AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION

2018-2019

Published by RM. Sankar at Ahmedabad Textile Industry's Research Association, Ahmedabad 380 015.
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Chairman's Message

Last year has been amazing for Research, Science and Technology. Indian space mission received another feather in the cap through the Chandrayan 2. Also, GSAT communication system got another satellite in Feb this year. You would be fascinated to know that your institution ATIRA, assisted ISRO in reducing the payload by use of light weight Carbon Fiber Reinforced Polymer (CFRP) components for communication systems in GSAT. Thus, directly contributing to strategic initiatives of Government of India.

ATIRA, being a mature research institution has passed several milestones since its inception (in 1947). The objective has always been to solve existing and futuristic problems which leads to development of knowledge, which then can be used for betterment of Industry, Economy and Citizenry. ATIRA has been at the forefront of adopting systemic scientific development and research, which has led to innovative solutions to better public services. Be it for Air and Water Filtration, or development of sustainable infrastructure (roads, slope protection, water-lining of reservoirs) using geo-textiles. ATIRA has been working on various environment friendly solutions, contributing to betterment of Society.

ATIRA has been working with various industries and companies on specific projects to spread the fruits of scientific discovery. These have ramifications on large sectors and applications, which when adopted would benefit everyone and contribute to the growth of the economy.

I want to assure you that your institution will continuously strive towards higher echelons of scientific query and research, benefits of which will contribute towards building a stronger, healthier and cleaner India.

Sanjay Lalbhai

HIGHLIGHTS OF RESEARCH AND DEVELOPMENTS

COMPOSITES

(A) Focus Incubation Centre

Focus Incubation Centre started functioning on October 2017 with a vision to develop composite sheets of commercial size 4 ft x 8 ft. Natural fiber like cotton, jute based composites have been developed using phenolic resin as matrix component. The composite finds application in engineering component fabrication, electrical insulation, building and construction application. Composites were also developed where hybrid reinforcement have been used like jute and polypropylene fiber. Use of polypropylene fiber enhances impact strength properties to a great extent. Both side aluminum foil pasted composites were also developed to improve aesthetic aspects and also to reduce moisture absorption. Typically they have high mechanical and insulating properties.

Machines procured and utilized for development purpose:

Impregnation Plant

- Product Width: Max. 2400 mm
- Production rate: Max. 5 M/min
- Temperature: 150 °C
- Heating Media: Steam
- Application: Manufacturing Prepreg based on carbon, glass, cotton, jute etc.
- Base Material weight: 60 to 800 gms/m²
- Resin content : 25 wt% to 50 wt%
- Resin types: Epoxy, Phenolic, melamine, Polyester, Vinylester, etc.
- Types of solvent used: Methanol, Formaldehyde, Acetone, Toluene, Styrene

Hydraulic Compression Press

- Machine Capacity : 3000 MT
- Product (Laminate) Size : 8’ x 4’
- Product Thickness: 0.5 mm to 200 mm
- Daylight: 6
- Temperature: 150 ºC
- Heating Media: Steam

Lab Scale - Compression Press

- Application: Prototype Development
- Machine Capacity: 300 MT
- Product Size: 2’ x 2’
- Thickness: 0.5 mm to 200 mm
- Daylight: Single
- Temperature: 200 ºC

Other Auxiliary machineries:

- Gas fire steam boiler - Capacity - 3 Ton, Pressure 17.5 Kg/cm²
- Cooling Tower
- RO
- Softening Plant
- Cutting Machine

- Loading/Unloading Machine
- Industrial Oven

Products development:

Several products were developed:

1. **Cotton - Phenolic Composite Sheet**

Product (Laminate) Size: 8 feet x 4feet

Thickness: 1 mm to 35 mm

Material used:

PF Resin:

Methanol (Solvent to maintain optimum viscosity)

Cotton Cloth: 450 GSM

Design Cloth (F2): 230 GSM

Plain Weave

Machine used:

- Impregnation Plant
- Hydraulic Compression Press
- Cutting Machine

2. **Hybrid Jute Composite Sheet Based on Jute and Craft Paper**

Product Size: 8 feet x 4feet

Thickness: 1 mm to 3 mm

Material used:

PF Resin:

Methanol (Solvent to maintain optimum viscosity)

Jute Fabric: 250 GSM

Craft Paper: 150 GSM

Design Paper: 40 GSM

Machine used:

- Impregnation Plant
- Hydraulic Compression Press
- Cutting Machine

3. **Hybrid Jute Composite Sheet Based on Jute and Craft Paper and Aluminum Foil**

Product Size: 8 feet x 4feet

Thickness: 1 mm to 3 mm

Material used:

PF Resin:

Methanol (Solvent to maintain optimum viscosity)

Jute Fabric: 250 GSM

Craft Paper : 150 GSM

Aluminum Foil : 60 GSM

Machine used:

- Impregnation Plant
- Hydraulic Compression Press
- Cutting Machine

Pultrusion Laboratory:

Z-profile of following sizes have been developed:

- 1.5 inch
- 2 inch
- 2.5 inch
- 4 inch

Material Used :

Reinforcement : E glass rovings : 4800 tex, 24 micron filament dia

Matrix : Polyester Resin

Application : Building and Construction.

DEVELOPMENT OF CARBON FIBER BASED COMPOSITES FOR SPACE APPLICATIONS UNDER ATIRA- SAC (ISRO) MOU

A composite material is made by combining two or more materials – often ones that have very different properties. The two materials work together to give the composite unique properties. However, within the composite one identify different materials apart as they do not dissolve or blend into each other.

Composite materials are light as well as strong. By choosing an appropriate combination of matrix and reinforcement material, a new material can be made that exactly meets the requirements of a particular application. Composites also provide design flexibility because many of them can be molded into complex shapes. The downside is often the cost. Although the resulting product is more efficient, the raw materials are often expensive.

Some advanced composites are now made using carbon fibers instead of glass. These materials are lighter and stronger than glass fibers but more expensive to produce. They are used in aircraft structures and expensive sports equipment such as golf clubs. Carbon nanotubes have also been used successfully to make new composites. These are even lighter and stronger than composites made with ordinary carbon fibers but they are still extremely Composite materials expensive. They do, however, offer possibilities for making lighter cars and aircraft (which will use less fuel than the heavier vehicles we have now).

Carbon fiber reinforced polymer is an extremely strong and light weight fiber-reinforced plastic which is reinforced with carbon fibers. The binding polymer is often a thermo set resin such as epoxy. The properties of the final CFRP product can also be affected by the type of additives introduced to the binding matrix (the resin). CFRPs can be expensive to produce but are commonly used wherever high strength-to weight ratio and rigidity are required, such as in our project where space applications are developed using CFRP.

Composites made from carbon fiber are five times stronger than grade 1020 steel for structural parts, yet are still five times lighter. In comparison to 6061 aluminum, carbon fiber composites are seven times stronger and two times stiffer, yet 1.5 times lighter. Carbon fiber composites have fatigue properties superior to all known metals, and, when coupled with the proper resins, carbon fiber composites are one of the most corrosion resistant materials available. Certain mesophase-pitch-based carbon fibers possess thermal conductivity three times greater than copper. They do not melt or soften with heat, allowing them to be used in such high temperature applications as rocket nozzles and aircraft brakes. In fact, their strength actually increases with temperature in non-oxidizing atmospheres. Considering its wide range of benefits, ATIRA has managed to implement CFRP into developing space applications for ISRO-SAC.

Product Development:

As part of the ATIRA-SAC (ISRO) MoU the following components were developed:

1. Cowling Bracket-GSAT-29

High modulus carbon fiber was incorporated with addition to space approved to adhesive (epoxy based) to develop CFRP components which later sandwiched with space approved Aluminum honeycomb core to make CFRP sandwich panel. The sandwich panels are assembled according to specification to get Cowling Bracket assembly for GSAT-29.

2. RISAT 2B Reflector

Satellite antennas can provide communication paths with other satellites as well as earth stations. The reflector antenna is the most popular in spacecraft antenna systems because of its structural simplicity and light weight. It is also a matured design. The main disadvantage is that the reflector needs to be offset to avoid blockage of the feed point. This offset eliminates the rotational symmetry of the optical aperture, and the scan range is limited to a few bandwidths. A reflector antenna can be made of several reflectors, whose surface can be parabolic, hyperbolic, ellipsoid, or spheroid. The most popular reflector antenna is the parabolic.

As a structural material in the manufacture of telecommunication satellite's reflector antenna, carbon fiber reinforced plastic CFRP are widely used, which is associated with a complex of their unique thermal physical characteristics that ensure that the requirements for thermal stability in space conditions are met, low in mass and at the same time high rigidity and strength.

Reflector antennas were developed by incorporating high modulus carbon fiber in addition to space approved adhesive (epoxy based) which later sandwiched with space approved aluminum honeycomb core.

3. Isogrid triangular CFRP core

Composite honeycomb structures are widely used in aerospace industry including structures like payload fairing due to light in weight, excellent structural efficiency and high strength to weight ratio. But as known, the design of honeycomb core is complex to manufacture hence results in high manufacturing cost. In addition, there is non-uniform stress distribution in the edges and corners of the honeycomb structure thus resulting stress concentration regions which ultimately causes failure. On the other hand, isogrid structures are much simpler in design and allow the structural components to maintain isotropic properties giving highest strength to weight ratio with less manufacturing cost.

The advanced or modified grid structure also known as lattice structure or isogrid shows properties which are comparable with sandwich structures such as honeycomb. The isogrid structures are much better in mechanical properties than cellular materials in in-plane and out-of-plane compression test.

Carbon Fiber Reinforced Polymers (CFRP) composite is used having less weight, better corrosion resistance and high specific strength while aluminum alloy 7075 is used for rib structures in grids and core of sandwich structures.

4. Hexagonal shaped CFRP core

Sandwich structures are used advantageously where low weight and high stiffness and strength are required, carbon fiber reinforced plastics (CFRP), are well suited for sandwich construction methods due to their low weight, high stiffness, high strength, dimensional stability, and ease of manufacture.

More recently, other non-traditional applications have emerged, such as in land and sea transportation and in the construction of optical telescope composite mirrors. The latter requires very tight tolerances of dimensional stability and low weight, so a core made of CFRP material that is very stiff and at the same time has thermal expansion compatible with that of the facesheets can be used advantageously. In order to facilitate the analysis and design of these structures, the core can be represented as a homogeneous layer with equivalent mechanical properties. The effective properties of the core can be found analytically, numerically or experimentally. Existing analytical methods to find the equivalent homogeneous properties of the core are based on isotropic material properties (e.g. aluminum) and use a variety of simplifying assumptions. Notably, Al. used the unit displacement and unit load methods in conjunction with simplifying assumptions to derive simple expressions for the upper and lower limits of the shear module of honeycomb sandwich cores. Recently, a practical method is presented to determine the effective elastic properties of a hexagonal cell core from a finite element analysis of the simplest repeating unit of the core, including the proper boundary conditions that must be used in the model. In applications that require structural stability, such as composite mirrors, hexagonal cells offer the advantage of higher out-of plane shear stiffness over triangular cells of the same density.

5. 2.5 m Reflector ground based- GSAT-29

Ground segment of satellite communication system employ a variety of terminal design and network configuration in order to provide and manage services delivered to end users. The terminal in these networks ranges from the large earth stations used large gateways in a telephone network to a very small aperture terminal that delivers data communication application to home and remote business location.

Ground-based antenna reflectors requiring great precision. Ground-based antennas have also been fabricated by using the vacuum infusion process. A reflector antenna can be made of several reflectors, whose surface can be parabolic, hyperbolic, ellipsoid, or spheroid. The most popular reflector antenna is the parabolic.

ATIRA has successively developed ground based Reflector antennas by high modulus carbon fiber was incorporated with addition to space approved adhesive (epoxy based) which later sandwiched with aluminum honeycomb core.

