CHAPTER - III

ORGANISATIONAL PROFILE

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C H A P T E R - III

ORGANISATIONAL PROFILE

3.1 INTRODUCTION OF THE MILL :

Kolhapur Zilla Shetkari Vinkari Sahakari Soot Girni Ltd. is well-known co-operative spinning mill in the textile industry. It got the registration on 17th August, 1964 under co-operative Act with the registration No. KPR/PRG(I)/1. The mill was started with 25,080 spindles and now it has increased to 75,240.

Shri. Shamgonda Babgonda Patil (Yadravkar), the Chairman of the mill, does tiredless efforts for the success of the mill, who is also the Vice-chairman of The All India Federation of Co-operative Spinning Mills Ltd., Bombay from 27th Dec. 1991. Shri. G.V.Kumbhar, the Managing Director of the mill, is the skilled administrator who handles the management of the mill, skillfully.

The mill has been given the 'Export Award' on 27th December 1988 by The All India Federation. And the Government of Maharashtra respected the mill by "Vanshri Award" on 31st July, 1991.

The present condition of the mill on 31st March, 1992 was likely as given below -

Capital :

Authorised & issued capital of the mill was Rs. 3 crores which is divided into 60,000 shares of Rs. 500

each. Subscribed, called up and paid up capital of the mill is 244.10 lakhs. But the paid capital only from cotton growers, weavers and co-operatives is Rs. 148.08 lakh and the remaining from the Government of Maharashtra and NCDC. Fixed Assets of the mill are of Rs. 2132.46 lakhs.

Loans :

Secured (long term) loans of Rs. 349.07 lakh, Secured (Medium term) loans of Rs. 615.26 lakh, unsecured loan from SICOM of Rs. 28.56 lakh and working capital loan on stock is of Rs. 433.61 lakh. Thus the total loan on the mill is likely to Rs. 1426.50 lakh on 31st March, 1992.

Modernisation :

The board of directors took the modernisation programme of 25,000 spindles and completed. After this first, another unit of 25,000 spindles is in the progress of modernisation from 2-3 years ago. This project is of Rs. 750 lakh. The project is accepted by the financial institutions and sanctioned the loan of Rs. 550 lakh. Upto 31st March, 1992, the cost for the project Rs. 656.84 lakh is occured. Out of it, Rs. 307.77 lakh are invested by the mill itself.

For maintaining the quality of cotton and yarn, and for testing at all levels of the production, the modern laboratory is to be formed by the mill.

Production :

The mill has produced 46 lakh kg. yarn of different counts in 271 days of the reporting year. The production of yarn was 64.40 lakh kg. in 12 months of previous year. The production looks less than previous year because the present reporting year is of nine months.

Sales :

The mill have made the domestic sale of yarn of 38.89 lakh kg. and 4.13 lakh kg. yarn have been exported. Thus, the total sale is 43.03 lakh kg. of Rs. 2604.16 lakh.

Profit & Loss :

The mill have got the trading profit of Rs. 371.69 lakh. and the net profit of Rs. 10.49 lakh in the nine months of the reporting year 1991-92. This profit is transfered to the balance sheet and deducted from the cumulative loss of Rs. 5,83,49,244. On 31st March, 1992, the cumulative loss is of Rs. 5,73,00,110.

3,2 **ESTABLISHMENT** :

On 5th September, 1963, the decision of establishment of the co-operative spinning mill was taken in the first meeting under the presidency of Deshbhakt Ratnappa Kumbhar, M.L.A. and the leader of Kolhapur District and also formed the board of promoters of 25 members on the same day. Shri. Kumbhar, chief promoter, sent the application

for getting the industrial license on 26th December 1963.

The application for the registration under co-operative Societies Act, was to be presented before Shri. Vasantrao Naik, the Chief Minister of Maharashtra on 27th January 1964. The land of 111 hector at Yadrav was acquired on 3rd June, 1965. The promotors of the mill - Shri. Mrigendra Virupaksha Sultanpure (Ichalkaranji), Shri. Raghunath Yashvant Desai (Rangoli), Shri. Parisa Bharmappa Ingrole (Hupari), Shri. Shamgonda Babgonda Patil (Yadrav) did the tiredless efforts to start the mill with and under the leadership of Shri. Ratnappa Bharmappa Kumbhar, the chief promoter.

