"A

PROJECT REPORT

ON

SUPPLY CHAIN MANAGEMENT

OF

CADILA AGRO"

PROJECT SUBMITTED TO THE INSTITUTE OF AGRIBUSINESS MANAGEMENT IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

OF

MASTER OF BUSINESS ADMINISTRATION
(AGRIBUSINESS)
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SUPPLY CHAIN MANAGEMENT
OF CADILA AGRO

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2009

ADILA PHARMACEUTICALS (AGRO DIVISION) 755, PRAKRUTI FARM, VILLAGE HIRAPUR,
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DECLARATION

I hereby declare that the project entitled " **Supply Chain Management of Cadila Pharmaceuticals (Agro Division)**" submitted for the M.B.A. (Agribusiness) Degree is my original work and the dissertation has not formed the basis for the award of any degree, associate ship, fellowship or any other similar titles.

Place: Navsari

Date: 30-7-09

MANISH CHAMPANERI

Signature of the Student

INSTITUTE OF AGRIBUSINESS MANAGEMENT

NAVSARI AGRICULTURAL UNIVERSITY

NAVSARI-396 450

CERTIFICATE

This is to certify that the project entitled "**Supply chain Management of Cadila Pharmaceuticals (Agro Division)**" is the bonafide research work carried out by **Manish Rameshbhai Champaneri** student of M.B.A.(Agribusiness) during the year 2008 -2009, in partial fulfillment of the requirements for the award of the Degree of Master of Business Administration(Agribusiness) under my guidance and supervision and that the project has not formed the basis for the award previously of any degree, diploma, associate ship, fellowship or any other similar title.

Place: Navsari

Date:

DR. R. R. SHAH

Signature of the Guide

Approved

Dean

IABM

ORGANIZATION'S CERTIFICATE

ACKNOWLEDGEMENT

It is indeed a pleasure to acknowledge the contribution of all those who have helped me during the project work. It was a most rewarding experience to work in **"CADILA PHARMACEUTICALS LTD. (AGRO DIVISION), AHMEDABAD."**

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Place: Navsari

Date: 30-7-'09

Manish Rameshbhai Champaneri.

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1.1 Industry profile

1.1.1 Introduction

Cadila Pharmaceuticals (CPL) Ahmedabad, India, exemplifies a spirited Indian Enterprise. It's phenomenal growth is a corporate epic, an epoch in time nurtured by fifty-two years of rich, caring heritage. With a trail of creditable milestones, CPL today has evolved to become the undisputed leader in the Indian Pharmaceutical sector, with the largest therapeutic groups, its operations spanning 45 countries. CPL is multi-locational, with its global offices and infrastructure.

1.1.2 Milestones

Today, Cadila is proud of its achievements —

- One of the best R & D set-ups in the country, manned by a 150-strong scientists' pool.
- Strong Formulations Development base.
- A host of 'Biotech' products launched, including many 'Firsts in India'.
- Leadership in Domestic Marketing and Distribution Management.
- Agro Business: Plant Tissue Culture and Bio-fertilizers.

1.1.3 Strategic Business Alliances with world-leaders

Today, Cadila Pharmaceuticals is all set to create new records, scale greater heights. It has created new world-class production and R&D facilities, focusing on research, new process innovations leading to patents, and meeting global standards. The Company always places the common man at its core – who should be able to access and afford our medicines anywhere in the world. For us at Cadila, this is the only true benchmark of excellence, and the only thing that really matters.

1.1.4 Biotechnology Research

Biotechnology is a thrust area of research at Cadila Pharmaceuticals Ltd., over the last few years has established a strong R&D base in biotechnology and developed working relations with key R&D Institutes in the country for outsourcing of Research & Development. Presently, 30 scientists, many of them with Doctorates in their respective disciplines, comprise the Biotech R&D team. The R&D team has been further expanded; keeping in view the expansion plans.

1.1.5 Cadila's green thumb

Agri biz is the buzzword at Cadila Pharma. What started off as a minor indulgence has now become serious business as transgenic research.

Contractual ties for much of the farm business have already been inked with farmers spread across Karnataka, Kerala, Andhra Pradesh, Madhya Pradesh and Gujarat, with average cultivable holdings of five acres each, and supplying most of their products to CPL. The testing ground is a 20-acre farmland owned by the company in Bangalore, which decides on aspects such as agronomical techniques and cropping patterns. Of course, there is another 20-acre plot in Hirapur, near Ahmedabad, which takes care of CPL's tissue culture project at the seminal stage.

The technology, however, is not entirely in house _ CPL has forged alliances with some of the leading research institutes in the country. Among those who have already entered into royalty-driven technology spin-off arrangements with the pharma company for its agri business are: Tata Energy Research Institute, Indian Agriculture Research Institute, National Botanical Research Institute, National Chemical Laboratory and the Central Institute for Medicinal Aromatic Plants.

The kickstart to the agro products division _ which includes hybrid seeds, tissue culture, bio-formulations, essential oils and extracts as well as herbs and dietary supplements _ is coming from Dr. Pratap K Nair, Vice-President in charge of the Animal Health and Natural Products SBU. Nair, who joined CPL after a long stint in the US first to take his doctorate in biomedical engineering and then as management consultant in the specialty chemicals industry sector, is ultimately eyeing the higher end of the spectrum that includes products such as genetically modified plants.

Says Nair: "The CPL in-house research division is working on the transgenic sector where the bottom-line is the enhancement of various properties including the plant's pest resistance levels. What we are doing is the development of plant cloning by way of transferring certain genetic properties of other plants. While this is the macro-level perspective, we are also zeroing in on certain intermediate products. Vanilla beans have emerged as one exciting area for us and CPL is at an advanced stage of signing a tie-up with a leading US company for outsourcing our produce as also helping us with the processing end. The other areas where the company has made significant strides include essential oils and seeds."

The pharma company's tissue culture division has already captured the imagination of the country's farming community with high-yield products such as bananas, teak, sugarcane, bamboo and eucalyptus. The Hirapur tissue culture unit near Ahmedabad has already carved out a niche in Asiatic lily bulbs, zantedeschia tubers, gerberas and about half a dozen foliages for markets in Europe, with Holland being the most popular destination.

Meanwhile, in the dry flower and potpourri segments, the company has introduced products targeted at Gujarat's corporate clientele. However, both dry flowers (marketed as gifts) and potpourri (essentially scented dry flowers targeted as room and automobile le fresheners) are right now only looking at the domestic market. Clearly, with the global business pegged at Rs 10,000 crore and domestic players such as Ramesh Flowers of Tuticorin faring exceptionally well, CPL is more likely than not to train its gun s overseas.

