

7. EVALUATION OF THE EIA SYSTEM IN SAMOA AND THE POSSIBILITY TO INCLUDE LCA PRINCIPLES.

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Is Environmental Impact Assessment an effective tool for environmental management in Samoa? Since its introduction in the 1990s and 2000s? EIA has emerged to be more participative, more comprehensive, and more closely monitored. However, the extent to which EIA has achieved its main goal it still undisclosed, along with institutionalization and effective practice been inhibited by factors that are attributes of non-western, developing countries around the world. This study evaluates the EIA practice in Samoa for project-level against a criterion that was developed by the researcher. A questionnaire survey was conducted to gather information on the performance of EIA practice in Samoa by examining the current legislation and regulations guiding the procedure. Furthermore, the study also considers potential possibilities to include Life Cycle Assessment principles in the current EIA procedure for amelioration. It was found out that despite the available environmental legislations that make EIA a legal requirement for any proposed project in Samoa, EIA practice is less than satisfactory. Several challenges were discovered which required immediate attention for reviewing and amendments. The study also indicated based on the data collected and analyzed, most of the participants sympathize that LCA principles should be included in the current EIA procedure in some of the sensitive stages such as “Assessment and Impact analysis”.

Key Words : *Environmental Impact Assessment (EIA), Life Cycle Assessment (LCA)*

1. INTRODUCTION

Samoa, like any other developing country, is experiencing rapid population growth, coupled economic with economic growth and a vast increase in infrastructural projects, thus lead to having an enormous impact on the environment. Faced with challenges such as natural disasters, climate change, and unemployment, Samoa tends to prioritize developments to tackle such problems. As of the aforementioned, many projects have been initiated to accomplish such challenges. As a requirement to attain approval to implement these developments, EIA is required. EIA, as indicated by (Barr, 2006), is still its formative years, mainly due to a lack of strategic planning history. Over the years a number of the legislation and regulations have been approved to guide the EIA system, for instance; PUMA Act 2004, EIA Regulation 2007 to name a few. In spite of the latter, there are still significant barriers and challenges experienced by both the practitioners and the developers. Although EIA is widely accepted as an integral tool

for environmental management, the relationship between EIA theory and its actual contribution to better environmental outcomes lacks systematic evaluation. Challenges remain theoretical development of EIA (R, 2005), and in the extent to which procedural components of EIA have been focused on, while more substantive issue linked to measuring and evaluating overall outcomes is rarely addressed (Doyle, 1996). This study thus seeks to have an intuition on examining the current EIA procedure in Samoa and the available legislations. The requirements of EIA for any proposed project vary on a case by case. Furthermore, the focus will be base on the limitations of the current process and what are some initiatives and strategies that can be drawn from the latter.

1.2 RESEARCH QUESTIONS

In light of the above, the following research questions guided the study:

- i. What evaluations can be drawn from the

- current legislation and regulations guiding the EIA process in Samoa?
- ii. What is the impact of the current institutional review on the implementation of the EIA?
- iii. In what stance can LCA principles contribute to strengthening the EIA procedure in Samoa?

1.3 RESEARCH OBJECTIVES AND AIMS:

The research aims to investigate the extent to which EIA practices is being carried out. The following are the objectives of the study;

- i. Examine the stakeholder understanding of, and the expectation of the roles of EIA for development procedure in Samoa;
- ii. To investigate the effectiveness of EIA practice prior and after the institutional review and of the implementing agency recently;
- iii. Identify the perceived opportunities for and constraints to the inclusion of LCA principles to the EIA procedure for proposed projects.

2. METHODOLOGY

A methodology is an essential part of a research project which lays out how all major parts of the study have been put together to address the research questions. It provides accurate information for an experienced researcher to replicate the research project. The research was undertaken using mixed methods, combining data from documents and questionnaires to cater to a comprehensive and congruent analysis of stakeholder viewpoints. This approach makes use of both primary and secondary data to meet the objectives of the study and answer the research questions. The combination of primary and secondary data is necessary for this study since it allows for more analysis of the proposed methodology.

As mentioned in the preceding section, data was gathered from the questionnaire survey, online questionnaire, and samples of EIA reports. Questionnaire data were analyzed utilizing the Microsoft Excel Spreadsheets 2016. The responses from the questionnaire survey were analyzed to find out how effective EIA in contributing to the development proposals in Samoa focusing on infrastructural projects in which renewable energy is attached to. The results of the analysis are presented in tables, pie charts, bar graphs, and interpretations.

