

1780 COTTON ECONOMY IN INDIA

Mr. O.P. Agarwal , COTAAP RESEARCH FOUNDATION, MUMBAI, India

Indian economy is agro-based and agriculture is its mainstay as it constitutes the backbone of the rural livelihood security system. Agriculture has been and still continues to be the life line of the Indian economy since economic security is essentially predicted upon the agricultural and allied sectors. The agriculture sector encompasses crop production, animal husbandry, fisheries, agri-business, etc. Crop production depends upon crucial inputs such as good seeds, fertilizers, pesticides, irrigation, human labour, machinery and management.

As the largest private enterprise in India (more than 100 million farm holdings), agriculture supports more than 60% of the population, contributes nearly 19% to India's Gross Domestic Product (GDP) and 11% to the total exports. Around 51% of the geographical area in India is already under cultivation as compared to 11% of the world average. Agriculture is also a social sector where non-trading concerns like food and nutritional security, employment and income generation, poverty alleviation, ecological and environmental concerns play a significant role.

The total cropped area of the Country is about 142 million hectares and the intensity of cultivation is about 130%. In India, 60% of the total cropped area covered is classified as dryland or rainfed area representing 40% of the total agricultural production. The yields of dryland are low and there is risk of crop failure due to irregular rainfall since dryland farming contributes 45% of the Country's foodgrain production and the regions are characterized by high rates of unemployment and low level of income.

Sizes of the land holdings in India are predominantly small with almost 90% farmers holding less than 2 hectares of land. As manufacturing sector still depends on agricultural sector, the latter still holds the key to ensure pro-poor growth, reduce poverty and generate employment to rural as well as urban masses.

Agriculture, therefore, is the core of planned economic development in India, as the trickle-down effect of agriculture is significant in reducing poverty and regional inequality in the Country. Growth in agriculture has a maximum cascading impact on other sectors, leading to the spread of benefits over the entire economy and the large segment of population. Any setback to agricultural production makes a dent in the industrial growth as also in the growth of GDP.

COTTON – A MAJOR AGRI-CROP IN INDIA

Cotton, being a major agri-crop in India, has a major impact on overall Indian agriculture sector:

- Area under cotton cultivation constitutes almost 9% of the total area under agriculture in India
- Cotton crop contributes about 14 – 16% to the total agri-crop in India
- India has the largest area under cotton (9 million hectares) in the world constituting 26% of total world cotton area
- India presently produces 4.59 million tonnes (27 million bales of 170 kgs each) which constitutes 18% of the world cotton production

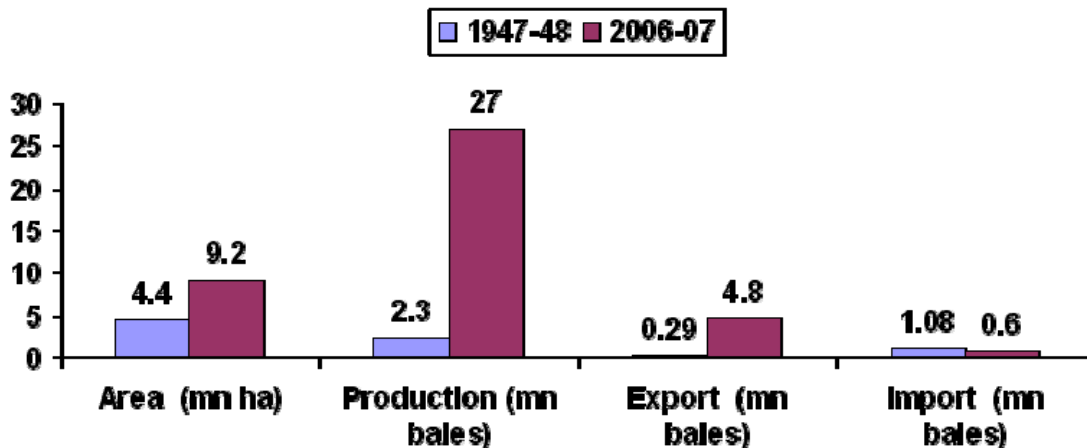
- 60 million people including 4.5 million farmers in India depend on cotton for their livelihood

GROWTH OF COTTON SECTOR IN INDIA

At the time of Independence in 1947, India was producing 2.3 million bales of short and medium staple cotton from 4.4 million hectares. Hence long and extralong staple cotton was imported.