Says I. A. Modi, Chairman, CPL: ``Biotechnology being the emerging trend in agriculture and pharmaceuticals the world over, and taking into account our exposure in this sector, the Animal Health and Natural Products SBU is poised to realize immense growth h. The diverse product mix _ bio-fertilizers, tissue culture plantlets, hybrid seeds, herbal medicines and dry flowers _ holds good potential considering the capacity of the exploding rural domestic market in coming days.

For the Rs 425-crore CPL, what started as no more than a dabbling in tissue culture a couple of years back is now serious business with a targeted billing of Rs 200 crore by 2004. True, going by CPL's projected volumes for the next five years, this may not be major business, contributing to no more than 10 per cent of sales at that point of time. However, if India is cut out to become a major player in the bio-technology arena in the coming decade, this business could have a significant say in how the pharma company is run.

1.1.6 Quality Control

The slogan "Cadila for Quality" that was deeply etched into every logo of the Company, and subsequently into the minds of millions, is adhered to with utmost dedication as it was years ago. A special Quality Management Division spearheads the concept of Total Quality Management, an integration of all functions with built-in quality.

1.2.1 INTRODUCTION

CADILA PHARMACEUTICALS LIMITED is a leading corporate group, having wide range of products for Human Health Care and Animal Care spread throughout the world. CADILA PHARMACEUTICALS LIMITED, is as old as Independent India, has penetrated in 25 major therapeutic segments, offices in several countries, exports to more than 40 nations and a wide range of products registered overseas. Backed by world-class R & D and manufacturing facilities, CADILA covers the largest range of therapeutic groups, in the Indian Pharmaceutical Industry.

The company after having succeeded in Human Health Care and Animal Care recognized the need for Crop Care, which is the backbone of the country's economy. With this objective CADILA has launched its **Agro Division** aiming at the supply of quality inputs to the Indian Farming Community. Company has also developed expertise in Tissue Culture and Bio-fertilizer segment.

CADILA has always believed in powerful R & D, total quality management, world-class products, effective distribution network and CUSTOMER'S SATISFACTION.

1.2.2 CADILA'S VISION, MARKET AND FUTURE PLANS

Company's vision is to up-lift the rural community of Gujarat State and the Nation as a whole by providing high quality farming inputs to the farmers.

The company is confident about its quality products and excellent customer services and plans to invest more than 25 Crores in next 4 years with a high level of dedication and determination. Company foresees a high level of growth in technology benefiting the rural India. CADILA has targeted approx. 250 Crores Sales from its Agro Businesses.

CADILA has already set up an extensive Agro distribution channel in 10 states and almost all the districts of Gujarat. The long-term vision is to participate in complete value chain of Agro Products by supplying the inputs, having presence in quality processing and trading in processed commodity like Spices, Honey etc.

1.2.3 THE BUSINESS MODEL ADOPTED BY CADILA'S AGRO DIVISION AND INNOVATIVE APPROCHES:

The Agro Division of Cadila Pharmaceuticals Limited is a well thought of diversification comprising of several businesses like Tissue culture, Bio-fertilizer, and Foliages. After establishing its credential and quality image in human and animal healthcare this step of diversification was an obvious choice towards helping the rural society.

The Tissue Banana & Bio-Fertilizer arrangements and commodities export is having the traditional distribution channel, though the Agro Team maintains high level of customer interaction.

There are several innovative and non-traditional approaches adopted for the market development and sales promotion and its domestic businesses.

Several innovative practices are adopted for the dissemination of ideas and improving the profitability to the farming community, thus increasing the adoption of new products. These have helped extensively to improve productivity in the area. Some of the innovative measures adopted/to be adopted are: -

- 24 hrs mobile technical support to the farmers.
- Extensive market development activities in Gujarat.
- Model to participate in all the intermediary chain of value addition.
- Farmers Club
- Credit Card / Pass book facility for the farmers in Vadodara and Surat area

CADILA has organized an extensive market development trial with the 50 Farmers Group in several states of Gujarat. This will simulate a contract farming situation and also work as market development trial for the new technology being brought in Gujarat. The farmers are given an agreement whereby they had a win-win situation as an outcome of the trial.

In domestic Tissue Culture and Bio-fertilizer business, our approach with the farmers group, cooperatives and societies have been very effective and efficient compare to the traditional distributors and retailer relationship. CADILA has also set up technology centers and plans to have round the clock mobile technical support for the farmers in Gujarat. The hybrid seeds supplied by CADILA can also be treated or accompanied with its wonder Bio-fertilizers to help increase the over-all yield level of the state. The high technology inputs supplied by CADILA will certainly reduce the risk of failure and improve the yield level in uncertain climatic conditions.

1.2.4 SOCIAL CONTRIBUTIONS:

The organization is quite active towards the social work in Gujarat and within India. CADILA has been running several educational programmes, health care camps and a fully fledged hospital at Hansod, Ankleshwar in Gujarat besides the support to several NGOs in their ventures. The company also contributed generously towards the Earthquake relief fund and distributed substantial quantity of free medicines. The organization is always ready and willing to share the concerns and cause of the society.

Company involved in chalking out the strategy and implementation of a wide-scale contract farming activity in Gujarat involving the free distribution of the high technology Bio-fertilizers and tissue culture banana plants.

As an individual job responsibilities have been strategizing and implementing the marketing plans, preparing budgets, designing strategies for launching new products, exploring new markets, advertising campaigns and other marketing initiatives, formulating and executing brand building exercise, tracking of industry trends and competitor activities.

