ABSTRACT

The aim of this project was to reduce excess inventory to an optimal inventory level and determine an optimal service level policy according to lost sale cost and holding cost, and recommend a suitable model of inventory – a replenishment system.

The study started with the data collection of historical demand and inventory data for both export products and domestic products which showed a comparison of both. The researcher selected domestic products as the first priority of high impact products, and applied two models of a replenishment system, which are fixed order quantity and periodic review with known stock-out cost, varying demand, and constant lead time.

The results show that the fixed order quantity model can provide the best outputs when compared to the periodic review, in terms of the lowest total inventory cost and number of days of inventory, while the periodic review offered a second alternative performance.

After the researcher applied the fixed order quantity model, the total inventory cost was reduced by 1.1 million baht or 76% of actual cost during one year of evaluation, the average inventory will be reduced by 4.6 million or 78% of the actual inventory value, and the number of days of inventory decreased from 174 to 26 days. Furthermore, the service level can be achieved at an optimal service level policy, based on stock-out cost and inventory cost.