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FIFO & LIFO IN GREEN SUPPLY CHAIN INVENTORY MODEL OF HAZARDOUS SUBSTANCE COMPONENTS INDUSTRY WITH STORAGE USING SIMULATED ANNEALING

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ABSTRACT. FIFO & LIFO, which stands for first in first out & last-in-first-out, is a method of inventory valuation that assumes that the last items placed in inventory were sold for the first time during the accounting year. This paper reports on a method based on Simulated Annealing to optimize FIFO & LIFO in green supply chain inventory management of Hazardous substance components industry. In particular, we focus on determining the most likely level of surplus stock and shortage required for FIFO & LIFO in green supply chain stocks of Hazardous substance components industry so that the total cost of the supply chain is minimized. We apply our three-phase FIFO & LIFO methods to a green supply chain inventory model of Hazardous substance components industry studied for optimization.

1. INTRODUCTION

The goal of each FIFO & LIFO in the green supply chain inventory should be to maximize the total value obtained. For most FIFO & LIFOs in the supply chain inventory, the value would be strongly related to the total profitability of FIFO & LIFO in green supply chain inventories, which is calculated as the difference

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between customer revenue and the total cost of FIFO & LIFO in green supply chain inventory. The higher the FIFO & LIFO in green supply chain profitability, the more successful the FIFO & LIFO in green supply chain stocks. The success of FIFO & LIFO in the green supply chain should be measured in terms of FIFO & LIFO in the profitability of green supply chain stocks, and not in the form of profit at a single stage. For a sustainable FIFO & LIFO in the green supply chain inventory, due attention should be paid to the customer. All other cash flows are simply exchanges of funds occurring within FIFO & LIFO in the green supply chain list, given that different phases have different owners. All flows of information, products or funds create costs within FIFO & LIFO in the green list of the supply chain. Therefore, proper management of these flows is the key to FIFO & LIFO for the success of a green supply chain inventory. Effective FIFO & LIFO in supplier green chain inventory management involves the management of FIFO & LIFO asset and green supply chain inventory products to maximize the overall FIFO & LIFO in green supply chain return profitability.

In short, in order to do all this precisely and quickly, especially with a large number of products, a system is needed that will perform a number of tasks. This includes making forecasts, calculating the correct levels of security stocks, determining the amount of economic orders, determining the best quantities of discounts, automatically adjusting variations and providing full visibility of changes throughout FIFO & LIFO in the green supply chain list to enable rapid response to changes. FIFO & LIFO in green supply chain stocks is only as strong as the relationships that connect sellers, buyers and other participants together. Looking at these other companies and suppliers as partners in FIFO & LIFOâĂŹs success in green supply chain inventory is important and should be a top priority in the organization.

2. Literature Review

Pandey, et. al. (2019) An Analysis Marble Industry Inventory Optimization Based on Genetic Algorithms and Simulated Annealing. Malik, et. al. (2019) Security Mechanism implemented in Gateway Service Providers. Yadav and Swami (2019) A Volume Flexible Two-Warehouse Model with Fluctuating Demand and Holding Cost under Inflation. Yadav, et. al. (2019) Supply Chain of Chemical Industry For Warehouse With Storage Using Artificial Bee Colony Algorithm.

Yadav, et. al. (2020) Electronic components supply chain management of Electronic Industrial development for warehouse and its impact on the environment using Simulated Annealing Algorithm. Yadav, et. al. (2020) Reliability Consideration costing method for FIFO & LIFO Inventory model with chemical industry warehouse. Yadav, et. al. (2020) proposed National Blood Bank Centre Supply Chain Management For Blockchain Application Using Genetic Algorithm. Yadav, et. al. (2020) a give Medicine Manufacturing Industries supply chain management for Blockchain application using artificial neural networks. Yadav, et. al. (2020) proposed Red Wine Industry of Supply Chain Management for Distribution Center Using Neural Networks. Yadav, et. al. (2020) a give Rose Wine industry of Supply Chain Management for Storage using Genetic Algorithm. Ahlawat, et. al.. (2020) a give White Wine Industry of Supply Chain Management for Warehouse using Neural Networks. Chauhan and Yadav (2020) proposed An Inventory Model for Deteriorating Items with Two-Warehouse & Stock Dependent Demand using Genetic algorithm. Chauhan and Yadav (2020) a give Inventory System of Automobile for Stock Dependent Demand & Inflation with Two-Distribution Center Using Genetic Algorithm. Yadav, et. al. (2020) a give Reliability Consideration costing method for FIFO & LIFO Inventory model with chemical industry warehouse.

