



## Growth And Development of Indian Woollen Industry

**Dr. Praveen Kumar** Professor of Management IIMT College of Engineering, Greater Noida

**Prof. Neeraj Kumar** Professor of Management IIMT College of Engineering, Greater Noida

### ABSTRACT

*Man has been trying to protect himself from natural calamities from time immemorial. If the weather is hot, he tries to find a cooler place and if the weather is cold he tries to find a warmer place. He wants to wear clothes which are suitable for a particular weather. In the beginning of the civilization, man used to protect himself with animal skins from cold weather, but as he became more civilized, he reared sheep for wool and made clothes of wool to protect himself from cold weather. The hairs of sheep are soft, warm and spinnable and they are used to protect us by wearing woollen clothes. It is difficult to say since when wool was used, but the fact is that as man became more civilized woolens were invented.*

### KEYWORDS :

#### PRELIMINARY

Wool shearing and manufacturing of woolens started from time immemorial. It is said that thousand of year ago Moors brought sheep from Spain and North Africa and started rearing them. It is also believed that Asian sheep originally belong to North Africa. Spanish people used to take good care of their sheep. If anybody was found guilty of exporting them was given capital punishment. On November 3, 1493 Columbus brought some sheep to Dominican Republic. In Mexico, first sheep were brought first time by a person called Costiz in 1530. These sheep flourished in Mexican Meadows. According to a well know writer - A. H. Cole, wool industry was started in 1543 in America when about 20 families migrated from Yorkshire in England to Rouelle in Massachusetts. These people used to shear and spin wool. In 1765, sheep of Marino breed were exported from Spain to England which become the base of wool industry in Europe. Persia has also been famous for its wool industry. In 16<sup>th</sup> century, Persian industrialists brought trained craft men who were well versed in woolen processing. Their products were attractive, well designed and beyond comparison. Carpets from Persia are of world fame.

#### 2.GROWTH AND DEVELOPMENT OF WOOL INDUSTRY IN INDIA

India's name has always been synonymous with its Cotton Textile Industry. But few know about the deep roots of a thriving Woollen Industry way back from the era of Indian Royalty and Mugal Emperors who have been patrons of Exquisite work of arts ,from finely embroidered and breathtaking Jamavar shawls, to pure wool product like garments and carpets.

Traditionally, home run handlooms and skilled artisans have formed the basic backbone of Textiles Industry in India. Manufacture of fine woolen textile products in India has been forte of artisan skills of handloom weaver's right from Kashmir in the North to various manufacturing centers in Rajasthan, Punjab, and Uttar Pradesh for centuries. Various kinds of animal hair obtained from hilly terrain were processed and used to make fine products like shawls, carpets, rugs etc.

During the British regime in second half of the 17th century, large amounts of cotton goods were exported regularly from India. Soon the modern structure of mechanized manufacturing of Cotton Textile Industry was followed by the Woollen Textile Industry consecutively.

However, establishment of mechanized mill in Woollen Sector was relatively late and perhaps the first mill was 'Lal Imlī' of British India Corporation set up in Kanpur.

The modern industry followed growth in centers like Thane, Mumbai, Jamnagar, Vadodara in West and Dhariwal, Amritsar, Panipat, Ludhia-

na in the North.

The later part of the 20th century saw creation of new facilities in Mysore, Raipur and Nagpur. Other than that new investment in green field large projects remained insignificant. Instead the investment in this sector was more focused on existing sites to modernize and expand.

In the early stage of development, production was confined for coarse to medium qualities mostly for the requirement of defence department. Requirement for fine variety of wool and worsted fabrics were met through imports chiefly from U.K.

Post independence, economic policies led to rapid growth of woollen textile manufacture in the organized sector and mushrooming of small to medium size units all over India producing all kinds of wool products, knitwear, hosiery and woollen blazer fabrics followed by blankets.

The middle of 20th century eventually saw imports being virtually stopped and domestic production keeping pace with local demand followed by product innovation and introduction of latest technology for processing of greasy wool from Australia to finished products.

Today in this new century the woollen sector of the Indian Textile Industry has many big brands names on its horizon. The woollen industry deserves a special mention for creating the concept of brand marketing on the national scale in the textile field. Some of the brands have been successful to create a mark even outside Indian boundary.

The industry acquired a distinct status with creation of 'Indian Woollen Mills Federation' in Mumbai, nearly 50 years ago, to serve the interest of the industry.

