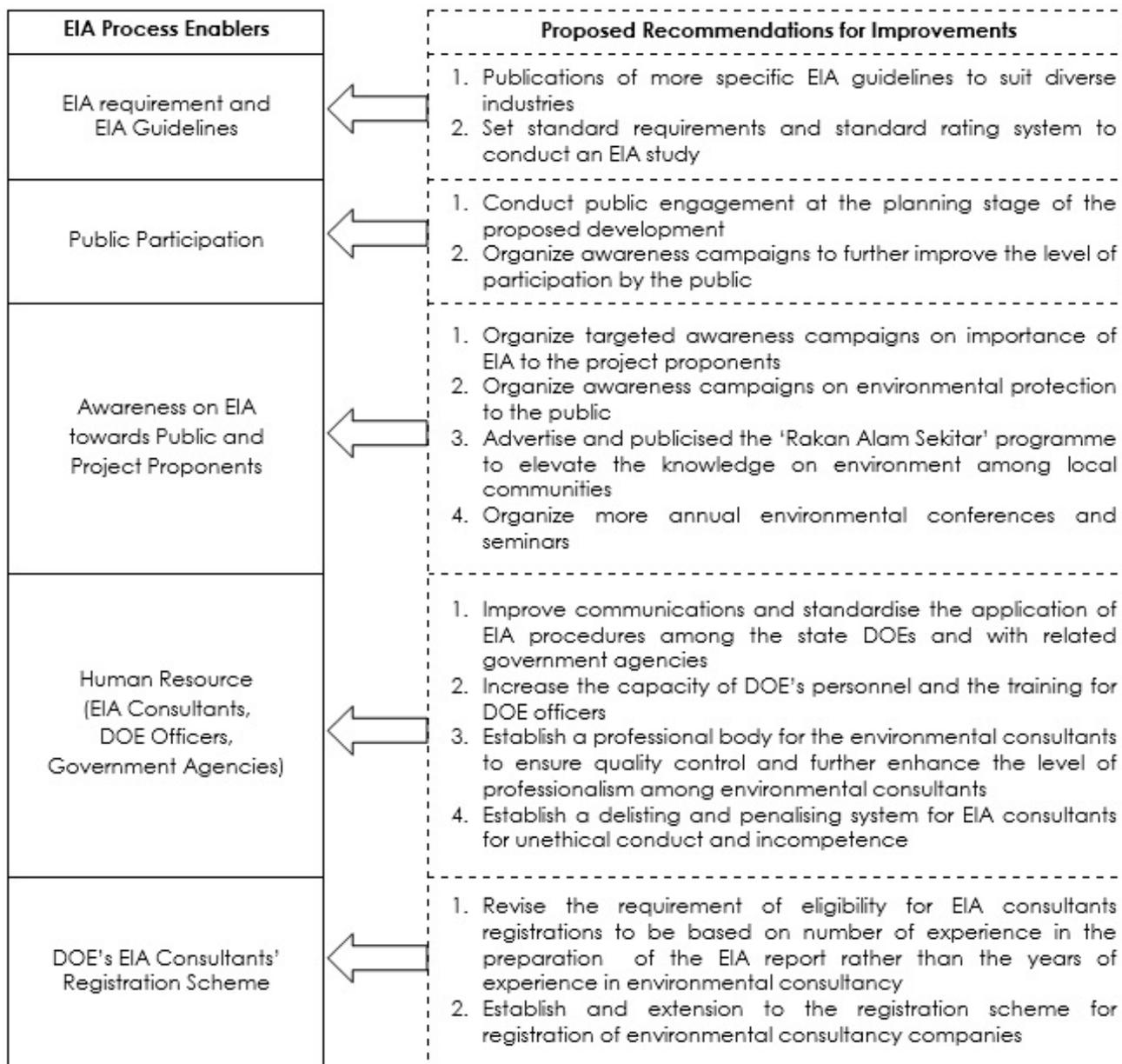


Figure 4 Proposed improvements for EIA process enablers

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References

- [1] Memon, A. 2000. Devolution of Environmental Regulation: EIA in Malaysia. *Impact Assessment and Project Appraisal*. 18: 283-293.
- [2] Emang, J. J. J. 2006. Public Participant in EIA Process in Sarawak: Any Room for Improvement? *The Fourth Sabah-Sarawak Environmental Convention*. Kota Kinabalu, Sabah, Malaysia. 5-7 September 2006. 1-8.
- [3] Moduying, V. J. 2001. Environmental Impact Assessment (EIA) System in Sabah. *The 6th Sabah Inter-Agency Tropical Ecosystem (SITE) Research Seminar*. Tanjung Aru, Kota Kinabalu, Sabah, Malaysia. 13-14 September 2001. 1-9.
- [4] Ho, Y. C. 1986. Determining Projects Requiring Environmental Assessments: Some Thoughts and Approaches. *The DOE/CETDEM EIA Workshop*. Kuala Lumpur, Malaysia. 9-11 December 1986.

