

## RECENT TRENDS OF INFORMATION TECHNOLOGY IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT OF INDIAN AGRICULTURE INDUSTRY

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### ABSTRACT

India is the second largest producer of agriculture products such as fruits and vegetables. One of the key issues, which require research, is the method by which we can reduce the post harvest loss, which is quite substantial at present. This would need design of cost effective, efficient, environment friendly storage system. Also, there is need for value addition to agricultural produce to maximize the agriculture return. India is likely to become the food basket to the world considering 52% of total land under cultivation as compared to global average of 11%. India is also having the labor cost advantage; organized research is growing very speedily. Because of these developments, farmers would get latest market prices and various products, weather reports and best farming practices. This paper discusses importance of Information Technology to enhance effective supply chain management systems in improving agro business in Indian economy.

**KEYWORDS:** Supply Chain, Logistics, Information Technology, Retail Outlets

### INTRODUCTION

Internet is a faster and less expensive mode of communication for remote rainforest villages as compared to traditional communication services, such as mail and telephones. Tele centres can help to improve social and economic opportunities in isolated areas, facilitate communication between indigenous peoples and organizations, and raise awareness of their concerns to mainstream society. In Asian countries, information technology and telecommunications have assumed an ever-increasing role in the creation of wealth at all levels. [1]

The middlemen and poor supply chain facilities have increased agricultural prices up to 60% without actually adding any value. India produces 134.5 MT of fruits and vegetables but due to inadequate cold storage and preservation facilities and improper supply chain infrastructure, there is an enormous loss of wastages. Agriculture and its allied industries sector employs 67% of the country's population. Reliance Group, Bharti Group, Mahindras, Godrej, PepsiCo, ITC and many more corporate companies are now planning in R &D, seeds, fertilizers, and pesticides business to assist farmers in improving irrigation by latest technologies and setting -up cold storage and warehousing to transportation to exports [2].

### HISTORICAL PERSPECTIVE OF INDIAN AGRICULTURE INDUSTRY

By the middle of the nineteenth century, common agro processing industries included hand pounding units for rice, water power driven flour mills, bullock driven oil ghanies, bullock operated sugarcane crushers, paper making units,

spinning wheels and handloom units for weaving. In British India, during the year 1863, a note was written by the Governor of Madras state, Sir William Denison to the government of Madras state for laying greater stress on agriculture and agro processing (Royal Commission, 1928). Based on this, a set of improved machinery was brought from England for demonstration and adoption. It included threshing machines, winnowers, chaff cutters, besides steam ploughs, steam harrows, cultivators, seed drills and horsehoes. The demonstration continued at Saidapet near Madras till 1871 with little outcome.

Importance of agro-processing sector was first realized and documented after the disastrous famine of Bengal during 1870's. The Royal Commission on Agriculture setup by the British Government, conducted a detailed study. In its report published during the year 1928, it called for scientific approach to the sector and stressed for developing rural industries and cooperatives. Realizing the importance of the agro-processing sector for rural development as a tool for POORN SWARAJ (complete self rule), Mahatma Gandhi during 1930's promoted CHARKHA (spinning wheel) and balanced nutrition by setting example and writing articles in his famous magazine "Harijan". It was continued by his followers namely, NarhariBhave, BinobaBhave and Jay Prakash Narayan. They promoted self-dependence through KHADI and village industries. Post independence era in India witnessed rapid growth in agro processing sector specifically during 1980s it followed the first phase of the Green Revolution that had resulted in increased agricultural production and the need for its post harvest management. However, in other areas like fruits and vegetable processing, the growth has not been encouraging on account of poor demand for processed products by the consumers. In such cases, the industry has also not been able to develop the demand adequately.

## **DIFFERENT IT INSTRUMENTS USED IN INVENTORY MANAGEMENT: THE WORLD SCENARIO**

### **NIBCO Improving on-Time and Complete Response to Customer Orders**

Northern Indiana Brass Company (NIBCO), a major North American manufacturer and distributor of flow-control products needed to improve service to customers while reducing costs. IBM Global Business Services using mathematical optimization model resulted in reduced labor requirement for developing inventory reports and reduced corporate computing resource requirements, reduced inventory levels by 13 %, improved on-time and complete response to customer orders [3]

### **IC Intracom Reducing Expenses**

IC Intracom Company headquartered in Tampa Bay, Florida, develops, manufactures and sources more than 2,000 PC peripherals, accessories and networking products, and system integrators in more than 90 countries. Working with IBM Global Business Services, IC Intracom implemented the IBM Express Wholesale Distribution Solution.