The woollen industry in India is mainly located in Himachal Pradesh, Punjab, Haryana, Rajasthan, Uttar Pradesh, Maharashtra and Gujarat. Forty per cent of the woollen units are located in Punjab, 27 per cent in Haryana, 10 per cent in Rajasthan while the remaining 23 per cent are situated in other states. The organised sector, unorganised sector and the rural sector operate in a complementary manner towards meeting the requirements of different sections of the domestic market as well as exports. The organised sector comprises composite mills, combing units, worsted and non-worsted spinning units and machine made carpet manufacturing units are covered while the unorganised sector contains hosiery and knitting, powerlooms, hand knotted carpet units and independent dyeing/processing houses.

Though chronological history of wool trade in India is not available but whatever information is available about the industry and its de-

velopment is as follows :

**Wool Industry in Ancient Period:** It cannot be said precisely when this industry was started in India. Wild sheep were found on the plains of Ganga – Yamuna even before one million years ago. Fossils of sheep were also found in the ruins of Mohanjodhro. Sheep found in India, Afghanistan and Tibet where those of Opis, Virgini and Ural breeds. These were the sheep which were first reared in India. It is believed that the Aryans were the first people who reared sheep in Punjab, Tibet and Central Asia. In ancient times sheep were called Aravananti and wool Avid. Sukhwa Uranavanti was the name of the Indus valley and most of the wool was produced here.

Wool was considered pure and holy in those times and was mainly used to be given offerings in holy rites. In Mahabharata it is mentioned that when Yudhishtira performed Rajsuit Yagya, he was also presented with woolen clothes and shawl. Kautaliya has also described ten types of woolen clothes in his famous book Artha-Shashtra. In ancient ages wool industry was quite developed.

**II . Wool Industry in Mugal Period :** Importance of wool industry in the Mugal era is well known. In these days sheep rearing was the main profession of poor peasants. Carpet industry was the main sector which was developed in the Mugal era. Rulers of Mugal period contributed largely to wool industry in India, Persian carpets were imported to decorate the palaces of the Mugal and Rajput rulers. An ancient carpet of that time can still be seen in the Jaipur museum. The carpet is known as Jaipur garden carpet. This carpet was purchased in 1632 in the regime of Mirza Raja Jai Singh (1622-68). The cost of carpet at that time was Rs. 500.00 which now runs into lacs of rupees. After the 16<sup>th</sup> century when emperor Akbar became the 3<sup>rd</sup> Mugal ruler, he too contributed in a big way to the development of carpet industry. He invited carpet makers from Persia to India and with their help he established a Royal Carpet Manufacturing Unit. The first carpet made was of blend of pure wool fiber and silk. These craftsmen manufactured carpets based on Persian design for the first time in India. Even today carpets of that era can be seen which narrate the history of this industry. Development of wool industry continued in the regime of Jahangir and Shahjahan, who included the cities of Agra, Delhi and Lahore in carpet manufacturing industry started by their forefathers. This increased the demand of wool and carpet in the country. Because paramount importance was given to this industry in the Mugal rule, production of wool was increased considerably. Blankets and thick woolen clothes were also being manufactured during this period.

During the Mugal rule the industry progressed even in the small states. James Todd has given a detailed description of this industry in his book "Annals and Antiquities of Rajasthan, Volume II". Todd has explained that sheep were reared in Bikaner and Jaisalmer and sufficient fodder was produced in the desert. In Jaisalmer, lohi, blankets, mufflers, petticoats etc. were manufactured. Similarly in Bikaner woolen garments for both male and female were produced which were used by both common folk as well as by rich people. Raw wool was spun with the help of looms. A pair of thicker and superior loom make lohies used to cost around Rs.3.00 to30.00. Borders of shawls were generally brown or red colored. Dupattas and scarf's for ladies were also manufactured. Ghee (fat) was also produced in those times from the milk of sheep and goats which was another important commercial aspect.

**III Wool Industry in British Period:** The development of wool industry was not organized in India before the British business adventure. Indian wool industry saw new pastures during the British rule. To improve the breeds of sheep, newer and better breeds were produced by crossing different sheep. Industrial revolution at that time has also improved the quality of the products. Nearly after a century in 1876, the first power operated woolen mills was established in Kanpur. It was called Kanpur woolen mills and was later known as Lal Imlie Mills Ltd. The next mills was established in Dhariwal and was known as the new Easton Mills, thereafter, Mills in Amritsar, Bombay and Bangalore were established. Production of woolen hosiery was also increased meanwhile. Many units were set up in Ludhiana to manufacture woolen hosiery in 1902, the first hosiery units was established in Ludhiana and by the end of second world war, the number reached up to 20 till 1934 there were 13 mills using power looms, but the number swelled

upto 91 in 1946. There were 13 power looms and 88 hand looms operating units in India were producing wool and woollens. Though in British period machines were introduced and new mills were set up but other aspects of the industry like- improvement in sheep breeding, providing financial help to sheep rears and improvement of working condition of laborers were not paid much attention.