The mill was inagurated by Shri. Morarjibhai Desai, the former Deputy Prime Minister and finance Minister of India, on 26th June, 1968 and the production commenced on this day with 25,080 spindles.

3.3 OBJECTIVES OF ESTABLISHMENT :

K.Z.S.V.S.S.G. Ltd., Yadrav, Ichalkaranji has expressed the objects[1] of Girani in details as given below

The objects of the Girani are to carry on the business of spinning, weaving and dyeing and supply of yarn to the weavers and to others. With the primary purpose of procuring the best possible price for cotton grower members and of supplying yarn to weaver members at reasonable price consistent with the economic working of the Girani. For the purpose of attaining the objects

it shall be competent to the Girani.

(a) to acquire, purchase or take on lease any land, to erect and construct on such lands, building, houses and sheds necessary and suitable for the working of the Girani, labour quarters, hospitals, schools, recreation grounds, canteen etc. so as to meet any other statutory requirements in this regard and to provide by purchase or otherwise, machinery and equipment requisit for efficient working of such a Girani.

(b) to procure cotton from grower members on pooled rate and carry on ginning, spinning, weaving, dyeing and other allied processes and to sell the finished material so manufactured.

(c) to raise funds in such manner, as the Board of Management shall think fit with the approval of the Annual General Meeting.

(d) to purchase, either on cash or on credit such raw materials as may be required for the Girani.

(e) to make, accept, endorse and execute promissory notes, bills of exchange and other negotiable instruments.

(f) to subscribe for and to hold shares in Co-operative and other institutions as permissible under the Maharashtra Co-operative Societies Act, 1960.

(g) to encourage self-help, thrift and co-operation among members.

(h) to construct and rent godowns in the place of manufacture as well as in other places for storage and sale of the raw materials and the products.

(i) to enter into contract with co-operative societies or individuals or other, for the purchase and sale of raw materials and finished products and to appoint agents on payment of salary or commission for such purchase and sale and to open depots for such sales, if necessary.

(j) to instal machinery for the utilization of bye-products and buy raw materials for the same and sell finished bye-products in the course of utilising and marketing the bye-products.

(k) 1) to sell, or otherwise dispose off the whole or any part of its business assets and/or undertaking including its factory buildings, machinery and land for the benefit of the Girani with prior approval of the registering authority.

2) to raise share capital and to borrow funds either on the security of the property, assets and undertaking of the society or otherwise howsoever from co-operative societies, Central or State Govt. Financial institutions including Industrial Finance Corporation of India, the Industrial Credit and Investment Corporation of India, Industrial Development Bank of India, Life Insurance Corporation of India or any other financial or

credit institution, bank or agency and generally to raise or borrow or secure funds of any sum or sums money for the purpose of the society.

(l) to undertake research and such other activities as are incidental and conductive to the development of cotton growing and yarn spinning and weaving.

(m) to undertake subsidiary and allied industries which are conductive to the development and benefit of the girani.

(n) to do such other things as are incidental or conductive to the attainment of all or any of the above objects.

3.4 **WORKING PATTERN** ;

An organisation as a structure contains an identifiable of people contributing their efforts towards the attainment of goals. In co-operative enterprise, organisation process can be viewed to be consisting of two organically linked elements, one consisting of democratic elements, responding to urges of member safeguarding co-operative principles and generally safeguarding the social aspect of the organisation. The other elements consist of managers, technicians and workers; who have been mobilised to make co-operative enterprise work and achieve its objectives.