To mitigate the adverse effect of partition of India and Pakistan on cotton production and quality, a "Grow More Cotton" programme was launched in 1950 by the Government with a view to increase the acreage under cotton and to raise the productivity.

During the last few decades, there has been a seven-fold increase in cotton production and more than four-fold increase in productivity as illustrated below.



DISTINCTIVE FEATURES OF INDIAN COTTON

Indian cotton stands somewhat in distinction with other growths as illustrated below:

- India is the only Country which produces all 4 species of cotton i.e.
 - *Gossypium hirsutum* (e.g. American cotton)
 - *Gossypium barbadense* (e.g. Egyptian cotton)
 - *Gossypium arboreum* } (natives of Asia
 - *Gossypium herbaceum* } and Africa)
- Spinning value of Indian cotton fibre is far better because of being manually harvested and processed through roller ginning, which is a gentle process compared to saw ginning
- It is only India which produces cotton of all counts (i.e. spinning value) ranging from 1s (below 22mm) to 81s and above (36mm and above)

- In India, cotton cultivation is widespread, spanning across 10 different cotton growing States having diverse agro-climatic conditions from arid to semi-arid to high rainfall areas. Cotton crop in India is, therefore, available throughout the year
- Cotton has 75% share in total fibre consumption in India
- Cotton contributes 58% in fibre consumption in Textile Industry
- Cotton year in India is October – September

COTTON DEVELOPMENTAL INITIATIVES IN INDIA IN RECENT YEARS

Government of India launched the Technology Mission on Cotton (TMC), in February 2000, to address the issues relating to raising productivity, improving quality, and reducing the cost of production of cotton in India.

TMC covered four Mini Missions as follows:

- Mini Missions I and II focused on effective production technology, increasing productivity and reducing cost of cultivation
- Mini Missions III and IV undertook development of Market Yards, modernisation of Ginning & Pressing factories and reduction in contamination level

Performance of TMC

- Performance of TMC over last few years has been splendid
- Market infrastructure has improved significantly
- About 250 Market Yards have been fully developed with financial assistance from TMC
- More than 800 Ginning & Pressing factories have been modernised under the TMC Schemes

Apart from launching of Technology Mission on Cotton as mentioned above, several other cotton development initiatives have been taken, e.g.

- Significant work has been done in development and validation of IPM technology, supply of certified seeds, etc. to improve yield and reduce cost of cultivation and to ensure better returns to farmers
- Integrated water management has given higher yield
- Quality of processed cotton has improved significantly with reduced level of trash and contamination
- Ginners earning premium for clean processed cotton, post modernisation of factories
- Use of good quality genetically pure cotton seeds
- Farmer education
- Organic farming
- Providing extension services to farmers

The above development programmes have been undertaken by a number of Government Agencies and NGOs as follows:

- COTAAP (Cotton and Allied Product) Research Foundation, a research wing of East India Cotton Association (EICA), founded in 1987 with the primary objective of motivating cotton farmers to improve productivity through the adoption of modern

and scientific agronomic practices and the use of good quality genetically pure cottonseeds. Over the years, COTAAP has undertaken several programmes such as development of model cotton farms, providing extension services to cotton farmers, production of pure and certified seeds, etc.

- Directorate of Cotton Development, Government of India
- Other NGOs
- Central Institute for Research of Cotton Technology
- Indian Council of Agricultural Research
- Agricultural Universities
- Agricultural Scientists

CONTRACT FARMING OF COTTON IN INDIA

As stated earlier, more than 60% of the area under cotton cultivation is rainfed and weather plays a key role in the cultivation of cotton. Further, Indian cotton cultivation is also riddled with several attended problems relating to crop production, protection, picking, transport and storage. Nearly 70% of cotton farmers in India are small and marginal, each planting less than 2 hectares of land under rainfed condition. In addition, farmers have to contend with several challenges – insufficient and suspect quality of inputs, low level of input usage, high cost of cultivation, insufficient knowledge of modern crop management, pest menace and soil degradation due to use of toxic pesticides. All these combine to depress yields.