**IV Wool Industry After Independence :** When India gained independence the industrial sector was in a bad condition. The British were only interested to develop those sectors which were beneficial to them from strategic point of view. Therefore, the progress of wool industry was extremely slow in 1948, the number of woolen mills was 91. In addition to this there were about 13 small power looms and 88 units of hand looms. This was quite a black picture of the industry. Shoddy sector was developed in 1956, and blankets were produced from shoddy yarn in 1957-67. The industry took its present form after independence. Wool industry was developed in an organized manner in the various five year plans. Government tried at various levels to improve sheep rearing. Wool sheering and development of woolen mills were considered to be important parts of rural economy. Five year plans encouraged the development and increased production of woolen yarn, woolen garment and worsted cloth.

**Government Encouragement:** The policy adopted by the government of India was to develop the industry in a planned manner. To fulfill the targets the government has aided the industry in the previous ten five year plan and further targets were fixed for the 11<sup>th</sup> five year (2007-2012). All the previous five year plans developed various aspects of the industry. The succeeding paragraph give the growth status and government efforts to develop the industry.

**First Five Year Plan:** The main project taken during first plan was to improve the various breeds of sheep and increase wool production. The task was to develop a better wool yielding breed of sheep by crossing the local breeds with foreign breeds. This was done by Indian Council of Agricultural Research. In this period the proposal was to set up three regional research centers in Uttar Pradesh, Punjab and Rajasthan. The following table 2.1 provides the production expenditure etc.

**Table 1: Production, Expenditure and Planning**

Industry	Production	Expenditure (in lac Rs.)	Approx. No. of people to get employment
wool industry	10 lac blankets	47.49	200 labours 200 weavers 4,000 spinners

**Source : First Five Year Plan, Planning, Commission, Chapter XXIV.**

**Second Five Year Plan :** To further increase the develop the wool industry, the second five year plan introduced three new sheep breeding centers which was setup in Himachal Pradesh, central India and Saurashtra. It was also proposed to set up to 396 sheep and wool distribution centres were also set in this plan and Rs. 15 million were spent for development of sheep and wool industry in rural areas. Under the development program of village and cottage industry, resources were also allocated to Khadi and wool spinning sector (table - 2.2).

**Table 2: Proposed Expenditure on Village and Cottage Industries.**

Details	Proposed Investment (in crore Rs.)
Hand looms woollens Khadi	2.00
woolen spinning	1.90

**Source: Second Five Year Plan 1956. P. 441.**

**Third Five Year Plan :** The number of sheep breeding centres were increased from 15 to 17 and to improve the quality and quantity of wool. The plan targeted the wool production of 90 million lbs which was achieved.

**Fourth Five Year Plan :** The target in this plan was to increase the capacity to store wool. The other target was to improve the quality of wool. Meat production was also dependent on the development of sheep. Selected sheep from Western Himachal Pradesh and southern plains were crossed with better quality imported sheep to produce better yielding sheep. To introduce sheep from plains in north India was another target. A special project was started in Rajasthan for wool shearing and preparing it for sale in market. Special emphasis in the 4<sup>th</sup> five year plan was laid on wool grading, shearing and marketing.

**Fifth Five Year Plan :** Adequate attention was paid to the development to sheep and wool industry in fifth five year plan. To produce improved quality of wool, imported sheep were crossed with local varieties.

**Sixth Five Year Plan :** This plan has also helped the industry in many ways. 1979-80 was considered to be the base to set the target from 34 million kilogram. The target was increased to 39 million kilogram. It was also proposed to increase the speed of sheep reproduction program to superior and medium class sheep in the states.

**The following table 2.3 shows the increase in production of woollen items.**

**Table 3: Production in Sixth Five Year Plan**

Yarn	1979-80		1984-85	
	Spindles Capacity	Production (Million Kg)	Spindles Capacity	Production (Million Kg)
Worsted	2,00,000	17.8	3,30,000	26.00
Shoddy	42,900	9.7	85,000	19.52
Woollen	1,35,000	22.5	3,01,000	50.20

**Source: Report on Wool and Woollen Industry Prepared by Study Group 1983. P -3.**

The sixth plan emphasized on the rearing of sheep whose wool was suitable for carpets and in improvement in the quality of carpets.