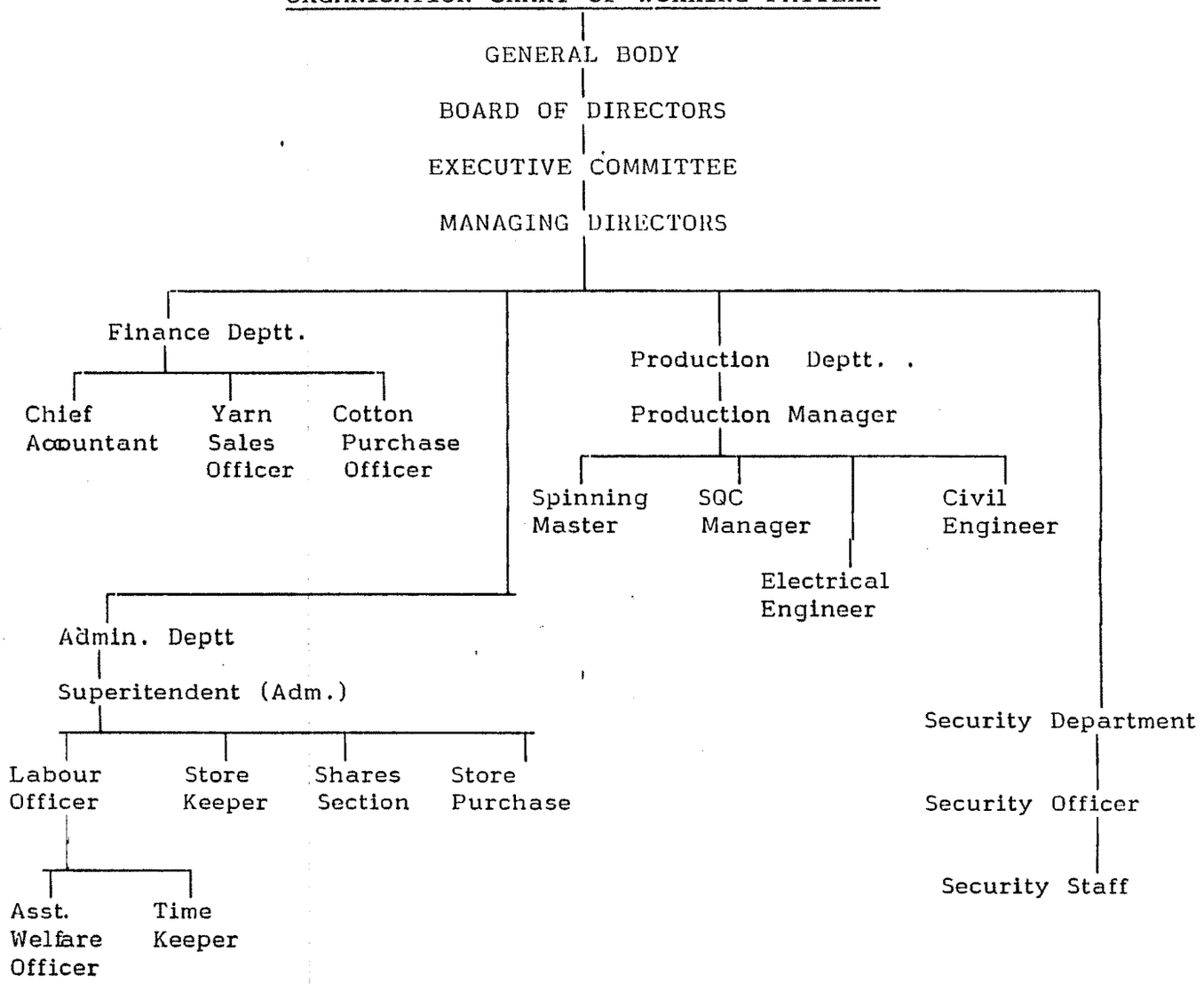
The co-operative spinning mills call for modern technology and efficient management to withstand vagaries of the economic climate and competition from organised private sector mills. The need for efficient management

assumes added importance and urgency in view of the fact that these units are organised by people having rural and semi-urban back-ground, not much expressed to method and techniques of modern industry.

The Kolhapur Zilla Shetkari Vinkari Sahakari Soot Girni Ltd., Ichalkaranji is the mill organised by both weavers and cotton growers jointly. The organisation chart pertaining to this mill is as given below :-

CHART NO. 3.1

ORGANISATION CHART OF WORKING PATTERN



The organisational chart shows slight variation in the designations and the relationships in the middle management level. However, like any co-operative enterprises, the primary authority and responsibility for laying down its objective, business strategies, plans and policies of the mills are also vested in their members, the real owners.

a) The General Body :

The General Body of the co-operative spinning mills is compased of members. The members differed according to the type of the mills. The membership like any other co-operative enterprise consisted of both individual membership and institutional membership. The individual members in mixed type of mill were both cotton growers and weavers. The different types of members are in the mill as - i) cotton-grower members, ii) Weaver members iii) co-operative society members iv) Nominal/sympathises/Associate members, v) Government The pattern of membership position of the mill during the period of five years i.e. 1987-88 to 1991-92 as given below :-

