

Cumulative Effects Assessment for the Sustainability Analysis: A Study on Dhaka City Road Transport Sector

ABSTRACT

The study focuses on a technique for sustainability analysis through cumulative effects assessment (CEA) of road transport sector, the performance of which relies on the performances of the factors (stressors) affecting the system. Planning for a system's sustainability thus depends on the interconnectedness of system stressors and their degree of connectivity. Therefore CEA can be a potential analytical approach for sustainability analysis because it provides an integrated framework with environmental, social or economic considerations drawn from multiple stressors' connectivity of any complex system. The study aims in conceptualizing the process to assess the degree of connectedness among the stressors affecting Dhaka city's transport system through digraph and matrix analysis and conducting economic evaluation of the impacts on the system stakeholders. The innovative idea of the research is to account the synergistic effect of road transport sector (rather than accounting effects separately), which normally happens in a system when all the stressors prevail together. This approach can provide baseline scenarios to the motorized cities of developing countries (like Dhaka city) through 'what-if' analysis in conjunction with sustainability planning.