

CHAPTER XIII

TEXTILE RESEARCH ASSOCIATIONS

COTTON TEXTILE RESEARCH ASSOCIATION

There are eight Textile Research Associations (TRAs) receiving financial support from the Ministry of Textiles, of these the following are Cotton Textile Research Associations (CTRAs):

- (1) Ahmedabad Textile Industry's Research Association (ATIRA), Ahmedabad;
- (2) Bombay Textile Research Association (BTRA), Mumbai;
- (3) South India Textile Research Association (SITRA) Coimbatore; and
- (4) Northern India Textile Research Association (NITRA), Ghaziabad.

Like other TRAs, these CTRAs are textile industry promoted private bodies, set up and promoted by the textile industry of the respective region for carrying out research and providing them various services including consultancy, testing, training and research etc. Their main sources of earnings include government grants, subscriptions from member-mills, fees for the services provided etc. The CTRAs have an elected Chairman, who is normally a renowned industrialist of the region and is in overall in-charge of the functions of these CTRAs.

ATIRA

During 2003-04, research and development activities at ATIRA were directed towards developing cost effective techniques, product innovation, improving product (yarn/fabric) quality, ensuring utilities (energy and water) conservation, improving productivity and machinery maintenance. The projects in most of the cases were of applied nature and of immediate application to the industry. ATIRA's notable performance during this year has been as follows:

It undertook nearly a dozen R&D projects with industry sponsorship.

It completed the following R&D projects:

- Hydrogen Peroxide Based Cold Bleaching Process for Hand Processing Sector;
- Optimisation of Ginning Process Parameters of Low Micronaire Indian Cottons;
- Improving Elongation of Yarns spun from Indian Cotton;
- Development of Biodegradable Hydrogel;
- Hydrogen Peroxide based cold bleaching process for hand processing sector; and

- Developed electronic gadgetry for measuring important dimensional characteristics of spinning ring.

It provided guidance to a number of ginning and pressing factories of Gujarat State, and they have been benefited through implementation of upgraded ginning technology in their units.

Its powerloom service centres conducted 13 seminars/workshops cum demonstrations of modern shuttleless looms for creating awareness of modernisation in the decentralized weaving sector.

Eight booklets on various activities of Powerloom Service Centre and Government Schemes in English as well as in Gujarati have been published for the benefit of powerloom industry.

Consultancy was provided to 219 powerloom units. About 19 major consultancies were carried out for improving fabric quality, increasing productivity, efficiency and damage control.

Training programme was arranged during November – December 2003 on “Orientation to Textile Technology” for Powerloom Owners of Ahmedabad. Twenty HRD programmes for on-the-job training was imparted to 378 powerloom weavers.

Environmental audit for Schedule 1 Industries (highly polluting chemical industries) is very important and highly remunerative activity. Audit work was

carried out by ATIRA in 11 industries during the year.

ATIRA was involved in the exercise of issuing ‘No pollution load’ certificate to the industries which are interested in changing their product-mix as well as productivity. Such certificates help the industries in seeking clearance from Government authorities for either getting permission to change the product-mix or for production of new chemicals or productivity.

ATIRA organized the following seminars for disseminating R&D knowledge to the participants from textile industry:

- Emerging scenario in clothing industry of INDIA and ASIA;
- Energy Management in the Indian Industry: A global perspective;
- Nanotechnology in Textile: The next Wave;
- Fuel savings through intelligent control in manually fired boilers; and
- Controlled sorption “Tool Box” for right first time dyeing.

As many as 51 different training courses were offered by ATIRA during the period and over 200 textile mills/units took advantage of the same.

Over 10,000 samples were tested during the year (including yarns, fabrics, accessories and instrument calibration)

During the year 4 new developments were licensed and 4 patents were filed (of these 2 patents were sealed).

BTRA

During 2003-04, research and development activities at BTRA were directed towards developing cost effective techniques, product innovation, improving product (yarn/fabric) quality, ensuring utilities (energy and water) conservation, improving productivity and machinery maintenance. During this year BTRA completed its 50th year of establishment. Its performance during this year has been as follows:

- BTRA product "Ring cleaner-cum-lubricant" was licensed for bulk manufacturing and supply.
- Three technical reports on sponsored projects were submitted to the concerned sponsoring agency. It also completed one sponsored and three in-house projects.
- Forty-fifth Joint Technological Conference was organized in BTRA campus on February 26-27, 2004. BTRA scientists presented six research papers—(i) Performance Level of Modern Spinning Mills in India to Meet the Global Challenge, (ii) Development of IT Based System to Optimise performance of Stenters in Textile Mills, (iii) Effect of Chemical Properties of Raw Cotton Fibre on Colour Parameters of Fibre Dyed with Reactive Dyes, (iv) Source Reduction of Effluent Load During Desizing of Cotton Fabric and Weight Reduction of Polyester Fabric, (v) Textile Evaluation using Biotechnological Approach: An Overview in Indian Textile Industry, and (vi) Conductive Textiles for Smart Fabrics
- ISO-9000 group of BTRA assisted six units for ISO 9000 (2000) revision and certification. It has helped one testing laboratory for ISO 17025 accreditation. It has also conducted audits on behalf of certifying bodies. It rendered help for NABL certification for BTRA Test Laboratories (BTL).
- BTRA released a publication on "Norms for Mechanical Processing (Weaving)" by incorporating its expertise gained over a period of four decades. This publication covers all aspects relating to yarn quality, breakage rates, waste levels, machine speed and manpower of shuttle less weaving machines.
- BTRA completed a study on "Performance Level of Modern Spinning Mills in India to Meet the Global Challenge". This study gives the detailed status report and variability in quality, productivity and manpower between the mills and the reasons thereof.
- BTRA has provided extensive liaison and consultancy services to solve problems of quality, maintenance and productivity at various levels for the textile units. It has also undertaken special studies such as; (i) techno-economic



- viability studies, (ii) vetting out restructuring proposals, (iii) scrutiny of revival proposals, (iv) valuation of fixed assets of textile units, (v) certification of modernization / renovation done by the mills, (vi) equipment verification and (vii) control panel valuation.
- Services provided by BTRA during the period are at Table 13.1.

Table 13.1

(a) Technical investigations carried out	286
(b) Technical enquiries attended	295
(c) Local mill visits made (man-days)	1,617
(d) Outstation mill visits made (man-visits)	264
(e) Number of samples tested	14,544
(f) Number of reports issued	6,249

provide technical consultancy, testing services, training in loom working, loom maintenance, disseminating information through training programmes, workshops, demonstrations and discussions. Liaison visits are made by BTRA staff to have a first-hand view of the problems faced by the Powerloom weavers / processors and on the spot suggestions are made. The Eco-laboratory of BTRA, set up at Ichalkaranji, undertakes testing of textile fibres, yarns, fabrics and auxiliaries as per eco-parameters. It also carries out water and effluent analysis and physical / chemical analysis. The activities of these centres during the period under review are at Table 13.2.

Table 13.2

Activities	Ichalkaranji	Solapur	Madhavnagar-vita
Total yarn and fabric samples tested	5,630	1,192	569
Number of technical assistance / trouble shooting consultancy given	228	51	180
Total number of man-days spent for the technical work	1,717	1,352	200
Total training programmes conducted	7	13	8
Total people trained	134	69	47
Total units surveyed	16	50	181

- BTRA runs three Powerloom Service Centres (PSCs) at Ichalkaranji, Solapur and Madhavnagar-vita. In order to improve the quality, operating efficiency and productivity of Powerloom clusters, BTRA PSCs

SITRA

During the year under review, scientific work in SITRA was carried out on 41 projects covering product quality, operational studies, energy conservation, unconventional fibres, machinery

development, process and product development. Out of 41 on-going projects, 14 were completed during the year. Four new developments—SITRA Enercool (control system for cooling towers), SITRA Ener TFO (energy saving TFO spindle), SITRA-CIM (monitoring and information system for combers) and SITRA Micro-Control (auto levelers for draw frames) have been licensed for commercial production.

In the area of Human Resources Development, SITRA organised 17 different training programmes for technical and managerial personnel and 6 programmes for labour, wherein a total of 1449 personnel have been trained. Under International training, 45 participants from 19 different countries were trained.

As a part of SITRA's services to decentralised sector, it rendered 2220 consultancy services like machinery valuation, techno-economic viability study, project appraisal etc; the number of designs produced were 1348 and 25,228 samples were tested, 56 training programmes were offered wherein 634 participants have been trained.

A wide range of services were offered by the Computer Aided Design Centres(CADCs) during the year. Close to 600 designs were developed and as many as 20 training programmes were offered. The Centres have also rendered 220 consultancy services.

The SITRA-AEPC Knit-Wear Service Centre, among its various services, has trained 150 young candidates through its

"Knitwear Manufacturing Technique and Management" Programme covering all aspects of knit garment manufacturing. The Centre has tested 5,858 yarn and fabric samples and also offered 15 consultancy services to various problems referred by the knitters.