TABLE NO.3.1

Table showing the pattern of Membership in the mill

Type of members	1987-88	1988-89	1989-90	1990-91	1991-92
1. Growers	9,263	10,067	11,273	8,453	6,989
2. Weavers	6,113	6,164	7.230	7,387	7,384
3. Co-operatives	65	65	66	66	66
4. Maharashtra Government	-	-	1	1	1
TOTAL	15,441	16,297	18,570	15,907	14,440

(Source : Annual Reports of the mill)

b) Board of Directors :

Board of directors is elected by the members of the co-operative spinning mill for excercising their right to administer and manage the operations of the society. The pattern of constitution of the Board of Directors in the selected mill is as follow :

TABLE NO.3.2

Table showing the constitution of Board of Directors of the mill

	Classes	No.of Directors
01.	Grower-members	6
02.	Weaver-members	6
03.	Representative of co-op society	1
04.	Representative of SC/ST	1
05.	Representative of weaker section	1
06.	Representative of expert	1
07.	Representative of employees	2
08.	Government Nominee	1
09.	ICICI Nominee	1
10.	Managing Director	1

(Source : Annual Reports of the mill)

From above, it can be observed that the number of individual members (growers, weaver, backward classes weaker section etc.) seemed to have been larger than society members. In this mill, the quoram is fixed the presency of five members, for Board meeting. The Board of Directors has authorities of decision-making in the areas such as -

i) Selection of counts of yarn for manufacture

ii) Cotton procurement

iii) Appointment & termination of employees, etc.

C) Executive Committe :

Executive committee consist of few directors and the Managing Director has been constituted in almost all the mills. The chairman of the board was also the ex-officio chairman of the Executive Committee. In addition, there are other sub-committees created by the Board of Directors out of their own members. These are cotton purchase committee, sale of yarn committee, store committee etc. As the organisation chart indicates the executive committee is a connecting link between the Board of Directors and the Managing Director.

The Executive committee has the authority of decision-making like 'purchase of stores and equipments'. The yarn sale committee has the authority of decision making of 'price-fixation of yarn'.

d) The Chairman :

The chairman of the Board of Directors occupies the main role in the organisational structure representing the democratic will of the members and linking it to operational management through the Managing Director.

Board of Directors elect its Chairman and Vice-chariman in their meeting held for this purpose called by the District collector, as per provisions in Co-operative Act.

e) The Managing Director :

The Managing Director occupies the key role between the management of the mill and employees in day-to-day operations of the mill. He has an authority such as the decision making of 'Selling and distribution of yarn' and the functions like 'Purchase of store and equipments', 'Price fixation of yarn' and 'Appointment and termination of employees' are executed by him. He is responsible for increasing productivity of the enterprise by motivating the employees the mill towards peak performance. He has to satisfy the Board on one hand, on the other hand he has to motive the personnel under him for maximisation of results. Main functions of the Managing Director -

i) to supervise rutine administration of the mill, efficiently.

ii) to keep proper accounts, to attend Board of Director's meetings.

iii) to negotiate for the purpose of purchase, sales or hire of the machinery, tools, stores and other properties of the mill with the vendors.

iv) to attend to the routine work of line and staff establishment.

v) to preserve maintain and administer assets and legal documents etc.

F) Managerial Decisions :

Naturally, the use of modern technology and efficient management is called for by co-operative spinning mills. These units are organised by the people from the rural or semi-urban back ground who are steeped in the tradition of agriculture and weaving, not much exposed to the organisation and methods of modern management. Therefore, the need for conscious approach towards modern technique of a management assumes importance and urgency.

The profitability of the mill depends on the following factors :

a) Selection of counts of yarn for manufacture depending on the market demand.

b) Selection of cotton suitable for the counts to be spun with due regard to value, quality and standard norms of yarn realisation.

c) Standard rate of production per spindle

d) Control of factory expenses, office expenses etc.

Wise plans are crucial to success of managerial decisions. Rational decision-making is the product of the four basic elements :

i) making a diagnosis
ii) finding alternative solution
iii) analysing and comparing alternative and
iv) Selecting the plan to follow.

