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**EIA Follow-up Performance Analysis in Myanmar Environmental Impact
Assessment Process**

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Environmental Impact Assessment (EIA) is a mechanism commonly used in minimizing potential environmental impacts of development projects. EIA Follow-up is the critical stage in determining the effectiveness of the EIA mechanism. If EIA follow-up components such as monitoring, evaluation, management, and communication do not practice into actions, EIA Process will not be effective and remain as on-paper works in reducing the environmental and social impacts of the development. Therefore, EIA follow-up is very important in implementing effective and efficient EIA process. 17 international best practice principles (IBPP) for follow-up have been developed for improving the effectiveness of EIA follow-up as well as for promoting the success of the EIA process. This paper not only evaluates EIA follow-up performance in Myanmar EIA Process in terms of IBPP but also identifies the strengths and weaknesses of the follow-up performance in the selected case studies. The methodology based on reviewing the collected EIA reports with the review assessment model developed by using Lee - Colley review package and IBPP principles for EIA follow-up. Total ten samples of the EIA reports have collected as the case studies from Environmental Impact Assessment Division of Environmental Conservation Department. These reports have reviewed with the developed IBPPFU assessment model to evaluate EIA follow-up performance. The study revealed that the overall assessment result of the 10 case studies is generally good performance and meets with most of the requirements of the international principles for the best practices of EIA follow-up. Our analysis examines the overall EIA follow-up performance in Myanmar EIA process is well performing although there are some weaknesses in terms of IBPP principles. The findings of this study expect to contribute to improving the effectiveness of EIA follow-up and the future improvement of the EIA regulatory framework in Myanmar.

Keywords: Environmental Impact Assessment (EIA), EIA follow-up, International Best Practice Principles for follow-up (IBPPFU), Lee-Colley Review Package

မြန်မာနိုင်ငံ၏ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းလုပ်ငန်းစဉ်ရှိ EIA Follow-up ဆောင်ရွက်ချက်များကို လေ့လာဆန်းစစ်ခြင်း

ဦးသူရိန်ထွန်း၊ ဦးစီးအရာရှိ၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
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စာတမ်းအကျဉ်း

ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းဆိုသည်မှာ ဖွံ့ဖြိုးရေး စီမံကိန်းများကြောင့် ဖြစ်ပေါ်နိုင်သော ပတ်ဝန်းကျင်ထိခိုက်မှုများကို နည်းပါးစေရေးအတွက် အများအားဖြင့် အသုံးပြု သည့် လုပ်ငန်းစဉ် တစ်ခုဖြစ်ပြီး အဆိုပါပတ်ဝန်းကျင်ထိခိုက်မှု လုပ်ငန်းစဉ်တစ်ခု၏ ထိရောက်မှုကို ဆုံးဖြတ်ရာတွင် EIA Follow-up လုပ်ငန်းသည် အဓိကအရေးပါသည့် အဆင့်တစ်ခုဖြစ်ပါသည်။ EIA follow-up လုပ်ငန်း၏ အစိတ်အပိုင်းများဖြစ်သည့် စောင့်ကြည့်ခြင်း၊ အကဲဖြတ်ခြင်း၊ စီမံခန့်ခွဲခြင်းနှင့် အများပြည်သူနှင့် ဆက်သွယ်ခြင်း လုပ်ငန်းများကို လက်တွေ့တွင် ဆောင်ရွက်ခြင်း မရှိပါက ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း လုပ်ငန်းစဉ်သည် ထိရောက်မှု မရှိဘဲ စီမံကိန်းလုပ်ငန်းများ၏ ပတ်ဝန်းကျင်နှင့်လူမှုရေးဆိုင်ရာ ထိခိုက်မှုများကို လျော့ချရာတွင် စာရွက်ပေါ်တွင်သာ ဆောင်ရွက်သော အလုပ်အဖြစ်သာဖြစ်ပေါ်နေမည် ဖြစ်ပါသည်။ ထို့ကြောင့် EIA Follow-up လုပ်ငန်းစဉ်သည် EIA လုပ်ငန်းစဉ်များကို ထိထိ ရောက်ရောက် အကောင် အထည်ဖော် ဆောင်ရွက်ရာတွင် အရေးကြီးပါသည်။ EIA လုပ်ငန်း စဉ်၏ အောင်မြင်စွာဆောင်ရွက်မှုကို အထောက်အကူ ပြုနိုင်ရန်နှင့် EIA follow-up လုပ်ငန်းများ လက်တွေ့ ပါဝင်မှုကို တိုးတက်ကောင်းမွန်စေရန် Follow-up လုပ်ငန်းများအတွက် international best practice principles (IBPP) ၁၇ ချက်ကို လေ့လာဖော်ထုတ် ထားပြီး ဖြစ်ပါသည်။ ယခုသုတေသနစာတမ်းသည် international best practice principles (IBPP) For Follow-up ၁၇ ချက်ကို အသုံးပြု၍ မြန်မာနိုင်ငံ၏ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း လုပ်ငန်းစဉ်ရှိ EIA Follow-up ဆောင်ရွက်ချက်များကို လေ့လာဆန်းစစ်ရန်နှင့် Case Studies အဖြစ် လေ့လာထားသော EIA အစီရင်ခံစာများ၏ အဓိကအားသာချက်နှင့် အားနည်းချက် များကို လေ့လာဆန်းစစ်နိုင်ရန် ရည်ရွယ်ပါသည်။ လေ့လာရာတွင် အသုံးပြုသည့် နည်းစနစ် သည် EIA follow-up လုပ်ငန်းများအတွက် IBPP ၁၇ ချက်နှင့် Lee - Colley review package တို့ကို အခြေခံ၍ ဖန်တီးထား

