

ASSESSING THE EFFECTIVENESS OF ENVIRONMENTAL IMPACT ASSESSMENT  
(EIA) PROCESSES IN MYANMAR:  
CASE STUDY OF THE CEMENT INDUSTRY IN NAYPYITAW

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ABSTRACT

Environmental Impact Assessment (EIA) is a process in which the effects of proposed projects, plans or policies are identified, predicted, evaluated and mitigation measures are formulated prior to major decision making. It integrates the environmental and social concerns in the economic activities and improve decision-making process. It can be divided into three broad stages 1) preliminary assessment in which screening to decide whether EIA is required or not and scoping to identify impacts and key issues are undertaken, 2) the detailed assessment which involves impact analysis and mitigation measure formulation, and documenting of those results in Environmental Impact Statement (EIS) and decision making process, and 3) follow-up in which monitoring and evaluation of impact management and necessary measures are taken. Although EIA is theoretically sound to mitigate the impacts by developmental projects, the practices are criticized for not achieving its primary objective. It has become a pro-forma exercise for the project approval and poor execution of mitigation measures had been indicated as shortcoming of EIA.

Myanmar devoted to conserve the environment by establishing the new regulatory structure and institution. The new Environmental Conservation Law was enacted in 2012 and the Environmental Conservation Rules and the Environmental Impact Assessment (EIA) procedures were issued in 2012 and 2015 respectively. As a newly enacted legal tools, many points are highlighted as shortcomings such limited assessment on social and biodiversity impacts, poor public participation and consultation, limited technical, financial and human

resources and lack for monitoring and evaluation of impacts after project approval. Currently the government emphasize on strengthening of review system with less focus on monitoring and evaluation of impacts at operational stage. The effectiveness of EIA in mitigating the negative impacts on the environment is questionable without monitoring and evaluation of impact management. The focus is on the cement industry which is rapidly expanding in Myanmar due to infrastructure development and which has significant environmental impacts related to air and water pollution, global warming and deforestation and biodiversity.

The aim of this research is to assess the effectiveness of EIA system in Myanmar by auditing the impact mitigation by cement production as a case study. The specific objectives are:

- 1) To assess the quality of Environmental Impact Statement (EIS)
- 2) To monitor and evaluation the environmental and socio-economic impacts of cement production
- 3) To evaluate the performance of mitigation measures
- 4) To make practice and policy recommendation for better implementation of EIA

The first step is review of EIS to capture predicted impacts and their mitigation. The second step involves interrelated steps to monitor the impacts of cement production by using life cycle assessment, biodiversity and biomass survey and key informant interview, focus group discussion and household survey. Data was collected from February to March 2018. The results were synthesized to evaluate the performance of mitigation measures in assessing the effectiveness of EIA.

According to the review of EIS, the socio-economic impacts were failed to identify in the EIS. The predicted impacts were poorly identified, and the significance and severity were not well elaborated, and the impact formulation methodology was not described. The words used are too generic and hard to examine the intensity. For environmental impacts, the

mitigation measures were repeatedly described planting trees and establishment of green zone. The environmental impacts by cement production mainly associated with carbon emission from quarrying activities and calcination stage of cement production. The results showed that the quarry area was less diverse compared to control area and rehabilitation area. The rehabilitation is not well managed for its intended purpose. The CO<sub>2</sub> emission from cement production is higher than other literature. The dust and gaseous emissions from quarrying, transport and cement production impose impacts on the air, water and soil quality which in turn affecting the socio-economic well-being of local community.

The socio-economic impacts were mainly imposed by the loss of farmlands and common lands and dust emission. Loss of farmlands resulted in reduced crop and livestock production and occupational change, leading to decreased food availability and unstable income. The community faced hardship in extracting forest products, especially fuelwood for cooking, when they lost access to the forest areas. The air, water and soil quality, and crop yield were impacted by dust emission. The shared consumption on water by cement production also exerted stress on water availability. Although a few workers have been employed at the cement plant, the observed percentage was relatively lower than stated in EIS. Due to the low educational level, the community member worked as casual workers at cement plant for low-skilled job. The infrastructure was mostly developed in Aung Nan Cho which was observed statistically most affected community in negative impacts.

According to the observed impacts, the implementation of mitigation measures for environmental impacts and unanticipated socio-economic impacts were found unsatisfactory. As some impacts are failed to predict in EIS, those are not mitigated at all. Thus the observed impacts are mostly negative and only the infrastructure development can be recognized as positive impacts. The monitoring of impact management by the authority is absent.

At project level, it is recommended to consider effective mitigation measures such as substitution of fuel, application of bag filters and electrostatic precipitators, desulphurization and denitrification technology. The rehabilitation should be managed with participation of local communities by utilizing agroforestry practices, thereby lessening pressure on the natural forest, increasing carbon stock, lessening management load of the company and generating employment opportunities for local communities. The potential source for water exploitation should be prioritized for sustainability of both the company and the communities.

For the effective implementation of EIA process, it is essential to promote impact monitoring and evaluation in order to address unanticipated impacts and to provide baseline data for future EIA. In impact analysis and mitigation measure formulation, it is recommended to utilize advanced technology, to consider the local context and to integrated national development strategy and other cross-cutting practices for impact management. It is also important to raise environmental awareness of each stakeholders in order to promote participatory monitoring and evaluation on the performance of mitigation measures.

*Key words:* Environmental Impact Assessment, Life cycle assessment, Cement production, Myanmar, Effectiveness