This process was seen almost absent in the decision making of the mills. There was no objectivity in the decision-making of the mills.

The management functions have to be performed in such a way that a fair balance is achieved between profitable business on the one hand and service to the members on the other. In case of a co-operative spinning mill, the management structure involved in decision-making consists of the following components : a) General Body b) Board of Directors c) Executive committee d) Other sub-committees and e) Managing Director.

3.5 PURCHASE OF COTTON :

India has the largest acreage in the world under cotton cultivation and ranks fourth in the world production after the U.S.A., U.S.S.R. and China. Cotton is generally a warm-weather crop and requires a long growing season varying from 150 to 200 days; it flourish best in Tropical and Sub-tropical climates and requires about 20 to 30 inches of rainfall during the growing season. There

are two major cotton growing seasons in India - the 'Khariff' season commencing April/May and the 'Rabi' season commencing August/September, in addition a small crop is raised in Tamil Nadu in the summer season. India grows a wide variety of cottons with staple lengths ranging from 12/32" to almost 1-5/16", cotton is cultivated principally in the states of Punjab, Haryana, Rajastan, Madhya Pradesh, Gujrat, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh and Assam. In addition, cotton is grown in the certain parts of Uttar Pradesh, Bihar and Orissa. The bulk of the Indian cotton crop is rain-fed and as such, in common with most of our agriculture, depends on the vagaries of the monsoon.

For the cotton spinning mills, availability of cotton of the required quality, quantity and at reasonable price constitutes one of the basic pre-conditions for success. It also depends on cotton production in country and imports of cotton from aboard.

Table No. 3.3 shows the world cotton area, production and yeild per hectare. And out of about 70 countries growing cotton, seven countries account for more than four-fifth of the production. The details about area, production and yield of cotton in these countries during 1990-91 are presented in Table No. 3.4

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TABLE NO.3.3

Table Showing The World cotton Area, Production and Yield per Hectare.

Year	Area (Million Hectare)	Production (Million Bales)	Average Yield (Kg. Lint/hect)
1986-87	30.9	91.0	501
1987-88	32.7	102.9	535
1988-89	34.2	108.8	540
1989-90	33.2	105.2	538
1990-91	33.1	111.8	574
Average	32.8	103.9	538

(Source : Aifcospin Year Book 1991)

TABLE NO.3.4

Table showing cotton Yield in selected countries during the year 1990-91

Sr. No.	Country	Area (Million Hectare)	Production (Million Bales)	Average Yield (Kg. Lint/Hect)
1.	China	5.50	26.28	813
2.	U.S.A	4.74	19.99	718
3.	U.S.S.R.	3.14	15.49	838
4.	India	7.30	11.70	272
5.	Pakistan	2.63	9.30	602
6.	Brazil	2.11	4.35	350
7.	Turkey	0.67	3.82	974

(Source : Aifcospin Year Book 1991)

In 1987-88, cotton production in India was 90 lakhs bales and 104 lakhs bales in 1988-89. Cotton production : Seasonal conditions during 1991-92 were quite favourable initially and the cotton showing were extensive in most of the states. The statewise production estimates during three years i.e. 1989-90 to 1991-92 are given in Table No. 3.5

