

Challenges in Implementation of Environmental Impact Assessment Among Islamic Countries

Cabaran Pelaksanaan Penilaian Impak Alam Sekitar Dalam Kalangan Negara-Negara Islam

Abdul Rahman Mahmud¹

¹ Institut Alam Sekitar Malaysia, Bangi, Selangor;

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*Corresponding author:

Abdul Rahman Mahmud,
Institut Alam Sekitar Malaysia,
Bangi, Selangor, Malaysia

Email:

abrahmanjas4@gmail.com

Abstract: Environmental destruction caused by development activities has become a major concern among the global community. To overcome the problem, environmental impact assessment (EIA) has been introduced as a tool that can help manage the environment in the development activities. EIA has been implemented in more than 100 countries around the world including Islamic countries. However, the implementation of EIA among Islamic countries has not been comprehensively understood. The objective of this study is to identify the implementation of EIA among Islamic countries and identify the challenges faced in implementing EIA. This study looks at the implementation of EIA from the point of EIA policy and legislation. As well as challenges from an enforcement perspective, the quality of EIA reports, awareness related to EIA and the adequacy of experts in the field of EIA. This study uses scoping literature review approach to evaluate past and recent studies in the implementation of EIA. The results of the study found that Islamic countries, which are categorized as high and middle income, already have laws, policies and regulations related to EIA. The study found that there are four main challenges faced in the implementation of EIA among Islamic countries, there are weaknesses in terms of enforcement of EIA-related laws, low quality of EIA reports, low awareness of project proponents on EIA and lack of Islamic experts in perform EIA-related studies. This study has identified the gaps on the EIA implementation in Islamic countries. To overcome the challenges cooperation among Islamic countries to share experiences and enhance mutual capabilities is urgently needed.

Keywords: Challenges in EIA implementation, Environmental Impact Assessment, EIA Effectiveness, Islamic country, Quality of Environmental Impact Assessment

Abstrak: Kemusnahan alam sekitar yang disebabkan oleh aktiviti pembangunan telah menjadi perhatian utama masyarakat global. Untuk mengatasi masalah tersebut, penilaian kesan alam sekitar (EIA) telah diperkenalkan sebagai alat yang dapat membantu mengurus alam sekitar dalam aktiviti pembangunan. EIA telah dilaksanakan oleh lebih dari 100 buah negara di seluruh dunia termasuk negara-negara Islam. Walau bagaimanapun, pelaksanaan EIA dalam kalangan negara-negara Islam belum diselidik secara menyeluruh. Objektif kajian ini adalah untuk mengenal pasti pelaksanaan EIA dalam kalangan negara-negara Islam dan mengenal pasti cabaran yang dihadapi dalam melaksanakan EIA. Kajian ini melihat pelaksanaan EIA dari sudut dasar dan perundangan EIA. Serta cabaran dari perspektif penguatkuasaan, kualiti laporan EIA, kesedaran berkaitan keperluan EIA dan kecukupan pakar dalam bidang EIA. Kajian ini menggunakan pendekatan tinjauan literatur untuk menilai kajian masa lalu dan terkini dalam pelaksanaan EIA. Hasil kajian mendapati bahawa negara-negara Islam, yang dikategorikan sebagai pendapatan tinggi dan menengah, sudah memiliki undang-undang, prosedur dan peraturan yang berkaitan dengan EIA. Kajian ini mendapati bahawa terdapat empat cabaran utama yang dihadapi dalam pelaksanaan EIA di antara negara-negara Islam, terdapat kelemahan dari segi penguatkuasaan undang-undang yang berkaitan dengan EIA, kualiti laporan EIA yang rendah, kesedaran yang rendah terhadap penyokong projek mengenai EIA dan kekurangan pakar dalam menjalankan kajian berkaitan EIA. Kajian ini telah mengenal pasti jurang pelaksanaan EIA di negara-

negara Islam. Untuk mengatasi isu ini kerjasama antara negara-negara Islam untuk berkongsi pengalaman dan meningkatkan keupayaan bersama amat diperlukan.

