

## **Green Logistics & its Significance in Modern Day Systems**

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### **Abstract**

Green Logistics is defined as “efforts to measure and minimize the environmental impact of logistics activities, these activities include a proactive design for disassembly”. Reasons why companies choose to “go green” is that it gives the company a competitive advantage as the customers are demanding now a days that the businesses go green. The reason why companies usually adapt a green transport system is in order to reduce traffic congestion, reduce pollution, promote social harmony and to save transportation costs. So when a system of green logistics infrastructure is established it sets the basis system for the entire green logistics system.

Logistics are an important function of modern transport systems. Contemporary technological and spatial developments have improved the cost, efficiency and reliability of freight and passenger transport systems. At the same time, the negative environmental impacts of transportation have gained wide recognition and are at the core of issues of sustainability, especially in urban areas. Since the applications of logistics are generally positive for the efficiency of transport systems, it has been suggested that logistics are environmentally friendly, thus the concept of “green logistics”. It is argued that although logistics may be linked to less environmentally damaging transportation systems, they have created a set of paradoxes. This paper will thus investigate the issue of green logistics and its significance in modern day systems.

**Keywords:** Green Logistics, Social harmony, Sustainability.

## 1. Introduction

Logistics is the integrated management of all the activities required to move products through the supply chain. For a typical product this supply chain extends from a raw material source through the production and distribution system to the point of consumption and the associated reverse logistics. The logistical activities comprise freight transport, storage, inventory management, materials handling and all the related information processing. The main objective of logistics is to co-ordinate these activities in a way that meets customer requirements at minimum cost. In the past this cost has been defined in purely monetary terms. As concern for the environment rises, companies must take more account of the external costs of logistics associated mainly with climate change, air pollution, noise, vibration and accidents.

**Green logistics** is a form of logistics which is calculated to be environmentally and often socially friendly in addition to economically functional. It describes all attempts to measure and minimize the ecological impact of logistics activities. This includes all activities of the forward and reverse flows of products, information and services between the point of origin and the point of consumption. It is the aim to create a sustainable company value using a balance of economic and environmental efficiency.

## 2. Significance of Green Logistics

### 2.1 Importance of Green Logistics

Logistics are an important function of modern transport systems. While traditional logistics seeks to organize forward distribution, that is the transport, warehousing, packaging and inventory management from the producer to the consumer, environmental considerations opened up markets for recycling and disposal, and led to an entire new sub-sector: green logistics (Byrne and Deeb 1993).

Inserting logistics into recycling and the disposal of waste materials of all kinds, including toxic and hazardous goods, has become a major new market. Reverse distribution is a continuous embedded process in which the organization (manufacturer or distributor) takes responsibility for the delivery of new products as well as their take-back. This would mean environmental considerations through the whole life-cycle of a product (production, distribution, consumption and disposal). For example, BMW is designing a vehicle whose parts will be entirely recyclable (Giuntini and Andel 1995).

A business gain can gain the following benefits from getting into 'green logistics' -

- Reduction in CO2 emissions
- Unlocking significant cost savings
- Heightened supply chain optimization
- Boosted business performance

### 2.2 Paradoxes of Green Logistics

When adapting green logistics there could be some inconsistencies that might arise. The issue is that green logistics is supposed to be environmental friendly, but logistics

in itself is not very green because of pollution and waste that it creates. So when adapting green logistics there are some paradoxes that arise as given below:

- **Cost:** Companies want to get the cheapest way to do things but at the same time they should choose options that are green, which sometimes are more costly to the company. The purpose of logistics is to minimize costs, notably transport costs. The cost-saving strategies that are pursued by logistics operators are often at variance with environmental considerations.
- **Time/Flexibility :** The modern integrated supply chains and JIT provide adjustable and competent physical distribution systems but on the other hand extended production, distribution and retailing models are consuming more space, energy and generate more emissions (CO<sub>2</sub>, particulates, NO<sub>x</sub>, etc.).
- **Reliability:** At the heart of logistics is the overriding importance of service reliability. Its success is based upon the ability to deliver freight on time with the least threat of breakage or damage while the least polluting modes are generally regarded as being the least reliable in terms of on-time delivery, lack of breakage and safety. Ships and railways have inherited a reputation for poor customer satisfaction, and the logistics industry is built around air and truck shipments... the two least environmentally-friendly modes.
- **Warehousing:** A reduction in warehousing demands is one of the advantages of logistics. This means however, that inventories have been transferred to a certain degree to the transport system, especially the roads. Inventories are actually in transit, contributing still further to congestion and pollution. The environment and society, not the logistical operators, are assuming the external costs.
- **E-commerce:** The explosion of the information technology has led to new dimensions in retailing - e-commerce. However, changes in physical distribution systems by e-commerce have led to higher levels of energy consumption.

### **3. Green Logistics in Application**

#### **3.1 IKEA Model**

IKEA is a global furniture store that provides “cheap furniture that as many as possible can afford”. Ikeas company view of green logistics is firstly to remove the wooden pallets from the entire supply chain. Instead of wooden pallets they are using Paper/cardboard pallets and so called ledges. Underneath these ledges there are a plastic leg underneath the goods. Because of this approach they are dramatically decreasing transportation, Co<sub>2</sub> emissions, PP/LL can be packed with less space than with normal wooden pallets. Also IKEAs Iway monitoring system steer transport partners to use low Co<sub>2</sub> equipments. The Iway monitoring system is IKEAS own measuring system. The goals for IKEA within green logistics are as the following:

- 2012 60% total flow integrated to non wooden pallets
- 2014 100% of total flow integrated to non wooden pallets
- 2015 all transport partners are fulfilling the Iway standards

### 3.2 DHL – Go Green Solutions

- DHL Global Forwarding solutions provide a reliable way of accounting for and managing your supply chain CO2 emissions, with best-in-class carbon reporting and all-inclusive carbon offsetting services.
- DHL Global Forwarding has developed a carbon reporting methodology with precision and reliability in mind. Over a number of years, our experience in carbon reporting has provided us with the expertise to produce accurate CO2 calculations for our customers
- By considering each individual shipment, actual operational data (mode, fleet, age, trade lane, weight/volume, actual distance travelled) and credible sources for emission factors, DHL is able to give the best-in-class CO2 calculation
- Their methodology follows the principles of the Greenhouse Gas Protocol and the World Economic Forum (WEF) Guideline for Consignment-level Carbon Report
- They will create a carbon report that provides you with the confidence to design your own carbon reduction strategy

## 4. Conclusion

Concerns over congestion, land take, environmental degradation are forcing legislators to be seen to be doing something, even if the full impacts remain unclear. At the same time, individual logistics firms are finding a match between environmental considerations and profitability. It is becoming acceptable within the industry to adopt green logistics measures. Sometimes they reduce costs, but more often than not they lead to more intangible benefits such as image and reputation enhancement. But Green Logistics has a still a long way to go ahead.

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