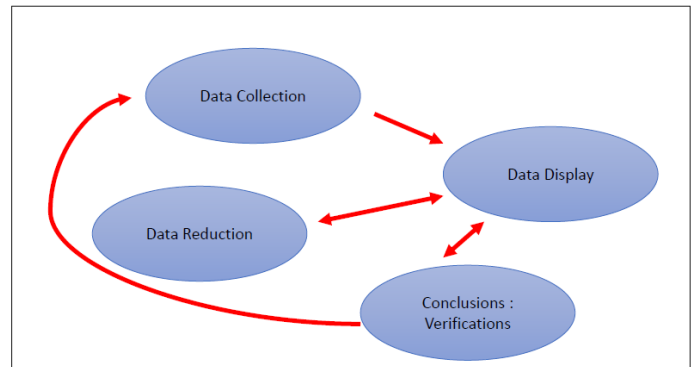


Figure 1: Data Flow Chart

3. RESULTS

The following section will present the results of the survey that was carried out;

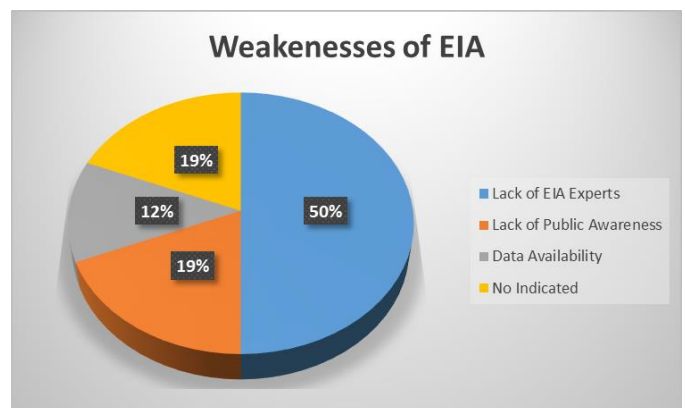


Figure 2: Weaknesses of EIA

Figure 2 shows the results of the opinions of the respondents on the weakness of the EIA procedure in Samoa. This question was an open-ended question for the practitioners to put forward their sentiments on the lapses of the EIA procedure in the country. The results were categorized statistically under three (3) main themes. The common response received by the researcher through this questionnaire is the “Lack of EIA experts” with a score of 50%. Lack of Public awareness and Data Availability were the other main themes that shared the same score of 19% each. The remaining 12% failed to indicate their opinion on the weaknesses of the procedure and it was considered void

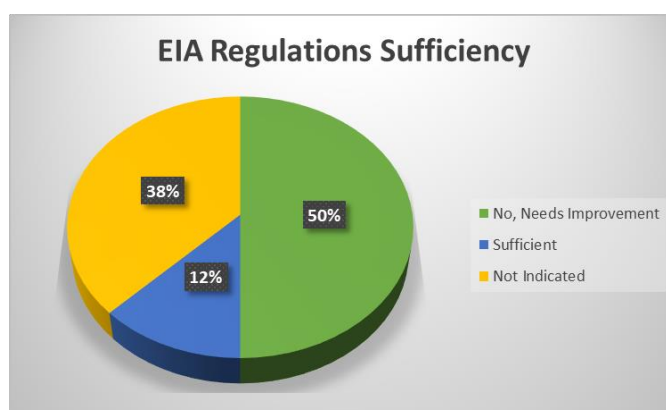


Figure 3: EIA Regulations Sufficiency

Figure 3 displays the outcome of one of the main questions listed in the online questionnaire and this is to indicate if the current available EIA regulations in Samoa are sufficient. As reflected in the above figure, the highest and the common answer that was given with a 50% score is the “No, needs more improvement” which is an indication that most of the practitioners feel that the existing legislation and regulations are not sufficient. The second portion with 38% aborted this question nor suggestion on such a response. The remaining 12% specify according to that the prevailing bulk of legislation and regulations are well sufficient in guiding the EIA process in Samoa.