TABLE NO. 3.5

Table Showing Statewise production of cotton

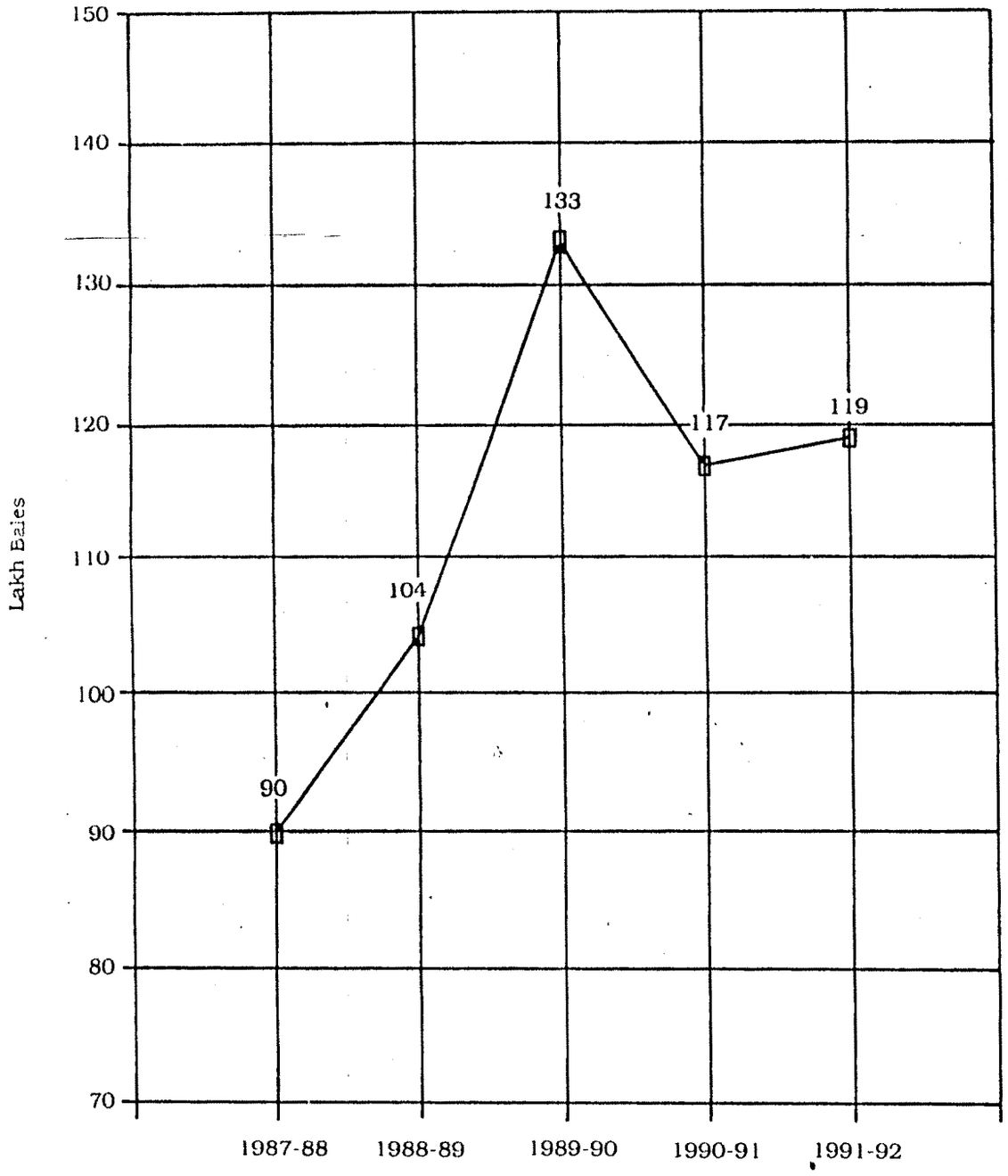
(Estimates in lakh bales)

Sr. No.	States	Production Estimates		
		1989-90	1990-91	1991-92
01.	Punjab	25.44	17.25	23.71
02.	Haryana	13.88	11.50	14.06
03.	Rajastan	10.67	9.50	10.23
04.	Madhya Pradesh	13.40	16.00	8.49
05.	Gujrat	17.30	15.00	15.16
06.	Maharashtra	20.17	15.00	12.48
07.	Andhra Pradesh	15.44	18.75	18.82
08.	Karnataka	10.20	8.00	8.85
09.	Tamil Nadu	6.75	5.00	5.75
10.	Others	0.75	1.00	1.00
	All India	133.50	117.00	119.00

(Source : Aifcospin Year Book 1992)

We can see the cotton production situation of India during the five years 1987-88 to 1991-92 by the observation of graph suitably.

Cotton Production



Cotton advisory Board has worked out the cotton budget for 1991-92 as under :-

TABLE NO. 3.6

Table Showing cotton Budget of India for the year 1991-92

(Lakh Bales)

Opening Stock		22.64
Production in 1991-92		119.00
Imports		3.00
	Total Supply :	144.64
Mill consumption		102.91
Non-mill use		8.00
Export		0.77
	Total Demand	111.68
Estimated Carry-over on 31.8.1992	*	32.96

* Carry over at the end of the 1991-92 season has been placed at a high level of around 33 lakh bales which will be sufficient for the industry's requirement for over three and half months.