Contract farming of cotton crop, therefore, has an important place in India. Since 2002-03, many agencies like Cotton Corporation of India and private mill consumers have entered into contract farming in a big way. The parties involved in contract farming are co-ordinating agencies (textile mills/ ginning factories), producers (farmer groups), input suppliers, technology provider and facilitators (State Departments of Agriculture), credit and insurance agencies.

A co-ordinating agency enters into a contract with the producer to cultivate a particular variety of cotton required by it and undertakes to purchase the entire crop harvested by the farmer group at prevailing market rate with premium for quality. The farmer group in turn undertakes to sell the cotton exclusively to the co-ordinating agency. The farmer group is then instructed to cultivate cotton with the technical advice on crop management including IPM practices from a team of experts engaged by the co-ordinating agency which also ensures supply of quality inputs to the farmers at wholesale prices so that the expenditure could be kept at the lowest possible level. The co-ordinating agency also helps the farmers in getting bank credit to buy inputs in time. It also supports the farmers in securing insurance at low premium rates. Post harvesting, cotton is sold by the farmers to the targeted mill as per the terms of the contract.

The area under cotton contract farming in India has expanded to a significant extent. The major benefits of contract farming are economies of scale enjoyed in procurement of quality inputs at wholesale prices, cost reduction, scientific crop monitoring, institutional credit tie-up, premium prices, need based community plant protection, crop insurance, etc. Contract farming facilitates production and supply of quality raw material to the Industry. It has an institutional approach to increase productivity and reduce production cost. Technology Mission on Cotton in India has offered support to farmers under its contract farming schemes.

Contract farming results in a win-win situation for all as farmers are assured of remunerative prices, the industry gets quality produce and risks are minimised for financial

institutions, banks and insurance companies. Some NGOs in India have also undertaken Integrated Cotton Cultivation Programme (ICCP). Under ICCP, integration of growers, input suppliers, service providers, financial institutions, insurance companies, consuming industry and Government creates a formidable combination which is able to overcome all the hurdles and stay ahead of competition. Importantly, each player is assured of its characteristic identity, individual freedom and rights.

ICCP benefits the farmers in many ways, as mentioned below:

Benefits for Farmers

- Varietal selection as per industrial need and market demand
- Institutional credit at affordable interest
- Crop insurance
- Diagnostic services
- Integrated pest and nutrient management
- Timely delivery of agri inputs at discounted rates
- Dissemination of agronomic advice and market information through regular meetings
- Effective post-harvest management
- Fair weightment for the produce
- Market price at farm gate
- Overall reduction in cost of cultivation

Benefits to Consuming Industry

- Opportunity to source right quality at right time at right price with assured supplies
- Efficient networking between farmers and consuming industry
- Reduced logistics costs due to availability of cotton in mill vicinity
- No middleman margins
- Efficient post-harvest management means superior quality raw material
- Reduces contamination level as produce is directly transported

With ambitious growth vision of Spinning and Textile Industry in India, there will be greater focus by mills to ensure availability of adequate and quality supply of cotton and contract farming is bound to grow from strength to strength in the coming years.

EVOLUTION OF BT COTTON IN INDIA

In India, though the research on Bt cotton was started in early 1990s, development of variety, suitable for the Country was attained only in late 1990s. After considerable field trials in late 1990s, Government approval was given for Bt cotton cultivation in the Country by 2002 in the Central and Southern States and approval was granted in the Northern States in 2005. The number of varieties of Bt cotton with Government approval now stands at 20.

In 2003-04, almost 86,000 hectares of Bt cotton were planted in India, almost three times the area cultivated in 2002-03, being the first year biotech cotton was approved for commercial planting. The area under Bt cotton expanded profoundly year by year and the change was much more visible during the year 2004-05 when it expanded to more than half a million hectares.

Presently, about 40% area under cultivation is under Bt cotton and Bt cultivation in India is expected to grow exponentially to almost 70 – 75% of the total area under cotton cultivation. The following chart illustrates the growth of Bt cotton cultivation over the last 5 years.