1.2.5 BUSINESS OUTLOOK

- Highly competitive Market Situation
- Best quality at competitive price shall have the edge
- Timely Delivery in accordance with seasonal variation shall be the crux
- Increased sales as brand pull being generated unlike for other competitors where branding is not done for TC Banana

1.3 ORGANIZATIONAL PROFILE

INNOVATION THROUGH INTEGRATION

Corporate office, Bhat, 25 acres

Chemicals, Ankleshwar, 10 acres

Chpl and pharma machinery, Kadi, 20 acres

Tissue culture, Hirapur, 20 acres

Surgical supplies, Halol, 0.5 acre

Formulation, Dholka, 80 acre

PARTNERING WITH THE BEST

- Cadila Agro becomes the exclusive partner for sale of seedlings produced from seeds of Known You Seeds
- Begin with Papaya Red Lady 786, later expand to other crops/varieties
- Cadila Agro will produce Seedlings only from seeds available from Known You
- Known you will not enter into similar tie up for production of seedlings
- Agreement to be made with Green Channel for transportation

WIN - WIN SITUATION

Cadila Agro Gains because

- Expansion of product basket
- Facilities utilized in lean seasons
- Known You Seeds are well accepted
- Papaya and Banana growing areas are overlapping
- Distribution network better utilized

1.3.1 OBJECTIVE: CADILA AGRO

- Establish brand image
- Introducing new products
- Highest Quality Standard of products
- Assured Supply
- R&D to continuously produce innovative product
- Reasonable Price
- Perceived Benefits to Customer
- Create identity for Agro Division of CPL
- Increase Agro Sales

As social obligation: Provide healthy food and environment to our community while also improving the quality of life.

1.3.2 MANAGEMENT DISCUSSION AND ANALYSIS

1.3.2.1 HUMAN RESOURCE MANAGEMENT

1.3.2.1.1 FACILITY

- MANAGER – 4
- EXECUTIVES - 5
- SUPERVISORS – 5
- TECHNICIANS - 90
- MAINTANANCE STAFF – 3

Company knows that their employees are their most important resource and the key to the company's future. Therefore, focus on qualified, innovative and diverse workforce for accept future challenges and also focus on top priority at every projects and for every employee but employees become unhappy with their management because of politics in promotions, work load, regards and salary etc.

1.3.3 Our Vision

To be a leading agriculture input company in India by providing high quality, affordable and innovative solutions in the field of agriculture.

1.3.4 Mission

We will develop and successfully market crops and products for foliage, horticulture and agriculture sector.

We shall provide total customer satisfaction and achieve leadership in chosen markets, products and services across the globe, through excellence in technology, based on world-class research and development.

We are responsible to the society. We shall be good corporate citizens and will be driven by high ethical standards in our practices.

1.3.5 History

1.3.5.1About Cadila Pharmaceuticals Limited

Cadila Pharmaceuticals Ltd., established in 1951, is a true Life Sciences company and over the years has emerged as the undisputed leader with largest range of therapeutic groups. The company covers the entire gamut of pharmaceuticals.

1.3.5.2 Agro Division

Cadila Pharmaceuticals started an Agro division in 1992 for the plant tissue culture propagation and commercial production of biofertilizers and young plants for foliage, horticulture and agriculture sector.

the years we have endeavored to set the standards for providing the highest quality products through the utilization of progressive and state of the art production techniques with an ultimate focus of satisfying the requirements and need of our customers.

1.3.5.2.1 Location

The Tissue Culture Laboratory is located at a pollution free area, 17 km. away from Ahmedabad city. Ahmedabad is well connected with all major cities of India. It has frequent flight to Mumbai through which our consignment can reach all major cities of the world.

1.3.5.2.2 Businesses

Plant Tissue Culture Laboratory

1.3.5.2.3 Production Facility

Department of Biotechnology accredited laboratories designed in collaboration with Dutch Company and fulfilling all international standards for production of quality tissue culture plants and facility to produce 10 millions plants per annum.

1.3.6 Values

- Make available products and services of highest quality at affordable prices
- Provide total customer satisfaction

- Enrich our human resources asset to become highly competent professionals and technology based
- Manage and maintain our operations with utmost concern for 'Environment, Health and Safety'
- Be a good corporate citizen, driven by high ethical standards in our practices

1.4 PRODUCT PORTFOLIO

FLOWERING PLANTS	FRUIT PLANTS	VEGETABALES
LILY	BANANA- Bhim	PARVAR- Prince 812
GERBERA	PAPAYA- Madhur	POTATO
ZANTEDESCHIA		

FOLIAGES PLANT	FORESTRY	Biofertilizer
CORDYLINES	BAMBOO	JOSH SUPER
YUCCA	EUCALYPTUS	JOSH CAPSULE
SYNGONIUM	POPLAR	KALISENA
SPATHYPHYLLUM	TEAK	
NEPHROLEPIS		
HOSTA		
CALATHEA		
CALLADIUMS		
MARANTHA		

1.5 QUALITY PARAMETERS:

- Completely harden plants (90 days of hardening)
- Plant height must be one feet.
- Cadila & Variety logo on each plastic bag of plant.
- Virus free certificate on bag.
- All the supply should be made as per our schedule only.

- All the plant should be load in truck very properly so we can minimize the damages of TC Plant.

Cadila has reputation for the quality Tissue Culture Banana Plants in the country and occupy No.1 position as far as sales are concerned. Supply 3 Crores of Tissue culture Banana plants and occupy a premium position in the minds of the customer.

Company have created Grassroots level awareness and Demand for the Biofertilizer as a result exceeding production capacity and marketing staff to cater needs of the farming community.

Company have excellent product portfolio which help to earn more profit through utilization of present marketing channel, logistics, distribution network, hardening centres and other resources which reduce cost, ideal time & work force and also help in brand building.

1.6 RESEARCH AND DEVELOPMENT

Strategic R&D to improve process technologies for improving the cost of production, improving product quality at no extra cost.

- Contract research:
- New product development.
- New process development.

Company has powerful R & D, total quality their customers. Company known for their quality product because of their R & D department & their qualified & innovative workforce.

1.7 Cadilla Agro division Products:

Kalisena

CadGrow

Dracena

Banana

Caladium

Fern

Anthurium

Alpinia

Josh

Philodendron

1.8 MARKETING

1.8.1 MARKETING CHANNEL

CPL

↓

TCL

↓

Distributors / Stockiest

↓

Dealers

↓

Farmers

1.8.2 PRESENT DISTRIBUTORS NETWORK

GUJARAT	MAHARASHTRA	KARNATAKA	Madhya Pradesh
↓	↓	↓	↓
ANAND, CHANNI	JALGAON	BANGLORE	INDORE
BODELI, KUTCH			
ANKLESHWAR			
NAVSARI, SAURASTRA, etc.			

1.8.3 PROPOSED HARDENING CENTRE

- TCL, Hirapur
- Anand (Navli)
- Surat (Vesma) – New – For Primary Harden Plant – To be finalized.
- Jalgaon (Chinaval)
- Bangalore - Ex agar Plants
- Jagadia, Bharuch
- Rajpipala, etc.