6. CFRP Sandwich for NISAR

A sandwich-structured composite exhibit a particular fundamental pattern of two CFRP face sheet which are comparatively thin but of high strength and stiffness, enclosing anAluminum honey comb core structure, which is relatively thick but light-weight.CFRP Face sheet may be fabricated of variable thickness, reinforcements & orientations. Face sheet carry most of the loading and stresses. Core may be Aluminum honeycomb structure which has less density than the face sheet and resists perpendicular stresses and provides shear rigidity. Film adhesive is used to bond Aluminum core with CFRP face sheets.

In principle, the basic concept of a sandwich panel is that the face sheet carries the bending stresses whereas the core carries the shear stresses. These structures have high potential to be used in marine, aerospace, defense and civil engineering applications due to their high strength to weight ratios and energy absorption capacity.

7. S-Band wave guide- GSAT -20

CRFP was used as the waveguide material because of its very high specific stiffness and almost zero coefficient of thermal expansion. The latter was particularly important for space applications where structures may experience temperatures variations of 100°C. Inner lining of the waveguide stiffeners must be sufficiently conductive for radiofrequency (RF) radiation to propagate in that waveguide with an acceptable attenuation. The waveguide must radiate an acceptable radiation pattern with acceptable efficiency. Waveguides was successfully developed by high modulus carbon/epoxy prepreg.

8. Ka- Band antenna reflector- GSAT -20

Ka-band antenna reflector is an integral part of the broadband system delivering high-speed Wife connections for residential, commercial and government services. The antenna is efficiently designed to receive and transmit data from high capacity satellites to make full use of their high data rate capabilities.

Thermal effects at Ka-band are minimized by CFRP reflector materials coated with solar diffusive white paint. The reflector back structure and sub reflector spars are designed to stringent Ka-band rigidity requirements under wind and gravity loads.

As a structural material in the manufacture of reflector antenna, carbon fiber reinforced plastic (CFRP) are widely used, which is associated with a complex of their unique thermal physical characteristics that ensure that the requirements for thermal stability in space conditions are met, low in mass and at the same time high rigidity and strength.

Reflector antennas were developed by high modulus carbon fiber was incorporated with addition to space approved adhesive (epoxy based) which later sandwiched with space approved aluminum honeycomb core.

DEVELOPMENT OF CARBON FIBER BASED COMPOSITES FOR PHYSICAL RESEARCH LABORATORY

1. CFRP Vacuum chamber

The most common and recommended material for high-vacuum chamber is 304 stainless steel.The chambers used for component testing should have the same operational characteristics as the end-use application. Therefore test requires only an inert and evacuated chamber environment. But the problem with stainless steel vacuum chamber is the heavy weight of chamber. We have developed light weight CFRP vacuum chamber successfully by high modulus carbon fiber was incorporated with addition to space approved adhesive (epoxy based).

2. Shield tube

The most common and recommended material for Shield tube is 304 stainless steel. But the problem with stainless steel shield tube is the heavy weight of tube. We have developed light weight CFRP shield tube with inside and outside conductive liner by high modulus carbon fiber was incorporated with addition to space approved adhesive (epoxy based).

3. Nomex FR4 Sandwich

Fabricators use this sandwich core when high strength-to-weight ratios are required. This honeycomb is an aerospace-grade aramid fiber constructed from DuPont Nomex® paper that is phenolic coated. Over-expanded cell structures allow it to be more flexible, which also makes it perfect for use in tight radius curves. Nomex® core honeycomb is used in aircraft galleys, flooring, partitions, aircraft leading and trailing edges, missile wings, radomes, antennas, military shelters, fuel tanks, helicopter rotor blades and navy bulkhead joiner panels. Nomex® core has high fire resistance and thermally insulating and bonds well with epoxy, polyester, and vinyl ester resins (and most adhesives), reducing peel.

FR4 is a NEMA grade designation for glass-reinforced epoxy laminate material. FR-4 is a composite material composed of woven fiberglass cloth with an epoxy resin binder that is flame resistant . “FR” stands for flame retardant, and denotes that the material complies with the standard UL94V-0. The designation FR-4 was created by NEMA in 1968. FR-4 glass epoxy is a popular and versatile high-pressure thermoset plastic laminate grade with good strength to weight ratios. With near zero water absorption, FR-4 is most commonly used as an electrical insulator possessing considerable mechanical strength. The material is known to retain its high mechanical values and electrical insulating qualities in both dry and humid conditions. These attributes, along with good fabrication characteristics, lend utility to this grade for a wide variety of electrical and mechanical applications.

In principle, the basic concept of a sandwich panel is that the face sheet carries the bending stresses whereas the core carries the shear stresses. This Nomax FR4 sandwich panel is used to manufacture dust collector.

Nomex FR4 Sandwich was successfully developed by high performance FR4 face sheet and space approved Nomax honeycomb core

Development of Carbon based pultruded tubes for Space applications under ATIRA- SAC (ISRO) MoU

CFRP based pultruded tubes, C-channel, Z- profile, Box section and L-clip were developed through pultrusion process for its structural application in space.

Mould and dies are developed for the relevant size with utmost care of dimensional accuracy and number of trials helped us to expertise in meeting their dimensional accuracy which is must required for space application components.

Activities in Composite Testing Laboratories

Mechanical testing lab

1) Structural testing of Pultruded section as per ASTM D8089 & BS EN 13706 for Full section Modulus of Elasticity
2) FRP Molded Grating testing
3) Mechanical testing for Underground storage tank i.e. UTUS , Cold and Impact test etc
4) Pipe stiffness test
5) FRP tank sample testing as per BS EN 13121: Peel strength and Inter laminar shear strength
6) PU Foam testing
7) Development of CIPP (Cured In-Place Pipe) test as per ISO 11296 and Approval by Delhi Jal Board

Heat and Flame testing Lab

Approval of Lab from RITES for testing of Railway suppliers

NABL Accreditation:

- Composites testing lab (Mechanical and Heat & Flame testing lab) accredited by NABL as per revised ISO/IEC 17025:2017
- 02 Technical staff are approved for authorized signatory

Various composite industries served

- Resin manufacturers
- Carbon/Glass Fabric manufacturers
- Pultrusion section manufacturers,
- Wind Energy sector
- Boat Manufacturers
- Automotive
- Defense
- Aerospace Industries
- Metro/Railway

Total Industries served during the year

- Mechanical Testing: Customer served: 158, Total Samples Tested: 2638
- Heat and Flame Testing: Customer served: 57, Total Sample tested: 176

New Customer developed- 30 Nos

International customers served

Spig ,Italy

Hexagon-Mf Composite Sdn. Bhd

Unigulf ,Dubai

Experby, France

Monkeytoe, New Zealand

NotusComposites,Dubai

TEXTILE TESTING LAB

The focus of the lab during the year has been on customer service while maintaining the accuracy of results. The lab has been accredited by NABL for ISO 17025 : 2017.

Yarn, Fabric, Industrial Fabric and Garment testing Lab : During the year following new tests were initiated :

No. of nips in textured yarn

Intermingling level of texturized yarn

Elastic recovery for core spun / dual core yarn

Knot strength in yarn

Loop strength in yarn

Collapsing strength of paper tube and paper cones

Bonding strength for dental testing

Color value of dentures

Minimum mesh size in geogrid

Peel strength of geocomposite

Chemical resistance of geogrid and geocomposite

Hydrolysis resistance of geogrid and geocomposite

Oxidation resistance of geogrid and geocomposite

Chloride content in fabric

ENVIRONMENT ENGINEERING DIVISION

A. Environment Audit:ATIRA has been a recognized Environment Auditor for the Schedule-I group of Industries since the year 2001. In all 12 industrial units were audited during this year.

Environment Audit is mandatory as per guidelines stipulated by the Hon'ble High court of Gujarat. As per prevailing guidelines, every polluting industry has to get Environment Audit to be conducted by the Environment Auditor, recognized by both the Hon'ble High court of Gujarat and Gujarat Pollution Control Board (GPCB). As per prevailing policy, the Environment Audit clients are assigned to each recognized Auditors by the GPCB. Charges are also decided by the GPCB, including other terms and conditions.

The environmental Audit is conducted through following procedure for better compliance of norms

stipulated by the Gujarat State Pollution Control Board:-

- Industrial Visit
- Monthly Data Collection
- Sampling & Monitoring
- Analysis of collected Samples
- Compliance report
- Adequacy certification
- Final Report Preparation

ATIRA has two teams with Names, addresses and technical qualifications of members of each Team of Auditors (As per GPCB Audit Scheme) for Environment Audit work recognized by GPCB, Each team have mandatory require four members have following qualification:

- A person processing a degree in Environmental Engineering **a**warded by a University recognized inIndia or abroad
- A person possessing a degree in Chemical Engineeringawarded by a University recognized in India or abroad.
- A person possessing a degree in Chemistry awarded by a University recognized in India or abroad.
- A person possessing a degree in Micro Biology/ Bio-Chemistry, Chemistry, Biotechnology, Zoology,Environment Science, Climate Change, Forensic Science**,** Life Science or other similar degree, **a**wardedby a recognized university or institute in India orabroad.

B. Environment Management System Adequacy Certification & Assessment Report:

In this category 9 industrial units have availed services from ATIRA, during the year. Such certification is required, as per stipulations of the GPCB, in case the industry is desirous of any change in product mix/production capacity/ production pattern.

Area in Adequacy Certification:

1. Proposed Product
2. Product Change
3. Product Mix
4. ETP Upgradation
5. APCM upgradation
6. Proposed (New) Plant
7. EMS System adequate for Existing Plant

The broad steps of Adequacy Certification are:

- Industrial Visit
- Data Collection
- Sampling & Monitoring
- Analysis of collected Samples
- Final Report Preparation

C. Sampling and analysis of Water, Waste water, Gaseous Emissions and Process as well as Flue Gases, Hazardous Waste: Around 600 samples were analyzed during the year, over and above samples from the Environment Audit clients. Here, sampling and analysis of water/ waste water/flue/stack gases, gaseous emissions and solid wastes are carried out and analysis reports are submitted.

D. Larsen & Toubro Limited availed services from ATIRA, during the year for DOH Test (Degree of Curing Test).

E. Monthly Monitoringas well as Industrial Survey for different Industries: One industrial unit availed services from ATIRA. Around 60 samples were analyzed during the year, from the Monthly Monitoring clients. A number of industries avail such monitoring services on respective need basis. Here, sampling and analysis of water/waste water/flue/stack gases, gaseous emissions and solid wastes are carried out analysis and reported.

F. Soil and Ground water Study: Methodology for assessment of extent of soil and groundwater contamination has been developed

G. Environmental Gas Calibration lab setup at ATIRA for Ambient Air Monitoring Instruments

List of Clients of during the Year

1. Abellon Clean Energy Ltd. (Power Plant)
2. Bodal Chemicals Ltd. (Unit-I)
3. E Coli Waste Management Private Limited
4. Sagar Drugs & Pharmaceuticals Private Limited
5. Society For Clean And Green Environment
6. The Vinayak Jal ShuddhikaranSahakariMandali Ltd.
7. Odhav Enviro Project Ltd.
8. Bavla Eco Projects Ltd.
9. Chandan Intermediates & Chemicals Pvt. Ltd.
10. Cil Nova Petro Chemicals Ltd.
11. Tata Motors Ltd.
12. Pollucare Biomedical Waste Management Pvt. Ltd.

List of Clients of EMS Adequacy Certification for the Year

1. Kinjal Chemicals (Unit-2)
2. Alfa PEB Limited
3. Gunjan Paints
4. SBG Polymers
5. Prachin Chemical
6. Merino Industries Limited
7. Chemclone India Private Limited
8. Gujarat Flurochemicals limited 9. Dongshan Silicone Private Limited 10. Novazeal Lifesciences

QUALITY SYSTEM GROUP: CALIBRATION LABORATORY

The Calibration Laboratory at ATIRA provides calibration/testing services to various industrial segments such as textile units, machinery and accessories manufacturers, chemical units, Pharmaceutical industry, Clinical Research Organizations, Hospitals, Pathological laboratories, Dairy and Paint industry, Research and Development organizations, Space Applications Center, Oil & Natural Gas Corporation Units, testing laboratories of Gujarat Pollution Control Board in Gujarat, Calibration Laboratories etc. ATIRA Calibration Laboratory provides single window calibration/testing service at laboratory as well as at customer's site including Specialized Instruments and Equipments.