သည့် Review Assessment Model ကို အသုံးပြု၍ EIA Reports များကို လေ့လာသုံးသပ် ခဲ့ခြင်းဖြစ်ပါသည်။ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ရေး ဌာနမှ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာ (၁၀) အုပ်အား Case Studies အဖြစ် စုစည်းလေ့လာခဲ့ပါသည်။ လေ့လာဆန်းစစ်ချက် အရ Cased Studies ဆောင်ရွက်ခဲ့သည့် EIA Report (၁၀) အုပ်သည် international best practice principles (IBPP) For Follow-up တွင် ဖော်ပြထားသည့် အချက်အလက် အများစုနှင့် ကိုက်ညီမှုရှိပြီး Follow-up ဆောင်ရွက် နိုင်ခြင်းဆိုင်ရာ ဖော်ပြချက်များ ကောင်းမွန်ကြောင်း တွေ့ရှိခဲ့ပြီး လိုအပ်ချက် အနည်းငယ် ရှိကြောင်း လေ့လာတွေ့ရှိခဲ့ပါသည်။ ယခု သုတေသနစာတမ်းမှ တွေ့ရှိချက်များသည် မြန်မာ နိုင်ငံ၏ EIA Regulatory Framework ကို တိုးတက်အောင် ဆောင်ရွက်ရာတွင် အထောက် အကူပြုနိုင်ပြီး EIA အစီရင်ခံစာများတွင် EIA follow-up လုပ်ငန်းများကို ထိထိရောက်ရောက် ပါဝင်ဆောင်ရွက်နိုင်မည် ဖြစ်ပါသည်။

EIA Follow-up Performance Analysis in Myanmar Environmental Impact Assessment Process

1. Introduction

In 1969, the USA originated Environmental Impact Assessment (EIA) as a legal requirement to address the environmental issues of the development sustainably. There have been an increasing number of countries all over the world that are currently practicing EIA regulations for solving the environmental problems of the development action. According to earlier works and various workshops during recent IAIA's conferences, the term "EIA follow-up" was the monitoring and evaluation of the project impacts in connection with the management and communication about the environmental compliance and implementation status of that project.

The effectiveness of EIA activities and the consequences of project implementation may not know without follow-up. EIA follow-up activities can provide particular information and specific data on environmental outcomes (Saunders & Arts, 2014). It intended to improve the management perspective of the project by controlling the action, lesson learning, and informative action (Morrison-Saunders et al 2003).

The principles for best practices of EIA follow-up have developed as simple statements for guiding the effective implementation of EIA follow-up. (Morrison- Saunders & Arts, 2004) It has the total number of 17 IBPP consisting of Guiding Principles and Operating Principles. While Guiding Principles from 1 to 3 addresses the core values (Why?), guiding principles from 4 to 6 represent follow-up nature (what?). There have described the roles and responsibilities of relevant stakeholders (who?) in operating principles 7-11 and how EIA follow-up will carry out (how?) in operating principles 12-17. The following outcomes of the EIA follow-up have highlighted in IBPP;

1. Reducing the adverse and negative consequences of development actions on the environment and increasing the positive outcomes of environmental management (IBPP 1),
2. Transparency and easily assessable information of the actions and decisions made in EIA follow-up to all relevant local community (IBPP 2);
3. The commitments for developing and implementing a follow-up program (IBPP 3);
4. The acceptance of the accountability by the project proponent for the manipulation of the EIA follow-up (IBPP4);
5. Determining the need and securing the implementation of the follow-up activities by the Regulators (IBPP 5);
6. Public participation in follow-up (IBPP 6);
7. Cooperation openly without pre-judge between all relevant stakeholders such as the regulator, proponent and the residents (IBPP 10);
8. The utilization of the legal and regulative, social, economic and cultural state of affairs; and join them all taking together in project planning, decision-making and management actions (IBPP 8);

9. Taking consideration of the cumulative impacts beyond an individual project level (IBPP 9);
10. EIA Follow-up activities that are timely, adaptive, and activity-orientated (IBPP 10);
11. Promoting continuous lesson-learn for building up the future practice (IBPP 11);
12. Allocation of the roles, responsibilities, and tasks clearly (IBPP 12);
13. EIA follow-up that is objective-oriented and goal-driven (IBPP 13);
14. Developing the follow-up Design for fitting the proposed activities focusing on the possibility and flexibility (IBPP 14);
15. Establishing clear standards for EIA follow-up (IBPP 15);
16. Designing the follow-up program that covers the whole project life-cycle (IBPP 16);
17. Supporting sufficient resources such as enough time, adequate staff, and suitable capacity for implementing the follow-up program and activities (IBPP 17).

Although EIA follow-up is very critical for the effective implementation of the EIA system, some developed countries were a missing stage. In most of the Asian countries, the follow-up approach is weak because of the inadequacy of commitment to taking EIA monitoring practices (Wood, 2003). Subject to the EIA follow-up activities in Myanmar, there are requirements and weaknesses not only in the implementation of the environmental management plan and monitoring plan but also in communication, public participation, and information disclosure (IGES report, 2016 & Aung, 2018). EIA follow-up activities such as environmental compliance, monitoring, and law enforcement are the main challenges facing Myanmar.