1.8.4 CADILA AGRO MARKETING STRENGTHS

- Excellent market image
- Technically qualified Marketing team
- Existing Secondary hardening centres
- Strong Distributor/Dealer network
- Good knowledge of the area of operation
- Logistics well worked out for delivery to farmers' fields using group company trucks
- In-house plant health lab.

1.8.5 AFTER SALES SERVICE

- Customer relation development.
- Visit to field crop and give the proper suggestion to the farmer's for water treatment, Soil treatment, Fertigation system, Pesticide and Fungicide etc.
- Taking care of treatment which farmer had followed or not.
- Suggestion for increasing the production of crop.
- Taking data of banana production from university and banana experts.
- Educate the farmer to use more Bio-fertilizers and Tissue Culture cultivation.
- Solving problems of the farmer and convince about our products.

On the base of my experience and market source firm believes in comes with innovative marketing funda at every stage of marketing. Now a day's people also interesting in accepting new funda so it helps to achieve top line or marketing peoples are interesting in sales/ targets. There are some promotional activities which adopted by firm.

1.8.6 PROMOTIONAL ACTIVITY

- Jeep Campaign
- Farmer meetings & Organize the Field days at Farmer's Place
- Participate in Agro Fare, Seminar etc.
- Display of POP material at major out lets
- Control vs treated crops were shown to the farmers in display photographs
- Intensive awareness programme to the maximum extent down to the village level
- Collected success stories in the form of testimonials from satisfied farmers and thus created awareness regarding the products
- 24 hrs mobile technical support to the farmers
- Extensive market development activities in Gujarat
- Model to participate in all the intermediary chain of value addition

1.8.7 CHANNEL MANAGEMENT

- Ensuring decent margin for the trade.
- Helping for faster liquidation with excellent grassroots level work.
- Rewarding specially the high value contributors by the end of the season.

1.8.8 LOGISTIC STRENGTHS

- Efficient delivery network for Banana plants
- Plants delivered in crates to ensure safety
- Vehicles available from Green Channel, a Cadila group company
- Trained manpower for quick handling
- Insurance cover for transit damage

1.9 INTERNATIONAL SHIPPING

Expertise has been acquired to export in-vitro live plants to any country in 48 hours under proper temperature and humidity conditions, Company always analysis their present logistics chain and try to make better or profitable on base of cost efficiency, avoid damage, timely supply of delivery and customer satisfaction etc.

1.10 COMPETITOR ANALYSIS

In field of Agro-Biotechnology, there are number of big players which deal with that type of business in different states of India. Many of company have own channel of supply of input or planting material to export or consumption of farmers produce. I collect some important data from market about their major competitor. After analysis of that data I conclude that different state cover by different firm majority on base of their brand image or presence in market of that state. In near future CADILA become one of the most expanded company in India than other on base of their future plan of expansion in all stage i.e. product, marketing, production, supply chain, etc.

1.10.1 Table 1. Current market scenario of TC Banana in different states in India

Company	Gujarat		Maharashtra		Andhra Pradesh	
	Qty in lacs	% contri.	Qty in lacs	% contri.	Qty in lacs	% contri.
Cadila	18	19%	2	2%	10	11%
Godrej	15	16%	2	2%	9	9%
Jain	6	6%	60	50%	2	2%
Reliance	6	6%	7	6%	-	-
Others	50	53%	49	40%	51	78%
Total	95	100%	120	100%	72	100%

Source: company data, 2007

1.10.2 Table 2 Current market scenario of Papaya in Gujarat

Company	Qty in lacs	% contribution
Cadila	6.00	41%
Godrej	2.65	18%
Local Nurseries	6.00	41%
Total	14.65	100%

Source: company data, 2007

1.10.3 Table 3 Current market scenario of Biofertilizer in India

Company	Value in lacs	% contribution
NAFED	256	21%
Excel	200	17%
Wockhart	198	16%
Godrej	100	8%
SPIC	101	8%
Cadila	80	7%
IFFCO	30	2%
GSFC	25	2%
Others	215	18%
TOTAL	1205	100%

Source: company data, 2007

1.11 SWOT ANALYSIS

1.11.1STENGTHS

- Cadila's market leaders since last 4 years in Gujarat
- Well known brand image
- Qualified human force
- Highest number of established secondary hardening centres nearest to potential market in India which help to compete with other
- Quality standard certificate of Australian firm i.e. AQIS
- Well establish infrastructure facilities
- Good knowledge of the area of operation
- All latest technological adoption
- Strong after sales service support
- Strong distributors and dealers network
- Satisfactory field performance
- Superior product quality
- Logistics well worked out for delivery to farmers' fields using group company trucks & Green channel
- Insurance cover for transit damage

WEAKNESS

- Politics within organisation
- Weak employees promotional strategies which direct effect on firm growth
- Availabilities of plants
- Timely delivery within stipulated time period against the booked quantity
- Unit works under loss
- Total quality maintenance uncertain
- Excess capacities and underutilization

OPPORTUNITIES

- Wide future scope for biotechnology base firm
- Growing global demand for quality planting material
- Potential of the domestic market
- Liberalized economic policies promising relief
- Rich Indian biodiversity – possibilities of developing new and novel products
- Possibilities of developing value added products

THREATS

- Increasing competition with Jain, Reliance & Godrej etc.
- Unavailability of foreign market for ornamental plants
- Fluctuation in prices specially in export market
- Legal problems in case of non-performance
- Technological obsolesce
- Competition from countries with lower wages

Chapter II

2.1 Title & Statement of the problem

"SUPPLY CHAIN MANAGEMENT OF CADILA AGRO"

2.2 Objectives:

- To create an innovative supply chain.
- To know effective production planning and inventory management.
- To make an effective distribution channel.
- To achieve desired customer service with the minimum inventory commitment.

What is Supply Chain Management?

Supply Chain Management is about managing the physical flow of product and related flows of information from purchasing through production, distribution and Delivery of the finished product to the customer.

This requires thinking beyond the established boundaries, strengthening the linkages between the supply chain functions and finding ways to pull them together. The result is an organization that provides a better service at a lower cost.

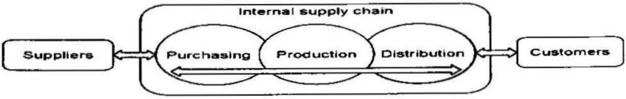
A recent study in the United States showed that the application of Supply Chain Management tools can result in the following benefits to a company.

