KHADI AND TEXTILE SECTION REPORT 2006-07

Activities

1. Strengthening the quality assurance in khadi sector
2. Development of a technology for spinning of Desi wool from Himachal Pradesh
3. Development of prototype machines for khadi yarn dyeing
4. Development of machine for mercerization of khadi yarn
5. Shifting of old mini-sliver plant, old charkhas and looms from Trimbak Vidya Mandir and setting up spinning and weaving laboratories.
6. Design and fabrication of mini-sliver plant machines suitable for manufacture of khadi by organic cotton growers.
7. Woven fabric design development

1. Strengthening the quality Assurance in khadi sector

Objective

The main objective of this activity is to introduce the concept of quality assurance in the khadi sector for improvement of khadi for better realization of sale value, improvement in production thereby improvement in employment.

Need

Quality is one of the key factors for the sustainable development of any manufacturing activity including khadi. Unfortunately there was no concept of quality assurance of yarn and fabric was not meeting the consumers expectations. As a result of this the progress of khadi sector is either stagnant or declining. Technical intervention was therefore essential to introduce the concept of quality assurance in the khadi sector.

R & D Efforts

Major R & D efforts were made during the period of 2002-2004 in experimentally analyzing the various quality parameters related to cotton fibre, khadi yarn and fabric. Based on these experimental data it was possible to set the norms for various quality parameters. The quality norms have been published in the form of two volumes

1. Quality assurance of khadi
2. Quality assurance of khadi at a glance

These two volumes are written both in Hindi and English and 500 copies of each have been distributed to various khadi institutions through a series of workshops.

Dissemination

A systematic dissemination efforts were made for the educating the quality norms to the representatives of khadi institutions. The education was imparted through series of quality assurance workshops. Three such workshops were conducted during the period of September 2006 to March 2007. The theme of these workshops was “Quality assurance for the promotion of khadi. In addition to this two workshops were conducted on dissemination of the technology of dyeing khadi with natural dyes. Technology dissemination was also carried out by participation in two national level exhibitions. The number of workshops conducted are given in the following table.

Date	No. of participants	States
Workshops on Quality Assurance		
Jan. 8-12, 2007	11	West Bengal, Tamilnadu, Haryana
Feb. 5-9, 2007	35	Arunchal Pradesh, Haryana Himachal Pradesh, Jammu Jharkhand, Karnataka, Kerala Madhya Pradesh, Maharashtra, Orissa, Punjab, Tamilnadu, Uttaranchal, Uttar Pradesh
March 5-9, 2007	28	Andhra Pradesh, Karnataka Kerala, Madhya Pradesh, Maharashtra, Nagaland Rajasthan, Uttar Pradesh
Workshops on Natural dyes		
Jan 15-17, 2007	18	Students from Sophia Polytechnic, Mumbai
Jan.25-27, 2007	12	Gandhi National Memorial Society, Aga Khan Palace, Pune

Participation in National level KVIC Exhibition

1. October 4-7, 2006 Ashoka Hotel, New Delhi
2. Nov.11-Dec 15, 2006 Khadi Gramodyog Mahotsav, 2006, Bandra, Mumbai

The participants were from as many as 19 states and from Khadi Institutions, Khadi Vidyalayas, MDTC, KVIC.

Impact

Setting up Quality Assurance laboratories

Through these and earlier workshops it was possible to introduce the concept of Quality assurance in khadi sector and convince the KVIC for assisting the khadi institutions by approving suitable funds for setting of quality assurance laboratories in selected khadi institutions and Central sliver plants. It is heartening to know that KVIC has taken a note of this important issue and has provided funds for setting up as many as 20 Quality Assurance laboratories in khadi sector including Central sliver plants.