Year	Area under Bt Cotton in hectares	No. of Farmers
2002-03	29,307	Few only
2003-04	85,927	≥40,000
2004-05	5,34,731	3,00,000
2005-06	12,50,833	10,00,000
2006-07	38,00,000	≥20,00,000

Advantages of Bt Cotton in India

In the cultivation of Bt. Cotton in India, economic benefit flows from 2 factors:

- Saving in the cost of spraying and the cost of insecticides due to reduction in the number of sprays required for the control of bollworm
- Saving in yield loss to the extent of about 30%
- Increase in farmers' income

A recent survey of more than 3,000 farmers in India revealed as follows:

- Profit of Bt. Cotton farmers increased by 78% over those who planted the traditional varieties
- Yields increased by 29% on an average and pesticides use declined by 60%
- Benefit per hectare was more to marginal farmers when compared to large farmers who gained the least

ELS COTTON

- Current production of ELS cotton in India is around 0.10 million tonnes as against the requirements of 0.17 million tonnes
- ELS consumption is likely to increase to 0.31 million tonnes by 2010
- Various projects have been launched for increasing production of ELS cotton to match international standards and attain self-sufficiency

INDIA – A PROMINENT PLAYER IN GLOBAL COTTON MARKET

Cotton scenario in India has dramatically changed from a shortage situation to cotton surplus from the season 2004-05.

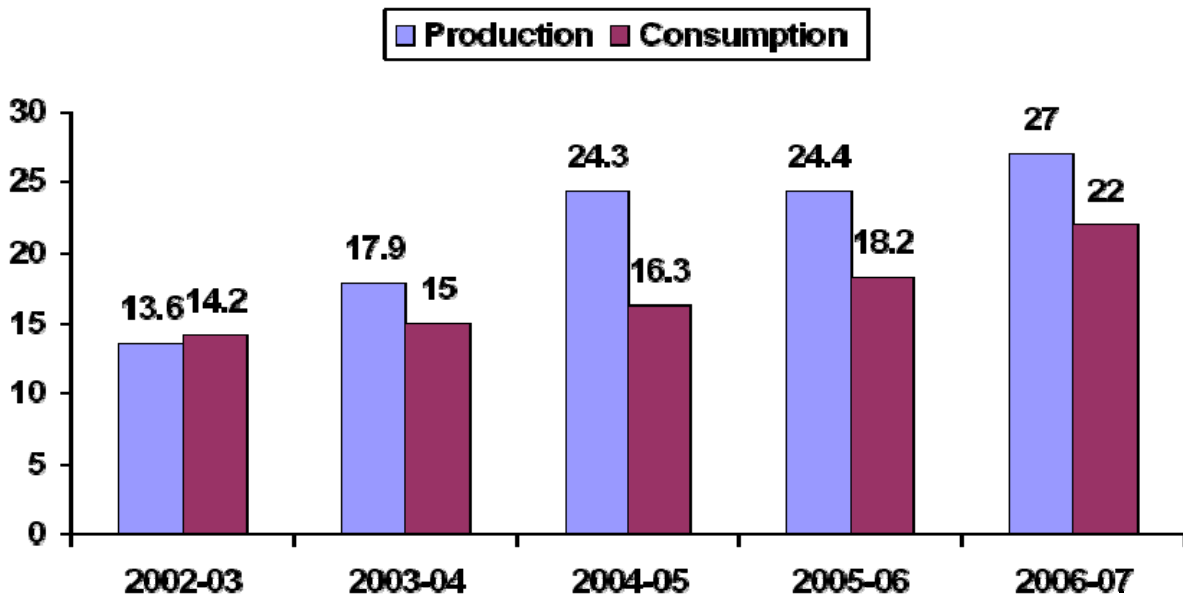
In the context of International cotton scenario, India now plays a predominant role

- India is the largest cotton cultivator in the world

- India is the third largest producer of cotton
- India is the second largest consumer of cotton
- India is the second largest exporter of cotton

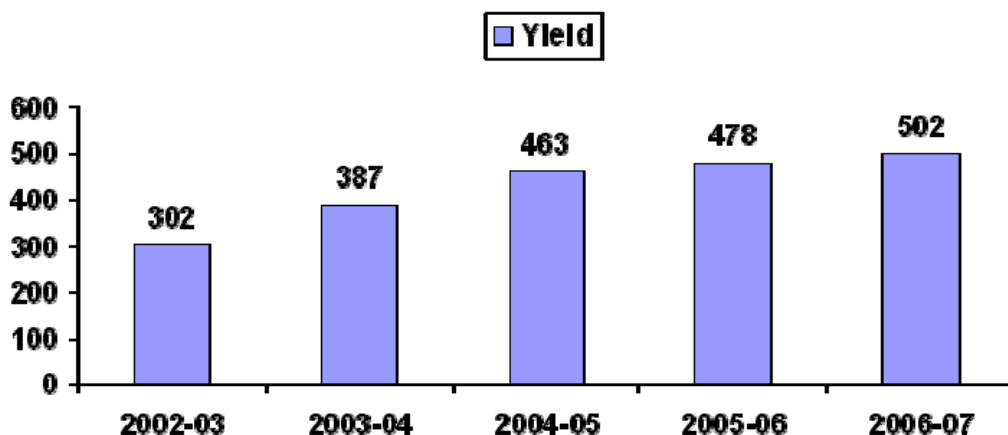
Production and Consumption of Cotton in India