50% Reduction in inventory

40% Improvement in on-time delivery

27% reduction in order cycle time

Nine fold reduction in out-of-stock-rates



2.3 Purpose & Scope of study:

Two main reasons – money and opportunity. Supply-chain management includes managing supply and demand, sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, and delivery to the customer.

Due to its wide scope, supply-chain management must address complex interdependencies; in effect creating an "extended enterprise" that reaches far beyond the factory door. Today, material and service suppliers, channel supply partners (wholesalers / distributors, retailers), and customers themselves, as well as supply-chain management consultants, software product suppliers and system developers, are all key players in supply-chain management.

In years past, manufacturers were the drivers of the supply-chain — managing the pace at which products were manufactured and distributed. Today, customers are calling the shots, and manufacturers are scrambling to meet customer demands for options / styles / features, quick order fulfillment, and fast delivery.

Benefits of Study:

By this study organization known their performance and growth in the market. From this, the company will target the area and also company focus on their performance.

Also, from this project company will know their relationship with customers, dealers, wholesalers, etc. This project will help for how to minimize the cost of different operation.

Limitation of Study:

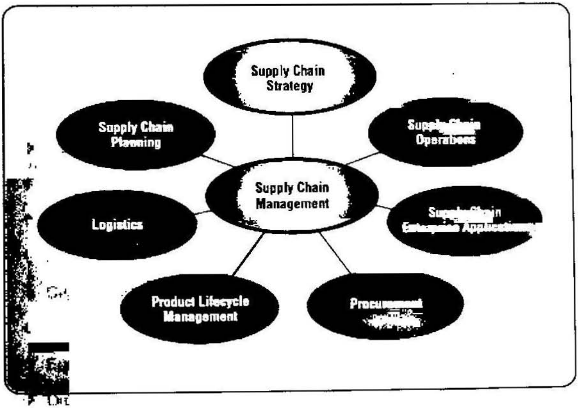
- Limited resources
- Limited Period of time
- Limited area of survey
- Not deal with any dealers or customers

2.4 Literature review

For study of supply chain there will study of the different company's strategies also study from the books like supply chain management practices, supply chain management, purchtips - edition # 115 December 12, 2006 by Charles Dominick, SPSM, The Integrated Supply Chain Management System.

Customers are such profit for each and every organization. For this Company provide good service of effective supply of products for satisfaction of customers. In this, we study about company supply chain management is on what bases effective and helpful to company for their growth and also satisfy the customers. In this study data collected from the different hardening center about their supply chain management and find out by which sources and ways the supply chain is running effectively and satisfy the customer's needs and also for company. Also take the suggestion from different hardening center manager by which way supply chain works and by which the cost of supply chain to be minimize.

Strategy for Supply Chain Management



The Main Tactical Level Objectives in a Supply Chain Are:

- Minimizing the time required for converting orders into cash.
- Minimizing the total Work-In-Process (WIP) in the Supply Chain.
- Improving pipeline visibility, that is the visibility of each one of the activities of the Supply Chain by each one of the partners.
- Improving visibility of demand by each one of the partners.
- Improving quality.
- Reducing costs.
- Improving services.

Key elements to a supply chain

- Production
- Supply
- Inventory
- Location
- Transportation
- Information

Production Element of Supply Chain

- Focus on what customer & market demand
- Resource Management
- Internal sourcing (what and which plants)
- Outsourcing to capable suppliers
- Capacity Management
- Workload schedules
- Equipment plans (acquisition/maintenance)
- Order Management

- Quality control

Supply Element of Supply Chain

- Partners in the Supply Chain
- Assessing core/strategic competencies
- Identifying capable suppliers
- Making sourcing decisions
- Relationship management
- General Procurement

Inventory Element of Supply Chain

- How Much Inventory and Where to Store it
- Analysis of fluctuations in demand
- Identification of optimal storage locations in support of *Customer demand
- Identification of optimal stock levels by location
- Establishing inventory ordering policies

Location Element of Supply Chain

- Strategic placement of production plants, distribution and stocking facilities
- Understand customer markets
- Perform Locating decisions for production and stocking facilities
- Lightweight/market driven near the end-user
- Heavy industries near raw material source

Transportation Element of Supply Chain

- Supporting inventory decisions and customer demand requirements (transportation is up to 30% of Product Cost!)

- Identify customer service levels
- Identify modal forms
  Air
  Ship
  Rail
  Ground
- Establish strategic transportation partnerships
- Evaluation of tax and tariff issues and transportation accessibility

Strategies for Supply Chain Management

- A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products.
- There are four major decision areas in supply chain management

1) Location

• The geographic placement of production facilities, stocking points, and sourcing points

• Number, and location of these are determined, then other possible paths

2) Production

• What products to produce, and which plants to produce them in, allocation of suppliers to plants

• Decisions assume the existence of the facilities

3) Inventory

• Control right quantity of the fruits and vegetables all the time in warehouses as well as in the stores

• High and low demand of the goods according the time frame and various seasons

• Keep records of gain and lose

4) Transportation (distribution)

- Minimize the transportation cost
- Closely linked to the inventory decisions,
- Geographic location plays vital roles in such decisions

Control systems

Control

- ❖ The regulation of organizational activities so that some targeted element of performance remains within acceptable limits.
- ❖ Provides organizations with indications of how well they are performing in relation to their goals.
- ❖ Provides a mechanism for adjusting performance to keep organizations moving in the right direction.

Areas of Control

✓ **Physical resources**

Inventory management, quality control, and equipment control.

✓ **Human resources**

Selection and placement, training and development, performance appraisal and compensation.

✓ **Information resources**

Sales and marketing forecasts, environmental analysis, public relations, production scheduling.

✓ **Financial resources**

Managing capital funds and cash flow, collection and payment of debts.

What is Inventory Management?

Keeping the various types of inventory at optimum level to avoid loss of sales as well as keeping carrying cost at minimum level is primary objective of inventory management. There are many techniques used for better inventory management, we will discuss some of them are,

1. **Economic order quantity (EOQ):** EOQ is an optimum quantity of materials to be ordered after considering ordering cost, carrying cost and stock-out costs.

2. **ABC Analysis:** In this technique inventory is classified in three categories A, B, & C based on their value. 'A' class items constitute the most important class of inventories. 'B' class items constitute an intermediate position while those in item 'C' are quite neglible.

