

ABSTRACT

The aim of this study is to help Gypsum Fiberboard to find a location for its expansion which minimizes the total transportation cost. Gypsum Fiberboard Co., Ltd is in the lime burning business. In this business transportation cost is an important factor. Lime burning factories usually locate themselves next to the raw material source to achieve low transportation cost. The current location of Gypsum Fiberboard Co., Ltd. is 22 km away from the raw material source and on average 200 km away from its customers.

Facility location models including the center of gravity method and Alfred Weber's theory have been used to discover an alternative location for the expansion of Gypsum Fiberboard Co., Ltd. Through the help of the load distance method, the best alternative location was chosen. The total transportation cost for the best alternative location has been calculated and compared to Gypsum Fiberboard's current location. The result was that the new location could save up to 5,004,000 baht/year on transportation cost. The additional cost of moving the facility to the new location has been calculated, separated into fixed and variable cost. The fixed cost equaled 15,862,000 baht, whereas the variable cost equaled 49,500 baht/month. The NPV, IRR and Payback period have been calculated. All of the results were favorable for investing in the new location, consisting of NPV = 3,257,572 (5 years, 7%), IRR = 19.84% and Payback period = 3 years 7 months. Finally, qualitative factors concerning the new location have been gathered through interviews with the manager and owner. These factors reveal another perspective of moving to the new location. Overall, the qualitative factors are in favor of the new location.