- Production has jumped from 17.9 million bales of 170 kgs (3.04 million tons) in 2003-04 to 27 million bales of 170 kgs (4.59 million tons) estimated for the current season 2006-07, reflecting an increase of over 50 percent.
- Domestic consumption has recorded a growth of 37 percent from 16.34 million bales of 170 kgs (2.78 million tons) in 2003-04 to an estimated 22.5 million bales of 170 kgs (3.82 million tons) estimated in 2006-07.



Growth of Yield in India

- Yield has also grown from around 400 kgs per hectare in 2003-04 to around 500 kgs per hectare estimated in 2006-07. This represents an increase of over 25%.



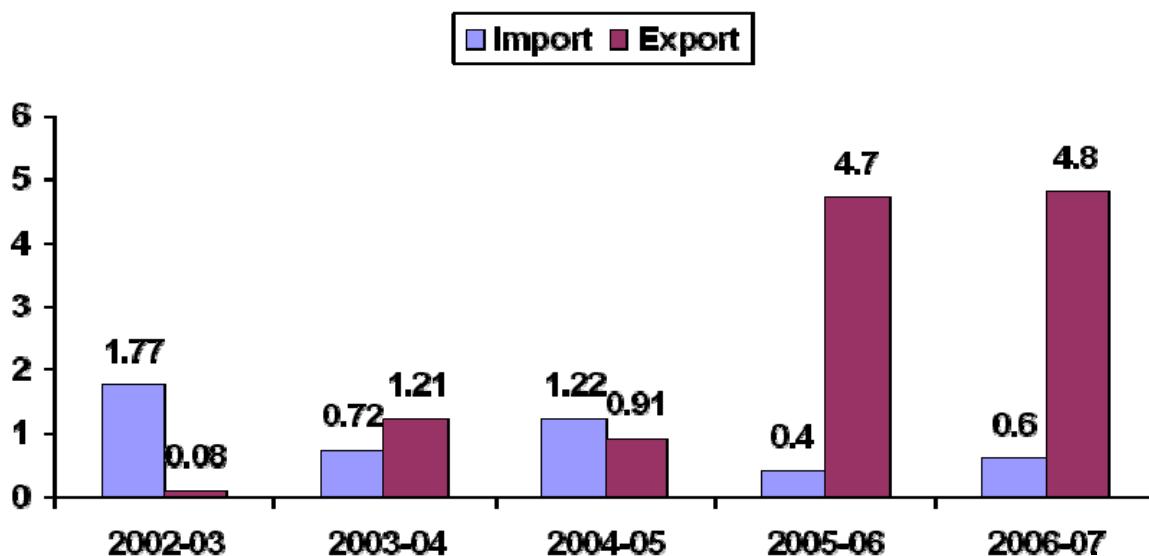
Between 1947-48 and 2006-07, the national average yield of cotton in India has gone up by more than five-fold. Although, the current yield of 500 kgs per hectare is still lower by world standards, the growth so far made is no mean achievement, having regard to the odds against which it was accomplished. The cotton crop in India is grown on a massive area which encompasses diverse agro-climatic zones from arid to semi-arid to high rainfall zones. No irrigation facility exists in major parts of agricultural area. The average size of land holding is small and farmers are generally weak economically.

The pace of progress in raising productivity accelerated during 1980s and 1990s, driven mainly by the rapid spread of high yielding hybrid cottons. The real breakthrough came about during the current decade, especially during the last two seasons. This was due to several initiatives detailed earlier, the phenomenal spread of hybrid and Bt. cottons, adoption of scientific agronomic practices by farmers, effective check on pest and disease infestation, increase in the area under irrigated cotton and augmented availability of good quality seeds by private producers. Alongside the productivity, there has been a significant reduction in the contamination level and marked improvement in the quality of Indian cotton. This is having a positive impact on the quality of cotton textile products and garments in the domestic and export markets.