Although the theory and global reference for the best practices of EIA follow-up have published, there is no research focused on analyzing the performance of the Myanmar EIA follow-up against the International Best Practice Principles (IBPP). In this paper, The IBPP principles have used basically for determining the level of successful EIA follow-up. By using these 17 IBPP principles as a guideline document, this study indicates the essential areas which need to improve the follow-up performance in the Myanmar EIA process.

This paper aims to analyze the performance of EIA follow-up in the Myanmar EIA process. This study also identifies the strengths and weaknesses of EIA follow-up performance and give suggestions on the appropriate and effective measures for improving EIA follow-up performance. This research will help to develop more effective environmental regulations and guidelines regarding EIA follow-up in the Myanmar EIA process.

2. Methodology

2.1 Development of EIA follow-up Assessment Model

This study applied Lee and Colley's review package developed by Lee et al., (1999) to analyze the performance of EIA follow-up in the Myanmar EIA Process. This package has mainly utilized to review the EIA reports' quality and to analyse the effectiveness of the EIA

Process. It consists of four evaluation area organized as a hierarchical pyramid form. The assessment starts at the most reduced level 1, the basis of the pyramidal system with the simple assessment criteria of the review sub-category. Then, he goes upwards step by step from one level to another in the pyramidal system until finishing the overall assessment of environmental reports.

In this study, an EIA follow-up performance assessment model (IBPPFU assessment model) was developed based on the 17 IBPP principles and Lee and Colley review package. This assessment model includes 4 Review Area (R.A), 17 Review Categories (R.C), and 53 Review Sub-categories (R.S.C). E.g. R.A 1 represents the EIA follow-up core values, R.C 1.1 for IBPP 1 and R.S.C 1.1.1 for reviewed sub-question.

2.2 Data Collection

As a sample case study, a total of ten EIA reports were collected through the government officials from EIA Division of the Environmental Conservation Department (ECD) under Ministry of Natural Resources and Environmental Conservation.

2.3 Data Analysis

The collected EIA reports are reviewed by using the developed assessment model (Table 1) for analyzing the performance of EIA procedures. The evaluation was done by the researcher's personal option about the inclusiveness of the relevant information and the impressions pay backed from EIA reports. The assessment symbols graded to the each assessment level are ordered into six groups of form A, B, C, D, E, F (Lee et al., 1999). The assessment symbols of grade "A" represents excellent performance with the well-description of relevant information while grade "D" means poor performance with low quality of EIA reports for follow-up. In this study, the researcher starts the analysis with the simple statements of Review sub-category at the lowest level. The appropriate grade is selected based on the sufficient information described in EIA reports subject with the assessment topics. And then, the evaluation moves upwards to the higher level until the overall assessment result of EIA follow-up performance was evaluated. The results are recorded on the collection sheet. This sheet was used not only for recording the assessment symbols of the results but also for identifying the strengths and weakness of the EIA reports' performance in each review category.

3. Results and Discussions

3.1 The overall EIA follow-up performance result of the collected EIA reports

According to the assessment chart, the result shows that exactly half (50%) of the collected EIA reports have the sound performance for EIA follow-up. Meanwhile, just under a third (30%) of the EIA reports indicates that it has just satisfactory status in the quality of EIA follow-up. However, a fifth (20%) of the collected EIA reports states that the performance is poor (just unsatisfactory) condition for EIA follow-up requirements. (Fig. 1)

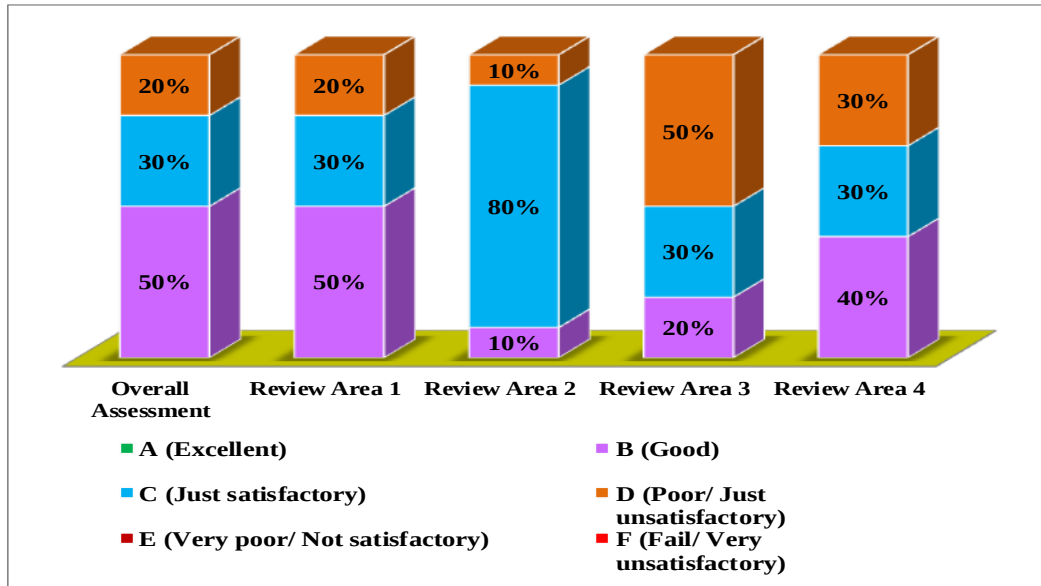


Figure 1. The Overall Performance Assessment Results of the Collected EIA Reports

3.2 Presentation of the core values of the EIA follow-up (Review Area 1)

3.2.1 Assessment results of the EIA follow-up performance under RA 1

According to figure 1, 50 % of the overall assessment result of the studies shows good performance in Review Area 1 with 30 % is just satisfactory status, and 20% gets the poor condition in some weakness.