Kata kunci: cabaran dalam pelaksanaan EIA, Penilaian Impak Alam Sekitar; Negara Islam; Kualiti Laporan EIA;

Introduction

Nowadays, there are more than 50 countries, which Muslims populate the majority. Islam bestows blessings on the whole globe. The true teachings of Islam strive to promote a sustainable lifestyle. Islam emphasizes the spiritual aspects and its balance with social, economic, and environmental conservation (Sarkawi et al., 2016). Every servant has responsibilities to environmental conservation. Islam puts strong focus on global accountability. This earthly realm is just a stopover on the way to everlasting life in the hereafter. As a result, all of the responsibility and obligations will be called into question in hereafter. The majority of Islamic countries are already experiencing severe environmental problem (Hamad, 2017).

The exploitation of natural resources such as forests and mineral resources and increasingly expanding infrastructure has substantial environmental effects. River water in Malaysia and Indonesia has deteriorated due to rapid development activities (Camara et al., 2019). Soil erosion and sedimentation are now one of the major concerns among Islamic countries. It happens as a result of rapid construction activities that fail to implement best management practices. As compared to non-Islamic countries, the Islamic countries achievement in the Environmental Protection Index is still far behind.

Environmental impact assessment has been established as one of the tools that can help authorities plan and manage the environment effectively. The EIA aims to identify, predict, anticipate the environmental impacts of development activities and recommend effective control measures to control, reduce and eliminate pollution from occurring before during and after the implementation of the project. Environmental Impact Assessment (EIA) is an important global environmental management tool (SESRIC, 2019). EIA has been introduced in over a hundred countries worldwide. It has been identified as one of the most useful tools in environmental management. EIA started in the United States in the early 1960s, enacted by the US Environmental Agency. EIA is very much in line with Syariah's goal to protect lives (Yaakub & Abdullah, 2020). This can be realized through EIA's principle, which aims to

predict an impending impact and have a detrimental effect on society and the environment. By predicting the impact, the proposed environmental control measures can be implemented effectively. Most Islamic countries have adapted the US-based EIA to be implemented in their respective countries. However, the extent of the implementation of EIA among Islamic countries is remain unknown comprehensively. What are the challenges faced by Islamic countries in implementing EIA has not been identified? The objective of this study is to identify the implementation of EIA among Islamic countries and identify the challenges faced in implementing EIA.

Literature Review

Before further discuss about the implementation of EIA among Islamic countries, this section will explain about the environmental issues that occur among Islamic countries. The issues discussed are to highlight the seriousness of environmental issues that caused by improper planning. After, the discussion on the environmental issue in Islamic country this section will continue to discuss the important element in the Environmental Impact Assessment.

Environmental Issues in Islamic Countries

Islamic countries are also experiencing a growing environmental crisis. Islamic countries, both categorized as high-income and middle-income countries, have experienced severe environmental degradation problems (SESRIC, 2019). Among the major environmental issues faced among Islamic countries include river pollution, air pollution, soil erosion, and sedimentation in most Islamic countries. In the context of environmental management achievements based on the Environmental Performance Index released by Yale University in 2020, the best ranked Islamic country is UAE at 42nd, followed by Albania at 62nd, Iran 67th and Malaysia 68th of 180 countries. This shows that Islamic countries are still far behind in the context of achieving the environmental performance index.

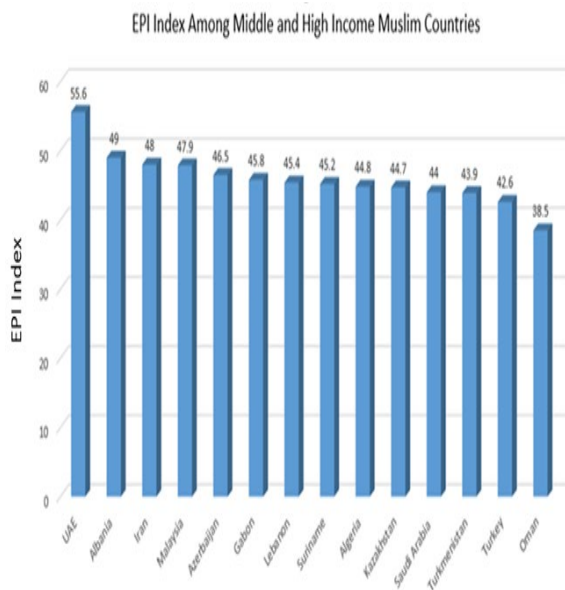


Figure 1: Environmental Performance Index Among 15 Top Islamic Countries (2020)