**Seventh Five Year Plan:** For the seventh five year plan the Indian woollen mills federation has developed an ambitious project. In this plan the proposal is to spend Rs. 770 million on modernization of wool industry, development and further expansion. The export promotion council has set up the following target for export of woollen item.

**Table 4: Export Target for Seventh Five Year Plan**

Year		Export Target (in lac Rs.)
1985-86	1986-87	7,119.90
1987-88	1988-89	8,889.40
1989-90		13,909.20
		9,116.70
		17,383.20

**Source: Wool and Woollen Export Promotion Council, New Delhi**

In addition to develop the woollen sector through financial assistance during the year plans, the central government has also enacted the following two laws to regulate the woollen market in India:

Government of India Wool grading and marketing Rule 1961

The Woollen Textiles (Production and Distribution Control) order 1962.

The details of these Acts have been elaborated and discussed in the Chapter Marketing and Appendix as well.

**Eighth Five Year Plan:** In this five year plan government paid attention to increase the production of woollen fibre. As a result of sustained efforts and initiative taken by central government in the eight five year plan, the production of wool increased from 38.8 million

kilogram in 1992-93 to 44.4 million kilogram in 1996-97.

**Ninth Five Year Plan:** Angora wool development scheme was introduced in this five year plan. It supports angora rabbit rearing activity among farmers, strengthens Germplasm Centre (GCP), and facilitated distribution of rabbit among rearers as foundation stock along with necessary training and feed and nutritional support. Apart from this, stress was given on exports and the industry showed a impressive increase in export in year 1999-2000 at Rs. 2110.30 crore but it decreased to Rs. 1378.74 crore. Finally the ninth plan period was a period of up down for woollen industry.

**Tenth Five Year Plan :** During this plan period, the scheme for the development of Pashmina wool was launched in Leh-Ladakh region of J&K as part of Prime Minister Special Package. The Growth of the production of woollen item displayed mixed trends during this plan. Hand made carpet recorded the highest growth, but there was nominal annual increase in the production of woollen yarn and worsted yarn production. Despite this the woollen industry could not achieve the overall target of wool production due to the fluctuations in the prices of Australian raw wool, disturbance in production, unfavorable climate, change in fashion trends in favor of cotton, life style changes, weak participation by states government and inadequate infrastructure etc.

**Eleventh Five Year Plan:** Government has set the following targets for 11<sup>th</sup> Five Year plan. This plan is running at present from 2007 to 2012.

**Table 5: Target of 11<sup>th</sup> Five Year Plan**

Item	Tenured Year of 11th Plan
Wool Production (Million Kg)	88.50
Employment (Lac Person)	60.00
Export (Rs. In Crore)	10,000

**Apart from these targets Government has following Schemes through following institutions:**

**Central Wool Development Board Jodhpur:** The Central Wool Development Board(CWDB) Jodhpur was established in July 1987 to administer the implementation of program and schemes in central sector for the promotion and development wool and woollen industry in the country.

Rs. 1500lakh was allocated by the Ministry of Textile to the Central Wool Development Board (CWDB) during 2008-09 to implement various plans, schemes & program for holistic growth & development of wool sector. During 2008-09 the Central Wool Development Board had undertaken the following activities:

### 1. Integrated Wool Improvement and Development Programme (IWIDP):

The Integrated Wool Improvement & Development Programme (IWIDP), the flagship Scheme of the CWDB for Woollen Sector, is being implemented during the XIth Five Year Plan period at an estimated cost of Rs. 41 crore. The Scheme provides support to the Industry & Wool growers to qualitatively upgrade product and the technology to enable them to get better returns for their products

and get a larger share of the domestic and global market. The Programme has two main components: (i) Improvement of Wool Fibre and (ii) Human Resource Development and Marketing Activities. During the XIth Five Year Plan period, the programme aims to cover 26 lakh sheep, set up 24 multipurpose extension Centers & 6 rearing farms and supply 26,000 stud rams for breed improvement.