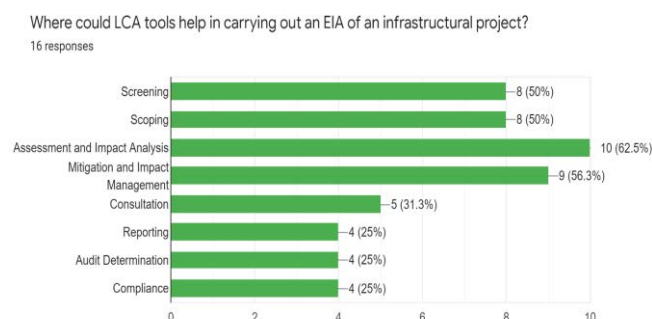


Figure 4: Stages that LCA can tool can assist.

The above figure shows the result of which stage of the EIA process in Samoa that LCA can improve. This question was an open question whereby the experts can select more than one of the options provided. The highest or the most selected option was the Assessment and Impact analysis stage with a score of 62.5% (10 times), the second area with the second-highest score was the Mitigation and Impact Management with a having chosen 9 times (56.3%). Screening and Scoping, the early stages of the process got picked 8 times with a percentage of 50 each. The closest stage selected is the Consultation with a score of 31.3% while Reporting, Audit Determination, and Compliance have the same result of 25%

each. As mentioned above, this part of the questionnaire was an open one hence the exceeding percentages recorded.

For Infrastructural projects that utilizes a significant portion of the natural resources, should we consider prioritizing the assessment of its impact on the environment by adapting the LCA tool?
16 responses

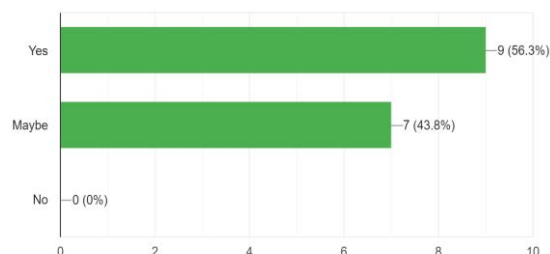


Figure 5: Possibility of adopting LCA

From the figure above, it can be seen that the majority (56.3%) of the EIA practitioners surveyed agreed to adapt LCA as part of the EIA procedure for infrastructural projects. This is one of the major objectives of the research is to examine whether there is a possibility of adapting the LCA principles to assist in the EIA for infrastructural projects focusing on energy sector developments. An additional 43.8% feel that there no need to adapt the LCA for such matters. The results imply that a greater proportion of the EIA practitioners in the sample indicated and reflected on the need for adapting the LCA for EIA on infrastructural projects.

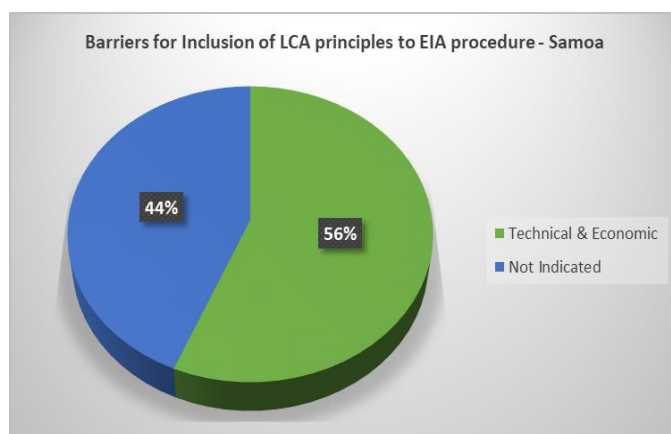


Figure 6: Barriers of inclusion of LCA to EIA procedure in Samoa

The above figure specifies the main barriers that hinder the initiative in Samoa. On that note, this question was open-ended question and it was also a challenging one as well given the level of the practitioners' understanding and knowledge on LCA. However, responses were still submitted and analyzed for the research. Most of the retorts fall under the technical factor and economic which recorded a

total of 56%. Some of the factors that were included in the technical factors comprised of data availability and also the right experts for LCA. As previously conveyed, the challenging issue of this part of the survey was the knowledge of the practitioners. The remaining 44% of the participants in no means failed to submit their responses for this enquiry.