Air Pollution

Air pollution is defined as the presence of one or more air pollutants released into the atmosphere that exceeds ambient levels subsequently will bring implications to human health and the environment. In the context of Islamic countries, industrial development activities are contributing to air pollution issues. In the context Islamic countries, that bases on oil and gas activities will involve the construction of petrochemical plants that might pose risks to carbon dioxide emissions into the air. Air pollution also occurs in many Islamic countries due to haze. For example, peat swamp forest fires in Indonesia have impacted local communities' lives and affected neighbouring countries such as Malaysia and Singapore. According to the Organization of Islamic Country (OIC) performance of Islamic countries is higher than the of Non-OIC developing countries. Still, it lags behind that of the global average and developed country groups. A similar situation is also observed in air pollution indicators. While the average scores of OIC countries, in SO₂ and NO_x emission, are higher than the Non- OIC countries averaged in 2018, they lag behind the global average and average of developed countries (SESRIC, 2019). Issues related to the siting and zoning of industrial areas close to public housing locations also occur frequently. Complaints due to dust pollution, odours etc., often occur from industrial areas. Air pollution also results from the release of air pollutant gases from vehicle exhaust. The number of the vehicle in Islamic countries is increasing every year. In Malaysia alone, the increase in the number of vehicles is 10 per cent a year. It is expected that the rise in the population

in the Islamic country will contribute to the number of vehicles, which also contributes to the release of pollutant gases into the air.

Soil erosion and sedimentation

Soil erosion is the process of detachment soil particles followed by soil particles' transportation from one location to another by erosive agents, namely water and wind (Mahmud et al., 2017). Simultaneously, sedimentation is the process of settling eroded particles to the bottom of a river or watercourse. Soil erosion is a natural process that plays a role in returning nutrients into the soil, water and supporting rivers' sustainability. However, uncontrolled human actions and activities in development can accelerate the process of soil erosion from occurring. In Islamic countries, soil erosion and sedimentation are a significant challenge that needs to be managed well. Soil erosion and sedimentation are expected to increase with climate change (Singer, 2018). High rainfall distribution will increase soil erosion occurring coupled with uncontrolled human activity. Soil erosion caused by water agents is common among Islamic countries in Asia, Malaysia, and Indonesia. Soil erosion in Malaysia, for example, has had implications for water quality. River water will face a massive impact as a result of uncontrolled development activities. Increasing rainfall distribution accelerates soil erosion to occur. Rivers polluted with silt will have a chain reaction to humans as well as aquatic life.

Water Crisis

In the context of the water crisis, Islamic countries also face a lack of clean water supply. Clean water is a universal resource that is needed in life. The water crisis that occurred stems from the first few reasons water catchment areas have been destroyed due to uncontrolled logging activities (Camara et al., 2019; Inter American Development Bank (IDB), 2019) . Forests have the essential potential to retain water and return the amount of water into soils and rivers through the hydrological cycle. Through hydrological processes that occur naturally, it can help the process of natural balance. However, the increasing logging activity has caused the forest to lose its function to retain water in large quantities because some of it has been destroyed due to logging. The second issue in the water crisis is the lack of clean water supply due to serious water pollution problems. River pollution at a severe level causes serious water pollution problems. Among Islamic countries, river pollution occurs due to soil erosion and sedimentation, industrial waste released into rivers, and improper sewage treatment system in some Islamic countries. These issues have implications for the need to

treat raw water at a high cost. It is estimated that the cost of wastewater treatment will increase by 2050 due to high contaminant in the river.

Important Element in EIA

Environmental impact assessment (EIA) is a scientific study conducted systematically to identify the impact of project development on the environment and propose control measures to reduce, avoid or eliminate environmental impact at the stage before, during and after the project implementation. EIA has been implemented in more than 100 countries around the world. The performance of EIA aims to contribute to sustainable development. This means that social, economic and environmental aspects can be integrated into the action. The EIA was legally implemented in Malaysia in 1987 by enforcing section 34A, Environmental Quality Act (EQA) 1974.

