

# SITRA SERVICES TO SPINNING INDUSTRY

*TO ENSURE & ENHANCE THE QUALITY AND PRODUCTIVITY*



**THE SOUTH INDIA TEXTILE RESEARCH ASSOCIATION (SITRA)**

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## SITRA SERVICES TO SPINNING INDUSTRY

SITRA is one of the leading and renowned textile research organisations, started six decades back, with a vision to provide world class services to the textile industry. It was started with just two divisions (i) Liaison and Statistics and (ii) Industrial Psychology. Presently, SITRA is offering various services to cater for the requirements of the textile industry across seven divisions. The Centre of Excellence (CoE) for Medical Textiles is a colourful feather that has been added to its cap recently.

In the textile value chain, yarn manufacturing i.e., spinning assumes a significant position. SITRA's major activities have been revolving around meeting spinning mills' needs like fibre and yarn testing, conservation of energy, labour and machine productivity improvement, cost control, skill development, bench-marking of operational and technical parameters, etc. Moreover, SITRA has the privilege of being the only research institute in India carrying out substantial works for the spinning segment.

Majority of the consultancy assignments are being handled by three main departments namely Spinning Division, Liaison & Consultation Division (L&C) and Training Division.

The Spinning Division was established in order to serve the ever growing technical requirements of spinning mills in South India. Several developments in process control, quality control activities were done with the support of well established pilot facilities in our campus.

The L&C Division is the oldest division, functioning ever since the inception of the organisation. The above two divisions offer proper technical and technological assistance to achieve better productivity and quality to enhance the profitability with customer satisfaction.

In a spinning industry, labour optimisation is not possible without proper training. To impart scientific work methods in the industry, SITRA established in the year 1982 an exclusive department for Labour Research and Training - LRTC. Apart from the above, the Training Division also offers various functional programs benefitting the managerial and supervisory staff.

### SERVICES TO SPINNING INDUSTRY

OPERATIONAL STUDIES

TECHNICAL CONSULTANCY

TECHNICAL TRAINING

Techniques  
& Tools

Own  
experience

Practical  
training

### Diagnostic study

- ▣ Analysis of various components of cost
- ▣ Labour productivity
- ▣ Machine productivity
- ▣ Yarn realization
- ▣ Stores consumption
- ▣ Packing materials cost
- ▣ Work methods, materials handling and house keeping
- ▣ Training need of workers
- ▣ Quality of outgoing yarn
- ▣ Machinery maintenance
- ▣ Quality control practices

### Techno-Economic Viability Study

- ▣ Analysis of various elements of cost
- ▣ Labour and machine productivity analysis
- ▣ Condition of machines
- ▣ Renovation requirement
- ▣ Short term and long term measures for improving the performance
- ▣ Cost of production and profitability expected for the improved condition

### Scientific work assignment

- ▣ Prevailing labour and machine productivity in comparison with other high productivity mills
- ▣ Scope for optimising the work assignments of operatives
- ▣ Measures to improve labour productivity
- ▣ Achievable labour productivity for the proposed assignments
- ▣ Training need of operatives

### Modernisation study

- ▣ Study on existing machinery condition
- ▣ Cost of modernization
- ▣ Benefits derived due to modernization
- ▣ Cost of productivity and profitability

### Other studies

- ▣ Cost reduction study
- ▣ Yarn costing study
- ▣ Machinery valuation
- ▣ Yarn realization and control
- ▣ Invisible loss study