2. Development of a technology for spinning of Desi-wool from Himachal Pradesh

Objective

1. To provide suitable machines and technical back-up for spinning of Desi wool from Himachal Pradesh on NMC charkha.
2. To establish wool spinning clusters in remote areas of Himachal Pradesh

Need

Very large quantity of wool (1580 kg) is produced in Himachal Pradesh by scattered sheep breeders. Unfortunately these sheep breeders are not organized. Therefore the small sheep breeders do not have organization for collection of wool and its sale in commom market. Therefore local raw wool is sold in market at throw away price of Rs. 25-

50depending on the season of clipping and the part frm where wool is reomed from the boy of the sheep. Presently sheep dung is considered as prime raw material; for farming shere as valuable wool is considered to be secondary. Therefore there is need to give technical back up to rural sheep breeders in Himachal Pradesh for the conversion of locally available wool into yarn and give value addon to Desi wool. In doing so there will be employment generation in remote sheep breeding areas of Himachal Pradesh.

R & D

In remote areas of Himachal Pradesh such as Chamba, kangra, Kinnaur a large quantity of local wool is wasted because of the lack of facility for opening, carding, sliver making and spinning facilities. Therefore, many such aras in Himachal Pradesh wool has become a secondary product and sheep dung a primary product which is used as fertilizer. It was thought to produce simple hand operated or motorized small opening, carding and sliver making machines so that wool available in remote areas can be locally converted into yarn for value addition and employment generation.

Technology developed

With the help of Anhad Sewa a NGO working in narkhanda and Thanedar Tehsil of Himachal Pradesh, locally available wool is collected. It is subjected to scouring operation for removal of natural wax, hand opened and converted into sliver for spinning operation on NMC charkha. The necessary machines for sliver making and NMC charkha have been designed and fabricated at MGIRI. The technology is ready for transfer.

Technology dissemination

A technology dissemination workshop was planned in the month of June and September in narkhanda Tehsil. However, this workshop could not be conducted because of heavy rains and road blockages. The workshop is now planned in the month of October 2007.

Social impact

The technology will provide value addition to locally available wool as presently it almost thrown away because of non-availability of technology to convert it into yarn. The technology will generate considerable employment particularly for aged people who can engage themselves in spinning activities to be carried out from their respective homes. However, this envisaged social impact is to be evaluated after the transfer of technology through training programmes.

3. **Development of prototype machines for khadi yarn dyeing**

Objective

To develop a suitable machine for dyeing of khadi yarn in hank form for uniform colouration.

Need

Presently yarn dyeing in hank form is carried out in a cement or iron tank. The heating is by means of wood firing and the movement of yarn in dye solution is by manual means. This process of dyeing is age old and is associated with serious problems of non-uniformity and non-reproducibility of dyeing. also the fastness property is not adequate due to improper dye penetration.

R & D

A prototype of 1 kg capacity hank dyeing machine is designed and fabricated. The machine is made of stainless steel dyeing vessel and plastic rollers. The machine is provided with thermostat for maintaining the dyeing temperature and continuous rotation of hanks in the dye bath. Both these parmeters ensures uniform dyeing with complete reproducibility of results.

Testing of Technology
The dyeing machine has been tested at the dyeing unit of magan Sangrahalaya with very satisfactory results.

Technology Disseminaion
In order to disseminate the technology it will be essential to design and fabricate the dyeing machine with 5 and 10 kg capacity. Since the prototype is working satisfactorily, the scaling up the prototype design should facilitate the fabrication of production machine. Efforts in this direction are in progress. It is envisaged that the workshop facility and technical expertise at KVIC Dahanu unit may be utilized.

Impact
It is envisaged that the introduction of this machine in khdi sector will considerably improved the dyeing quality of khadi yarn, correspondingly the fabric quality will also be improved. This should help to get better price i.e. value addition of the khadi fabric.

4. Development of machine for mercerization of khadi yarn

Objective

1.To improve the dye uptake on khadi yarn thereby to reduce the cost of dyeing.

Need
In khadi sector vat dyss are commonly used for yarn dyeing. these dyes give very good all round fastness properties. However, these dyes are very expensive costing about Rs.2000 – 6000 per kg. Any technique which will improve the dye up take on yarn will give considerable saving in dye cost. Such a technique is mercerization.

