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Economic Feasibility Evaluation of Government Investment Project by Using Cost
Benefit Analysis: A Case Study of Domestic Port (Port A), Laem-Chabang Port, Chonburi
Province
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Abstract

This paper aim to evaluate costs and benefits of the Domestic Port A Project, Laem Chabang Port, Chonburi Province by using Cost-Benefit Analysis Approach (CBA). The approach can provides support for informed judgment and decision making about the merit of the Project. Moreover, the evaluation criteria can be presented in three traditional forms: Net Present Value (NPV), Benefit-Cost Ratio (B/C ratio) and Economic Internal Rate of Return (EIRR), in order to appraising the worthiness of the project. The study also defines all potential costs and benefits. Consequently, the net present value (NPV) of the project is 618.705 million baht. Economic Internal Rate of Return (EIRR) equals 16.81% and benefit-cost ratio (B/C) is 1.27. The results indicate that the Domestic Port A is worth to invest. Furthermore, the sensitivity analysis shows that the Project is worthiness even any unexpected circumstances will be happened since the NPV, EIRR, and B/C are also accepted under any possible scenarios.

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1. Introduction

In the competitive world, Thailand has to build and enhance the competitive advantage. According to the 11th National Economic and Social Development Plan and the Ministry of Transportation's Master Plan, the government obviously emphasize on the economic linkage and infrastructural development. The strategies indicate to encourage investment in infrastructural especially in logistic system. The development of logistic tools and information technology infrastructure as well as encourage efficiency of logistic services to meet the world standard are also mentioned in the Master Plan.

The transportation and logistics's infrastructure development in the past decade was successful in the sense of quantity, but in quality still fall behind particularly promoting the transportation mode which are safety and environmental friendly. The use of transportation modes in the Thailand are 74% by road, 21% by railway,

and 5% by airplane for transportation. There are 82% by road, 15% by boat and ship, and 3% by railway for commercial shipping regarding to the data from Ministry of Transportation. As you can see, the proportion of by-road mode is more than 70% for the transportation and commercial shipping. However, this mode causes more accidents and carbon dioxide emission compared to other modes. Encouragement of investment in transportation and logistics infrastructure, which reduce social and environmental damages in addition to efficient use of energy, is very important for future improvements.

The Domestic Port (Port A) will be constructed in Laem-Chabang Port, Chonburi Province, located on the waterfront area between Port A0 and Port A1. The Project is one of the Port Authority of Thailand's projects, which is in the scope of improving logistic infrastructure along with conserving the environment. There are many reasons for bringing up this project. First, this project conforms to 11th National Economic and Social Development Plan and the Ministry of Transportation's Master Plan. It is also in conjunction with the objective of Laem-Chabang Port's Development Plan. This project increases efficiency of logistic services and support increasing of import-export capability of the country in order to reach the world class standard.

Secondly, the statistic of Laem-Chabang Port shows that there are three ways to deliver the goods to the port for export which are by-road (including trucks, trailers, and so on), by-coastal vessel and by railway. The use of by-coastal vessel mode is only 2% of all shipping mode to the Port while by-road accounts for 90% and by-railway accounts for 8%. The investment in Domestic Port A Project is the effort for shifting shipping mode from by-road to by-coastal vessel, which more efficiency and more cost effective than by-road mode. Thus the shifting mode will create lower cost and competitive advantage to the industry as well as increasing the linkage of the logistic system in the region.

Last but not least, Laem-Chabang Port faces the congestion problem due to the increasing of freighters. Also, the growth of coastal vessels which deliver the exported containers to Laem-Chabang Port is increasing more than 50% every year since 2008. Coastal vessels which use the port with the international cargo ships experience delays in receiving import goods while the export products are at risk of sending containers to catch the cargo ships to Laem-Chabang. The unstable schedule affects the coastal vessels system dramatically. As a result, Domestic Port A Project can solve these problems and can gain the confidence from the international freighters to use the coastal vessel for carrying their goods. Finally, by-coastal vessel mode is more conserving the environment and energy.

However, the worthiness of the Project is questioned. This paper aims to evaluate direct and indirect cost and benefit of the Domestic Port A Project. The economic analysis by using Cost-Benefit Analysis Approach can provide support for informed judgment and decision making about the merit of the Project. Whether the Project contributes to the future improvements in social and economic welfare of the community and country needs to be answered.

2. Methodology

This study uses cost – benefit Analysis (CBA) as an approach to help decision makers to evaluate the Project. A cost-benefit analysis (CBA) is an economic evaluation technique which can be used to appraise whether the project is worth undertaking. The analysis gives the costs and benefit of different scenarios in order to determine the benefits offset the costs. CBA requires an investigation of a project's net impact on economic welfare. Therefore, it evaluates all costs and benefits of the project. According to Boardman (1996), the paper defines CBA of the project as all potential negative impacts and positive impacts.

Once the economic values of benefits and costs have been derived, the project's result can be presented in three traditional forms: Net Present Value (NPV), Benefit-Cost Ratio (B/C ratio) and Economic Internal Rate of Return (EIRR).

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