### INTER - MILL SURVEYS

Name of the survey	Periodicity	Coverage
⇒ Costs, Operational performance and Yarn Quality	Yearly	<ul style="list-style-type: none"> <li>• Covers 50 key parameters which include</li> <li>• Yarn sale value</li> <li>• Raw material cost</li> <li>• Net output value</li> <li>• Power cost</li> <li>• Salaries and wages cost</li> <li>• Power consumption</li> <li>• Labour and machine productivity</li> <li>• Yarn realisation and quality</li> <li>• Product diversification, etc.</li> </ul>
⇒ Online survey of count wise raw - material cost and yarn selling price	Monthly	<ul style="list-style-type: none"> <li>• Raw material cost</li> <li>• Yarn selling price</li> <li>• Overall Techno-Commercial Index (OTCI)</li> <li>• Yarn quality</li> <li>• Yarn realisation</li> <li>• Production rate in ring frames</li> </ul>
⇒ Survey on conversion cost	Yearly	<ul style="list-style-type: none"> <li>• Item-wise conversion cost</li> <li>• Inter-mill differences in the conversion cost</li> <li>• Changes in conversion cost between years</li> </ul>
⇒ Productivity survey in spinning mills	Once in 2 years	<ul style="list-style-type: none"> <li>• Total HOK</li> <li>• Production per spindle</li> <li>• Operatives per 1000 spindles</li> <li>• Spindle utilisation</li> <li>• Machine productivity index</li> <li>• Productivity in post spinning departments</li> </ul>
⇒ Inter - firm comparison on financial performance	Once in 5 years	<ul style="list-style-type: none"> <li>• Financial ratios</li> <li>• Inter-mill differences in profits</li> <li>• Analysis of financial and non-financial factors, etc.</li> </ul>

### OTHER SURVEYS (based on the industry requirement)

- \* Modernisation in spinning mills
- \* Stores consumption in spinning mills
- \* Survey on packing materials cost, etc.



## Quality audit

- ▣ Quality control schedules
- ▣ Man power requirement for quality control activities
- ▣ Control on in-process material quality
- ▣ Sampling techniques
- ▣ Arriving at the achievable yarn quality
- ▣ Process control measures



## Machinery audit

- ▣ Analysis of machinery condition
- ▣ Maintenance schedules and its frequency
- ▣ Man power requirement for maintenance activities
- ▣ Maintenance records
- ▣ Use of proper tools and lubricants
- ▣ Maintenance work methods and house keeping

## Tab Based Machinery Audit Software - Benefits

- ▣ Overall rating is arrived
- ▣ Components which would require immediate attention could be listed out
- ▣ Decision on modernizing the machine and budgeting
- ▣ Identification of machines/ components responsible for poor yarn quality
- ▣ Re-visit the frequencies of maintenance schedules
- ▣ Streamlining the material flow
- ▣ Solution for quality related market

## Other consultancy services

- ▣ Problems solving
- ▣ Process parameter optimization
- ▣ Troubleshooting for adhoc problems
- ▣ Yarn defect analysis
- ▣ Friction Spinning —Concepts and applications
- ▣ Technical support in processing non-conventional fibres and fancy yarn manufacturing
- ▣ Periodic Technical Visit (PTV) services for quality, maintenance and production areas

## Research and Development

- ▣ Studies conducted in the field of effects of modern developments on fibre processing such as
  - Change in fibre parameters during processing especially in cards and in drafting
  - Effect of spindle speed on twist contraction levels
- ▣ Studies on various topics in spinning for better understanding and suitable modifications in the existing system continuously.
- ▣ Conducting trials for machinery/mechanisms development in collaboration with machinery manufacturers
- ▣ Undertaking sponsored projects from MoT, KVIC, NJB, etc.

## PILOT MILL

### PRODUCT DEVELOPMENT

- ☞ Technical textiles from conventional fibres
- ☞ Technical textiles from high performance fibres
- ☞ Core yarn manufacturing in ring and friction spinning system
- ☞ Compact/Elitwist yarn spinning
- ☞ Fibre hooks measurement/ studies
- ☞ Processing of unconventional fibres such as pineapple, banana, Jute, coir, Sisal, hemp, Kenaf, etc.

### SPINNING TRIALS

- ☞ Processing of cotton, man-made fibres and their blends
- ☞ Processing of recycled cotton with organic/ polyester in ringframes as well as open-end spinning
- ☞ Arriving at the optimum process parameters
- ☞ Achievable yarn quality for different raw materials
- ☞ Rewinding study
- ☞ Processing of banana, hemp, pineapple and milk weed fibres in blend with cotton as well as synthetics

### PROCESS CONTROL TESTING

- ☞ Measuring the degree of opening in blow room line using SITRA Openness tester
- ☞ Testing of sliver quality in Length Control Tester (LCT) towards optimizing the carding/drawing performance of synthetic & synthetic blends
- ☞ Package hardness testing
- ☞ Snarling Index testing
- ☞ Roving strength testing