The calibration/testing services also are availed by NABL Accredited Testing Laboratories of ATIRA namely Textile Testing, Chemical Testing/ Chemical Analytical Testing, Air Sampling and Testing laboratory, Composite Materials, Heat and Flame testing laboratory for different parameter based instruments/equipments.

At present, this laboratory is calibrating various parameter based instruments/artifacts such as dimension and mass metrology i.e. Weights and Weighing Balances, temperature, humidity, pressure, Volumetric, Density, Electro-Technical, Time, Rotational speed measurements, Air velocity, Illumination, Acoustics, Electro-chemical etc.

Recently, a state of the art facility for calibration of Breath Alcohol Analyzer/ Testers using electronic device with closed loop temperature control system simulates the human breath temperature precisely by maintaining the temperature of standard reference solution used for calibration/testing. The facility is utilized by Clinical Research laboratories, transporters and so on.

The laboratory has been accredited by NABL for at laboratory as well as onsite calibration of instruments in the discipline of Electro-Technical, Thermal and Mechanical field vide certificate No. CC 2824 valid from 30th August 2018 to 29th August 2020.

The laboratory is also audited by the clients as a part of vendor audit requirements for availing calibration and testing services every year.

During the year above 300 Service Requests were received from various industrial segments for at laboratory as well as on site calibration work and calibrated above 2000 instruments. During the year,

30 industrial units were visited for onsite calibration and related work.

During the year, laboratory personnel were deputed for external training, for continuous improvement, as follows:

- Thermal Calibration and Uncertainty calculations
- Laboratory Quality Management System and Internal Auditing as per ISO/IEC 17025:2017
- Precision Testing of Electrical Components for special application

NANO ELECTROSPINNING

ATIRA has signed an MOU with Arvind Ltd., on development of nanofiber based filter media for face mask. The face mask has 99.9% filtration efficiency and 99% anti bacterial efficiency. The developed nano fiber filter media technology is being transferred to Arvind for commercialization. ATIRA developed face mask was distributed to Ahmedabad traffic police for protection against pollution. The product has been well received and appreciated.

An MOU has been signed with a technical textile company for developing filter media products.

Two projects using nano electro spinning for development of water filter and air filter have been completed and patents applications were filed. Air filter media is developed using PTFE based nano fiber. Two papers entitled "Electrospinned nanoporous PTFE film based filter media for dust collector bags in high temperature and corrosive environment" and "PTFE nano fiber coated glass fabric using electro spinning method" have been published on this subject. The second project is of development of water filter media using nano fiber application of PA6. One paper has been published on this titled, "Development of nano fiber based water filter to get safe and pure drinking water for human beings".

A different type of anti bacterial nano fiber based filter media was also developed specifically for DRDO

INCUBATION CENTRE FOR TECHNICAL TEXTILES

During the year high gsm glass fabric was developed, scrim fabric and carbon fabric continued to be produced as per requirement. Warping beams were made for many textile units on Karl Meyer machine.

In Lacom machine for lamination various lamination samples have been developed for DRDO for their biological suits.

CHEMISTRY LAB

A one day conference was organized on "Responsible Textile Production through sustainable chemical management – ATIRA perspective on zero discharge of hazardous chemicals in Textile and leather sector". Instruments such as HPLC, GC, GC MS and ICP are readied for operation.

CL CENTRE FOR MANAGEMENT

- Techno Economic Viability Study of Solar Charkha, Solar Looms and Solar powered Garment units in Nawada Dist. Bihar. Project sponsored by Ministry of MSME, Govt. of India
- Scientific Recruitment and Selection and for a major composite mill in Amravati, Maharashtra
- Valuation of Cotton bales seized through litigation at High Court of Gujarat for an APMC in Gujarat
- Technical Textiles Certification for 5 units
- Certification on usage of Solar power in Powerloom industry for 2 units

Short Film on Composites

Project sanctioned by MoT, GoI. Detailed script was made and was approved by Textile Commissioner's office and the film was shot through professionals with a duration of around 10 minutes including a detailed video message by the then Textile Commissioner. The audio was dubbed in Hindi and Gujarat languages. The film was accepted by MoT and was seen widely by Govt circle before the giving award certificate to ATIRA on composites

Estimation of Loose Cotton as part of Cotton Balance Sheet for Cotton Advisory Board(CAB)

ATIRA proposal on estimation was accepted by CAB, under the chairmanship of Textile Commissioner. Work is in progress

Project on Development of Effective and Efficient DR Gin

Project sanctioned by Govt. of Gujarat. Project is completed. Salient features:

- Expected production 90 to 92 kg. per hour as compared to 58-65 kg per hour in the existing gins in the market
- Reduced 40% of moving parts: hub assembly, 3 gears, 8 bearings, weight assembly, head pin, wrist pin and so-on
- Reduced maintenance cost
- Reduced electricity consumption by 1.3 amp
- Reduced price
- More stronger machine, 40 kg dead weight removed but the machine parts reinforced with more weight

Machine is put in Trial production in one of the Ginning units at kadi, Gujarat

Film on Usage of Geotechnical Textiles at North East Region

Film was shot through professionals across many ATIRA project sites on a) Road b) Water Reservoir c) Slope Protection across Manipur, Meghalaya states where all the projects were undertaken. Govt. Secretaries, Chief engineers of the projects were interviewed and video graphed. Besides index and performance tests of geotextile testing facilities at ATIRA Ahmedabad and Guwahati were shot

CHEMICAL TECHNOLOGY DIVISION

Fabric Defect Analysis : During the year 606 samples were analyzed for fabric defects. Suggestions were given to improve the defective fabric. Samples were also analyzed for fabric appearance problems of knitting yarn and knitted fabrics. Yarn samples were analyzed for barre defect. Garment,Weaving and processing defects in the fabrics are analyzed for suggesting appropriate method of garment processing.

Certification of samples for Custom Department : Samples are analyzed for certification of quality parameter mentioned in import /export documents.

Performance and testing of processing chemicals : Tests are carried out for Processing units and chemical manufacturers for performance of chemicals. These chemicals are tested by treating the fabric with chemicals and evaluating the properties of treated fabrics. All the tests are carried out in view of actual usages of particular chemical. This testing facility is utilized for proper selection of chemical and costs comparison.

Testing of Dyestuffs for exports : At ATIRA Dyestuff standards are maintained for some foreign importers of colors and the samples of Indian colorsuppliersare tested against the standard of the company and test reports are given. Based on these reports importer takes decision about the quality of dyestuff.

Preparation of composite soiled stripe : Composite soiled strip set for testing of washing machine performance evaluation are prepared. These stripe set are prepared as per IS 5785-1976. Washing machine performance is carried out through Stitched standard garments and fabrics.

Study of Mercerization Process and Caustic Recovery : Mercerization is most important process for cotton fabric dyeing. Here the cotton fabric is padded with 250 gm per liter caustic under tension on mercerization machine. This padded caustic is removed from the fabric in subsequent washing at mercerization machine. This removed caustic has required concentration and can be reused for mercerization.

Units having caustic recovery plant use about 6 to 8 kgs of fresh caustic per 100 kgs of cloth for mercerization. Units without caustic recovery plant use 20 to 25 kgs of caustic for same production. Unrecovered caustic is washed and cause heavy effluent pollution. Production of caustic soda is power intensive. Around 4 units of electric power is consumed for a kg of caustic production. Thus caustic recovery is important from energy conservation point of view also.

ATIRA is providing consultancy services to industry for proper use and recovery of caustic soda in mercerization process. Caustic recovery should be made mandatory for cotton fabric producing units. Pollution Control Board can forced industry to put C.R.P plants compulsory. This will save lot of fresh caustic and reduce pollution load on effluent treatment plant.

POWERLOOM SERVICE CENTRS (PLSC) AT AHMEDABAD, DHOLKA AND INDORE

Powerloom Service Centre of ATIRA Ahmedabad is involved in various activities like Training, Testing, Consultation, organizing seminar/awareness programs in cluster on various schemes of GOI for development of power loom Industry. Powerloom service centre of ATIRA had arranged 5 Awareness programs on iPowerTex India schemes at various area of Ahmedabad cluster. About 102 testing of yarn & fabric samples were carried out by centre. Technical officers paid approx 60 JIT visit for TUF scheme of GOI along with ROTxC officer at various new textile units. Also more than 60 units were visited for registration of Powerloom workers in Group Insurance Scheme. In all 1580 registration of PL Workers were made during the year.

DholkaPowerloom Service Centre of ATIRA also engaged in same type of activities including Training of Weavers, Jobbers, Consultation, & testing of Yarn samples from Powerloom Industry. 50 yarn samples were tested by this centre. Under group insurance scheme of GOI for PL Workers, 968 registrations were made during the year. Also 2 Awareness programs on iPowerTex India schemes were carried out in various areas of Dholka cluster.

Indore Powerloom Service Centre of ATIRA is engaged in activities of Training of Loom Weavers, Jobbers, Entrepreneurs, providing consultation for issues in Powerloom units & Sample testing from Textile units. In all 138 samples of yarn & fabrics were tested during the year. Also a team of 20 entrepreneurs of Indore cluster had visited Coimbatore under Exposure visit scheme of GOI. 1295 registration of PL Workers were made for Group Insurance scheme .

It is being planned to collect data regarding warp stops, weft stops, type of machines, type of product etc from the units of cluster area of all three PSCs.

LIBRARY AND NICTAS

(A) HIGHLIGHTS OF LIBRARY

- ATIRA Library has rich resources of 46,200 books and bound volumes in the Textile and Allied areas.

(B) NICTAS AT ATIRA

During the year, NICTAS provided the following services to its users:

- Over 3 off-line searches were carried out from CD-ROM Databases on textile.
- 100 Standards were procured on demand.
- 10 articles procured from national and International sources.
- 4 issues of TEXINCON for the year 2018-19 were published.
- A total 3 on-line searches were carried out for 2 users, under NACID, through its specialized network.

INDEPENDENT AUDITORS' REPORT

Report on the Financial Statements

We have audited the accompanying financial statements of **THE AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD ("ATIRA")** which comprise the Balance Sheet as at March 31, 2018, and the Income and Expenditure Account for the year then ended and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation of these financial statements that give true and fair view of the financial position and financial performance of ATIRA in accordance with the accounting principles generally accepted in India, including the applicable Accounting Standards. This responsibility also includes maintenance of adequate accounting records in accordance with provision of the Act for safeguarding the assets of ATIRA and for preventing and detecting frauds and other irregularities; selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; and design, implementation and maintenance of adequate internal financial controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statement that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute Chartered Accountants of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on auditor's judgment, including the assessment of the risk of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to ATIRA's preparation of the financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on whether ATIRA has in place an adequate internal financial controls system over financial reporting and the operating effectiveness of such controls. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion and to the best of our information and according to the explanations given to us, the financial statements give a true and fair view in conformity with the accounting principles generally accepted in India of the state of affairs of ATIRA as at 31st March, 2018 and its surplus for the year ended on that date.