In the Malaysian context, EIA has undergone various evolutions to ensure that EIA remains relevant for use as a tool in environmental management. The average number of EIA reports received by the Department of Environment Malaysia each year is 162 reports (Mahmud et al., 2019). The EIA report briefly contains five main elements: project description, existing environmental conditions, impact assessment, mitigation measures, and environmental monitoring (DOE, 2016). The first element is the project description. An EIA report must provide a detailed description of the project developer's information, project components, project implementation methods, and phases of the project to be implemented. An important aspect that needs to be studied in the project description is the best options in implementing the project. According to Gils (2015), EIA's project option provides a new dimension of how a project can be implemented sustainably. Project options need to be studied in the context of site suitability, process design, project implementation methods, and risks to the environmental impact (DOE, 2016). The comparison between options is important to ensure that the project considers the best options in terms of impact on the environment.

The second element is a description of the existing environmental conditions. It is an important topic that needs to be studied to see the project site's current environmental quality status and the surrounding area. Studies related to environmental conditions are not limited to providing data on water quality status, air, noise, hydrology, meteorology, topography, flora and fauna. Still, they must analyse the level of environmental quality and its ability to withstand environmental impact. The data presented should be well elaborated.

The third element, which is impact assessment, needs to be conducted systematically and scientifically.

There are two stages of impact assessment that need to be implemented. The first stage is screening, and the second stage is environmental impact modelling. The first stage of screening should be done by listing all the impacts of implementing the EIA project. Screening can be done using the impact matrix method. This method can identify whether an impact is at a high, medium and low level. Through this method, the level of significant impacts (medium and high level) can be identified. The next step is to conduct an evaluation study with quantitative methods. This stage will involve forecasting and prediction by using environmental modelling in various scenarios.

The fourth element in EIA is environmental mitigation measures. EIA report should clearly describe the specific environmental controls to be implemented to reduce the impact at each stage of project implementation. The proposed mitigation measures should be physical and nonphysical. The physical context means using control equipment and systems that can reduce the impact. These include water, air, vibration and noise pollution control systems etc. For example, a thermal treatment plant construction project, for example, needs to submit specific environmental control measures from the aspect of gas pollution that will be released from the chimney. While control in non-physical form is like implementation best management practices. The consultant shall recommend best management practices to ensure that pollution control can be implemented and monitored at all times in a systematic manner.

Among the nonphysical control activities include environmental monitoring, monitoring EIA approval, maintenance, and monitoring of pollution control equipment's performance. The fifth most important element is the aspect of environmental monitoring. Why is environmental monitoring important? According to the DOE (2016), environmental monitoring is mandatory. Monitoring can be divided into three types:

- Monitoring compliance with EIA approval requirements
- Monitoring the performance of pollution control equipment
- Monitoring environmental quality

Compliance monitoring is intended to ensure that all laws, conditions and regulations can be complied with at all times.

Methodology

This study uses a scoping literature review approach. The method of this study is summarized as in Figure 2. The study began by setting the objectives of the study based on the main research problems and research questions. The research question of this study: Is to what extent the implementation of EIA in the context of legislation and policy in Islamic countries? and What are the challenges faced in the implementation of EIA among Islamic countries in terms of enforcement, quality of EIA reports, awareness of project proponent and experts in EIA implementation? Through the objectives that set in this study. The scope of the article searching is focused on selected research keywords. Among the main keywords used are 'EIA law', 'Islamic Countries', 'EIA effectiveness', 'EIA expert', 'EIA enforcement', 'quality of EIA reports', 'EIA Challenges', 'EIA capacity building'. The use of boolean search operator such as 'AND' and 'OR' has been used to expand and narrow the scope of searching for relevant articles. Only articles that published from 2015 to 2021 are selected. Once the articles are collected a screening process will be conducted. Only studies related to Islamic countries will be involved in this study. After the screening process, then the process of synthesizing the literature material is made based on the scope that has been set.

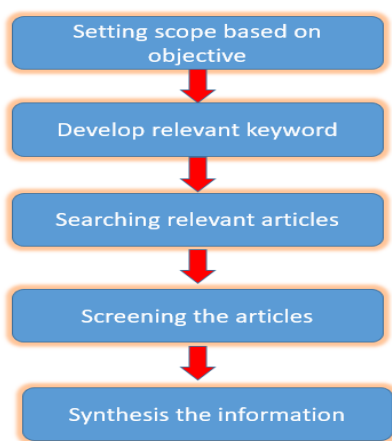


Figure 2: Literature Review Process

Study Finding & Discussion

The findings of the study will be divided into two parts, the first part which will discuss the implementation of EIA among Islamic countries. The Second Part will discuss the challenges faced in the implementation of EIA among Islamic countries.