## INFRASTRUCTURE IN OUR PILOT MILL

- ☞ Compact blow room line for processing cotton and synthetics
- ☞ State of art cards with suitable specifications for separate processing of cotton and synthetics
- ☞ Latest high production comber
- ☞ Autoleveller draw frame
- ☞ Servo controlled latest generation speed frame with 16" lift
- ☞ Modern ring frame with
  - Suesen compact CDS system
  - Core yarn attachment with compacting system
  - Elitwist system
- ☞ Schlafhorst Autocoro 360 - Open end spinning
- ☞ Inverter controlled TFO with different pot size for coarse and fine yarn twisting at step less speeds for optimisation
- ☞ Precision assembly winder





**Training Services**

**Operatives  
training**

**On - The - Job  
instructional  
training**

**Supervisory/  
Middle managerial  
training**

**Functional  
programmes**

**Senior  
managerial  
training**



### FUNCTIONAL PROGRAMMES

Topic	To whom	Duration
Management development program	For young executives and aspiring managers	8 weeks
Residential Management Development Program	Chief executives/Managing Directors/Presidents/General Managers, etc	1 week
Textile Testing (Physical) - Fibre, Yarn and Fabric	Quality Control heads/QC investigators in spinning mills	6 days
Textile Testing (Chemical )	Lab technicians/QA officers/investigators in Processing units	3 days
Quality control in spinning	QC officers/Asst. Spg. Masters/ Spg. Masters/ Supervisors	3 days
Cotton selection and Assessment	Purchase officers/ Spg. Masters/ Cotton dealers	3 days
Production and cost control	Production officers/ Spg. Masters/ Asst. Spg. Masters/ Supervisors	3 days
Total Quality Management	Factory Managers/ Spg. Masters/ Finance Executives/ Supervisors	2 days
Energy Management for Textile Industry	Electrical Engineers/ Production and Maintenance officers	3 days
Textile Machinery Maintenance	Maintenance officers	2 days
Textiles for non-textile executives	Administrative officers/ Personal officers/ Costing executives	5 days
Training for Trainers	HRD officers/ Training managers/ Personal managers/ Production officers	5 days
Knitting technology	Supervisors/ Asst. Spg. Masters/ Managers	3 days
Scientific work assignment and productivity	Spg. Masters/ Production officers/ Personnel officers/ Administrative officers	2 days
Trade Union Leaders Program	Trade Union Leaders	2 days
Technical and Behavioural skills of Supervisory staff	Supervisors/ Asst. Spg. Masters	3 days
Quality and process control in wet processing	Factory Managers/ Dyeing Masters/ Merchandisers/ Supervisors	2 days
Principles and use of modern testing instruments	Factory Managers/ Spg. Masters/ Finance Executives/ Supervisors	3 days
Yarn clearers and on-line quality monitoring	Factory Managers/ Spg. Masters/ Finance Executives/ Supervisors	2 days
Effluent treatment —Practices and problems	Factory Managers/ Plant Engineers/ Finance Executives/ Supervisors	3 days
HRD in textile mills, etc.	Factory Managers/ Spg. Masters/ Finance Executives/ Supervisors	2 days

*Note: All the above programmes can be organized as custom-based in-house programmes as per requirements of the industry.*



# TRAINING DIVISION

## OTHER SERVICES FOR OPERATIVES

### Performance Evaluation of Operatives

- ☞ Analysis of workmen aptitude, skill and attitude.
- ☞ Studying the workmen capability to do related jobs.

### Scientific selection & Recruitment of operatives

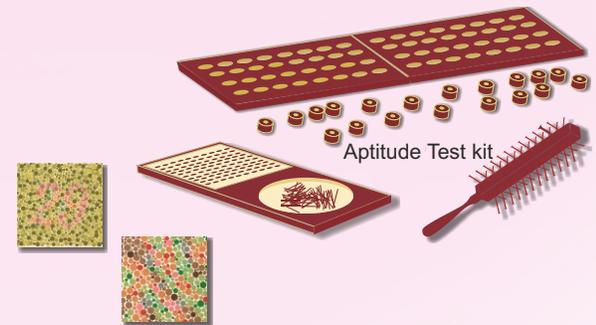
- ☞ Scientific method of selection of operatives.
- ☞ Helps management to have a skill database of operatives for future workload decisions.
- ☞ Training requirement for the selected operatives.

### Support services for labour training

- ☞ SITRA's aptitude kit
- ☞ Multi-media training material in DVD format.



Work Methods DVD



Aptitude Test Kit

**For more details, please contact:**

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