During the year SITRA has brought out 19 publications which includes 11 research reports. Besides, SITRA Scientists have contributed 38 technical papers for publication in various technical/managerial journals. SITRA was recipient of six awards for research work and technical publications during the year.

NITRA

The NITRA has completed 19 projects and 8 projects are in the pipeline. A few of the notable projects being handled are Development and Standardization of Technology for Improving Aesthetic and Comfort for Operation on Terry Towel, Development of Cost Effective and Eco-friendly Bleaching of Natural Textile Fibres Using Advanced Oxidation Technique, Development of X-ray Opaque Fabric, Discharge Printing on Direct and Reactive Dyed Cotton Made-ups : A New Approach, Development of Anti-Microbial and Blood Repellent Fabric, Treatability on Complete Biodegradation of Textile Waste Water Through Aerobic cum Anaerobic Route, Development of UV Resistant Fabric and Development of PLC Based Instrument to Measure Steam Consumption at Individual Point. In addition to above NITRA has also conducted collaborative research with reputed houses like LUWA India,



Surgewear Ltd., Mordi Processors, Executive Garments, Pasupati Spinning and Weaving Mills, Raj Vidya Kendra, Winsome Spectrum, Sara Elgi Group and Zydex Industries etc.

NITRA has also developed some state of the art instruments like Fabric Hand Testing Instrument (for measuring fabric hand), Draftometer (instrument for measuring drafting force for sliver and roving; useful for spinning of dyed fibres), Friction Tester (instrument for measuring fabric and fibre friction) and Soft and Hard Core Yarn Attachment at Ring Frame and Modified Wrap Reel (to measure soft core yarn count).

The NITRA conducted 90 technical consultancy jobs on different parameters of textile, garment and allied industry. NITRA's Environment Division developed techniques to recover and reuse the effluents discharged from textile dyeing units without using Reverse Osmosis (RO). The first water recovery plant was commissioned in one of the processing plants situated in Ghaziabad three years back. After fine-tuning the intricacies of the technology of water recovery, NITRA has successfully commissioned water recovery plants in Rajasthan and Haryana. The system is capable to recover and reuse about 50% to 70% of the processing effluent back into the process house.

Energy conservation is another area where NITRA has rendered services to its members. In the last year NITRA's energy team conducted a number of energy audits (thermal, electrical, power quality, humidification, air conditioning, D.G. sets

and compressors) by which the mills could save to the tune of 10% to 20% of their energy bill.

NITRA has been designated as a nodal agency by the Ministry of Textiles for assessing technical viability(TEV) of textile industry for availing the benefit of restructuring their debt profile under the "Debt Restructuring Package for Organised Textile Mills". NITRA has completed TEV Study in 30 different units during the reported period.

NITRA's labs have carried out 5164 testing jobs on different parameters of textiles, dyes, chemicals and effluents during the reported period. It also carried out 43 fabric defect analyses. Its Software Development Centre developed three latest softwares of different nature, suitable for small and medium scale industry at a very nominal price. Amongst HRD activities, to educate the industry, NITRA organised 45 workshops / seminars / training programmes / lecture meets / talk sessions for the benefit of textile, garment and non-textile units spreading across length and breadth of the country as well for the development of its own workforce.

SYNTHETIC & ART SILK MILLS RESEARCH ASSOCIATION. (SASMIRA), MUMBAI

The Synthetic & Art Silk Mills' Research Association (SASMIRA), Mumbai is a co-operative venture set up by the man-made textile industry of India with the prime objective of rendering scientific and technical assistance to the textile industry.

SASMIRA is engaged in various activities viz. research and development, instrumentation, technical education, dissemination of technical information and organizing seminars and conferences.

The funding from Ministry of Textiles towards the plan grants for research projects has been curtailed from the current financial year and it is proposed to decrease the non-plan grant by 10% yearly for the coming year and the sponsored projects from the Ministry of Textiles have been discontinued. However, SASMIRA has initiated series of other activities to fill the gap of funds created.

Under the package for restructuring high cost debts of textile units in the organized sector, the Ministry of Textiles has designated SASMIRA for assessing the technical viability of these units. In the current financial year SASMIRA has undertaken four viability studies for the spinning, texturising, weaving and processing units namely Man-Made Spinner (I) Ltd, Yashasvi Yarns Ltd, Pal Synthetics and Angad Pal Industries Pvt. Ltd., respectively. SASMIRA has conducted customized courses and training programmes on various topics in textiles namely on printing technology and narrow width weaving.