Review category 1.1 (IBPP 1) - The results stated that 60% of the results are good in presenting IBPP 1 with well-defined goals and action-oriented plans for reducing the adverse consequences of the development actions on the socio-economic as well as the environment. Only 20 % show poor performance and weak in defining specific objectives and in the implementation plans of actual follow-up actions. Moreover, 20 % are satisfactory status in describing EIA follow-up to determine EIA outcome (Fig. 2).

Review category 1.2 (IBPP 2) - IBPP 1.2 is the weakest performance under review area 1 where 70 % of the results graded just satisfactory and 30% as the poor performance with some weakness in giving the information of the follow-up outcomes to the stakeholders, and the right to response about the EIA mechanism and follow-up mechanism (Fig.2).

Review category 1.3 (IBPP 3) - Subject to the incorporation of the commitments for EIA follow-up, the performance can generally be concluded well performed. The result shows an equal percentage as good standard and satisfactory standard for ensuring the involvement of commitments of EIA follow-up with several strengths (Fig. 2).

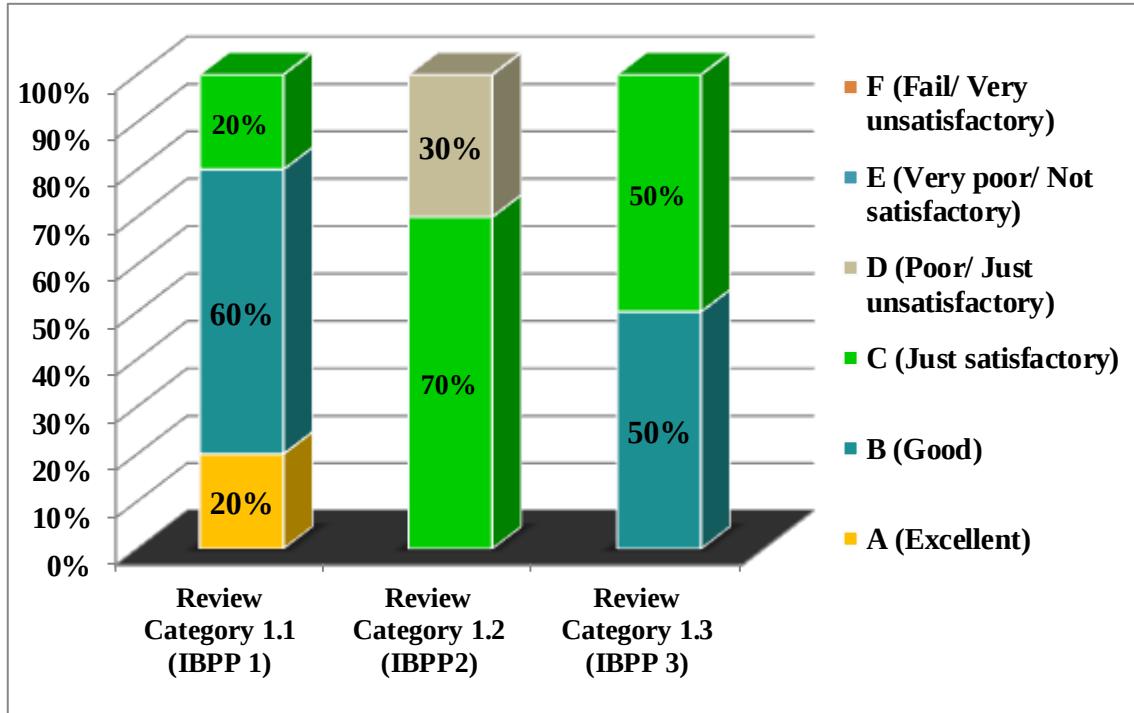


Figure 2. Assessment results of the EIA follow-up performance by Review Area 1

3.2.2 Discussion on the Results of the follow-up performance under review area 1 (Identification of the Strength and weakness under RA 1)

Under Review Area 1, review category 1.1 and 1.3 indicates several strengths through review category 1.2 shows some weakness in presenting the core values following the international principles for EIA follow-up (Fig. 2). Most of the EIA cases studies have well-defined objectives and goals for reducing and mitigating the environmental impacts of the project actions. Moreover, there are well-organized actual plans or procedures for implementing environmental management and follow-up requirements. It includes clear commitments and responsibility for carrying out EIA follow-up plans and detailed descriptions of monitoring and management on the environment.

Most of the EIA reports are weak in the transparency of the EIA follow-up activities and in identifying the Project Affected Persons, informing stakeholders and allowing feedbacking the EIA mechanism about the project impacts and activities. Some does not have well-plans of information disclosure about the outcomes and decisions of EIA and its follow-up activities.