### Improvement of Wool Fibre :

(i) Sheep & Wool Improvement Scheme The Sheep & Wool Improvement Scheme was introduced during the Xth Five Year Plan period, as a part of Integrated Wool Improvement Programme (IWIP), to provide health care to sheep to improve their breed, to set up multipurpose extension centres, provide marketing and support, product development support and marketing assistance to the breeders. The National Institute of Rural Development (NIRD), Hyderabad, had evaluated the

scheme at the end of Xth Five Year Plan and recommended that:

- The Sheep & Wool Improvement Scheme may continue for some more years
- The allotment of fund under Health Care may be increased and focus should be on vaccination, deworming.
- The purchase price of Ram be increased up to Rs. 4,000 per ram to facilitate greater procurement of quality rams and give stimulus to breed improvement
- The intensity and frequency of health camps may be increased
- The Multipurpose Extension Centre may be set up on priority basis
- The Product Development and Marketing Assistant may continue
- The Marketing of Wool may be given greater priority

These measures were incorporated in the Scheme. During 2008-09, 22 lakh sheep were covered under the Scheme in the project areas and 10.70 lakh sheep in the non-project areas, with financial allocation of Rs. 968 lakh. The Board utilized Rs. 968 lakh in project and non project area in the States of Rajasthan, Gujarat, Madhya Pradesh, Uttrakhand, Maharashtra, Haryana and Jammu & Kashmir.

### (ii) Angora Wool Development Scheme

The Angora Wool Development scheme was first introduced during the IXth Five Year Plan period. It supports Angora rabbit rearing activity among farmers, strengthens Germplasm Centre (GPC), and facilitated distribution of rabbit among rearers as foundation stock along with necessary training and feed and nutritional support. The growth in the production of angora wool was very much desirable as the share of angora wool in the total wool production was much low. The scheme is part of IWIDP during the XIth Five Year Plan period and has the following components:

- i) Establishment of Mini Angora rabbit Farm
- ii) Mini Feed Manufacturing Units
- iii) Common Facility Centre (CFC) for Angora Wool Processing and Training
- iv) Research & Development,
- v) Strengthening of Angora rabbit Germplasm Centre.

During the financial year 2008-09, 120 Angora rabbit rearing families were covered at an estimated cost of Rs. 57.10 lakh.

Thus we observe that the scheme adopted a holistic approach towards the development of angora wool.

### (iii) Pashmina Development Scheme

During the Xth Five Year Plan period, the Scheme for the development of Pashmina Wool was launched in Leh-Ladakh region of J&K as part of Prime Minister Special Package. The Scheme is continuing in the XIth Five Year Plan period. The components of the Scheme are:

- Buck Exchange Programme
- Distribution of high quality Pashmina bucks in non-traditional areas to enhance Pashmina production
- Training of formation of Breeders Association (Guilds) or village Pashmina Cooperative Societies
- Establishment of Fodder Bank
- Refresher Training to Nomadic Breeders as Paramedics
- Health Coverage

- Refresher Courses to In-service Candidates for 3 days/breeders camps
- Fodder Development
- Provision of improved Pashmina

Combs for Efficient Harvesting of Pashmina During 2008-09, the Board covered 800 families in Ladakh region of J&K with a financial provision of Rs. 41 lakh.

### 2. Quality Processing of Wool and Woollen Scheme

The unorganized Woollen Sector suffers from inadequate processing facilities. The pre loom & post loom facilities are outdated. The sector uses crude form of carding, which results in low productivity, besides affecting the health of workers. The spinning technology is primitive, which is urgently required to be upgraded through improved equipments. The Scheme provides a comprehensive service package from deburring to carding & spinning stage. The setting up of modern plants will increase wool-processing capacity and brings value addition to Indian wool industry and creates more employment and augments income of persons engaged in these decentralized activities.

The agency under the scheme has to bear the cost of land & building. The Government of India provides nonrecurring grant for purchase of machinery required for setting up of a unit. The recurring expenditure is borne by the agency/association.

A provision of Rs. 100 lakh was made in 2008-09 to set up 2 Common Facility Centers for Pre-loom activity like wool scouring, drying, deburring and carding, etc. The scheme is being implemented in project mode with Rs. 50 lakh or 50 per cent of the total project cost, whichever is less towards cost of machinery. During the year 2008-09, the Board has setup two Common Facility Centers under pre-loom activity in the States of Rajasthan (Kekri) and Punjab (Pathankot), at a financial outlay of Rs. 80 lakh.