(Source : Aifcospin Year Book 1992)

Purchase by mills :

Mills buy cotton in several different ways either singly or in combination :

1. Exclusively from the Trade which would include government bodies like the Maharashtra State Marketing Federation and the cotton corporation of India.
2. Direct from co-operative societies.
3. Direct from cotton-growers.
4. From the primary merchants who initally buy kapas from the farmers and later sell either direct to the mills or to secondary merchants.
5. Through regulated markets in the kapas from and thereafter the mill undertakes the pressing and ginning of the material.

The channel of cotton purchase of the mill is shown in the Table No. 3.7. As per this table, the cotton is purchased by different agencies i.e. grower member, Co.op. marketing federation, Private Traders, other co-operatives etc.

TABLE NO.3.7

Table Showing Cotton-Purchase of the mill

(Figures in lakhs)

Agencies through which cotton purchased		1987-88	1983-89	1989.90	1990-91	1991-92
1. Grower Members	Kg.	1.13	0.43	0.08	-	0.03
	Rs.	7.95	10.26	1.68	-	1.02
2. Co.Op.Marketing Federation	Kg	5.85	3.39	-	20.58	42.98
	Rs	125.18	88.71	-	407.559	1229.03
3. Private Traders	Kg.	39.46	56.50	77.01	36.80	36.20
	Rs	1119.00	1368.83	1730.71	904.95	1426.30
4. Other Co-operatives	Kg.	1.30	0.31	-	-	-
	Rs.	36.35	10.63	-	-	-
TOTAL	Kg.	47.74	60.63	77.09	57.38	79.22
	Rs.	1295.65	1495.39	1741.31	1402.15	2625.35

(Source : Annual Reports of the mill)

Major part of cotton purchase is taken from the private traders and after that the co.op Marketing Federation ranked second. The table shows the elasticity in purchase. The cotton purchase imporved from 1987-88 to 1989-90 (from 47.74 lakh kgs. at Rs. 1295.65 lakh. to 77.09 lakh kgs. at Rs.1741.31 lakh respectively). It come down to 57.38 lakh kgs. at Rs. 1402.15 lakh in 1990-91 and overwhelmingly increased to 79.22 kgs. at Rs. 2625.35 lakh in 1991-92.

3.6 PRODUCTION OF YARN :

Spinning or conversion of fibres into a thread is an age old knowledge. It had started ever since man wanted to cover himself. Making of yarn from vegetable fibre actually originated in India. India is famous for its finest type of yarn and cloth since thousands of years. But here, we consider the production process of yarn, only in co-operative spinning mills.

Production of fabrics is dependent on the production of yarn of the desired quality, which is in turn dependent on procurement of the desired quality of cotton. The fineness of yarn is measured by the number of hanks of yarn that weigh one pound. This is known as its count. The count to which a given type of cotton can be spun commercially, depends mainly on its staple length. The long cotton yeilds finer yarns. The spinning co-operatives have been spinning from 2^s to 80^s counts of yarn.

Spinning is an operation of forming the continuous thread by twisting together several overlapping fibres or filaments. Before the fibre is spun it is cleared, straightened, then preliminary process including carding and for finer yarns combing is completed. We see the following operation process in spinning co-operatives

i) The highly compressed cotton is reduced to the greatest possible state of division and impurities are removed. The fibre is formed into a rope or sliver

ii) The slivers are drawn between rollers to alternate them and are sometimes combed to arrange the fibres in parallel rows and to increase the regularity of the material.

iii) Sufficient twist is inserted into the alternated slivers by now called roving, to make a firm thread.

The special aspects of operation process of spinning co-operative are :

At the stage of ginning and pressing the cotton, loose cotton is formed into a sheet (the lap) nearly an inch thick and rolled it up into a package weighing 40-50 lbs. The regularly of this lap is important for the success of subsequent process. The real process of converting cotton into yarn starts with the operation at carding machine.

a) Carding :

Here the elimination of impurities including neps, is completed. The picker lap is reduced for a brief moment to gossamer fineness and then rolled into a soft rope called a sliver. Trash and short, broken and immature fibres are jettioned but the machine must be carefully set and supervised so that it does not create more neps than it removes.