For, **Sorab S. Engineer & Co.**
Firm Registration No. 110417W
Chartered Accountants

CA. Chokshi Shreyas B.
Partner
Membership No. 100892
Ahmedabad
Date : 25/06/2018

AHMEDABAD TEXTILE INDUSTRY'S
INCOME AND EXPENDITURE ACCOUNT

2018 Rs.	EXPENDITURE	Rs.	2019 Rs.
	Employees' Emoluments		
38,658,703	Salary and Allowances	40,279,469	
2,703,305	P.F. and Pension Scheme Contributions	2,675,173	
600,000	Additional Contibution to Provident Fund	1,225,478	
350,566	Medical Benefits	339,800	
2,674,973	Retirement Benefits	3,831,594	
499,974	Bonus	476,429	
58,047	Staff Amenities	28,173	
113,488	Contribution to ATIRA Staff Insurance Fund	126,191	
176,205	Employees' Deposit Linked Insurance Scheme	168,782	
82,023	Leave Travel Concession	92,973	
45,917,284			49,244,062
	Travelling & Conveyance Expenses		
1,769,974	Travelling Expenses (Net)	1,469,858	
162,015	Conveyance Expenses	167,899	
89,359	Vehicle Expenses	85,238	
2,021,348			1,722,995
	Repairs & Maintenance		
676,327	Building & Estate Maintenance	1,098,259	
456,653	Repairs & Maintenance - Others	1,258,406	
20,150	Staff Quarter Expenses	-	
1,153,130			2,356,665
	Laboratory Expenses		
199,201	Accreditation of Lab. Expenses	246,222	
164,798	Calibration Expenses	108,840	
463,809	FIC Laboratory Expenses	1,176,528	
3,317,188	Guwahati Laboratory Expenses	1,471,940	
4,169,568	Infusion Laboratory Expenses	5,668,032	
2,376,827	Incubation Centre Expenses	1,880,685	
7,221,009	Laboratory, Workshop and Pilot Mill Expenses	17,226,630	
17,912,400			27,778,877
	Library & Journal Expenses		
63,055	Library Journals , Publications and Books Expenses		154,101
	Administrative Expenses		
100,000	Audit Fees (Excluding Taxes)	100,000	
5,248,548	Electrical charges (Net)	5,476,668	
185,854	Forms and Stationery	200,509	
179,130	Insurance on Building , Machinery etc	186,330	
1,437,826	Legal and Professional Fees	724,297	
821,611	Miscellaneous Expenses	586,752	
361,800	Promotion & Publicity	45,910	
1,329,779	Rates and Taxes	1,236,601	
113,947	Rent	-	
564,437	Security Expenses	559,192	
114,663	Conference and Seminar Expenses (Net)	329,455	
3,119,071	Service charges	3,194,542	
-	Provision for Doubtful Debts	2,019,388	
1,143,010	Sundry Dr./Cr. Balance written off (Net)	-	
14,719,676			14,659,644
81,786,893	**Total C/F**		95,916,344

RESEARCH ASSOCIATION, AHMEDABAD 380 015
FOR THE YEAR ENDING MARCH 31, 2019

2018 Rs.	INCOME	Rs.	2019 Rs.
	Grant & Contribution		
	Non-Plan Grant from Ministry of Textiles		
8,000,000	Salary Grant	8,000,000	
2,000,000	Recurring Grant	2,000,000	
10,000,000			10,000,000
2,160,000	**Contribution from Industries**		1,560,000
	Earned Income :		
49,488,776	Testing Fees	30,045,456	
3,346,005	Calibration Service & Incubation Income	2,946,069	
7,628,905	Sponsored work Income	49,647,956	
60,463,686			82,639,481
	Salary/Overheads Recovered from Sponsored Projects & Services		
2,791,880	Powerloom Service Centres	2,762,922	
3,200,747	Other Govt./Non -Govt. Agencies/Services	1,600,300	
2,062,500	Overheads on Sponsored Projects	14,787,900	
8,055,127			19,151,122
	Interest		
6,187,312	Interest income	6,634,980	
320,987	Less: Transferred to Various Funds	267,933	
5,866,325			6,367,047
	Other Income		
4,788,195	Miscellaneous Income	3,320,023	
-	Sundry Dr./Cr. Balance written off (Net)	514,196	
32,057	Staff Quarters Income	23,732	
4,820,252			3,857,951
91,365,390	**Total C/F**		123,575,601

AHMEDABAD TEXTILE INDUSTRY'S
INCOME AND EXPENDITURE ACCOUNT

2018 Rs.	EXPENDITURE	Rs.	2019 Rs.
81,786,893	**Total B/F**		95,916,344
	Communication Expenses		
225,727	Postage and Telegrams (Net)	148,841	
193,176	Telephones & Fax charges	306,935	
418,903			455,776
	Finance Cost		
19,228	Bank Charges	12,513	
18,938	Interest on Bank Overdraft	159,555	
38,166			172,068
925,932	**Depreciation**		2,013,051
3,776,561	**Expenditure on sponsored projects met out of ATIRA Funds**		20,856,175
	Transfer to Fund		
4,418,935	Atira Development Fund		4,162,187
	Surplus		
-	Surplus for the year		-
91,365,390	**TOTAL :**		**123,575,601**

For Notes forming part of Accounts refer schedule 'K'

As per our report of even date

For, **Sorab S Engineer & Co.**
Firm Registration No.110417W
Chartered Accountants

Place : Ahmedabad
Date : 30/07/2019

RM Sankar
Assistant Director

Members of the
Council Of Administration

CA Chokshi Shreyas B.
Partner
Membership No. 100892

RESEARCH ASSOCIATION, AHMEDABAD 380 015
FOR THE YEAR ENDING MARCH 31, 2019

2018 Rs.	INCOME	Rs.	2019 Rs.
91,365,390	**Total B/F**		123,575,601
91,365,390	**TOTAL :**		**123,575,601**

AHMEDABAD TEXTILE INDUSTRY'S
BALANCE SHEET AS

2018 Rs.	FUNDS & LIABILITIES	SCHEDULE NO.	2019 Rs.
733,141,627	CAPITAL FUNDS	**A**	733,778,184
285,997,346	OTHER EARMARKED FUNDS	**B**	292,320,287
50,737,737	SPONSORED PROJECTS	**C**	41,174,478
-	BANK OVERDRAFT	**-**	2,782,926
54,712,262	CURRENT LIABILITIES & PROVISIONS	**J**	49,457,648
1,124,588,972		**TOTAL :**	**1,119,513,523**

For Notes forming part of Accounts refer schedule 'K'

As per our report of even date

For, **Sorab S Engineer & Co.**
Firm Registration No.110417W
Chartered Accountants

Place : Ahmedabad
Date : 30/07/2019

RM Sankar
Assistant Director

Members of the
Council Of Administration

CA Chokshi Shreyas B.
Partner
Membership No. 100892

RESEARCH ASSOCIATION, AHMEDABAD 380 015
AT MARCH 31, 2019

2018 Rs.	PROPERTIES & ASSETS	SCHEDULE NO.	2019 Rs.
—	STOCK OF STORES & STATIONERY	—	—
29,408,075	IMMOVABLE PROPERTIES	D	29,408,075
720,542,185	MOVABLE PROPERTIES	E	735,271,032
13,570,172	CAPITAL WORK IN PROGRESS	—	—
105,326,809	INVESTMENTS	F	89,510,074
3,231,456	CASH AND BANK BALANCES	G	4,094,717
8,644,165	SUNDRY DEBTORS	H	16,838,976
28,023,184	OTHER CURRENT ASSETS, LOANS & ADVANCES	I	44,803,918
215,842,926	SPONSORED PROJECTS	C	199,586,731
—	STOCK OF STORES & STATIONERY	—	—
1,124,588,972		**TOTAL :**	**1,119,513,523**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'A' : CAPITAL FUNDS

AS AT 31-03-2018 Rs.	ACCOUNT HEAD	ADDITIONS RS.	DEDUCTIONS RS.	PARTICULARS	AS AT 31-3-2019 Rs.
29,063,445	1) Industry's Capital Contribution Account				29,063,445
5,845,595	2) Contribution for Capital Expenditure from the Government	–	–		5,845,595
16,700,977	3) Fund for ATIRA-AMA Centre Building	–	–		16,700,977
345,000	4) Capital grant and contribution for Lab. Building	–	–		345,000
681,186,610	5) Fund for capital exp. out of grant and contributions from Govt. and various other sources	636,557	–	Fund created during the year	681,823,167
733,141,627	**TOTAL :**	**636,557**	**–**		**733,778,184**
703,079,453	**Previous Year**	**30,062,174**	**–**		**733,141,627**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'B' : OTHER EARMARKED FUNDS

AS AT 31-03-2018 Rs.	ACCOUNT HEAD	ADDITIONS RS.	DEDUCTIONS RS.	PARTICULARS	AS AT 31-3-2019 Rs.
38,786,530	1) Depreciation Fund	2,013,051	–	Depreciation Provided during the year	40,799,581
2,230,732	2) ATIRA Staff Insurance Fund126,191	–		Contribution for the year	2,356,923
539,075	3) Staff Welfare Fund	21,512	–	Interest credited during the year	560,587
1,000,000	4) Fund for Chimanlal Lalbhai Centre for Management Studies	–	–		1,000,000
243,441,009	5) Atira Development Fund4,162,187	–		Transfer from Income & Expenditure Account	247,603,196
285,997,346	**TOTAL :**	**6,322,941**	**–**		**292,320,287**
280,519,353	**Previous Year**	**5,477,993**	**–**		**285,997,346**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE -'C' : SPONSORED PROJECTS

Sr. No.	Account Head	Credit/ (Debit) Balance as at 01-04-2018	Grant received/ (Refund) during the year	Interest/ other income received during the year	Expenditure incurred during the year		Transfer to Income & Exp. Account	Credit / (Debit) Balance as at 31-03-2019
					Recurring	Capital		
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
A)	**Projects sponsored by Ministry of Textiles**							
	(MT-54) To Evolve Contruction Related Design a well as Envirornmental Design Parameters for both Woven & Non-woven Geo-Synthetics	(1,400,000)					1,400,000	—
	(MT-56) Bio preparation Technology : Enchanced sustainability in cotton & cotton Containing Textile Processing	(499,390)					499,390	—
	(MT-60) Development of PTFE nano fibre-based media for filtration under corrosive/high temperature condition	(2,412,000)			2,758,670		2,758,670	(2,412,000)
	(MT-62) Textile Reinforced Precast Panel (Capital)	13,881,763						13,881,763
	(MT-63) Development Of Nano-Fibre Based Water Filter To Get Safe And Pure Drinking Water For Human beings	(1,452,459)			1,517,677		1,290,136	(1,680,000)
	(ISDS)-Integrated Skill Development Scheme	(207,620,731)					14,080,000	(193,540,731)
	SMC manufacturing using jute as the major reinforcing fibre & compression moulding	(1,954,000)						(1,954,000)
	Creating a short film on composite segment for promoting usage and application of technical textiles	901,442			733,561			167,881
	Scheme for promoting usage of Geotechnical Textiles in North Eastern Region	28,804,284			13,307,390			15,496,894
	Scheme for promoting usage of Geotechnical Textiles in North Eastern Region (Capital)	2,168,196				636,557		1,531,639
B)	**Powerloom Service Centres at :**							
	Ahmedabad — Recurring	—	1,700,000	88,825	1,819,632		30,807	—
	Dholka — Recurring	—	1,200,000	17,950	1,225,313		7,363	—
	Indore — Recurring	—	1,500,000	106,109	1,622,297		16,188	—
	PSC Swachcha Bharat	187,500			149,309			38,191
C)	**Projects sponsored by Ministry of Science and Technology**							
	Nissat Access Centre to International DataBase Services at ATIRA (NACID)	169,982			36,795			133,187
	National Information centre for Textiles & Allied Subjcts (NICTAS)	3,554,665		245,272#	1,501,692			2,298,245
	Total C/F							

Interest Allocated during the Year

(Contd...)

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE -'C' : SPONSORED PROJECTS (Contd.)

Sr. No.	Account Head	Credit/ (Debit) Balance as at 01-04-2018	Grant received/ (Refund) during the year	Interest/ other income received during the year	Expenditure incurred during the year		Transfer to Income & Exp. Account	Credit / (Debit) Balance as at 31-03-2019
					Recurring	Capital		
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	Total B/F							
D)	**Projects sponsored by Defence R & D Establishment**							
	(DRDE):Design & Development of PTFE Nano fiber Based media for filteration under corrosive/high temperature condition	73,227			80,000		6,773	—
	(DRDE 2015-01):Exp work on development of simple & Portable water filteration cum treatment device to be used by army personnel to get drinkable water from dirty/muddy water.	(498,133)					498,133	—
E)	**Projects sponsored by Government of Gujarat**							
	(GG-40) Development of Effective&Efficient Double Gin	990,000			1,252,502		262,502	—
	(GG-41) Upgra. / Strengthg. & Recognition of Sophist. Instru. Lab. for various regulatory testing related to Eco-friendliness / Zero Discharge of Hazard. Chemicals for the benefit of Textile / Chemical / Dyes & Intermediates / Footwear / Leather / Paper / Pharma. Ind.		7,620,000					7,620,000
F)	**Internal Projects**							
	(IND-08) Geographical Indication (GI) Registration of Hand-woven Textile Items and Textile Crafts in Gujarat State	(6,213)					6,213	—
	(IND-10) Geograpghical Indication (GI) Registration of Hand Woven Items of Gujarat - Mashroo Cloth of Patan & Mandvi (Kutch)	6,678						6,678
	Total	**(165,105,189)**	**12,020,000**	**458,156**	**26,004,838**	**636,557**	**20,856,175**	**(158,412,253)**
	Previous Year	**(140,056,488)**	**11,820,752**	**2,402,744**	**12,986,584**	**30,062,174**	**3,776,561**	**(165,105,189)**

Interest allocated during the year

Breakup of balance as at	**31.03.2019**	**31.03.2018**
Debit balances	(199,586,731)	(215,842,926)
Credit balances	41,174,478	50,737,737
	(158,412,253)	(165,105,189)

(Contd...)