3. Simulated Annealing Based FIFO & LIFO in Green Supply Chain Inventory Optimization Analysis

In order for FIFO & LIFO to be more efficient in green supply inventory control of Hazardous substance components industry the main primary goal is to predict where, why and how much control is needed and such prediction should be made here through a methodology. The proposed methodology can provide appropriate stock levels to be maintained in the coming periods that will minimize the FIFO & LIFO in the cost of green supply chain of Hazardous substance components industry stocks. The supply chain model is divided into three phases in which optimization will be carried out.

In this figure 1. FIFO & LIFO in the manufacturer produces of Hazardous substance components industry different products and determines how it will be delivered to FIFO & LIFO in Storage of Hazardous substance components industry and how stocks will be transferred to FIFO & LIFO in agents of Hazardous

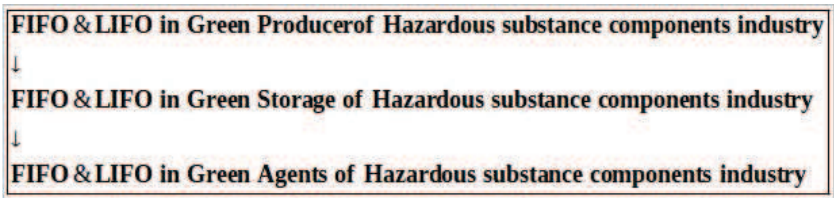

FIGURE 1. Three stage green supply chain (Studied Model)

substance components industry. The proposed methodology aims to determine the specific product on which to concentrate and the amount of product stocks that must be maintained by different members of FIFO & LIFO in the supply chain of Hazardous substance components industry and the methodology also analyzes the level of stocks.

4. SIMULATED ANNEALING

SA is based on the theory of the thermodynamics of liquids, which solidify to give a crystalline during cooling. As with other heuristic methods, populations are initialized and associated with an initial temperature. Ability is assessed for the entire population. A new population is now generated, very close to temperature and a random number, and its adequacy is evaluated. The relationship between the difference in physical condition between the old and the new population and the existing temperature is compared to a random number and the best person is placed in the existing population. Then a cooling program is applied to update the temperature. This process is repeated until the maximum of generations or convergence is reached.

5. RESULTS AND DISCUSSIONS

The optimization of FIFO & LIFO in green supply chain inventory control in Supply Chain Management based on Simulated Annealing is analyzed with the help of MATLAB. Inventory levels for three different members of FIFO & LIFO in the supply chain, FIFO & LIFO in the manufacturer of Hazardous substance components industry, FIFO & LIFO in the Storage of Hazardous substance components industry, and FIFO & LIFO in the agent of Hazardous substance components industry are generated using the MATLAB script, and this generated data set is used to assess the effectiveness of Simulated Annealing. Some examples

of data sets used in implementation are listed in Table 1. Some 5 data sets are given in Table 1 and they are assumed to be records in the previous period

TABLE 1. Some 5 Data sets are given are assumed to be records in the previous period

S.No.	FIFO & LIFO in Green Producer of Hazardous substance components industry	FIFO & LIFO in Green Storage of Hazardous substance components industry	FIFO & LIFO in Green Agents of Hazardous substance components industry
1	59	15	94
2	49	16	85
3	38	10	76
4	24	19	68
5	16	17	50

CONCLUSION

FIFO & LIFO, which stands for first in first out & last-in-first-out, is a method of inventory valuation that assumes that the last items placed in inventory were sold for the first time during the accounting year. FIFO & LIFO in green supply chain inventory management is a significant component of supply chain management. We discussed a method based on Simulated Annealing to optimize FIFO & LIFO in green supply chain inventories in supply chain management, and focused on how to specifically determine the most likely surplus inventory and level of shortage required for FIFO & LIFO in optimizing green chain inventory in a supply chain such that the total cost of the supply chain is kept to a minimum. We apply our methods to a three-phase supply chain optimization model. The proposed method was applied, and its performance was evaluated using MATLAB.

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