3.3. Defining the roles and responsibilities of participants in EIA follow-up “Who” (Review Area 2)

3.3.1 Assessment results of the EIA follow-up performance under RA 2

It is clear from figure 1 that it can consider as a generally satisfactory status in implementing EIA follow-up performance with 80% as satisfactory level and 10% as a good level even though a small amount (10%) of the reports graded as poor level. Figure 3 shows the assessments results under RA 2.

Review category 2.1 (IBPP 4) - The result describes that IBPP 4 is the best performance area by comparing the quality of the other IBPP principles under Review Area 2. 40 % of the EIA reports represent as good performance with generally satisfactory and complete in the accountability of the proponents for implanting EIA follow up. A half (50 %) scored as satisfactory performance except a small minority (10%) as a poor standard in the communication mechanism of follow-up outcomes by proponents (Fig.3).

Review category 2.2 (IBPP 5) - The second highest performance area under Review Area 2 is the review category 2.2 though 50% as satisfactory and 30% as good results. However, 20% of the result get poor performance with some inadequacy in ensuring the follow-up process by the regulator. (Fig.3).

Review category 2.3 (IBPP 6) - This category shows the weakest performance under Review Area 2 through 50 % of the results graded as poor performance and 20% scored as a poor performance in evaluating the involvement of the local community in EIA follow-up process. Only 30% can consider as satisfactory with some requirements in the community involvement for the follow-up process (Fig.3).

Review category 2.4 (IBPP 7) - the study shows that 80 % of the results graded as satisfactory in co-operating openly and without prejudicing in EIA follow-up between all parties. Each 10 % of the result scored an equal percentage of good and poor performance (Fig.3).

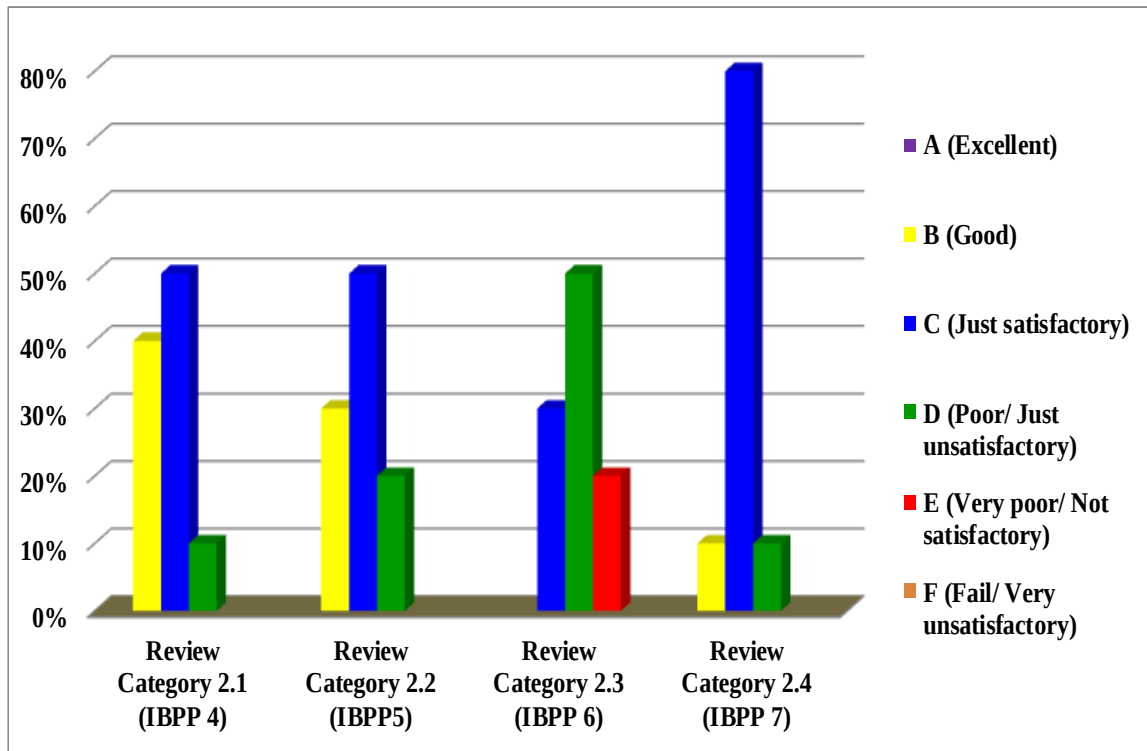


Figure 3. Assessment results of the EIA follow-up performance by Review Area 2

3.3.2 Discussion on the Results of the follow-up performance under review area 2

(Identification of the Strength and weakness under RA 2)

For Review Area 2, this study found that the study result gets just a satisfactory standard in identifying the roles and responsibilities for EIA follow-up (Fig. 3). Review category 2.1 and 2.2 indicate the best performance in line with the IBPP principle though review category 2.4 shows the acceptable standard. On the other hand, the weakest performing review category is the review category 2.3 (IBPP6) because of the limitation of the community involvement in the EIA follow-up activities.