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'D' : IMMOVABLE PROPERTIES

AS AT 31-03-2018 Rs.		ACCOUNT HEAD	ADDITIONS RS.	DEDUCTIONS RS.	AS AT 31-3-2019 Rs.
679,056	1)	Land			679,056
9,501,910	2)	Labroatory Building & Roads			9,501,910
2,526,132	3)	Staff Quarters			2,526,132
16,700,977	4)	ATIRA-AMA Building			16,700,977
29,408,075		**Total**	**—**	**—**	**29,408,075**
29,408,075		Previous Year	—	—	29,408,075

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'E' : MOVABLE PROPERTIES

AS AT 31-03-2018 Rs.	ACCOUNT HEAD		ADDITIONS RS.	DEDUCTIONS RS.	AS AT 31-3-2019 Rs.
	Out of own funds				
5,121,096	1) Machinery		15,000		5,136,096
13,225,004	2) Laboratory Apparatus & Equipments		160,000		13,385,004
83,992	3) IBM Punching Machines		83,992		
519,369	4) Workshop Equipment		519,369		
4,470,851	5) Furniture and Dead Stock		88,588		4,559,439
3,119,902	6) Library Books				3,119,902
299,284	7) Typewriters and Calculating Machines				299,284
3,699,685	8) Vehicles				3,699,685
2,832,410	9) Computers and peripherals		203,490		3,035,900
710,160	10) Closed Circuit TV				710,160
73,018	11) Mobile instrument		3,999		77,017
70,400	12) EPABX System				70,400
1,419,368	13) Equipment for IONO-OXY Plant				1,419,368
—	14) Focus Incubation Centre Machinery		9,439,803		9,439,803
—	15) Infusion Lab Machinery		4,181,410		4,181,410
35,644,539		**Total - A**	14,092,290	—	49,736,829
	Out of grant and contribution from Govt.				
	& Other sources				
7,688,330	16) Eco-lab Equipt. purchased out of grant from MOT				7,688,330
7,547,213	17) Equipt. for upgradation of Eco-Lab at ARC, Indore				7,547,213
579,813	18) Motor car out of IDTCP				579,813
773,732	19) Capital exp. for modernisation of PLSC-A'bad				773,732
4,730,220	20) Capital exp. for CATD Centre at A'bad (Includes Rs.5,220/- ATIRA's contribution)				4,730,220
2,474,862	21) Capital exp. for CATD centre at Indore				2,474,862
23,794,170		**Total C/F**	—	—	**23,794,170**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'E' : MOVABLE PROPERTIES (Contd.)

AS AT 31-03-2018 Rs.		ACCOUNT HEAD	ADDITIONS RS.	DEDUCTIONS RS.	AS AT 31-3-2019 Rs.
23,794,170		Total B/F	—	—	23,794,170
1,825,762	22)	Capital exp. for upgrd.of Lab.(Textile committee) '(Includes Rs.1,45,593/- ATIRA's contribution)			1,825,762
8,085,160	23)	Capital exp. for Calibration Lab. at A'bad (GG-01)			8,085,160
2,788,522	24)	Capital exp. for Gng. Service Centre at A'bad (GG-02)			2,788,522
4,359,671	25)	Capital exp. for Information Tech. Centre (GG-06)			4,359,671
1,591,049	26)	Capital exp. for Minor Equpt. for PLSC - A'bad			1,591,049
593,530	27)	Capital exp. For Devlpg. Rapier loom (GG-05)			593,530
1,321,384	28)	Capital exp. For Minor Equipt. For Eco-Lab.-A'Bad			1,321,384
2,330,817	29)	Capital Exp. For Modrnisation of PLSC-Indore (Includes Rs.850/- ATIRA's contribution)			2,330,817
250,000	30)	Capital Exp.for Infrastructure for PLSC-Indore			250,000
121,834	31)	Capital exp. For proj. Design & Develp. Of electronic aid for quick identification of mechanical defeciencies in ring frame to help increase yarn productivity (DIT-01)			121,834
2,750	32)	Capital exp. for proj. DRDE-06 Devlpt of bio-degradable packing film (DRDE-06)			2,750
1,093,394	33)	Capital exp. for proj. Indigenous development of IT basd fabric pattern making, marking & cutting system (DIT-02)			1,093,394
774,357	34)	Capital exp. For ginning cluster Develp. Programme (GG-02A)			774,357
146,516	35)	Capital exp. for Training progrm. for upgrd./ refreshing the technical & other skills of weavers jobbers & owners of power-loom units at Ahmedabad (GG-10)			146,516
8,233	36)	Capital exp. for Swiss project-CT assessment			8,233
4,007,083	37)	Capital exp. for expansion of calibration laboratory at ATIRA (GG-01A)			4,007,083
7,116,643	38)	Capital exp.for SSI-HVI-1000			7,116,643
33,452,292	39)	Capital exp. for Centre of Excellence for Technical Textiles (GG-23)			33,452,292
321,447	40)	Capital exp. for PLSC-Dholka Modernisation			321,447
19,758,373	41)	Capital exp. for Centre of Excellence in Geo-Textile (MT-48)			19,758,373
113,742,987		**Total C/F**	**-**	**-**	**113,742,987**

(Contd...)

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'E' : MOVABLE PROPERTIES (Contd.)

AS AT 31-03-2018 Rs.	ACCOUNT HEAD		ADDITIONS RS.	DEDUCTIONS RS.	AS AT 31-3-2019 Rs.
23,794,170		**Total B/F**	—	—	**23,794,170**
1,825,762	22)	Capital exp. for upgrd.of Lab.(Textile committee)' (Includes Rs.1,45,593/- ATIRA's contribution)			1,825,762
8,085,160	23)	Capital exp. for Calibration Lab. at A'bad (GG-01)			8,085,160
2,788,522	24)	Capital exp. for Gng. Service Centre at A'bad (GG-02)			2,788,522
4,359,671	25)	Capital exp. for Information Tech. Centre (GG-06)			4,359,671
1,591,049	26)	Capital exp. for Minor Equpt. for PLSC - A'bad			1,591,049
593,530	27)	Capital exp. For Devlpg. Rapier loom (GG-05)			593,530
1,321,384	28)	Capital exp. For Minor Equipt. For Eco-Lab.-A'Bad			1,321,384
2,330,817	29)	Capital Exp. For Modrnisation of PLSC-Indore (Includes Rs.850/- ATIRA's contribution)			2,330,817
250,000	30)	Capital Exp. for Infrastructure for PLSC-Indore			250,000
121,834	31)	Capital exp. For proj. Design & Develp. Of electronic aid for quick identification of mechanical defeciencies in ring frame to help increase yarn productivity (DIT-01)			121,834
2,750	32)	Capital exp. for proj. DRDE-06 Devlpt of bio-degradable packing film (DRDE-06)			2,750
1,093,394	33)	Capital exp. for proj. Indigenous development of IT basd fabric pattern making, marking & cutting system (DIT-02)			1,093,394
774,357	34)	Capital exp. For ginning cluster Development programme (GG-02A)			774,357
146,516	35)	Capital exp. for Training progrm. for upgrd./ refreshing the technical & other skills of weavers jobbers & owners of power-loom units at Ahmedabad (GG-10)			146,516
8,233	36)	Capital exp. for Swiss project-CT assessment			8,233
4,007,083	37)	Capital exp. for expansion of calibration laboratory at ATIRA (GG-01A)			4,007,083
7,116,643	38)	Capital exp.for SSI-HVI-1000			7,116,643
33,452,292	39)	Capital exp. for Centre of Excellence for Technical Textiles (GG-23)			33,452,292
321,447	40)	Capital exp. for PLSC-Dholka Modernisation			321,447
19,758,373	41)	Capital exp. for Centre of Excellence in Geo-Textile (MT-48)			19,7,8,373
113,742,987		**Total C/F**	—	—	**113,742,987**

(Contd...)

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'E' : MOVABLE PROPERTIES (Contd.)

AS AT 31-03-2018 Rs.	ACCOUNT HEAD		ADDITIONS RS.	DEDUCTIONS RS.	AS AT 31-3-2019 Rs.
113,742,987		**Total B/F**	**-**	**-**	**113,742,987**
510,500	42) Capital exp. for PLSC-Ahmedabad	510,500			
361,803	43) Capital exp. for project Skill Devlpt. Course for Fresh Powerloom Weavers & Jobbers for Non-auto, Auto & Shuttle-less Looms (GG-24)				361,803
32,013,250	44) Capital Exp. For Setting up of ATIRA Geo-Synthetic Testing Laboratory (GG-27)				32,013,250
31,550	45) Capital Exp. For Design Modifications to Modern Ring Frame to Reduce Yarn Hairiness (GG-33)				31,550
186,319	46) Capital Exp. For development of 3D Hollow Woven Preforms for Mobiltech Applications (GG-37)				186,319
10,791,676	47) Capital exp. for project enhancement of Cotton Seed Oil Recovery adopting German PEFT Technology (MT-51)				10,791,676
2,441,703	48) Capital exp. for projects sponsored by MOT				2,441,703
1,758,275	49) Capital exp. for Project Indigenous Development of Automatic Multilayer Garment Cutting Machine (MT-52)				1,758,275
5,891,440	50) Capital exp. for Project Spinning Fire Retardant Fibre Blends on Cotton System (MT-53)				5,891,440
3,244,598	51) Capital exp. For evolve construction related design as well As environmental design parameters for both woven & non-woven geo synthetics (MT-54)				3,244,598
8,897,198	52) Capital exp for Development of Nano-fibre based Textiles (MT-55)				8,897,198
13,876,661	53) Capital exp for Textile Dyeing an efforts towards Sustainable & Cleaner , Eco friendly technology (MT-57)				13,876,661
83,786,216	54) Capital exp. for Integrated Skill Development Scheme (ISDS)				83,786,216
205,836,953	55) Capital exp. for Centre of Excellence in Composites		—		205,836,953
483,371,129		Total C/F	—	—	483,371,129

(Contd...)

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'E' : MOVABLE PROPERTIES (Contd.)