### 3. Social Security Programme for Sheep Breeders Insurance Scheme

Approximately 12 Lakh people are engaged in Sheep breeding and rearing activities. The majority of them are living below the poverty line or are marginally above poverty line. The sheep breeder generally leads migratory life style in search of suitable green pastures. During migration, they face adverse conditions such as rains, cyclones, storms, snakebite, attack of wild animal, etc., and also lack of medical and insurance facilities. Therefore, Government of India has decided to protect this vulnerable section of society by providing them insurance cover. The Central Wool Development Board is implementing the Sheep Breeders Insurance Scheme during XI Five Year Plan period. The basic objective of the Shepherd Insurance Scheme is to provide, enhanced insurance cover to Sheep breeders in the case of natural as well as accidental death. Out of the annual premium of Rs. 330, the contribution from GOI is Rs. 150, breeders share is Rs. 80, and Rs. 100 is borne by LIC from its Social Security Funds.

#### The benefits accruing to the Sheep breeder are:

- (a) On Natural death - Rs 60,000
- (b) On Accidental death - Rs. 1,50,000
- (c) On Permanent Disability - Rs. 1,50,000
- (d) On Partial Disability - Rs.75,000

#### Sheep Insurance Scheme

India the third largest sheep population country in world with 6.15 crores sheep. The annual wool production is 45 million kg which is 1.8 per cent of total world wool production. It is expected that proper health care alone should lead to increase in the production by at least 10 per cent, according to a study carried out by the Central Sheep and Wool Research Institute, Avikanagar. The Central Wool Development Board is implementing the Sheep Insurance Scheme during XI Five Year Plan period under Social Security Scheme. The basic objective of the Sheep Insurance Plan is to provide insurance cover to sheep in the case of accident including fire, lightning, storm, tempest, floods, inundation, earthquake, famine and diseases contracted or occurring

during the period of the policy in project areas. The normal period of insurance is 12 months and maximum period is three years co terminus with the project period of SWIS. The average cost of sheep is estimated at Rs. 1,200, between one year to nine years old and premium is 3.2% plus service tax of the cost of the animal per annum i.e. Rs. 44 sheep. The premium of Rs. 25 per sheep per year is paid by the CWDB and remaining Rs. 19 per sheep per year is contributed by the beneficiaries. In the event of death of sheep, the sum assured of Rs. 1,200 becomes payable to the shepherd. The benefit of subsidy is being provided to a beneficiary for a maximum period of three years. During the financial year 2008-09, the Board had made total financial provision of Rs. 150 lakh to provide insurance coverage for 45,000 sheep breeders and 12 lakh sheep. The Board has covered 34,680 sheep breeders and 3,910,63 sheep. The Board has also granted scholarship to 2,402 students studying in 9th standard to 12th standard 2008-09 through LIC of India under the scheme.

#### FUTURE PLANS

For the holistic growth and development of Wool Sector, the Government is making serious efforts to achieve the following objectives by 2012:

- Increase yield of speciality wool fibre viz., Pashmina and Angora
- Improve micron of wool by 2
- Increase wool yield per animal by 25 per cent
- Reduce annual mortality by 10 per cent
- Widen the uses of the coarse and coloured decanni wool (Southern region) by product development and diversification.
- Increase the demand for Indian wool in domestic and international market.

**Central Sheep and Wool Research Institute (CSWRI):** This agency was established in 1962 in Avikanagar (Malpura), Tonk district and is about 80 km from Jaipur, CSWRI mainly conduct research on sheep breeding and artificial insemination to improve the quality of sheep, better yield of wool and more meat production. The agency has developed two new varieties of sheep. The first kind produces wool especially suitable for carpets and the second type yield superior quality of wool suitable for woollen clothes. Sheep wool research and development are going at a great pace in this institute.

**Indian Society For Sheep And Goat Production And Utilization (ISSGPU):** This society is also working under CSWRI with following aims and objectives.

1. The advancement of sheep, goat and rabbit production and utilization (SGPU) in all aspects by dissemination and application of knowledge gained from research activities.
2. The provision of opportunities for exchange of knowledge and ideas through discussions and other means and for collaboration between persons interested in different fields of sheep and goat production and utilization.
3. To organize conference, symposia, seminars, workshops and other periodical meetings.
4. To participate in meetings and conferences which may be held in India /abroad for discussing matters relating to the advancement of sheep and goat production and utilization?
5. To publish scientific and technical journals, policy papers, memoirs, monographs, bulletins, pamphlets, newsletter, etc. on subjects related to sheep and goat production and utilization.
6. To strengthen finance by subscription/membership/donation/grants etc. and to make necessary investments in order to promote the technical, scientific and developmental activities of the society.
7. To acquire by gift, purchase, lease or otherwise lands, buildings

or other immovable property together with all rights appearing thereto. The property acquired by the society on its dissolution shall be transferred to a similar institution failing which it will vest in the government of India/ ICAR without payment of any compensation whatsoever.