In some of the EIA case studies, the project proponents accept their accountability for implementing EIA follow-up and taking into account their project environmental and social impacts. They considered the effects and impacts of their project activities and the fundamental requirement of follow-up actions such as management and monitoring mechanisms. In most of the case studies, EIA regulators ensure the necessity of EIA follow-up in the EIA reports as a fundamental requirement of the EIA mechanism. All of the case studies commit to carry out EIA follow-up actions and to submit the follow-up results and monitoring reports to the relevant regulators.

In spite of identifying a lot of strength area under Review Area 2, there are some weakness areas. Although the project owner clearly describes their responsibility for the mitigation of negative impacts, there is a lack of communication to stakeholders in developing the follow-up design, in implementing the follow-up program and in building the mutual trusts. It can be said that the local people cannot participate directly in the follow-up activities. Besides, most of the case studies describe that there are no plans to inform the local community about the results of the EIA follow-up.

3.4 Addressing the nature of EIA follow-up (what?) (Review Area 3)

3.4.1 Assessment results of the EIA follow-up performance under RA 3

As shown in Figure (1), the assessment results of the EIA follow-up performance under Review Area 3 show that 50 % of the EIA reports are poor standard in this review area. Figure 4 gives information about the performance of the case studies in IBPP 8-11.

Review Category 3.1 (IBPP 8) - Under this category, 30 % of the EIA reports are poor in using follow-up techniques for EIA culture and social context. 50 % get as satisfactory performance in strengthening follow-up components for environmental and social management of the development. Only 10 % results in sound performance while the same percentage (10%) ranked as very poor in that area (Fig. 4).

Review Category 3.3 (IBPP 9) - This category shows the weakest performance in this Review Area because 50% of the EIA reports graded as poor performance and 30 % as very poor in addressing EIA follow-up components for cumulative impacts of the projects. Each 10 % of the results scored as satisfactory and good performance respectively (Fig. 4).

Review category 3.3 (IBPP 10) - For this review category, 30 % of the results categorized as precious level and 40 % as satisfactory performance in applying EIA follow-up actions with timely, adaptive, and action-oriented management for reducing the

environmental and social impacts. On the other hand, 30 % of the case studies categorized as D - poor performance in that IBPP principle (Fig. 4).

Review Category 3.4 (IBPP 11) - This category is the best performance review category comparing with the other IBPP under this review area. 30 % graded as sound performance in addressing follow-up results for continuous lesson-learned experiences although 10 % scored as poor standard in the communication to the relevant stakeholders. 60 % stand at a satisfactory level in continuous lesson-learning for future practice (Fig. 4).

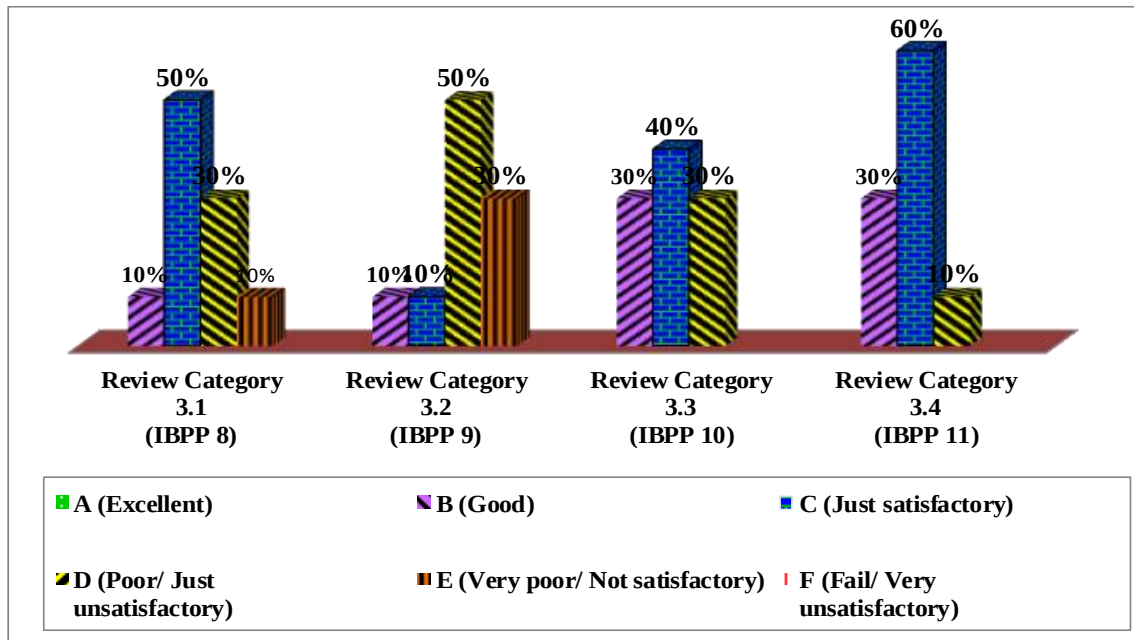


Figure 4. Assessment results of the EIA follow-up performance by Review Area 3

3.4.2 Discussion on the Results of the follow-up performance under review area 3 (Identification of the Strength and weakness under RA 3)

Review category 3.3 and 3.4 indicate the highest performance and major strength area in this review area though review category 3.1 shows the acceptable standard. On the other hand, the weakest performing one is the review category 3.2 through poor performance in addressing follow-up components for cumulative effects and sustainability (Fig. 4).