SASMIRA has been identified as "Centre of Excellence" – Technical Textiles. It offers specialized testing services as well as technical know-how for the technical textiles industry. In order to support the field of technical textiles SASMIRA is in

the process of publishing monographs on various topics on technical textiles. SASMIRA has documented information on technical textiles for the Expert Committee of Technical Textiles (ECTT).

SASMIRA is now accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL). The certificate is a general requirement for competence of testing and calibration laboratory as per "ISO/IEC 17025". In order to serve textile industries SASMIRA is interacting with various industrial hubs like Bhiwandi, Tarapur, Umergaon etc. SASMIRA have conducted various seminars on Energy Conservations and case studies in textile wet processing in Bhiwandi. Similar seminars have been planned for Umergaon and Tarapur industrial hubs during this financial year.

Research and development staffs have attended various seminars conducted by different Institutes and Research Organisations. SASMIRA have published 11 research and review papers in reputed Indian and International Journals and 6 papers are under printing.

SASMIRA has participated in International Textile Machinery (ITME) India 2004 during December 4-11, 2004. Various activities of Research and Developments, Instrumentation, Publications and Technical and Training Services were highlighted during this exhibition. Various participants all over India and abroad showed keen interest in the activities of SASMIRA.



MAN MADE TEXTILES RESEARCH ASSOCIATION (MANTRA), SURAT

Man-Made Textiles Research Association (MANTRA), Surat concentrating on man-made fibres has been taking up need-based R&D projects in the areas related to the quality and productivity improvement, product development, energy, ecology and environment. MANTRA is recognized as a Scientific and Industrial Research Organization by the Ministry of Science & Technology, Government of India. The activities of MANTRA are primarily aimed at planned and healthy growth of the decentralized sector. Local textile manufacturing industries have benefited greatly from the R&D work successfully pursued by MANTRA.

The core activity of MANTRA being Research & Development, the organization completed four Ministry of Textiles funded projects and the findings have been disseminated to industry by various means. During the period under consideration, MANTRA worked on two on-going projects. Details of completed and on-going projects are given below.

Completed projects of MANTRA in 2003-04:

1. Development of air-intermingled elastane combination yarns for stretch fabrics;
2. Application of formaldehyde free finishes to man-made fibre fabrics such as tencel, viscose, polyester

and their blends and performance evaluation of the finished fabrics;

3. Flame retardant finishing based on eco-friendly formulations for viscose, polyester and their blends; and
4. Application of cationic dyes to anionically modified nylon and their performance evaluation in comparison with cationic dye dyeable polyester and regular nylon with special reference to fastness properties.

On-going projects of MANTRA

Development of novel stack-disc friction units made from the combination of polyurethane (soft) friction discs with other hard materials' friction discs and quality evaluation of draw-textured yarns made therefrom.

Development of lightweight reusable protective fabrics from micro denier synthetic filament yarns.

MANTRA has a Computer Aided Design Centre and two Powerloom Service Centres at Sachin and Pandesara. The present activities of these units include training of weavers for quality fabric production, design development on loom, testing and technical service support for loom modernization activity, etc., for local Weavers' Co-operative Societies and weavers in respective areas. As regards PSC Sachin, it has been shifted to a new location in GIDC area.

MANTRA has been recognized as a Schedule-I Auditor by Gujarat Pollution

Control Board (GPCB). During the year under consideration, the team working on environmental issues undertook Adequacy and Efficacy certification for 18 industries.

MANTRA, in collaboration with M/s Kothari Info Tech Ltd., has developed a software for Computer Colour Matching and has also developed a huge data base in this respect. Also, MANTRA conducted a survey on "Waterjet looms" in and around Surat. Area-wise catalogue and other technical details have been compiled. This information will be used in a study on product planning and development.

INDIAN JUTE INDUSTRIES RESEARCH ASSOCIATION (IJIRA), KOLKATA

The Indian Jute Industries Research Association (IJIRA), Kolkata registered under West Bengal Societies Registration Act, 1961, is an autonomous Cooperative Research Organisation mainly funded by the Ministry of Textiles, Government of India. IJIRA is governed by a Council, headed by the Chairman, assisted by the Vice Chairman and 24 members, drawn from the Industry, the Government, Eminent Professionals and others. The Director is appointed by the Council and is the Principal Executive Officer of the Association exercising general power of supervision and coordination of overall activities of the Association and is assisted by a Secretary-cum-Financial Controller. There are nine technical divisions and each division is supervised by a Head or Group Leader.