8. To provide financial and other assistance for education and research or development activities in the field of sheep and goat production and utilization.
9. To affiliate or associate with other national and international organizations for furthering the interest of the society.
10. To perform such activities as may be essential deemed fit for attainment of the objectives of the society.

**Bureau Indian Standard (BIS):** As we know that BIS has its important role in standardization of quality of different products for reliability & better performance. This organization has also contributed largely to the development of this industry. The main job of this agency is wool grading, classification of wool and woollen yarn, setting up standards for packing of wool and fixing other standards for the industry so that it may help in quality control and marketing. It has also established different laboratories for wool testing & grading.

**Wool Research Association (WRA):** Wool Research Association was established in 1963, the only national institute in the field of Wool Technology. The concept of Research & Development in the field of wool technology was initiated by foresighted woollen industrialist and WRA was set up at the well-known Textile Training Institution in the premises of the Victoria Jubilee Technical Institute (VJTI), Mumbai. During infancy it had a small laboratory and some educational facilities leading to Diploma in Textiles (Wool). WRA is also recognized for carrying out Applied Research leading to M.Sc and Ph.D. Degrees of Mumbai University. In 1996 the ultra modern National Ecological Testing Laboratory was established to create a required infrastructure for undertaking micro analysis of dyes and chemicals, with a view to help exports and check environment & textile pollution.

It performs the following major activities:

- Basic & Applied Research / Projects in Wool Related Technology.
- Formal Education & Vocational courses
- Need Based Courses & Training at site & Consultancy
- Ultra Modern Textile Testing (Physical & Chemical)
- CAD-CAM Woven & Knitting
- Miniature dyeing & finishing of yarn & fabric.
- Woolen & Shoddy Spinning Pilot plant
- National Ecological Testing Laboratory.
- Friction Spinning – High Tech yarns.

Currently WRA is carrying six research projects sponsored from Ministry of Textiles in relation to woollen products. These are as follows:

Project I : To synthesize wool dyes with moth proofing properties.

Project II : To improve processing performance of finer Indian wools and their product range with incorporation of Enzyme technology for better value addition (with special reference to early stage processing).

Project III : To develop itch-free woollens to be worn next to the skin by improvement of surface topography of wool fibres with the mechanical / chemical processing and plasma technology.

Project IV : Ultra sound assisted scouring and smooth finishing of wool & other speciality animal fibers and their products.

Project V : Design and Development of Interior Textiles with special emphasis on heat resistance and flame retardancy

Project VI : To develop ecological friendly moth repellent and moth proofing agent for woollen textiles for easy care. (Sponsored by CWDB). Details of these projects are given in appendix 2

If we try to analyse overall achievement, the Wool Research Association has done the pioneering work for computer colour matching for textiles including wool, cotton, polyester, nylon, acrylic and blends. WRA has developed software for dye house management for the inventory control, colour measurement batch pass/fail, quality control and process control and personnel. The services are given to the textile mills, members and non-members of WRA. It was observed that 15 per cent saving attained in the cost of the dyes and in the dyeing process in the textile industry. UV stabilized film was produced which could get the American patent and has been widely used all over the world. WRA was the first organization in India to initiate and to implement the technology of the Computer Aided Designing for textiles in the application of woven and printed designs. The software was further extended for printing designs for sarees, dress material, furnishing etc. and for jacquard designs. Courses were conducted for training and designers from various mills in this respect and the activities were continued for the students from different universities also.

Apart from above, WRA has developed and transferred new products/process/methods/techniques to many industries situated across the India. These are as follows:

- i. Filter Cartridges yarn
- ii. Brake Liners
- iii. FR automotive wool rich textiles
- iv. Belting fabrics
- v. Eri silk/Wool blended yarn & fabric
- vi. WR carpet backing
- vii. Thermal fabrics
- viii. Feeding devise for metallic core in friction yarn
- ix. Spinning and weaving of Deccani wool
- x. Natural Dyes for carpet industry
- xi. Carbonisation process (Eco friendly)
- xii. New CAD design for plush fabrics
- xiii. Elastomeric knitwears
- xiv. New generation moth proofing chemicals

**Wool and Woolens Exports Promotion Council:** The Wool and woolens export promotion council set up by Ministry of Textiles, Government of India is an apex body looking after the export promotion of Indian woollen products. Also known popularly as "WWEPC", it was set up way back in 1964. This agency helps the industry mainly in export related matters. Thus organization introduces exporters to importers and encourages exports. It also helps through making research about modern suiting yarns fashion and market trends and passes on the results to the exporters so that they can produce accordingly. This organization also sets up export targets and studies the data of export oriented products. The major functions of the council are as follows:

Introducing foreign businessmen to local manufacturers/exporters and provide them with the information useful in conducting business.