- [5] Goh, K. S. 1986. Malaysian Requirement in Environmental Impact Assessment. *The DOE/CETDEM Workshop*. Kuala Lumpur, Malaysia. 9-11 December 1986.
- [6] Briffet, C., Obbard, J. and J. Mackee. 2004. Environment Assessment in Malaysia: A Means To An End Or A New Beginning? *Impact Assessment and Project Appraisal*. 22(3): 221-233.
- [7] Marzuki, A. 2009. A Review on Public Participation in Environment Impact Assessment in Malaysia. *Theoretical and Empirical Researches in Urban Management*. 3(12): 126-135.
- [8] Said, A. M. 2008. *Environmental Impact Assessment: Post Monitoring and Audit in Malaysia*. Universiti Teknologi MARA, Shah Alam, Malaysia: University Publication Centre (UPENA) UiTM.
- [9] Mustafa, M. 2011. The Role of Environmental Impact Assessment in Addressing Marine Environmental Issue Arising from Oil and Gas Activities: Examples from Malaysia. *International Proceedings of Chemical, Biological & Environmental Engineering (IPCBE)*. 21: 58-62.
- [10] Kolhoff, A. J., Driessen, P. P. J. and H. A. C. Runhaar. 2013. An Analysis Framework for Characterizing and Explaining Development of EIA Legislation in Developing Countries-Illustrated for Georgia, Ghana and Yemen. *Environmental Impact Assessment Review*. 38: 1-15.
- [11] Wood, C. 2003. Environmental Impact Assessment in Developing Countries: An Overview. *The Conference on New Directions in Impact Assessment for Development: Methods and Practice*. University of Manchester, Manchester. 24-25 November 2003. 1-28.
- [12] Vargas-Vargas, M., Meseguer-Santamaría, M. L., Mondéjar-Jiménez, J. and J. A. Mondéjar-Jiménez. 2010. Environmental Protection Expenditure for Companies: A Spanish Regional Analysis. *International Journal of Environmental Research*. 4(3): 373-378.
- [13] Author. 2014. A Comparative Study on EIA Process in Malaysia, West Australia, New Zealand and Canada. *Jurnal Teknologi*. 70(1): 15-22.
- [14] Pope, J., Bond, A., Morrison-Saunders, A., and F. Retief. 2013. Advancing the Theory And Practice Of Impact Assessment: Setting The Research Agenda. *Environmental Impact Assessment Review*. 41: 1-9.
- [15] Harun, H. and M. Mazlan. 2008. Some Measure to Strengthen the EIA Process-A Consultant's Perspective. *The Forum on Environmental Impact Assessment-20 Years On, What Next?* 12 August 2008. 1-16.
- [16] Maidin, A. J. 2011. Access to Public Participation in the Land Planning and Environmental Decision Making Process in Malaysia. *International Journal of Humanities and Social Sciences*. 1(3): 148-164.
- [17] Rahman, H. A. 2011. Public Involvement on Environmental Issues in Malaysia with Reference to Alor Star, Kedah. *The 2011 International Conference on Environmental, Biomedical and Biotechnology*. Shanghai, China. 19-21 August 2011. 90-93.
- [18] Talime, L. A. 2011. *A Critical Review of the Quality of Environmental Impact Assessment Reports in Lesotho*. (Master of Science in Geography). University of Free State, Bloemfontein, South Africa.
- [19] Wangpittaya, A. 2006. Public Participation in Environmental Impact Assessment (EIA) of the Thailand-Malaysia Gas Separation Plant Project. *Al-Nur Journal of Graduate School Yala Islamic University*. 1(1): 129-143.
- [20] Omar, D. and O. L. H. Leh. 2009. Malaysian Development Planning System: Kuala Lumpur Structure Plan and Public Participation. *Asian Social Science*. 5(3): 30-36.
- [21] Pölonen, I., Hokkanen, P. and K. Jalava. 2011. The Effectiveness of the Finnish EIA system- What Works, What Doesn't, And What Could Be Improved? *Environmental Impact Assessment Review*. 31: 120-128.
- [22] Lih, L. S. 2013. Malaysia: Country Report. In C. Kaufmann, D. Cohen, K. Tan and D. Lim (eds.). *Business and Human Rights in ASEAN: A Baseline Study*. Depok, Indonesia: Human Rights Resource Centre, University of Indonesia.
- [23] Foo, S. M. and M. R. Yusoff. 2002. Environmental Impact Assessment-Malaysia Perspectives. *The SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production*. Kuala Lumpur, Malaysia. 20-22 March 2002. 1-10.
- [24] Harding, A. 2003. Planning, Environment And Development: A Comparison Of Planning Law In Malaysia and England. *Environmental Law Review*. 5: 231-255.
- [25] Othman, H. A. and R. Suratman. 2002. The Significance of EIA and DPR in the Development Process from the Developer's Viewpoint. *The National Land Code Convention 2002*. Nikko Hotel, Kuala Lumpur, Malaysia. 2 October 2002. 1-6
- [26] Zhang, J., Kørnøv, L. and P. Christensen. 2012. Critical Factors for EIA implementation: Literature Review and Research Options. *Journal of Environmental Management*. 114: 148-157.
- [27] DOE. 2010. *Environment Requirements: A Guide for Investors*. Putrajaya: Ministry of Natural Resources and Environment.
- [28] DOE. 2012a. *Mandatory Preliminary Site Assessment for EIA Activities*. Putrajaya: Ministry of Natural Resources and Environment.
- [29] DOE. 2012b. *DOE's Client Charter for the Reviewing of the EIA Report*. Putrajaya: Ministry of Natural Resources and Environment.
- [30] DOE. 2012c. *Reviewing of EIA Report within 3 Weeks (Working Days) by the Department of Environment (DOE), for Selected Prescribed Activities*. Putrajaya: Ministry of Natural Resources and Environment.
- [31] Thomas, J. R., Nelson, J. K. and S. J. Silverman. 2011. *Research Methods in Physical Activity*. United States of America: Human Kinetics.
- [32] DiCicco-Bloom, B. and B. F. Crabtree. 2006. The Qualitative Research Interview. *Medical Education*. 40: 314-321.
- [33] Silverman, D. 2011. *Interpreting Qualitative Data: A Guide to the Principles of Qualitative Research*. Thousand Oaks, California: Sage Publications, Inc.
- [34] Yusoff, H. N. 2013. Understanding Environmental Audit in the Public Sector: Malaysian Perspective. *Jurnal Teknologi*. 62(1): 25-30.