IBPP 10 is the major weakness area under review area 3 together with 50% graded as D and 30 % scored as E. Most of the EIA reports do not incorporate the EIA follow-up components in the cumulative effects. In most of the EIA reports, these follow-up requirements have not considered as national or regional strategic approaches. Although most of the case studies describe adaptive and pro-active follow-up actions to tackle environmental issues, and the data collection plans for monitoring mechanisms, there is a lack of evaluation mechanism of that collected monitoring data. Some of the EIA reports are not considered the other EIA mechanisms or management systems such as ISO 14001 based environmental management systems.

3.5 How EIA follow-up should conduct (Review Area 4)

3.5.1 Assessment results of the EIA follow-up performance under RA 4

According to figure 1, the assessment result of this review area can be concluded at a good level because 40% of the case studies stand as B and 30% stand as C. However, 30 % of the results considered just unsatisfactory because of some requirements although Parts are well-performing. The figure 5 provides the assessment result information of IBPP principles under review area 4.

Review Category 4.1 (IBPP 12) - Review category 4.1 deals with the allocation of follow-up tasks, roles, and responsibilities in every stage of the follow-up process. The result shows that 80 % of the case studies grouped as C (satisfactory level) and 20 % grouped as D (poor performance) with the unclear description of the allocation of tasks, roles, and responsibilities for every stage of EIA follow-up process within and among the different parties (Fig. 5).

Review Category 4.2 (IBPP 13) - Review category 4.2 shows the great performance where 50% of the case studies scored good performance in EIA follow-up requirements and 40 % scored acceptable performance in promoting adaptive project management system. Only 10% graded as the poor performance with the failure of public awareness and acceptance about the project (Fig. 5).

Review Category 4.3 (IBPP 14) - Review category 4.3 is also a good performing category under review area 4 because 50 % of the case studies ranked in B and 30 % graded in C. Only 10 % of the EIA reports get D score because of some omissions or inadequacies (Fig. 5).

Review Category 4.4 (IBPP 15) - Under this category, the results can consider as acceptable standard with 30% of collected reports get B, 40 % get C and 30% get D. In some of the EIA reports, there are some weaknesses in developing clear criteria for the EIA follow-up process (Fig. 5).

Review Category 4.6 (IBPP 16) - Review category 4.6 is the weakest performing category compared to the performance of the other under review area 4. It can see from Figure 9 that 40% of the case studies grouped as Grade-D (poor performance) in using EIA follow-up programs for all phases of the project. 40% grouped as Grade-C and 20% grouped as Grade-B with the acceptable performance (Fig. 5).

Review Category 4.7 (IBPP 17) - For this category, the result shows that 40% of the EIA reports graded as Grade-B as a good performance while 40% graded as Grade-C and 20% ranked as Grade-D with some requirements of proving adequate resources (Fig. 5).

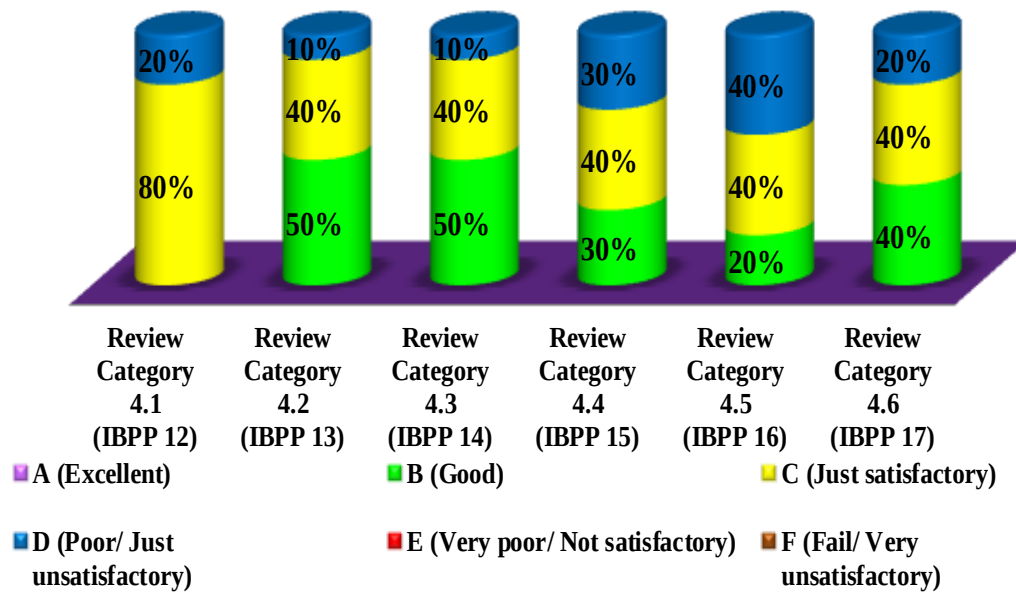


Figure 5. Assessment results of the EIA follow-up performance by Review Area 4

3.5.2 Discussion on the Results of the follow-up performance under RA 4 (Identification of the Strength and weakness under RA 4)

Under Review Area 4, the best performing review category is IBPP 13 and 14 though IBPP 15 and 17 show marginally acceptable standards. IBPP 12 and 16 are the poor performance in the follow-up compared to the other IBPP principles under review area 4 (Fig. 7).

Regarding the IBPP 12, the study results get only general acceptable results with some weaknesses because the collected EIA report described the general allocation of tasks, roles, and responsibilities for the EIA follow-up process. It needs to be more specification with the well-defined work allocations for each component of the EIA follow-up process within and among the different parties.