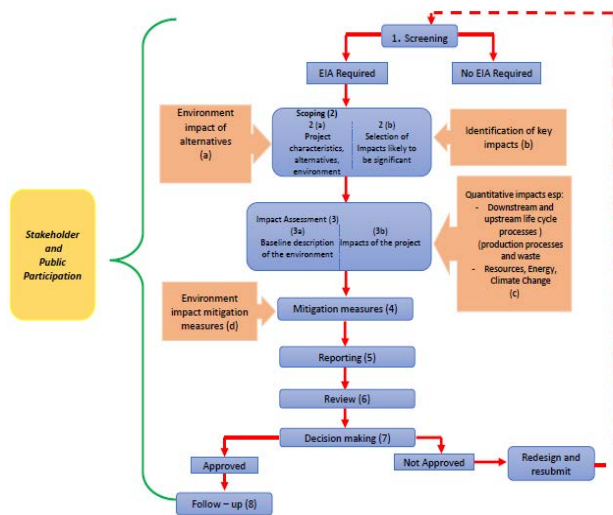


Figure 7: Proposed Model of inclusion of LCA principles

The above-proposed model is created based on the results of the survey carried out. As indicated above the model initially adapted from (Pyrene Larrey-Lassale, 2017) but alterations were inserted for the model to be more applicable to the current situation in Samoa and also based on the outcome of the survey overall. The proposed process will incorporate LCA principles in the Scoping, Assessment and Impact Analysis, and Mitigation Measures stages. Since the original process does not stipulate and clearly state the main requirements to be taken when carrying out an EIA, the proposed model navigate to a deeper and intense process of executing such tool in Samoa infrastructural project and others. Additionally, some of the recommendations from the experts indicated the lack of stakeholder involvement, public awareness of any planned project, hence the model suggests the involvement of stakeholder and inform the public from the first to the final stage. Such actions will minimize the contradictory between the proponents and the agency in charge which will also lead to saving cost and time-consuming.

4. DISCUSSION AND CONCLUSION

The aim of this study was to evaluate the effectiveness of the EIA practice and how the LCA can contribute to improving the procedure in Samoa.

The evaluation revealed the strengths and weaknesses of the system which can be used to suggest strategies for upgrading and improving the performance of the system. The evaluations were carried out based on the factors that were driven by relevant literature. The research produced some unexpected results, contradicting results from previous research on the same topic. This can be observed as a beneficial factor to observe the trend of the performance of the system whether it has been improved or not. However, some of the research findings confirm findings from the previous studies. For instance, (Barr, 2006) stated that EIA in Samoa is still in its formative years. Fast forward to almost ten years, the demand for a more constructive approach is obligatory for the system. According to the results of the research, it specified the current system requires attention in improving its regulatory in the environmental sector. The system cannot only regard its lapse and weakness but the research also discovered strengths available in managing proposed developments in the country. As indicated in the literature review, the decision for any proposed project highly relies on the EIA report.

In summary, the questionnaire survey from both experts and students revealed the following weakness of the EIA system in Samoa; -

- i. The available regulations are outdated and it requires an update for an effective EIA procedure;
- ii. Lack of EIA experts available to carry out assessments and unavailability of official prerequisite to be adhered by experts and the system fails to promote capacity building through training programs;
- iii. Insufficient public awareness and involvement of the main objectives of the system overall;
- iv. Communication barriers between the implementing agency and the developers;
- v. Monitoring remains one of the major challenges in the application of EIA Samoa;
- vi. Assessment and Impact Analysis should be reviewed by including LCA principles.

Although the results of the research show the current system's weaknesses to some extent some strengths

exist in the current procedure. The system has recorded several positive factors since the early years it was first proposed to be a compulsory assessment for projects in the country. Some of these strengths include:

- i. Approved and available legislations guiding the EIA procedure;
- ii. The EIA assist the project proponent in acquiring a development consent;
- iii. The system is effective at achieving purposes of EIA in aiding the decision-making process and contribute to sustainable development;

The second phase of the study was to examine the status of LCA in the country and if there is a possibility to include some of its principles to the current EIA procedure to assist its functions and practice. As mentioned in the previous chapters, LCA is an analytical tool that requires a lot of data notwithstanding the amount of funds and the right experts to carry out its functions. Albeit, LCA is a challenging tool for a small island state the study overall discovered the following; -

- i. The recorded the percentage of LCA knowledge and application available in the country is 0-30%
- ii. Platforms to promote the introduction of the tool are not available
- iii. The majority of the survey participants suggested that EIA will be improved if the principles of LCA is included especially in the “Assessment and Analysis stage”

- iv. LCA is an effective tool in accounting environmental impacts of any project nevertheless has its challenges and barriers which includes; technical, economical and data availability
- v. LCA is an important tool with the possibility for Samoa to adopt its principles to improve the quality of the EIA tool.

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