EIA Implementation in Islamic countries

Among Islamic countries, EIA was first implemented in the early 1980s. Algeria, Oman, and Malaysia were among the earliest countries that implement EIA legally (refer Table 1). EIA is considered an important tool for decision making.

Table 1: EIA Implementation in Islamic Countries

Country	Year of Implementation
Algeria	1983
Oman	1984
Malaysia	1987
Albania	1993
Lebanon	1993
Turkey	1993
Iran	1994
Turkmenistan	1995
Azerbaijan	1996
Kazakhstan	1997
UAE	1999
Saudi Arabia	2001
Gabon	2005
Suriname	2009

EIA Policy and legislation

Most of Islamic countries already have EIA-related legal frameworks. The activities that are subject to conducting an EIA study have been discussed in each legislation. Legislation related to EIA requirement is clearly stated in the environmental regulation in Algeria, Malaysia, UAE and Oman. Some countries only use the term impact assessment as an understanding of the need to conduct an EIA. Some countries are still in the stage of conducting studies and improvements on EIA-related legislation, such as Suriname and Gabon.

In the Malaysian context, 38 activities require to conduct an EIA study before the project implemented. In Islamic countries, most EIA system is adaptations of the EIA model that USEPA has developed. There are agencies responsible for regulating and administering the EIA. However, the processes and procedures differ from one country to another. Briefly, there are three parties involved in the implementation of EIA, namely the authority that enforces the EIA, the project proponent and the EIA consultant who conducts the EIA study.

There are four main processes or stages in the implementation of EIA, which are as follows:

- (1) Preparation of the scope of the EIA study
- (2) Preparation of EIA report
- (3) Review of the EIA report by the authorities.
- (4) Implementation of EIA projects

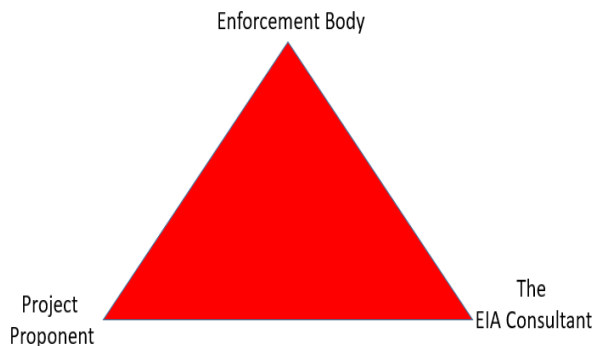


Figure 3: Parties involve in EIA implementation

Briefly, there are three parties involved in the implementation of EIA, namely the authority that enforces the EIA, the project proponent and the EIA consultant who conducts the EIA study. The preparation of the scope of the study is important to identify the scopes of the study to be conducted. This covers the most critical aspects of the study to be studied. Each country has specific guidelines for the preparation of EIA reports. Malaysia can be considered a country with very systematic EIA implementation because there are approximately 17 guidelines related to EIA have been prepared.

Preparation of EIA report is the process by which EIA report is prepared. In the context of Islamic countries, most EIA studies are conducted by EIA consultants. Countries such as Malaysia, UAE, Oman, Algeria, Turkey have certain procedures where EIA consultants need to be registered to carry out the study. Once the EIA consultant prepares the report, authorities in will review and comment on the report. This is one of the critical stages to evaluate and validate the study, whether it is acceptable or not. The EIA report in Islamic countries is an important component required for decision-makers to approve projects. The third stage is the implementation of EIA projects. In this context, the project proponent will implement the project by implementing best management practices. The authorities will carry out enforcement to ensure that the project's implementation does not impact the environment.

Challenges in the Implementation of EIA in Muslim Countries

Although EIA has been well received as one of the essential tools in environmental management in Islamic countries, there are many challenges in its implementation, divided into four: the quality of EIA reports, aspects of legal enforcement, capacity building, and awareness of EIA-related project proponents.

EIA Regulation and Enforcement

In terms of regulation and enforcement, it can be divided into two things. Firstly issue related to EIA regulation and the second is law enforcement (Makmor & Ismail 2016). EIA regulation in Islamic countries still needs to be improved. Countries like Malaysia, Kazakhstan, Oman, and UAE have very systematic regulation that clearly states the law's EIA requirement. But other countries still don't have a systematic procedure in the implementation of EIA. Some countries don't have specific law in terms of EIA. In terms of enforcement, what is still lacking is the enforcement of the activities after the EIA project has been approved. The environmental agency needs to enforce and monitor the projected weather it is being implemented according to the EIA or not. The weakness among the Islamic countries in terms of enforcement can be attributed to many factors such as lack of staff versus the number of EIA projects. In many developing countries, project development is needed to be carried very fast. Environment issues left behind without any mitigation. Some countries still have weakness in terms of how to conduct enforcement by using an effective manner.