AS AT 31-03-2018 Rs.	ACCOUNT HEAD		ADDITIONS RS.	DEDUCTIONS RS.	AS AT 31-3-2019 Rs.
483,371,129		Total B/F	—	—	483,371,129
609,471	56)	Capital exp. for upgradation of CAD Centre at Indore			609,471
265,107	57)	Capital exp. for Novel Wound Dressing Material with Synergistic Effects by Harnessing Properties of Antibiotics and Native Herbals for Tissue Regenaration and Protcetion (DRL-02)			265,107
231,437	58)	Capital exp. for Development of Permethrim / Herbal Oil- based Masquito Repellent Formulation for application on Army Clothing (DRL-01)			231,437
103,603,184	59)	Capital exp for establishing Incubation Centre (GG-38)(Includes Rs. 36,23,184/- Atira's Contribution			103,603,184
22,300,000	60)	Capital exp. for Creation of Pilot Plant facility for Nano-Textiles especially in area of filteration (GG-39)			22,300,000
2,305,515	61)	Capital exp. for Expansion of Calibration Laboratory (Module II) (GG-01-B)			2,305,515
54,609	62)	Capital exp. for Bio preparation Technology : Enchanced sustainability in cotton & cottn containing textile processing (MT 56)			54,609
3,450	63)	Capital Exp. For PSC- Dholka			3,450
144,485	64)	Capital Exp. For PSC- Indore			144,485
2,975,981	65)	Capital Exp. For Development of PTFE nano fibre-based media for filtration under corrosive/ high tempetature condition			2,975,981
11,024,083	66)	Capital Exp. For Development of protective textiles for protection against electromagnet tic radiations (MT-59)			11,024,083
24,131,804	67)	Capital Exp for Sch for promoting usage of Geotechnical Textiles in NER	636,557		24,768,361
758,441	68)	Capital Exp. For Integrated Scheme for Powerloom Sector Development for Modernisation/upgradation of PSCs			758,441
558,237	69)	Capital Exp. For Textile Reinforce Precast Panel (MT-62)			558,237
32,560,713	70)	Capital Exp. For Focus Incubation Centre (FIC)			32,560,713
684,897,646		**Total - B**	636,557	—	685,534,203
720,542,185		**Grand Total (A+B)**	14,728,847	—	735,271,032
689,581,610	Previous Year		30,960,575	—	720,542,185

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'F' : INVESTMENTS

AS AT 31-03-2018 Rs.	ACCOUNT HEAD		AS AT 31-03-2019 Rs.
	i) General Fund Investments		
14,691,772	a) FDR with Bank of India	10,068,027	
50,518,274	b) FDR with HDFC Bank	33,142,047	
10,000,000	c) FDR with Kotak Bank	38,100,000	
6,916,763	d) FDR with ICICI Bank	–	
82,126,809			81,310,074
	ii) C. L. Centre Fund Investments		
525,000	a) FDR with HDFC Bank	525,000	
475,000	b) FDR with Bank of India	475,000	
1,000,000			1,000,000
	iii) North East Region Investment :		
2,200,000	a) FDR with HDFC Bank	–	
20,000,000	B) FDR with Kotak Bank	–	–
22,200,000			
	iv) Investments in Securities		
–	a) 7.85 % Punjab Financial Corporation Bond	–	
–	b) 9.90 % Punjab State Industrial Development Corporation Bond	1,000,000	
–	c) Aadhar Housing Finance 2021 Bonds	1,000,000	
–	d) 9.80 % Jaipur Vidhyut Vitaran Nigam	5,200,000	
–			7,200,000
105,326,809		**: Total :**	**89,510,074**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'G' : CASH AND BANK BALANCES

AS AT 31-03-2018 Rs.	PARTICULARS		AS AT 31-03-2019 Rs.
39,496	**CASH ON HAND**		81,810
	BANK BALANCES		
455,587	In Current Account		183,041
2,736,373	In Savings Account		3,829,866
3,231,456		**: Total :**	**4,094,717**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE -'H' : SUNDRY DEBTORS

AS AT 31-03-2018 Rs.			AS AT 31-03-2019 Rs.
8,644,165	Considered Good		16,838,976
—	Considered Doubtful		2,019,388
—	Less: Provision for Doubtful Debts		(2,019,388)
8,644,165		**: Total :**	**16,838,976**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'I' : OTHER CURRENT ASSET, LOANS & ADVANCES

AS AT 31-03-2018 Rs.		AS AT 31-03-2019 Rs.
	LOANS TO STAFF :	
54,553	For Vehicle	35,858
36,790	For Food grains	53,470
2,850	For Festivals	7,050
94,193		96,378
	ADVANCES :	
1,889,610	For Recurring expenses	1,193,626
690,749	Security Deposits recoverable	690,749
166,500	For Projects, Training Programme & Workshop etc.	828,500
686,321	Other Advances	1,317,915
3,433,180		4,030,790
	INCOME TAX PAID AND TDS	
20,452,893	Tax deducted at source	23,463,986
1,501,000	Income tax Paid for Appeal	14,001,250
21,953,893		37,465,236
	INCOME RECEIVABLE:	
2,541,918	Interest Accrued	3,211,514
2,541,918		3,211,514
28,023,184	**: Total :**	**4,803,918**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD 380 015

SCHEDULE - 'J' : CURRENT LIABILITIES & PROVISIONS

AS AT 31-03-2018 Rs.			AS AT 31-03-2019 Rs.
17,130,883	Provision for Gratuity		17,234,037
7,911,476	Provision for Leave Salary		7,873,477
3,532,333	Statutory liabilities		1,937,608
12,726,335	Sundry Creditors		11,744,753
8,033,957	Advance received for Services		2,147,478
4,118,678	Other liabilities		7,541,695
1,258,600	Security Deposits		978,600
54,712,262		**: Total :**	**49,457,648**

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD-380 015

SCHEDULE 'K' – NOTES FORMING PART OF ACCOUNTS FOR THE YEAR 2018-2019

I. SIGNIFICANT ACCOUNTING POLICIES

1) ACCOUNTING CONVENTION

The financial statements are prepared on the basis of historical cost convention and on the accrual basis of accounting.

1) ACCOUNTING CONVENTION

The financial statements are prepared on the basis of historical cost convention and on the accrual basis of accounting.

2) INVESTMENTS

Long Term Investments are carried at cost, less provision for permanent diminution in the value of investments, if any.

3) PROPERTY, PLANT & EQUIPMENT

Property, Plant & Equipment (PPE) are stated at cost of acquisition inclusive of freight, duties and taxes and incidental and direct expenses related to acquisition.

4) DEPRECIATION

Depreciation on PPE acquired out of own fund is provided as per Straight Line Method at the following rates:

Furniture & Dead Stock, Library Books	6.33%
Mobile Phones , C.C.T.V., EPABX	20.00%
Building	3.34%
Motor Car	9.50%
Machinery, Lab. & Workshop equipment, typewriters, etc.	4.75%
Computers	16.21%

No Depreciation has been provided on PPE acquired out of Project funds.

5) GOVERNMENT GRANTS

Government grants are accounted on the basis of sanction from Government.

6) FOREIGN CURRENCY TRANSACTIONS

Transactions denominated in foreign currency are accounted at the exchange rate prevailing on the date of the transaction.

7) REVENUE RECOGNITION

Testing Fees and Interest Income are accounted on Accrual basis.

8) RETIREMENT BENEFITS

Gratuity and leave encashment are provided on the basis of actuarial valuation.

(Contd...)

AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, AHMEDABAD-380 015

SCHEDULE 'K' – NOTES FORMING PART OF ACCOUNTS FOR THE YEAR 2018-2019 (Contd.)

II. CURRENT ASSETS, LOANS AND ADVANCES

In the opinion of the Management, the current assets, loans and advances have a value on realization in the ordinary course of business, equal at least to the aggregate amount shown in the Balance Sheet.

III. TAXATION

In view of there being no taxable income under Income Tax Act 1961, no provision for income tax has been considered necessary.

IV. The Association enjoys overdraft facility with Bank of India against which FDRs for Rs. 60,00,000/- (previous year Rs. 60,00,000/-) have been pledged.

V. Tax deduction at source on interest & service income is Rs. 30,03,300/- (Previous year Rs. 31,01,135/-)

VI. Disputed demand in respect of Income Tax is Rs. 20,17,96,524/- (Previous year Rs. 11,93,21,830/-)

VII. Capital Commitment at the year end is of Rs. Nil (Previous year Rs. 30,82,226/-)

VIII. Corresponding figures for the previous year have been re-grouped/re-arranged, wherever necessary to make them comparable with those of current year.

Signatures to Schedules "A to K'

As per our report of even date

For, **Sorab S Engineer & Co.**
Firm Registration No.110417W
Chartered Accountants

CA Chokshi Shreyas B.
Partner
Membership No.100892

RM Sankar
Assistant Director

Members of the Council
of Administration

Place : Ahmedabad
Date : 30/07/2019

ANNEXURES

ANNEXURE I

TEXINCON

(TEXtile Information CONdensed) – 4 Issues

ANNEXURE II

TALKS AND PAPERS

(A) TALKS AND LECTURES

Name of the Staff Members	*Title of the Paper, Sponsor, etc.*
Hasmukh P Patel	Talks on **iPowertex India Schemes** to powerloom workers organized by Powerloom Service Centre, ATIRA Ahmedabad on August 2018 at Nikol, Sept 2018 at Naroda, October 2018 at Rakhial, November 2018 at CTM and December 2018 at Chatral.

B) Papers Presented

Hasmukh Patel	A paper on **Workload Study and Interference loss at Air Jet Weaving** was presented at Joint Technological Conference held at NITRA, Gaziabad on 15th February 2019
Dr. K. C. Gupta	Paper presentation at Conferences: C.T.D staff presented paper at one day conference at Institute of Plasma research, Gandhinagar Jt Technological conference of ATIRA,BITRA, NITRA and SITRA. Two lectures were given at Institute of Entrepreneur Development, Gandhinagar on fabric processing and Denim fabrics.

(ii) One day seminar on **"Composites materials technology and application " organized by ATIRA and ISIE (Indian Space Industries Exhibitor, Ahmedabad) on June 15, 2019**

B) SEMINAR, CONFERENCE, TALKS ETC ATTENDED BY ATIRA

C. R. Prayag	Attended Awareness Workshops held in various NE states, April 2018 **Workshop** :Improvement of Highway Infrastructure and Slope Protection Measures in NER with Innovative Concepts at Tura, Meghalaya on 09.07.2018 **Workshop** :Next Frontiers in Civil Engineering: Sustainable & Resilient Infrastructure for North East Region at Shillong, Meghalaya on 13.08.2018 **Workshop** :Sustainable Construction Materials and Technologies for Infrastructure Development in North East Region at Guwahati, Assam on 15.09.2018 **Workshop** :Recent Advances in Engineering & Technology for Infrastructure Development of North East Region at Agartala, Tripura on 22.11.2018 **Workshop** :Application of Geosynthetic Textiles in the Construction of Roads, Slopes & Water Reservoirs at Imphal on Manipur 20.04.2018 **Workshop** : Advance Technologies to mitigate the issues of National Highways, Land Slides & Reservoirs in N-E Region at Aizawl, Mizoram on 28.05.2018
M. N. Subramanian	Received Special Recognition award for ATIRA in the category of technical Textilesin Textile Sector on 5th Jan. 2019 from Smt Smriti Zubin Irani

	Gave speech on ATIRA in March 2019 at Ahmedabad University
	Attended function of the unveiling of status of Dr. Vikram Sarabhai by the Hon. Prime Minister Shri Narendra Modi at Sabarmati Riverfront
	Attended the convocation ceremony at Indian Institute of Management, Ahmedabad as a special invitee
	Attended Awareness Workshops held in various NE states from July 2018 to November 2018
P.M.Jain	Successfully completed four day training on "Laboratory Quality Management System and Internal Auditing as per ISO/IEC 17025:2017", organized by ATIRA during August 02 to 05, 2018.
	Successfully completed training on Thermal Calibration and Measurement of Uncertainty, organized by Punyam Academy, Ahmedabad on August 22, 2018.
	Deputed to visit Pharmatech and Lab Expo organized Gujarat University Convention Center on August 23, 2018
	Attended Conference on "Responsible Chemical Management –ATIRA Perspective on Zero Discharge of Hazardous chemicals in Textile and allied Industry", Jointly organized by GUJCOST-Govt. of Gujarat and ATIRA on December 26, 2018.
	Attended Seminar on "ITAMMA Activities & Achievements -75 Years", organized by ITAMMA Ahmedabad Unit on January 06, 2019.
	Attended "Textile Conclave on Exploring Growth Potential in Textile for Building New India" during Vibrant Gujarat Global Summit, organized by Govt. of Gujarat on January 20, 2019.
	Participated in ATIRA stall at Vibrant Gujarat Global Trade Show, organized by Govt. of Gujarat, during January 18-20, 2019.
	Attended "Awareness training Programme on General Requirements for Testing and calibration Laboratory as per ISO/IEC 17025:2017", organized by Gatrad Knowledge Academy on February 08, 2019.
	Successfully completed two day training on "Measurement of Uncertainty as per ISO/IEC 17025:2017", organized by ATIRA during March 18-19, 2019.