The objectives of IJIRA are:

- (i) To promote research and other scientific work connected with the jute trade and industries allied with or accessory thereto;
- (ii) To establish and maintain laboratories and faster education of people engaged in or likely to be engaged in the said trade and industry; and
- (iii) To examine and publish information regarding the nature and merits of inventions, improvements materials and designs connected with the said trades of industries.

The R&D activities and technology transfer programmes of IJIRA have helped improve the productivity, product quality and cost viability of the organized jute mills and also the SMEs in the jute sector.

Besides taking care of the persistent problems of organised and decentralized jute sectors, IJIRA is currently engaged in R&D projects such as (i) E-Library on Jute, (ii) Wet Spinning Technology Services and (iii) Development of Ramie-based Products etc.

IJIRA has also set up its North Eastern Regional Centre in Assam at Guwahati. The Ministry of Textiles has sanctioned the necessary budgetary provision for North Eastern Regional Centre & Promotion of Natural Fibres (Jute, Ramie etc.) based Industries in North Eastern Region. IJIRA Powerloom Service Centre (PSC) is rendering services to decentralized Powerloom Units of Assam for



improvement in productivity. The Handicraft sector is also getting benefit through R&D works of IJIRA.

IJIRA has three Regional Centres at Shantipur (West Bengal), Guwahati (Assam) and Vizianagram (Andhra Pradesh).

WOOL RESEARCH ASSOCIATION, THANE (WRA)

The Wool Research Association, Thane was established and registered under the Societies Registration Act 1860 in October 1963. It is engaged in various activities, necessary for the technological upgradation of the Indian Woollen Industry, which include research and development work, special training programme, educational activities, foreign delegations' visits, workshops and paper presentations at national and international level. It has become an Associate Member of International Wool Textile Organization (IWTO), Brussels, Belgium.

Wool Research Association has the following five departments – (i) Quality Test House - ISO 9001-2000 certified, (ii) Chemical Processing Laboratory, (iii) Eco Testing & Analytical Laboratory, (iv) Textile Designing (CAD-CAM)-Woven & Knitted, and (v) Yarn & Fabric Manufacturing labs.

Sponsored Projects

- i) During 2003-04, the Khadi & Village Industries Commission, Mumbai sanctioned a 'Science & Technology' Project entitled "Introduction of Indian Crossbreed

Fine Wools for Woollen Khadi Products like Shawls, Lohies, etc."

- ii) The Ministry of Textiles, Government of India sponsored the following two projects to be undertaken by the Wool Research Association in collaboration with the Central Silk Board, Bangalore:
 - (a) Optimise Yarn Processing Parameters for spun Yarn of Eri, Silk/Wool blends and to develop value added products; and
 - (b) To design and fabricate suitable machinery for processing silk and silk/wool blends upto yarn stage for decentralized sector and cottage industry.

Industrial Consultancy & Technical Services

The Association provided various industrial consultancy and technical services to the Indian Woollen Industry through its established infrastructure during 2003-04, which included the following:

- Consultancy to M/s Siddharth Colourchem in application & improved properties of metal free reactive dyes on wool;
- Consultancy to M/s Bhuttico Weavers Society (Kullu) to set up a Dyeing & Finishing facility Centre for shawls and other woollens made from Wool/Angora & Pashmina;

- Training programmes for dyeing in the carpet, shawl and namda belts of the country;
- Consultancy in setting up mini-scouring facilities for wool producing areas in different States like Rajasthan, Himachal Pradesh, Jammu & Kashmir; and
- Consultancy to Dharamsi Morarji Chemicals in developing dyeing auxiliaries.

Short Term Courses

WRA conducted short term courses by imparting training in textile testing and research in the field of textile technology, specifically wool technology, and also conducted the following tailor-made short duration courses for the benefits of cottage and organized woollen industry:

1. Computer Aided Textile Designing
2. Instrumental Chemical Analysis
3. Textile Testing and Quality Control

Other Activities

- Wool Research Association conducted a dyeing training programme in Tonk, Jaipur (Rajasthan) to boost the growth of the Namada industry through better value addition.
- The in-plant training for degree students of Textile and Engineering Institute, Ichalkaranji was arranged at WRA. The students benefited from different aspects like Computer Aided Textile Designing, Tie & Dye Techniques for wool, wool testing and mechanical processing etc.

