(87)

Effectiveness of Monitoring the Cumulative Impact on Environment due to Development: A Case Study on Southern Expressway Extension Project-Section 4

Jayaweera J.A.P.*, Bandara N.J.G.J., Chandrathilake G.G.T.

Department of Forestry and Environmental Science, University of Sri Jayewardenepura, Nugegoda, Sri Lanka
**japjayaweera@gmail.com*

Abstract

Environmental Impact Assessment (EIA) is a tool used to identify the environmental, social and economic impacts of a development project prior to decision-making. In this study, an assessment of the effectiveness of implementation of the Environmental Monitoring Program (EMOP) introduced in the EIA Report for Southern Expressway Extension Project-Section 4 was carried out. During the study, quantitative and qualitative data were gathered for before and during the project implementation on three main variables, namely Pollution Factors (physical and chemical), Ecological Factors and Management Factors. The measured parameters were evaluated against the national standards and for the baseline data (before project). An eight surface water quality parameters were analyzed, and fluctuations were found against the baseline data. Some parameters were exceeded the national standards and observed that the selected sample locations were not effective and not served the purpose of monitoring. All measured air quality parameters were fluctuated against the baseline during the project period without violating the national standards and revealed that there is a significant increase in NOx pollution with time series. Both daytime noise levels and residual noise levels were oscillated against the baseline without exceeding the national standards. All baseline night time noise levels were on or above the national standards and all night time residual noise levels were increased against the baseline. The reported vibration levels were well within the national standards. It was noted that an effectiveness of EMOP was not significant due to lack of proper baseline data in the EIA. The natural pristine habitats have been fragmented and degraded; more than 80% of its original habitats were affected. Spreading of invasive plant species is significantly higher and the number of mammal species were declined compared to the baseline. Changes of movement pattern of animals were observed, and 1,266 timber value trees were removed with the removal of vegetation. However, management factors including cost of monitoring and enforcement of project approving authority for environment conservation were significantly improved by the implementation of EMOP. According to the results, even though the pollution factors have not exceeded the national standards, the cumulative impact has increased significantly compared to the year 2009. Implementation of EMOP has positively affected on almost all factors and revealed that measured variables have a direct impact on the effectiveness of environmental monitoring. Monitoring of environmental parameters by isolating the development initiatives, will not be captured the real impact on the environment. Only a holistic approach constitutes overall/cumulative environmental impact due to development initiatives in the area and analysis of strong set of historical monitoring data needed to see the real and cumulative impact created in the area before arriving at strong recommendations.

Keywords: Development, Environmental Impact Assessment, Environmental monitoring