ANNEXURE III

TECHNICAL TRAINING PROGRAMME

Programme Title	No. of Programme Conducted	No. of Mills Participated	Total No. of Participant
Basic Course in Weaving (Basic of Textiles)	7	8	8
Skill Development Technical Trg. for Weaving Operators	1	1	6
Positive Attitude and Behaviour Change	2	2	26
Practical Training Programme in Pultrusion Process	3	3	6
Training in Composites Material	1	1	2
Understanding Importance of Fibre & Yarn Characteristics	1	1	1
Laboratory Quality Management System and Internal Auditing as per ISO/IEC 17025:2017	3	46	69
Technical Training in Spinning Processes and Testing	1	1	8
Fabric Defect Analysis – Some Typical Case Studies	1	4	6
Cotton Quality Parameters and its Impact on Yarn and Fabric	1	1	1
Quality Training in Weaving for the personnel from Kenya	1	1	2
Quality Training in Processing for the personnel from Kenya	1	1	4
Total	23	70	139

ANNEXURE IV

TESTING

Type of Testing	No. of Samples Tested
Fiber	31665
Yarn	3472
Geotextile	16173
Autotech	551
F& G Flammability	636
Industrial fabrics	494
Gloves, High visibility Clothing etc.	373
Other Fabrics	9398
Special	2229
Chemistry	
Chemical Textile	2206
Analysis of Solid Fuel	606
Calibration of Instruments	1386
Powerloom service centre	290
Composites	5496
Heat & Flame Test Lab	185

ANNEXURE V

New Machinery & Equipment

Vacuum Pump RA0100F, Acurecy P=0.1 HPA (MBAR) (01 Nos.) (IL-01)

Digital Analytical Balance Make : ACZET (01 Nos.) (QSG)

7.5 HP Submercibal Motor With Pump (Under Ground Water Tank ,B&E)

Kirloskar Make 1 hp Vertical type Pressure Booster Pump (NERC)

SKZ179 UV Radiation Protective Tester (01 Nos.) (NERC)

Electronic Twist Tester

Electronic Pick density meter

ANNEXURE VI

INDUSTRY VISITS

Sr. No.	Name of Unit	No. of Visit
1.	Alidac Pharmaceuticals Ltd., Matoda	1
2.	Alembic Pharmaceuticals Pvt. Ltd., Vadodara	1
3.	Accutest Global laboratories Pvt. Ltd., Ahmedabad	1
4.	Cadila Health Care Limited- Moraiya	5
5.	Cliantha Research Ltd., Ahmedabad	2
6.	Concord Biotech Ltd., Ahmedabad	1
7.	Devarsons Industries Pvt. Ltd., Ahmedabad	1
8.	Dorizoe Life Sciences Ltd., Ahmedabad	6
9.	EQDC, Gandhinagar	1
10.	Fine Care Corporation, Gandhinagar	1
11.	Fisher Bio-Pharma Services(I) Pvt. Ltd., Matoda	1
12.	Gatrad Cal Test Lab Research Pvt. Ltd.	1
13.	Gatrad Knowledge Centre, Odhav	1
14.	Gujarat Pollution Control Board, Gandhinagar	2
15.	Gujarat Pollution Control Board, Rajkot	1
16.	HCG Hospitals Ltd., Ahmedabad	1
17.	Krishna Calibration, Ahmedabad	1
18.	Maruti Weigh-Tech India Pvt. Ltd.	1
19.	Lubgraf Products, Ahmedabad	1
20.	MMD Kantawala, Ahmedabad	1
21.	NCQC Ahmedabad	1
22.	ONGC, Mehsana	3
23.	ONGC, Ahmedabad	2
24.	Punyam Academy, Ahmedabad	1
25.	Reliance Industries Limited, Naroda	1
26.	Space Applications Center, ISRO, Ahmedabad	10
27.	Vaccine Technology Centre ,Cadila Moraiya	6
28.	Vaibhav Analytical Ltd., Ahmedabad	1
29.	Veeda Clinical Research Pvt. Ltd.	3
30.	Zydus Hospitals Ltd., Ahmedabad	1
31.	Ambika polymer	18
32.	Prasan fabrics	2
33.	Harshdeep Industries	2
34.	Urja Textiles	2
35.	Ratneshwari Textiles	2
36.	Acme Cotsyn	3
37.	Khodiyar Textiles	2
38.	Umashree Tex Plast	6
39.	Shivam Sizing	2
40.	Shiv Textiles	2
41.	Chandan Textiles	1
42.	Shreeji Fabrics	2
43.	Sahjanand fabrics	2
44.	Arex Industries	8
45.	Precision Sizing	2
46.	GMB Global	1
47.	Alka Textiles	2
48.	Darshan Textiles	1
49.	Minaxi Textiles	2
50.	Umiya Entreprise	2
51.	Mahalaxmi Weaving	2
52.	Chaudhary Textiles	1
53.	Armaniya Textiles	2
54.	Fibre Tex Pvt Ltd	3
55.	Strata Geosystems Pvt Ltd	3

Sr. No.	Name of Unit	No. of Visit
56.	Garware Technical Fibres Ltd	1
57.	Mahek Synthetics	2
58.	BMD Pvt Ltd	2
59.	Arvind Mills Ltd	2
60.	Welspun , Vapi	1
61.	PEE GEE Fabrics	2
62.	Shan Text Pvt Ltd	2
63.	Dayana Poly Plast	1
64.	Labh Industries	1
65.	Abir Textiles Pvt Ltd	1
66.	VMS fabric Pvt Ltd	1
67.	Gopi synthetics	2
68.	Nandan Denim	2
69.	Vera Synthetic Ltd	1
70.	Solarium Energy Pvt ltd	1
71.	Abellon Clean Energy Ltd. (Power Plant)	3
72.	Bodal Chemicals Ltd. (Unit-I)	3
73.	E-Coli Waste Management Private Limited	4
74.	Sagar Drugs & Pharmaceuticals Private Limited	3
75.	Society For Clean And Green Environment	4
76.	The Vinayak Jal Shuddhikaran Sahakari Mandali Ltd.	4
77.	Odhav Enviro Project Ltd	4
78.	Bavla Eco Projects Ltd	4
79.	Chandan Intermediates & Chemicals Pvt. Ltd.	3
80.	Cil Nova Petro Chemicals Ltd.	3
81.	Tata Motors Ltd.	4
82.	Pollucare Biomedical Waste Management Pvt. Ltd.	4
83.	Kinjal Chemicals (Unit-2)	2
84.	Alfa PEB Limited	2
85.	Gunjan Paints	3
86.	SBG Polymers	2
87.	Prachin Chemical	2
88.	Merino Industries Limited	2
89.	Chemclone India Private Limited	2
90.	Gujarat Flurochemicals Limited	3
91.	Dongshan Silicone Private Limited	2
92.	Novazeal Lifesciences	2
93.	AIA Engineering Ltd	20
94.	ERM India Private Limited	6
95.	Vinod Fabrics Ltd	3
96.	Samir Synthetic Mills	4
97.	Vinod Tex World Pvt. Ltd.	2
98.	Pali Pollution Control, Treatment & Research Foundation	2

ANNEXURE VII

MEMBERS OF THE COUNCIL OF ADMINISTRATION

ELECTED MEMBERS

Chairman
Shri Sanjay Lalbhai
Arvind Mills Ltd.
AHMEDABAD

Shri Anand Parekh
Reliance Industries Ltd.
AHMEDABAD

Shri Samveg A. Lalbhai
Atul Ltd.
AHMEDABAD

Shri Vijay Maheshwari
Mafatlal Industries Ltd.
AHMEDABAD

Shri R H Shah
Sayaji Industries, Maize Products
Ahmedabad

Shri Naishadh Parikh
Equinox Group

Shri Prafull Anubhai
Arohi Consultants
Ahmedabad

REPRESENTATING GOVERNMENT AGENCIES

Jt. Secretary (R&D)
Ministry of Textiles
Govt. of India
NEW DELHI

Jt. Secretary (Cotton)
Ministry of Textiles
Govt. of India
NEW DELHI

Textile Commissioner
Office of the Textile Commissioner
MUMBAI

AS & FA
Ministry of Textiles
Govt. of India
NEW DELHI

DIRECTORS OF CO-OPERTIVE TEXTILE RESEARCH ASSOCIATIONS

Dr. A. K. Mukhopadhyay
Director
Bombay Textile Research
Association (BTRA)
BOMBAY

Dr. Prakash Vasudevan
Director
South India Textile
Research Association (SITRA)
COIMBATORE

Dr. ArindamBasu
Director
Northern India Textile
Research Association
GHAZIABAD

M. N. Subramanian
Director
ATIRA
AHMEDABAD

REPRESENTATING AHMEDABAD TEXTILE MILLS' ASSOCIATION

President
Ahmedabad Textile Mills' Association
AHMEDABAD

CO-OPTED ASSOCIATE MEMBERS

Shri Dilipbhai Jiwrajka
Managing Director
M/s. Alok Industries Ltd.
17/5/1. 521/1. Village Rakholi/Saily
Silvassa
The Union Territory of Dadra & Nagar
Haveli 396 230

Mrs. Dipali Goenka
Board Member
Welspun India Ltd., Welspun House
Kamala Mills Compound
SenapatiBapat Marg, Lower Parel
Mumbai 400 013

ANNEXURE VIII

MEMBERS OF THE COMMITTEES

(A) COMMITTEE FOR APPOINTMENTS OF SENIOR STAFF

Shri Sanjay Lalbhai
Chairman
ATIRA Council of Administration

Shri Prafull Anubhai Shah
Arohi Consultants
Ahmedabad

Shri Anand Parekh
Reliance Industries Ltd.
Ahmedabad

Shri M. N. Subramanian
Director, ATIRA
ATIRA, Ahmedabad

(B) BOARD OF TRUSTEES: ATIRA FOUNDATION

Shri Sanjay Lalbhai Chairman
ATIRA Council of Administration

Members

Shri Anand Parekh
Reliance Industries Ltd.
AHMEDABAD

Shri Vijay Maheshwari
Mafatlal Industries Ltd.
AHMEDABAD

President
Ahmedabad Textile Mills Association
AHMEDABAD

Shri Prafull Anubhai
ArohiConsultatant
AHMEDABAD

Shri M. N. Subramian
Director, ATIRA

ANNEXURE IX

STAFF (AS ON 31-03-19)

Shri M. N. Subramainan
B. Tech, M. Tech,

Deepali Plawat
Dy. Director
B. Textile Tech. Dip. International Business Management,
M.B.A. (Supply Chain Management/Operation Management)

CHEMICAL TECHNOLOGY DIVISION
SCIENTIFIC OFFICERS

Dr. Kailash Chandra Gupta
M.Sc., Ph.D.
Consultant

D S Trivedi
B.Sc., Dip. In Tex. Mfg. Tech.,
Dip. In Per. Mgt. & IR

COMPOSITES
SCIENTIFIC OFFICERS

Dr. Tanmoy Gangopadhyay
B.Tech., M. Tech., PhD.
Deputy Director

Ashok Bhuyan
B.Sc., PGD-PTCT, MBA (Operation & Marketing)

Chintan Chavda
D. M. E.

Bulu Pradhan
Diploma in Mechanical Engg

Neha Junare
M. Tech. Textile Engineering

Pooja Maurya
B. E. Plastic Engg

Ruhi Kumari
M. Sc. Polymer Science
B.E. (Textile Technology)

C L CENTRE FOR MANAGEMENT

R M Sankar
Asst. Director

B.B.A.,(General Management)
M.Com (Management Accounting)
M.B.A (Strategic Business Management),
L.L.B.,(Business Law)

CHEMISTRY

DR. MAHESH DALAL Ph.D.
Chemistry

ENVIRONMENTAL ENGINEERING DIVISION
SCIENTIFIC OFFICERS

M. R. Parikh
B. Sc. (Chem)

Binita Prajapati
B.E. (Chemical)

Vaishali Patel
B.E. (Env.)