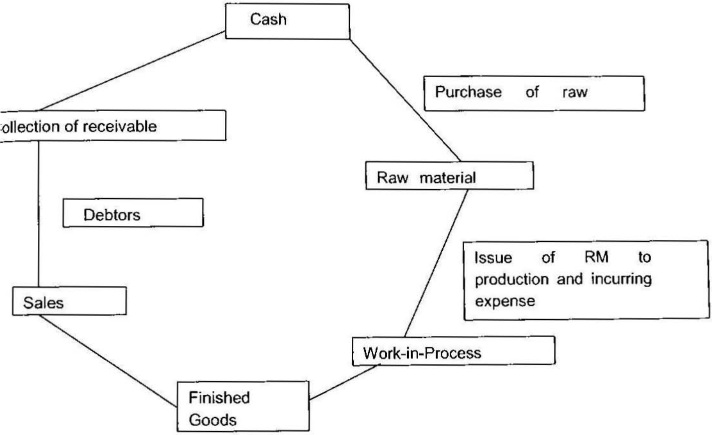
3. **VED Analysis:** This divides items into three categories in the descending order of their criticality. 'V' stands for vital items and their stock analysis requires more attention, because out of stock situation will result in stoppage of production. 'E' means essential items and 'D' means desirable items, which do not affect the production immediately.

4. **FNSD Analysis:** FNSD analysis divides the items into four categories in descending order of their usage rate. 'F' stands for fast moving items and stocks of such items are consumed in a short span of time. 'N' indicated normal moving items, 'S' means slow moving items and 'D' stands for dead stock.

5. **Just in time inventory management:** The major emphasis of just in time philosophy is inventory management and is dedicated to elimination of waste. In the context of JIT, waste is anything that does not add value. Ideally, JIT philosophy operates with zero inventories. Many related terms described the JIT approach such as MAN (Material as needed), MIPS (Minimum Inventory Production system) and ZIPS (Zero Inventory Production System).

Inventory forms an important part of working capital management system. Working capital to a company is like the blood to human body. A new concept, which is gaining more and more importance in recent years, is the Operating Cycle Concept of working capital. The operating cycle refers to the average time elapses (taken) between the acquisition of raw materials and the final cash realization. Operating cycle consists of four stages; this could be better understood with following diagram:

1. The raw materials and stores inventory stage
2. The work-in-progress stage
3. The finished goods inventory stage
4. The receivable stage



Chapter III:

RESEARCH METHODOLOGY

3.0 Research Methodology:

3.1 Sources of Data

Primary and secondary informationare see to conduct the project.

Primary Data: Hardening center, Staff, Manager

Secondary Data: By books and internet access, reports and publication and organization.

3.2 Method of data collection

A qualitative approach of data collection though semi-structured questioners is used for different hardening centers. Responses are collected personally through personal depth interview, focus group discussion and observation.

3.3 Sampling Plan and Sample size

Sample Size: Only hardening centers managers i.e. 4-5 persons

Sample unit: Employees, Managers of production and marketing, labours.

Sampling Design: Purposive sampling is used for the selection of respondents.

3.4 Method of data processing and Analysis

Cross sectional method

- Project is based on company's supply chain network
- In this get the information from the different hardening center about problems related to supply chain management.
- And, also take suggestion from them.
- In this project also find out some ways how to minimize the operating cycle and cost of supply chain management.

Chapter IV:

DATA PROCESSING AND ANALYSIS

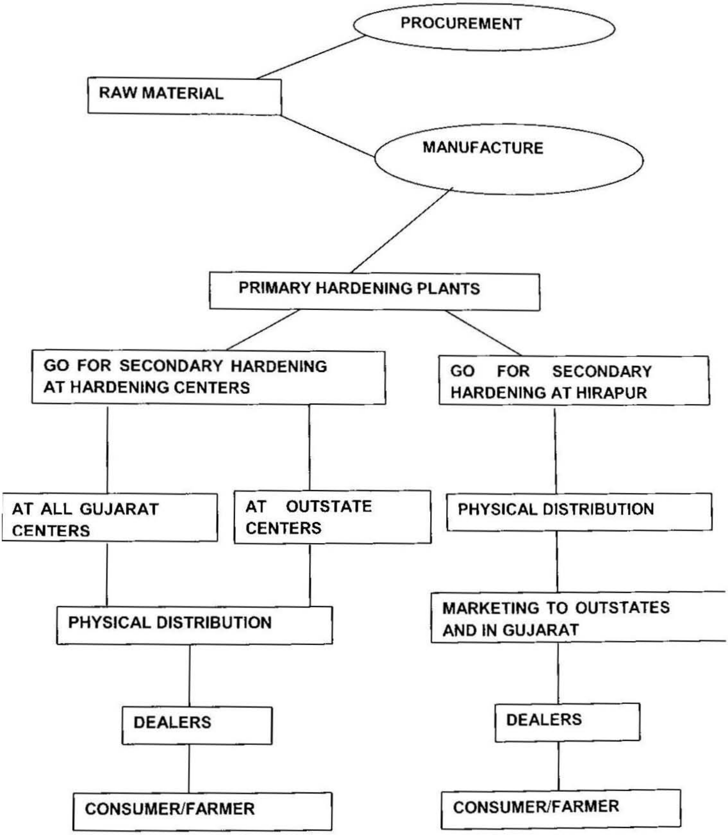
Supply Chain Management is about managing the physical flow of product and related flows of information from purchasing through production, distribution and Delivery of the finished product to the customer. This requires thinking beyond the established boundaries, strengthening the linkages between the supply chain functions and finding ways to pull them together. The result is an organization that provides a better service at a lower cost.