At the start of carding operation the picker-lap is unwound by a small roller and presented to a taker in roller or licker in. This consists of a series of fine toothed circular saws mounted together on shaft. The teeth move at a speed of about 1000 fts a minute and tear away small bunches of fibre from the lap. These are stripped from the licken-in by a cylinder about 50 inch in diameter, that is covered with closely set steel wire teeth and revolves at about 2000 fts a minute. About parts of this cylinder are narrow bars, called flats, that are carried by an endless belt and are covered with wire teeth similar to those on the cylinder but pointed in the opposite direction. The cotton passes between the cylinder and flats, the distance between them is set to about 7/1000th of an inch. Since the flats move in the same direction as the cylinder but only at two to three inches a minute, they have a retarding and combing action and pick-up the trash, 'shot fibre and neps. This material is removed from the flats by

a comb and a rotary bruch and is deposited in a waste receptacle. The good cotton is held between the wire teeth on the main cylinder from which it is doffed by a smaller cylinder. This doffer also has wire points, facing into these of the main cylinder, but travels at only about 1/25th of the speed. A rapidly rocking comb takes the cotton fibre from the doffer in a continuous sheet nearly as fire as a spiders web. The web is immediately formed into a sliver by a pair of rollers that pull it through a trumpet - or funnel shapped hole and pass it on to a mechanism that coils it into a fall can.

b) <u>The Draw Frame :</u>

It is only necessary to attenuate and twist the card sliver to produce a yarn. The initial processing at this stage is carried out on the draw frame. Steps are taken to make the sliver more regular and to arrange constituent fibre in approximately parallel order. Four, six or eight card slivers are blended into one on the probability that a thick place in one sliver will balance out a thin place in another. To prevent the combined, sliver from becoming thick the blending is accompanied by attenuation or drafting as a result of which the product becomes four, six or eight times as long as but no thicker than one of the card sliver.

The draw frame has four pairs of smooth, leather-covered rollers arranged fairly close together in four

rows. The pairs are driven so that the speed of rotation increases from row to row until the frount pair is moving four, six or eight times as fast as the back pair depending on the number of card slivers being fed into the machine. Because of the increasing roller speed, the individual fibres slip forward as they pass between the pairs of the rollers and are also pulled straight. The increasing amount of parallelism of the fibres becomes apparent in the increased lusture of the draw-frame, sliver which is quite silky.

C) The Comber :

For high quality and fine yarns, it is usual to remove 5% - 15% or even 20% of the shorter fibres, as this enhances the 'spinnability' of the remainder. To remove the fibres, the slivers are recombined into small rolled up laps that are fed to the comber. At regular intervals a laps is advanced so as to present a fringe to a set of combs that pass through the fringe and take out the loose short fibres. These are detached from the combs and reserved for use in spinning a coarser yarn. The combed fringe is then pushed forward and combined with the tail of the previous fringe. To complete the attenuation of the sliver the same principle of drafting (i.e. reducing the bulk and weight per unit of length) by means of roller is exploited in series of machines known collectively as speed frames and individually as slubbing, intermediate roving and fine jack frame.

d) Ring Frames :

In the process of ring spinning the drafted roving is twisted into yarn and wound on to a bobbin simultaneously and continuously as in the flyer frames except that on the ring frame, the flyer is replaced by a smooth ring with a flanged upper edge over which is sprung a small C - shaped piece of steel wire or plastic, known as a traveler. The spindle carrying a wood, paper or metal support for the bobbin, projects vertically through the horizontal ring. The drafted roving runs from the drafting system to the traveler a few inches away and then to the bobbin; as the latter revolves with the spindle the yarn drags the traveler round the ring and the twist is thus inserted. The ring is mounted on a rail that moves up and down so that the yarn is laid down as a close succession of coils on the bobbins. The size of the bobbin and the degree to which the yarn is twisted are governed by the diameter of the ring and weight of the traveler.

For many purposes two or more single spun yarns are twisted together (doubled). When the lusture and smoothness are desired, the yarn is passed several times through a gas flame or red hot tube at such a speed that the fibres projecting from the surface are burnt off without damaging the rest of the yarn.

R E F E R E N C E S

1. The Bye-laws of the Kolhapur Zilla Shetkari Vinkari Sahakari Soot Girani Ltd.

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