Although IBPP 13 is one of the best performing areas under review area 4 with the objective-led and goal orientated, there are some weaknesses in improving public awareness and acceptance about the project with the lack of communication of follow-up results.

IBPP 14 is the best performing area under review area 4 where the implementation measures of EIA follow-up are relevant to the expected environmental impacts. Moreover, EIA follow-up designs are practicable and feasible in terms of the design, layout, location, environment sensitivity, and affected stakeholders of the project.

Subject to the IBPP 15, the results are acceptable level in developing the clear standard for follow-up. Although EIA follow-up designs have been reflecting the best practice and well-defined methodologies for monitoring and management, it still neglects the clear description of evaluation and auditing mechanism of follow-up actions and the communication of follow-up results to the local community.

IBPP 16 is the weakest performing area compared to other IBPP principles under review area 4. The EIA follow-up programs in most of the collected case studies do not cover

all stages of the development action as the pre-construction, construction, operation, and decommissioning.

Notwithstanding some requirements in 20% of the case studies, the provision of adequate resources (giving enough budget, sufficient time, suitable staff, and capacity) is acceptable. The best practice standards have applied for the EIA follow-up program to enhance the efficiency of the actions taken.

4. Conclusion

Over the past five years ago, Myanmar EIA mechanism has established. But only a few research has been done to better the effectiveness of the EIA Process. Moreover, there is no research for evaluating the EIA follow-up performance of the Myanmar EIA process. Therefore, this research intended for improving the effectiveness of the Myanmar EIA process mainly focuses on improve the follow-up performance in terms of international best practices. This study pointed out the requirements, strengths, and weaknesses of EIA follow-up performance in Myanmar EIA procedure and practices for future legislative improvement forward the effectiveness of EIA follow-up.

According to the analysis results (Figure 1), 50% of the collected case studies get Grade B with good performance in addressing 17 IBPP. The result shows that the 17 IBPP has addressed to satisfactory performance in 30 % of the selected EIA reports. 20 % gets poor performance because of the neglect and weakness of some IBPP. The overall EIA follow-up performance in Myanmar EIA procedure can be concluded as a well-performed standard in selected EIA reports

In terms of IBPP, transparency and easily assessable information of the EIA follow-up activities and results (IBPP 2), the limitation of the direct engagement of the local people in EIA follow-up Activities (IBPP 6), applying EIA follow-up for the cumulative impacts of the development actions (IBPP 9), and covering the overall life cycle of the projects (IBPP 16) are the main weakness areas in Myanmar EIA process. On the other hand of these weakness areas, there are a lot of strength areas of the EIA follow-up performance under Myanmar EIA procedure. These areas are IBPP 1, IBPP 2, IBPP 4, IBPP 10, IBPP 13 and IBPP 14.

To improve the effectiveness of EIA follow-up in Myanmar EIA procedure and practice, it is necessary to i) enhance Public consultation mechanism for EIA follow-up outcomes; ii) promote the direct involvement of local people in the follow-up stages; iii) define clearly the roles and responsibilities of the project proponent, government authority and local community in every EIA follow-up component; iv) develop specific procedures for evaluation and communication of the follow-up outcomes; v) incorporate EIA follow-up techniques and outcomes beyond the individual project level for addressing effective environmental rules and regulations.

This study highlights the overall performance of EIA follow-up and requirements for the future improvement of the EIA regulatory framework in Myanmar. The successful implementation of EIA follow-up is very important for the sustainable development of a developing country. By identifying the strengths and weaknesses of EIA follow-up performance in this study in terms of IBPP, effective environmental regulations and procedures will be developed in Myanmar.

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6. References

- [1] Ross Marshall, Jos Arts and Angus Morrison-Saunders (September, 2005), EIA follow-up: International Best Practice Principles, Impact Assessment and Project Appraisal, volume 23, number 3, September 2005, pages 175–181.
- [2] Jos Arts, Paula Caldwell and Angus Morrison-Saunders (February, 2020), Environmental Impact Assessment follow-up: good practice and future directions, 175-184
- [3] Angus Morrison-Saunders, Jill Baker, Jos Arts (July, 2017). EIA follow-up outcomes and improvement discussion paper (January; 2010:1-4),
- [4] Angus Morrison-Saunders, Ross Marshall, Jos Arts (July, 2017) EIA Follow-up may be defined as the monitoring, evaluation, management, and communication of the environmental performance of a project or plan, Special Publication Series No. 6
- [5] Glasson et al., 2005: 2-4, Introduction to Environmental Impact Assessment
- [6] A Alers, May 2016, A review package for South African EIA follow-up performance
- [7] Aung, T. S. (2017). Evaluation of the environmental impact assessment system and implementation in Myanmar: Its significance in oil and gas industry. Elsevier
- [8] Angus Morrison-Saunders & Jos Arts (2004); Exploring the Dimensions of EIA Follow-up
- [9] Arts J., Caldwell P., Tache M., (2000), EIA follow-up, Good Practice and Future Direction, Transportation! EIA Centre, Rijkswaterstaat, he Netherlands.
- [10] Angus Morrison-Saunders, Jill Baker, Jos Arts (February, 2012), Lessons from practice: towards successful follow-up, 43-53