Inviting leading exporters to visit India and gain first hand information regarding the capability of the Indian Woollen Industry.

Assisting foreign buyers in their visits to India and chalk out their tour programmes, arrangements etc.

Working with the organizers of leading International Trade Fairs and Exhibitions, in order to project the quality and variety of Indian Woollen Products abroad.

Researching foreign markets and sponsor Study-cum-Sales Team/Del-egations abroad.

Promoting and actively practice overseas public relations. Monitoring international fashion forecasts and transmit them to Indian Exporters.

Helping the Textile Inspection committee of India to ensure that Indian Woollen Products are made as per International Standards. Checking out and implementing programmes for enlarging and improving the production base of the Woollen Industry.

Maintaining close liason with the International Wool Secretariat and Wools of New Zealand.

Details of this agency can be seen in the chapter 'Marketing & Exports'.

**Indian Woollen Mills' Federation (IWMF):** The Indian Woollen Mills' Federation has always played a key-role in projecting the problems and potentials of the woollen industry to the Government from time to time. Federation is represented in all the important Committees of the Government of India and invariably consulted on all policy matters before presentation of the annual budget proposals.

The development of technical man-power resources for the woollen industry had always remained a top priority for the Federation. Under a Memorandum of Understanding signed with the Wool Strategy Group of Western. Australia in 1996, Federation had initiated wool technology elective in the degree courses in textile technology in Universities of Mumbai, Kolkata, Rajasthan and Punjab.

The woollen industry in India presents a pertinent model of industrial development covering the organized, the decentralized and the rural sectors working complimentary to each other generating employment at highly diversified locations in the country.

**International Wool Secretariats (IWS):** This is an International organization with investment from Australia, New Zealand and other wool producing countries. This agency mainly concentrates on quality control and marketing. To encourage the marketing of superior quality wool, a sign called 'Wool Mark' has been promoted. Wool which fulfils all the standards fixed by IWS is given the sign of wool mark. This sign of wool mark is being accepted in India also. Another sign presented by IWS is 'Wool Blend Mark' which means wool is blended with other yarn with greater percentage of wool. IWS has a branch in Bombay.

After independence central and State Government have done considerable efforts for the development and improvement of the industry. Non- Government organizations have also contributed in a large way.

#### MODERN TRENDS IN WOOL INDUSTRY

The following are the details of the modern trends prevailing in wool industry:

**Development Plans in Twelfth Five Year (2012-17) Plan:** Wool industry is based on rural & export. The demands of the market are fulfilled by all the three sectors i.e. organized, unorganized and rural sectors jointly. Accordingly, the government has made long term planning and co-ordinate development program for development and expansion of this industry. Government of India has given full attention to the industry in the twelfth five year plan especially in the cloth production and development program. To develop the industry, the government has formed jointly the organized, unorganized village and cottage industry and khadi sectors under a development

commissioner. All the related Ministries and planning Ministry have been advised to co-operate them. Apart from this Central Wool Development Board installed Wool-Testing centers at Bikaner and Beaware in Rajasthan to test the fiber supplied by growers, merchants and industries. The board also implemented two R&D projects and set up one CFC and two column facilities-cum- training centers. For the above mentioned purpose 13.00 crore has been approved by the government.

**Other Government Aids:** Central as well as the states governments provided aids and loans for sheep rearing and purchasing of sheep. Central and states governments also provided loans and technological aid to set up spinning mills and manufacturing of other woolen. Tax rebates are also provided to small scale industries for five years. Some of the state government providing assistance for sheep and wool development through following departments for sheep and wool development :

APCO Wool (Andhra Pradesh).

Gujarat Sheep & Wool Development Corporation Limited.

Himachal Pradesh State Co-operative Wool Procurement and .

Marketing Federation Limited.

Jammu & Kashmir State Sheep & Sheep Products Development Board.

Karnataka Sheep & Sheep Products Development Board.

Maharashtra Mendhi Va Sheli Vikas Mahamandal Limited.

Rajasthan State Co-operative Sheep & Wool Marketing.

Uttar Pradesh Poultry & Livestock Specialities Limited.