Export of Cotton from India

The Golden era of cotton exports for India has begun. Only a few years back, India was importing huge quantities of cotton and exports were negligible.

It is heartening to see that India exported 4.7 million bales in 2005-06 which was an all time record in the history of Indian cotton. This represents a remarkable five-fold growth when compared to the exports of 0.91 million bales in 2004-05. We expect to improve the export performance further in the current season 2006-07. Interestingly, 75-80% of cotton exports from India are effected by members of East India Cotton Association.



Cotton Balance Sheet of India

The process of estimating the total supply and demand of cotton in India involves collection of huge data from various constituents of cotton economy from the supply side consumer mills, small scale units and exporters on the demand side. East India Cotton Association plays a key role in this process apart from Cotton Corporation of India, Directorate of Cotton Development and other Regional Cotton Trade Associations. Cotton Advisory Board constituted by the Government of India examines the data so collected and meets at regular intervals to estimate the demand and supply and subsequent reviews to update these estimates. The cotton Balance Sheet for the last 2 years is set out below.

(mn bales of 170 kgs)

	2005-06	2006-07
Supply		
Opening Stock	7.20	5.60
Production	24.40	27.00
Imports	0.40	0.60
TOTAL SUPPLY	32.00	33.20
Demand		
Mill consumptions	18.20	20.50
SSI units consumptions	2.00	2.00
Non-mill consumptions	1.50	1.50
Exports	4.70	4.80

TOTAL DEMAND	26.40	28.80
CLOSING STOCK	5.60	4.40

QUALITY OF INDIAN COTTON

Quality of cotton is a vital component in the cotton economy. As stated earlier, a record quantity of cotton was exported by India in 2005-06. This amply demonstrates that there has been a marked improvement in the quality of Indian cotton over the years and Indian cotton is now far more acceptable in International Markets.

There has been a paradigm shift so far as quality of Indian Cotton is concerned. Key factors contributing to this process are:

- Various cotton development initiatives taken during recent years as outlined earlier
- Modernisation of a large number of Ginning and Pressing factories
- Development / Modernisation of market yards
- Traditional methods of testing quality of cotton by visual inspection giving way to scientific testing of cotton on HVI Machines.
- Significant reduction in contamination levels over the years

MARKETING OF COTTON IN INDIA

The major planting season in India commences in April – May when most of the irrigated cotton is sown in the North and Central Zones. Sowing of rainfed cotton in Central Zone and part of the South Zone begins with the onset of South-west monsoon in June – July followed by planting of irrigated cotton in parts of South Zone.

The cotton marketing season commences in October and extends upto February in the North Zone and upto April – May in the Central Zone and parts of the South Zone. The five months from January – May constitute major marketing months in the South Zone.

Cotton in India is primarily marketed in the form of kapas i.e. seed cotton. There are mainly three marketing agencies:

- Private Sector (traders, ginners, etc.)
- Public Sector (Cotton Corporation of India, Maharashtra Federation, etc. constituted by Central and Maharashtra Governments)
- Co-operative Sector

Only about 25 – 30% of the cotton transaction is done in the Public and the Co-operative Sector, while the remaining cotton is handled by the Private Sector. Seed Cotton is sold by the grower to the village merchant as also in the secondary market i.e. important trade centres. The produce is bought by stockists, ready dealers, ginners, brokers or commission agent and by the mills themselves which own ginning factories. Business is conducted in accordance with the local traditional customs and practices as also as per the By-laws framed by the Market Committees and approved by the State Government.

Cotton Corporation of India, a Government Organisation, makes purchases to the extent necessary, as part of its price support operation and not for maintaining buffer stock of cotton. To check sharp fluctuations in cotton prices, CCI can undertake necessary exports / imports.

In India, cotton was one of the earliest commodities to be traded by Co-operatives. Co-operative Societies have been established in many parts of the Country and at present, they not only undertake the marketing of cotton but ginning and pressing too. The function of these Co-operatives is to provide the grower members with credit, supply agricultural inputs, produce and sell it to the mills. The credit advanced is recovered from the sale proceeds after marketing the cotton.