### **Philips Semiconductors Using RFID Technology**

By using Intel RFID technology, IBM helped design, develop and implement a next-generation manufacturing and distribution supply chain. This enabled Philips Semiconductors to reduce receiving and palletization cycles by 50 % of reduction in sorting and tracking turnaround times by 60 % and improve delivery reliability and inventory turnover while shortening billing cycles.[4]

### **FE Global Implementing SAP, on IBM System i5 Servers**

FE Global have implemented its core Enterprise Resource Planning solution SAP, on IBM System i5 servers

with DB2/400 database system. The powerful IBM System i5 systems provide FE Global the reliability and scalability needed to expand workloads without requiring the addition of hardware or IT staff. [5]

### **Amoi Electronics Company Limited Implementing SAP Resources Management**

Amoi Electronics Company Limited, Xiamen, Fujian Province, China, manufactures an extensive range of consumer electronics and related products: from 3G telephones to LCD TVs and MP3 players. [6]

### **Bang & Olufsen has Run SAP Software**

Bang & Olufsen has run SAP software for many years, with sales offices around the world - from Chicago to Tokyo - connecting to the headquarters data center, has successfully reduced total costs of operations; implemented a flexible, scalable system ready for the next phase of business growth; eliminated a single point of failure and implemented full disaster protection. [7]

### **Infosys RFID Solution for Inventory Management Balancing Inventory Costs and Service Levels**

Infosys provides specialized Supply Chain Management solutions for products like i2, Manugistics, Oracle APS, Yantra, Ariba and SAP APO. Infosys works with optimization experts, leading academics and numerous clients in a variety of industries to constantly develop and fine tune planning, optimization, and execution of supply chain management solutions; thereby delivering valuable benefits to clients in nearly every industry and geography worldwide. [8]

### **Electronic Commerce Services in Agriculture Sector of Kyrgyzstan and Central Asia Region**

The purpose of the project is to eliminate barriers between manufacturers of agricultural production and buyers by creating automatic Internet and mobile communication-based exchange system of offers on purchase / sale with application for inhabitants of rural regions. [9]

### **Farm-Know to Help Vegetable Production in Beijing Suburbs**

Farmers in Beijing's suburban areas are using an innovative internet websites. Farm knows for advisory services on new vegetable varieties and crop management and protection. Farmers can search the 'Vegetable Hospital', for advice on treatment practices for over 70 different agricultural diseases and 30 kinds of insect pests common to the Beijing area. There is also a 'Market Information' section documenting prices for 140 seed varieties. Farming specialists are also on hand to answer e-mail queries directly from farmers. [10]

## **SWOT ANALYSIS OF AGRO- INDUSTRY INFRASTRUCTURE IN INDIA**

### **Strengths**

- Round the year availability of raw materials.
- Social acceptability of agro-processing as important area and support from the central government.
- Vast network of manufacturing facilities all over the country.
- Vast domestic market.

### **Weaknesses**

- High requirement of working capital

- Low availability of new reliable and better accuracy instruments and equipments
- Inadequate automation w.r.t. information management.
- Remuneration less attractive for talent in comparison to contemporary disciplines.
- Inadequately developed linkages between R&D labs and industry.

### Opportunities

- Large crop and material base in the country due to agro-ecological variability offers vast potential for agro processing activities.
- Integration of developments in contemporary technologies such as electronics, material science, computer, bio-technology etc. offer vast scope for rapid improvement and progress.
- Opening of global markets may lead to export of our developed technologies and facilitate generation of additional income and employment opportunities.

### Threats

- Competition from global players
- Loss of trained manpower to other industries and other professions due to better working conditions prevailing there may lead to further shortage of manpower.
- Rapid developments in contemporary and requirements of the society

## CONCLUSIONS

Information Technology should be used for maintaining an updated and enriched database of region specific agricultural information and timely dissemination of the information pertaining to soil enrichment, seed selection, actions relating to arrival of monsoon etc. to the farmers. In addition, information regarding agricultural products, demand-supply status in respect of different products and the current price should be made available on-line to the farmers for taking timely decisions on crop product diversification strategies and positioning of the same in right market to get optimum revenue.

With agile, demand-driven supply, focusing on reducing end-to-end supply network time by building a flexible and responsive supply network is the need of the time. The educational and professional institutions should take for guiding the latest information using IT as a tool and make it available to the farmers. The need of the day is to harness the vast potential of agriculture in Indian economy.

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