Quality of EIA Reports

EIA reports' quality is an important measure of the effectiveness of EIA in a country (Kamijo 2017). Poor quality EIA reports show that there are weaknesses from the consultant and the authority that evaluates the EIA Report (Mahmud et al., 2021). The study showed that EIA reports' quality was poor and moderate (Mahmud et al., 2019; Kamijo, 2017; Makmor & Ismail, 2016). The EIA reports identified among Islamic countries have weaknesses in data, analysis, the scope of the study, presentation and completeness of the proposed control aspect.

Awareness among project developers

One most important issues are the awareness among the project developers. Lack of understanding of how to implement the project sustainably will positively impact the environment. Developers only think about

how to do the project, get revenue quickly, and destroy the environment. Among Islamic countries, awareness program is still lacking to be conducted. Some of the workers only know to do civil works, but best practice implementation is still deficient. The skilfull worker that knows is essential in conduct the project related to EIA.

Expertise in Environmental Impact Assessment

One of the essential things that are seen as one of the critical challenges among developed countries is the need for experts and skilled human resources in the environment (Mahmud et al., 2019) Among high and middle-income countries, there is still a shortage of experts to conduct EIA studies. There are EIA reports that only professional groups conduct. As a result, the EIA reports provided are of poor quality. Some Islamic countries also have to seek the services of experts from abroad to conduct EIA studies. There are still many shortcomings in implementing the best environmental control in project implementation, especially for EIA projects. For example, many EIA projects fail to effectively comply with soil erosion and sedimentation control (Mahmud et al., 2019). Problems of environmental pollution persist. Strategies and programs to improve skills in specific technical areas in environmental pollution control are still poorly implemented.

Recommendation

Based on what has been discussed, there are many opportunities for improvement among Islamic countries that could be conducted. All the recommendation from this study is shown in Table 2. The firstly, from the aspect of building an environmental sustainability index among Islamic countries. Islamic countries can take the initiative to develop a sustainability index to monitor the achievements of environmental management among Islamic countries. Secondly, there is a strength among Islamic countries where there are many research institutions.

Cooperation between educational institutions, government agencies between Islamic countries can enhance expertise in various fields especially in EIA. Thirdly, issues with regard to the awareness of project proponents in implementing EIA projects need to be enhanced. The project proponent should must take mandatory class or courses before conduct EIA related project. It is hope to rise the awareness on the important of EIA. The regulation should only allow those project proponents that only pass the course can conduct the EIA project. Fourth, Islamic countries should formulate a structured strategy by establishing unique bodies related to EIA's performance among Islamic countries to

encourage information sharing to strengthen EIA's effectiveness.

Table 2: Recommendation to improve EIA implementation in Islamic countries

Issues	Recommendation	Action
Environmental issue	Development of environmental sustainable index among Islamic countries	Environmental body, government research institution in Islamic countries.
Lack of expert	Develop training, transfer of knowledge, module development	Research institution in Islamic countries.
Low awareness among project proponents	Set new rule, every project proponent should pass the course related to EIA.	Environmental Agency, Enforcement agency, Local authority
Capacity building	Establish special body among Islamic countries related to EIA	Environmental Agency, Enforcement agency, Nongovernment organisation, research institution in Islamic countries.

Conclusion

Environmental impact assessment has been recognized as important environmental management tools among Islamic countries. This study has present the status of implementation EIA in Islamic countries. The law and policy in terms of EIA implementation has been established as early 1980s. Islamic countries progressively try to improve the implementation in term of the procedure, policy and laws. The implementation of the EIA among Islamic countries shows a good commitment to ensure sustainable development. However, the implementation of EIA in Islamic countries still facing the problem that need to be solve. This study has given few important suggestions base on the issue that arise. Cooperation among Islamic countries on the implementation of the EIA is still seen as less successful. Therefore, measures to strengthen the EIA need to be formulated by leveraging the strengths of Islamic countries.

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