Market Channels

Channels of movement of seed cotton from the producer to the textile mills are:

- Producer – Ginner / Trader – Mill / Exporter
- Producer – Village Merchant – Ginner / Trader – Mill / Exporter
- Producer – Agent – Ginner / Trader – Mill / Exporter
- Producer – CCI – Ginner – Mill / Exporter

INDIAN TEXTILE INDUSTRY

Cotton is a basic raw material for Textile Industry. The Indian Textile Industry has an overwhelming presence in the economic life of the Country. Apart from providing one of the basic necessities of life, the Textile Industry also plays a pivotal role through its contribution to industrial output, employment generation, and the export earnings of the Country.

The Indian Textile Industry is extremely varied, with the hand-spun and hand woven sector at one end of the spectrum, and the capital intensive, sophisticated mill sector at the other. The decentralized powerloom / hosiery and knitting sectors form the largest section of the Textile Sector. The close linkage of the Industry to agriculture and the ancient culture and traditions of the Country make the Indian Textile Sector unique of other Countries. This also provides the industry with the capacity to produce a variety of products suitable to the different market segments, both within and outside the Country.

The major sectors forming part of the Textile Industry include the organised Cotton / Man-made Fibre Textile Mill Industry, Wool and Woolen Textile Industry, Sericulture and Silk Textile Industry, Handloom Industry, Handicraft Industry, Jute and Jute Textile Industry and Textile Exports.

Undoubtedly, there has been a refreshing transformation of the Indian textile industry in the last few years. The industry is fully confident of facing global challenges, which have emerged after termination of the quota regime in the world textile trade. Indian Textile and Clothing Industry is poised for a rapid growth in the coming years. It has embarked on a vision of capturing market worth USD 110 billion by the year 2012 from USD 52 billion in 2006. To achieve this target, the textile industry has estimated total cotton requirement of 5.95 million tons (35 million bales of 170 kgs) by 2010 and 7.65 million tons (45 million bales of 170 kgs) by 2012.

The industry is exploring new avenues and embarking on new strategies to gain further strength and stature. Several leading companies in India have acquired overseas textile companies and entered into joint ventures with reputed textile companies in several countries, which will help them achieve a global reach.

Currently, textile industry contributes about 14% to industrial production, 4% to the GDP, and 17% to the Country's export earnings. It provides direct employment to about 35 million people. The Textile sector is the second largest provider of employment after agriculture. Thus, the growth and all round development of this industry has a direct bearing on the improvement of the economy of the nation.

GROWTH VISION OF COTTON SECTOR IN INDIA

Production

Indian cotton sector has come a long way in achieving record productivity, production, consumption and exports. However, the momentum in growth is expected to be accelerated in the coming years. There is a vast potential for increase in yield. The present national yield of 500 kg per hectare in India works out to 3 bales of 170 kgs per hectare with reference to total area under cotton being 9 million hectares approximately. This leaves a lot of potential to be exploited. Even today, productivity in several cotton growing States in India is well above the World average. India has the potential to increase its yield to 4 bales of 170 kgs per hectare by 2010 and it should reach 5 bales of 170 kgs per hectare by 2012. Assuming the area under cotton cultivation remaining constant at around 9 million hectares, India should achieve an yield of around 850 kgs per hectare and a crop of about 45 million bales by 2012, so as to meet the projected requirements of Textile Industry by that time.

Export

Export would continue to be a focal point in India. In order to further strengthen the Indian cotton economy with sustained exports, the following thrust areas have been identified:

- Accelerate contract farming and make appropriate arrangements with farmers
- Hedging facilities for farmers through cotton futures, enabling them to choose appropriate varieties of cotton for sowing and better price realization
- Farmers to have ready access to modern production technology, pure and good quality seeds, essential inputs and credit through networking and link up with concerned agencies including research and development organisations
- Adopt best pre and post harvest practices to minimise contamination
- Processing of bales in renovated, modernised factories accredited by the Technology Mission on Cotton
- Quality evaluation only through instrument testing
- Delivery schedule to be strictly adhered to
- Sanctity of contracts to be fully observed
- Continued thrust on sustained improvement in quality

In conclusion, cotton economy in India will continue to grow at a healthy pace with Indian cotton and textile industry set to play a much greater role in the International markets.
