Abstract

This research is focused on building an optimized transport network for green field paint producing company in Sri Lanka. This research is based on a case study of a transport service providing company willing to take operations of delivering finished goods to selling points from a green field paint producing company in Sri Lanka. Both parties are interested in making the operation a cost reducing and an easily accessible operation. Existing method to make a transport model will not give an optimized solution for this case. Company production plant is located in Koggala and warehouse is located in Seeduwa. Service provider has to distribute finished goods to final selling points which are located island wide. Service provider needs to transport produced goods according to the demand in Seeduwa warehouse from production plant in Koggala. Southern part of Sri Lanka demands caters from Koggala plant warehouse and other parts demand the need to cater from Seeduwa warehouse.

This research creates a step by step process to make an optimized transport model for the service provider. Reduction of number of trucks in the operation, reduction of number of kilometers run by trucks, increasing the utilization of trucks which are used in the operation, reducing the cost for the operation are major considerations in this research. The method which is used currently to build transport models are highly depending on the operational experience gained by the carryout past transport models. New method is a combination of academic theories and operational knowledge. Organizing a new transport model according to the capabilities, constrains of both parties and clustering more accurately to drop points, using Hamiltonian cycle method are used to reduce number of kilometers run by a truck. Allocating trucks to increase utilization, providing a feasible solution for the advantage of both parties. New transport model has the capability to reach major considerations in this research.

Not only obtaining financial benefits for both parties but also giving benefits to environment and society by reducing fuel burning for operation and reducing the portion represented in traffic congestions by trucks are regarded in this operation.

Key words: Transport model, Hamiltonian cycle method, Optimized transport network, Cluster, Green field Company, Truck utilization, Truck space optimization, Minimizing cost, Carbon footprint.