Nikhil Lotia
B. E. (Environment Engg)

GUWAHATI CENTRE – NER

P. S. Barbora
B. Text

S. C. Sarma
B. E. (Civil)

G. B. Sharma
Diploma in Civil-Engg

INCUBATION CENTRE

Hemant Acharya
B.E. (Textile Technology)

NANO TECHNOLOGY

Naman H. Barot
B.E. (Mechanical), Certificate Course of Computer Application (CCCA)

QUALITY SYSTEM GROUP
ELECTRONICS & I T GROUP

Kishori M Bhatt
D.E.R.E.

Devang Thaker
B.E (Electronics & Comm.)

C. S. Vora
D.E.R.E, B.E. (Electronics & Comm. Engg)
Consultant

SCIENTIFIC OFFICER

P.M. Jain
D.M.E., P.D.S.M., B.E. (Mech.), C.Engg. (I), M.I.E.(I)

TEXTILE TESTING LABORATORY

R.V. Chikani
D.E.R.E., B.E.(Electronics & Comm. Engg.)

Vikas Tiwari
B.Sc. (Chemistry)

Nitin Raval
Cert. in Spinning

Jigar Dave
Dip. In Textiles

Smita Maharia
M. Tech Textiles

LIBRARY & NICTAS AT ATIRA

Mrs. Hina N Shah
B.Sc. D.Mkt. Mgt., M.Lib.
Incharge

WEAVING DIVISION
SCIENTIFIC OFFICERS

Ms. Vrunda Wala
B.E.(Text.Tech.) D.E.P.

POWERLOOM SERVICE CENTRE

Hasmukh P Patel
D.T.M.T.

ATIRA REGIONAL CENTRE, INDORE
SCIENTIFIC OFFICER

Adish Jain
B. E. (Tex. Tech.)

ADMINISTRATION

Gretta Joseph Alex
B.Com., B. Lib.

G C Patel
M.A., L.L.B.

Subhasis Pal
B. E. (Mech.)

Alkesh N Patel
Astt. Officer
I.T.I

R R Patel
B.Com, L.L.B.

Om Prakash Dubey
B.A., M.A. Part I

Director	1	
Deputy Directors	2	
Assistant Director	1	
Scientific & Technical Officers	31	3 + 28*
Scientific & Technical Assistants	46	4 + 42**
Non Technical Officer	4	1 + 3***
Non Technical Assistant / Other Staff	28	20 + 8****
Total	113	

* 28 on Contractual Appointment

** 42 on Contractual Appointment

*** 3 on Contractual Appointment

**** 8 on Contractual Appointment

ANNEXURE X

MEMBERSHIP

MEMBER UNITS BY CATEGORIES AS ON 31-03-2019

Category	Original/ Privileged	Associate	Total
Spinning Mills	4	15	19
Weaving Mills	-	6	6
Composite Mills	5	16	21
Process Houses	-	21	21
Dyes and Dyestuffs	-	5	5
Manufactures of Starch, Chemicals & Auxiliaries	1	9	10
Manufactures of Textile Machinery & Accessories	-	11	11
Ginning	-	34	34
Others	-	20	20
Total Membership	10	137	147

MEMBERSHIP

The following is the list of ATIRA members as on 31.03.2019:

(Those marked *are Original Members, ** are Privileged Members, and others are Associate Members.

Adachi Paste Co.

Ahmedabad Dyeing,

Aico Agencies Pvt. Ltd..

Alliance Textiles Pvt Ltd

Alok Industries, Mumbai

Amizara Cotton Pvt. Ltd

Amruta Spintex

Anil Texfab Pvt Ltd.,

Anubha Fabrics,

Arjyot Chemicals Pvt. Ltd.

Arpan Synthetics (Gujarat) Pvt. Ltd.

*. Arvind Mills Ltd.. (3 Units)

13 Arvind Products Ltd.. (4 Units)

Arvind Intex

Arvind Cotspin

Arvind Polycot,

Ashima Ltd. (2 Units)

Ashima Fabrics,

Ashwamegh Industries,

Atlas Dye-Chem (India) Pvt. Ltd.,

** ATUL Ltd.

Bajaj Steel Industries Ltd.

Balkrishna Ginning & Pressing Factory,

Balkirisha Tex. Pvt Ltd

Bhagyodaya Group Co-op. Cotton Sale Gng. & Pressing Factory,

Bharat Ginning & Pressing Factory

Bharat Vijay Millls

Bhaskar Industries Ltd

Birla Cellulosics

CTM Textile Mills

Cash Zone (Garment)

Deegee Cotsyn Pvt. Ltd

Dewas Fabrics Ltd.

Dhanraj Industries

Dharti Spinning Mills

Dhruv Cotton Processors Pvt Ltd

Divya Textiles

Durga Processors

Dynamic Autolooms India Pvt. Ltd

Fairdeal Jumbo Packaging Pvt Ltd

Faiz Industries

Fancytex Global Pvt. Ltd

Farmerson Export (P) Ltd.

Fairdeal Jumbo Packaging Pvt Ltd (unit 2)

G.B. Cotton Industries

Ghanshyam Ginning Machinery

Glitter Fabrics

Global Pacific Nominees India Pvt. Ltd.

Goldline International

Greenland Agro Engineering

Guardian Textiles Pvt Ltd

Gujarat State Co. op. Cotton Federation Ltd.

H.V.Synthetics Pvt. Ltd

Harshdeep Industries

Hind Syntex, Dewas (2 Units)

(i) Hind Spinners

Hirapara Poly Products Pvt Ltd

Hitkaree Udyog

India Sea Foods

Indian Armour Systems Pvt Ltd

Indra Cotton Ginning & Pressing Pvt. Ltd

Jay Enterprises

Jay Khodiyar Industries

K.K. Engineering Co.

Kedar Cotton Industries

Khodiyar Gng. & Pressing Factory

Kinarivala RJK Industries

Kiri Industries Ltd

Kotak Ginning & Pressing Industries Pvt. Ltd.

Kunal Fabrics

LNJ Denim Group,

LNJ Fabric (RSWM Group)

Loxim Industries Ltd

* Mafatlal Industries Ltd., Nadiad

Mahalaxmi Reb Tech

Maharaja Shree Umaid Mills Limited

Marg Biotech Pvt. Ltd.

Maruti Ginning & Pressing Industries

Meshania Ginning & Pressing Factory

Modern Denim Ltd., Moraiya, Ahmedabad

Modern Terry Towels Ltd

MRT Fabrics, Ahmedabad

Nandan Exim Ltd

Narendra Cotton Ginning & Pressing Co. P. Ltd.

Narayan Spinning Mills Pvt Ltd

Navkar Fabrics

Neelkanth Spg. Mills

Niharika Impex

Pace Clotex Ltd.

Panwala Ginning Factory

Parmeshwari Industries

PBM Polytex Ltd. (2 Units)

PBM Polytex

Patwa Kinarivala Electronics

Peevee Textiles

Prashant Fabrics (I) Pvt Ltd.

Prathiba Fabrics, Surat

PT. Indorama (Synthetics Division) Tbk

Pyrotech India Pvt Ltd.

R.S.B. Cottex Limited

Rachna Arts & Printing Ltd.

Radhalaxmi Spintex Pvt. Ltd

Raghav Industries

Rajaswi Polychem Industries

Rajdhani Universal Fabrics Pvt Ltd.

Rakesh Textiles

Rameshwar Ginning Factory

Rangrej Processors

Raymond Ltd

** Reliance Industries Ltd.

Rimtex Industries

S. Kumars Nationwide Ltd

Saahil Organics Pvt. Ltd.

Samir Synthetics Mills

Sandeep Textiles

Saurashtra Ginning & Pressing

.* Sayaji Industries Ltd.,
(Unit: Maize Products)

Semitronik Instruments

Shahlon Silk Industries Pvt Ltd

Shivam Cotton Industries,

Shree Ganesh Cotton Ginning & Pressing

Shree Gurukrupa Cotton Industries

Shree Rajasthan Syntex Ltd

Shree Ramanuj Dyeing & Printing Mills Ltd.

Shree Tirupati Industries

Shri Una Taluka Cotton Ginning & Pressing Co-op. Society Ltd

Shruti Trading Corporation

Shubham Industries

Shyam Corporation

Siddhi Gng. & Pressing

Signor Hydraulics

Sinhal Brothers

Spentex Industries Ltd.

Solus Filtech

Soma Textiles and Industries Limited

Subham Industries

Subhnen Veneers Pvt. Ltd

Swastik Textile Engineers Pvt. Ltd.

Techtech Traders

The Ruby Mills Ltd

The Sathamba Group Co-op. Cotton Sale Gng. & Pressing Mill Co. Ltd.,

Tirupati Cotton Ginning Factory

Umesh Cotton Ginning Factory

Urja Infratech

Urja Products Pvt Ltd

Vimalnath Creation

Vinod Fabrics Pvt Ltd

Vinod Denim Ltd.

Yes Fashions (P) Ltd

Yogi Industries

Yogiraj Spinning Pvt. Ltd

Welspun India Ltd

ANNEXURE XI

NOMINATION, RECOGNITION

1. ATIRA has been awarded “Special Recognition in Textile Sector in Technical textile category by Ministry of Textiles, Government of India

2. Air and Environment Laboratory got accreditation, for the period of 2 years, of NABL and the accreditation is valid up to 17/01/2021.

3. ATIRA has been appointed as the primary and independent assayer for cotton testing on the two largest platforms – MCXCCL and BSE / ICCL.

4. ATIRA has been approved by Ministry of Water Resources as their neutral third party lab for Geotextile testing.

5. ATIRA has been empanelled by Sardar Sarovar Narmada Nigam Limited, GOG for Geo Textile Testing

ANNEXURE XII

VISITORS

Sr. No.	Name	Designation/ Organisation
1	Rajanbhai Shah	Director, Creative Carbon
2	Prashant Kumar	Scientist E, SAC ISRO
3	Jaimin Desai	Scientist G, SAC ISRO
4	Nitin Sharma	Scientist F, SAC ISRO
5	Vishal Singh	Scientist C, SAC ISRO
6	Hemen R Kansara	Scientist H, SAC ISRO
7	Prashat Kumar	Scientist ,PRL
8	Dr. Jayesh Pabari	Scientist ,PRL
9	Shreerag	Scientist ,PRL
10	Dr. Nirav Jamnapar	Scientist ,IPR
11	Mr. Bose	VP, Tata auto composites
12	Vasant Uchil	consultant
13	Rajiv Yadav	Sr. Engineer, Binani
14	Dr. Soni	Technical Director, CVCM
15	Amit Kumar	Production Head, Arvind Composites
16	Mukesh Shah	Director, Aerotextile
17	Jay Parekh	Asst. Professor, IIT Madras
18	Mehul Patel	Project head, GVT
19	Rahul Kumar Chature	Sr. Manager, Laxmi machine wolks Pvt. Ltd
20	Ramki Subramanin	Sr. Vice presedent, Reliance
21	Bhavin Punchal	Sr. Application Engineer, Diagonal
22	Dr. S Soundarapandian	Asst. Professor, IIT Madras
23	Saptarishi Malik	Arvind composites
24	Kamlesh Warrior	Lead business development, Reliance
25	Rakesh Roomta	Director, R B Polymer
26	B. C. Upreti	Manager, Purbhashree Emporium
27	Rajesh Radadia	Director, K R Composites
28	Dr. Jagdish Joshipura	VP, GTU
29	Mohammed Naim Shaikh	Faculty, NID Ahmedabad
30	AtikSheth	Director, Arham Composites
31	Vishal S Mane	Sr. Manager,Reliance
32	Biplab Mahapatra	QMS/MR, EPP Composites pvt. ltd
33	Dr. Mahesh Soni	General Manager, Atul Ltd.
34	C Kuppuraj	Chief Designer, HAL
35	Sandeep Kumar Pannigrahy	Manager, HAL
36	Takayo Kinoshita	Manager, Mitsubishi
37	Michael Lee	VP, URMS
38	Hemanth Kumar Shukla	Scientist, National Aerospace Laboratories
39	Delegation of Textile committee of Gujarat of Gujarat Chamber of Commerce and Industry	20 Industrialists
40	International participants of EDIIprogramme on “Technopreneurship”	15 particiapnts