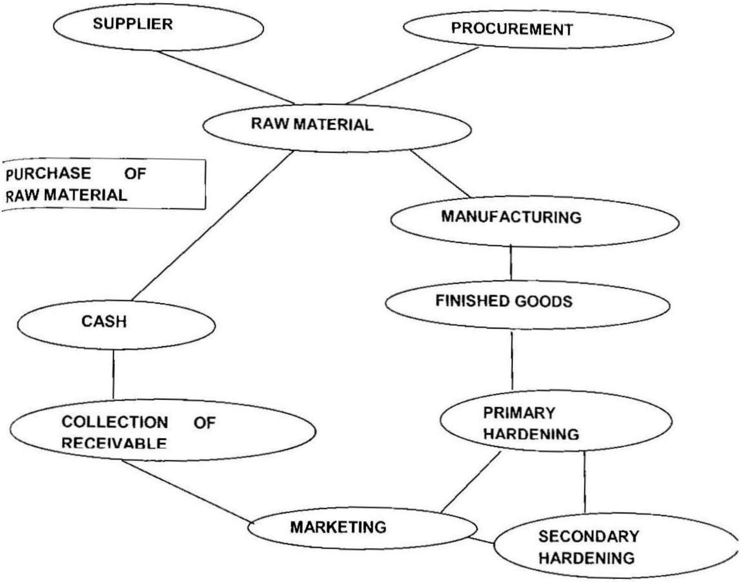
The objectives of the SCM network are:

- To promote a production planning for agriculture products.
- To optimize the distribution system
- To collect and share information among network members

The expected results from this SCM network are:

- **Cost reduction:** cutting in distribution cost and eliminating loss of unplanned production.
- Continuity and diversity in agriculture products: as a result of planned production.
- Improvement of farmer income: expected from distribution cost reduction, and elimination of loss in unplanned production.


PROCUREMENT
RAW MATERIAL
MANUFACTURE
PRIMARY HARDENING PLANTS
GO FOR SECONDARY HARDENING AT HARDENING CENTERS
GO FOR SECONDARY HARDENING AT HIRAPUR
AT ALL GUJARAT CENTERS
AT OUTSTATE CENTERS
PHYSICAL DISTRIBUTION
PHYSICAL DISTRIBUTION
MARKETING TO OUTSTATES AND IN GUJARAT
DEALERS
DEALERS
CONSUMER/FARMER
CONSUMER/FARMER



OPERATING CYCLE OF CADILA PHARMACEUTICALS (AGRO DIVISION)

Procurement of Raw Material:

The procurement of raw material of **mother culture to be imported from Israel once in a year.** While chemicals are to be stocked in a monthly according to requirement.

EOQ, Lead time and Re-order level fix on the basis of marketing demand and requirement. ABC analysis depends upon market demand and target given by the person of marketing and also for production. Inventory to be kept only for 15 days or monthly in the stocked chemicals.

The peak-season of green house plant is April-May & for hardening plant is in June- July. Inventory to be managed in the multiplying and shooting stage with proper management and precaution.

At South Gujarat: (Bharuch, Surat & Navsari)

Mr. Jatin Patel

He said that in that region, Jaghdia center have a production facilities, at that place plants to be hardened. The main plants are Banana, Parval and Papaya.

He said that by changing the size of bag from 5*6 to 4*6, by that there will be saving the cost of media from 800 gm to 400 gm. Also, he told that grade wise planting have a good result and get a good price.

He also said that in older system, there was an in one carrot about 35 plants to be shifted, but recent developed system there was about 54 plants to be shifted. So, there may be reduced the cost of transportation. The total cost of transportation is to be about 9 to 9.50 Rs. / km.

The main transportation engage with that is V.R. transportation and Dharti transportation.

Questioners:

Do you have any problem in supply chain management in your area?

Yes, there is no availability of vehicle at a time of delivery. So, there is late delivery of plants and company brand image is affected.

Have you any suggestion about that problem?

We are arranging some contract person for that and that is very costly for company; we are trying for better solution for that.

Do you have any other problem?

There are other problems seen in here are high mortality and high temp; which affect the plants.

How do you maintain the high temp?

We are using extra mess for save the plant. We are using 75 and 60% mess, so by that the entry of sunlight is less damage to plants.

Mr. Sanjay Patel and Mr. Manhar sir (Anand)

I met with Mr. Sanjay Patel Sir, he said in that area Navli and Jokhria places the plants to be hardened.

He told me about Jokhria center. In that center only Banana plants to be hardened. That center to be hired by some contract person and from primary plants dispatch to the secondary plants move to the end user was done by that contract person.

The cost of hired was Rs. 0.55/ plant and the planting to dispatch (supply to the end user) cost Rs. 0.70/ plant.

That center mainly for secondary hardening. He said that the poly bag and media to be shifted by the company as their ratio for media. In that center about plants to be hardening about 30 – 45 days for secondary hardening. The package of practices for that month was already done by contract person.

He said that by that system there was a cost cutting of super wiser post. So, that way cost cutting in supply chain management.

Mr. Milan Bhrambhatt (Rajpipla):

He said that in that center mainly Banana, Papaya and sugarcane were growing. He said that all that things were remaining as like in Anand. He told about green channel for the supply of plants. In that channel the product was to be shifted from net house to farmer.

Questioners:

Do you have any problem in supply chain management in your area?

There is no problem for supply chain management.

Do you have any other problem?

Yes, there is a problem of mortality and high temp.

Have you any suggestion about that problem?

We give treatment of SOP for mortality and for high temp; we use mess of 75 and other 60% for high sunlight for protect the plant.

Mr. Prakash Parmar (Hirapur, Ahmedabad):

He told about the Hirapur primary hardening center. He said that the material for media was to be costly and imported. So, he said that control use of raw material for media.

He said that using of less media and grow more plants means increase in plants from 20 to 25 plants. He also said that the main thing is that culture handing.

In primary hardening, the cost of coco pit is more, so proper use of coco pit from one bag use for 25 to 30 plants.

If any case, in primary hardening loss of plants or plants were disinfected or diseased, from that plants use their coco pit for another plants after proper treatment.

He also told that use of corrugated box twice. So, there was cost cutting. In summer proper hardening of primary plants and also uses electricity in a proper manner.

He also told that use of fertilizer in proper manner. It means that from 200 lit. Mixing fertilizer use for 300 plants to 450 plants.

He said proper maintenance of machinery, so no breakages in production.

For proper working, targeted the work to the labours. So, there were increases in productivity of labours.

Mr. Ghanshyam Patel:

He said that mainly cost cutting is reduced by increase in production, control use of media and materials. Using of low media and control use of consumable materials and also change in packing style.

He said that negotiation with transportation by reduced in rate, increase in no. plants. / truck.

He said that in production, increase in productivity of labour in lab, primary and secondary hardening.

He said that control use of fertilizers, insecticides, etc. Also, there were control in culture handing, and see on contamination and mortality to be minimize.

He said that in Jan- Feb. mother culture to be imported from Israel once in a year. While chemicals to be stocked monthly according to requirement.

The demand or peak season of greenhouse plant in April-May and the demand for hardening plant in June-July. Inventory to be managed by the multiplying stage and shooting stage.