R & D
A prototype of 1 kg capacity mercerization machine has been designed and fabricated.

Testing
The machine has been demonstrated during earlier technology demonstration workshops at MGIRI with very satisfactory results.

Technology dissemination
Efforts are being made that the commercial model of the machine to be fabricate in collaboration with technical expertise from the KVIC unit at Dahanu.

Impact
The introduction of the technology in khadi sector will help considerably to reduce the cost of vat dyeing of yarn. Even if one assumes a saving of 15% of dye consumption it will amount a saving of Rs. 300 on 10 kg lot of dyeing. On an average it should be

possible to dye 3 lots comfortably in a day. This will give a saving of Rs. 900/- per day. This will amount to a saving of Rs. 27000/- per month which is a substantial amount.

5. Shifting of old mini-sliver plant, old charkhas and looms from Trimbak Vidya Mandir and setting up spinning and weaving laboratories.

Objective
To shift the old machines from Trimbak vidya mandir, nashik to MGIRI Wardha for setting up spinning and weaving laboratories.

Need
Up to date Quality assurance and chemical processing laboratories were set up at MGIRI Wardha. However, the setting of traditional spinning and laboratories was in complete. It was therefore essential to set up laboratories for R & D activities in the area of spinning and weaving.

Efforts
There were old equipments relevant to spinning and weaving were in existence at Trimbak vidya mandir Nashik. It was though spinning and weaving related machine from Nashik. After the completion of administration procedure following old equipments were shiftd from nahdi to MGIRI wardha.

Sr. No.	Equipment	Quantity No.
1.	6 spindle NMC	20
2.	Roving making machine	05
3.	Mini-sliver plant of 3 machines	01
4.	Sliver making machine	01
5	Fibre opener	01
6	Carding machne	01
7	Roving machine	02
8	Frame looms	05

All the machines were in the condition of scrap. Considerable efforts have gone in the repair, painting and putting these machines into working conditions.
Shifting of these machines and bringing them in working condition enables us to set up R & D for spinning and weaving.

Use of Mini sliver plant
Although KVIC has 6 central sliver plants to meet need of all the khadi institutions on all India basis. There is trend that many organic cotton growers wants to convert organic cotton into yarn and fabric for value addition. These activities do not fall under the purview of KVIC, therefore these organic cotton growers are moving from pillar to post for converting their cotton into sliver and roving. In this process they are facing considerable problems of high cost of transportation, contamination of organic cotton with ordinary cotton. In order to facilitate he organic cotton growers to allow them to convert cotton into yarn and fabric it is essential to make them available mini-sliver plant. MGIRI is making efforts to design and fabricate the mini sliver palnt machines for the benefit of organic cotton growers.

7. Woven fabric design development

Objective
To produce khadi fabric with new design inputs according to the market trends

R & D
After the shifting of old looms from Trimbak vidya mandir, Nahsik, a systematic work is initiated for the production of khadi fabric with new design inputs.

Impact
Such new design inputs will enhance the application potentialities of khadi e.g. there is no khadi fabric for curtain whereas handloom curtain fabrics are very popular. Though the khadi towels are popular they lack designs. Large varieties of shirting fabric can be made for designer's shirts. Such efforts will enhance the marketability of khadi with better price. If suitable mechanism is found to percolate down the value addition to the spinners and weavers it would be possible to pay them handsome wages to prevent their exodus to non-skilled jobs.

Cluster activity
The efforts to exploring the possibilities of cluster activity for khadi production are in progress at following villages.

1. Ner (near Yoetmal) in collaboration with Vidarbha organic farmers association
2. Umari (near Wardha) in collaboration with Zilla Parishad, Wardha
3. Anjangaon Surji (near Amravati) in collaboration with Organic farms

Documentation

1. **Quality assurance manual for khadi (Hindi and English)**
2. **Quality assurance manual for khadi at a glance (Hindi and English)**
3. **Finishing of khadi garments (English)**