The ABC, EOQ depend on market demand and according to target given by the company.

Questioners:

Do you have any problem in supply chain management in your area?

Here the main problems are culture, contamination, labour productivity and mortality of plants.

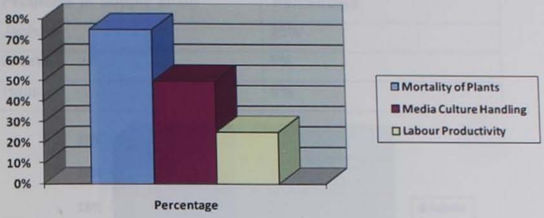
Have you any suggestion about that problem?

For culture control use of culture, for contamination proper care in media preparation and labour productivity give them target and increase their productivity.

Which are the main problems in organization?

There are mainly problems seen in mortality of plants, media culture handling, labour productivity and others, etc.

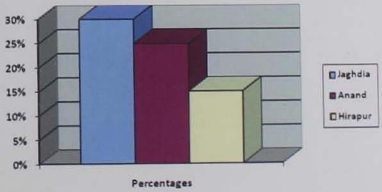
Problems	Percentage
Mortality of Plants	75%
Media Culture Handling	50%
Labour Productivity	25%



In which area there was high problem on mortality of plants?

In Jaghdia, there was problem of high mortality. While in other places there was lesser than Jaghdia.

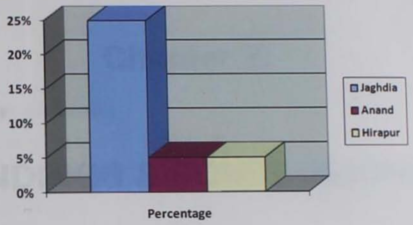
Problems on High Mortality	Percentages
Jaghdia	30%
Anand	25%
Hirapur	15%



In which area there was problem in supply chain?

In Jaghdia there was a big problem in supply of plants and in other area there was not a problem.

Problems in Supply chain	Percentage
Jaghdia	25%
Anand	5%
Hirapur	5%



Chapter V:

FINDINGS & CONCLUSIONS

5.1 FINDINGS & CONCLUSIONS

Suggestion for better cost management:

- Proper planning for working
- Plan all activities well in advance
- Classify the materials as per their importance/criticality
- Write down the estimated lead time after consultation with supply chain
- Mention minimum and maximum inventory for all important critical items
- Raise indents along with their delivery schedule and ensure that supply chain meets time line
- Keep updating financial controller for any unusual things.

To improve supply-chain management

To do so, businesses must identify which parts of their supply-chain process are not competitive, understand which customer needs are not being met, establish improvement goals, and rapidly implement necessary improvements.

Industry has long lacked a standard way to measure supply-chain performance. Because of this, manufacturers and service providers were unable to use a common assessment tool — benchmarking — in the effort to improve their performance. Moreover, the lack of a common means to describe supply-chain processes rendered software selection difficult and usually expensive.

Instead of finding the right tools for improving specific competitive gaps, businesses often made huge investments in software that failed to address their particular problem. All too often, available software products forced companies (often unwittingly) to revamp their supply-chain processes to suit some default criteria.

Suggestions:

Raw Material

- Use of raw material accurately and perfectly.
- Use of cheap source of raw material.
- Control use of raw material.
- Re-use of waste material after proper treatment.

Production

- Fix the time schedule and work on it as quickly as possible.
- Make the planning for production.
- Take minimum time on the operating cycle.
- Give the responsibly or give the target to workers that in that period the work to be finished.
- Proper work on schedule time.
- Choose the procedure which takes the minimum time and more production.
- Follow that there will be minimum wastage of raw material.
- Take less time in production cycle by proper planning.
- According to the demand of product, forecast the planning for production.
- Use the FYM, soil and sand at the nearest area from the hardening center/ production area, so there will be cheaply and easy for planting.
- Make the proper planning for distribution and supply of products.

Hardening

- In this period that give the optimum temp; for plants.
- Properly give the irrigation, fertilizer, etc. to be followed.
- Fix the time interval at which the primary plants to be ready and go for secondary hardening.
- In secondary hardening for shifting of plants there will be for arrangement of vehicle for supply of plants, also see that which takes minimum time for supply.
- Also see that in secondary hardening follow the practices for growth and development of plants.
- In this, also see that the contract system is work very efficiently.
- Also see that by which way the rate of hiring and transportation to be minimized.
- I also see that in this contract there is cost cutting for that in this contract system, there all the practices i.e., from plant shipment to its supply all the work done through the contract person.
- Use fewer medium in secondary planting.
- For hardening select pipe which cheaper and waste of other company, so it is cheaper.
- Make the permanent tunnel for hardening.
- Make the proper arrangement for inventory.

Transportation

- For transportation, firstly fix the route for which place to be supply the products and at which quantity
- Find the efficient vendors who can agree on your agreement
- Also fix the timing at which time the supply is to be on high demand
- Fix the rate of transportation per plant or per truck.
- For long distance and large supply, use of heavy truck. So, there is taking the more plants at once and also cheaper in cost.

For New Production Area:

- Select the area at which less availability of TDS in water.
- Select the area at which more demand of our products.
- Select the area at which proper climate and temp, etc, available in proper rate.

Guidelines for working area:

- To see that by which way the inventory to be minimize.
- To see that by what way the production costs to be minimize.
- Mainly see that by which way the operation cycle takes less time.
- To find the efficient vendors.
- To talk with vendors at which price they do shipment our products
- To find efficient way to transport the products.
- To see the demand of products and according to fix the production planning and fix the inventory level.
- To see by which customers to be satisfied.
- To shorter planning periods
- Mother culture is to be imported and costly, so control use of mother culture.
- Use fewer medium and make 20 plants to 25 plants.
- Proper handling of culture.
- Use of corrugated boxes twice so reduce in cost.
- Control use of fertilizer

5.2 Conclusion:

I found out that in this company mostly there was a good supply chain management in the company. I found out that in some places there was a problem of supply chain management. In Jaghdia center there was problem in supply of secondary plant, there was no availability of vehicle in that region. Also in all hardening center there was problem of high temperature and mortality. In Jaghdia center there was a problem of high mortality. Also, I found that in most of places there was totally system is on contract base, in that that is found better for the company.

For effective and innovative supply chain management company mainly focus on their delivery schedule and on that basis company plan some target area and effectively supply the products. In that way also find out some ways by which consumer get products as early as possible and timely.

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