

# WOOL RESEARCH ASSOCIATION

(Approved Body of Ministry of Textiles, Govt. of India, New Delhi)  
P. O. Sandoz Baug. Kolshet Road,  
Thane - 400 607 (Maharashtra)



## 59<sup>th</sup> ANNUAL REPORT AND ACCOUNTS FOR THE YEAR 2023 - 2024

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**GOVERNING COUNCIL MEMBERS OF WRA (APRIL, 2022 TO MARCH, 2024)**

CHAIRMAN EMERITUS	-	SHRI. RAVIKANT KAPUR GRENTEx & CO. PVT. LTD
PRESIDENT	-	SHRI. H.K. CHATTERJEE, RAYMOND LIMITED
SR. VICE PRESIDENT	-	SHRI DEEPAK GOEL GEETANJALI WOOLLENS P. LTD.

**MEMBERS (ELECTED) :**

1.	SHRI. S.L. POKHARNA	-	RAYMOND LTD
2.	SHRI. AVDHOT A. BAMBARDEKAR	-	RAYMOND LTD
2.	SHRI. AKHIL KHANNA	-	AMRITSAR SWADESHI WOOLLEN MILLS
3.	SHRI RAJESH RANKA	-	MODERN WOOLLENS LIMITED
5	SHRI. A.K.CHURIWAL	-	BSL LIMITED
6.	SHRI. RAJEEV KAPUR	-	KAPOTEX INDUSTRIES PVT. LTD.
7.	SHRI. R.L. TOSHNIWAL	-	BANSWARA SYNTEX LTD.
8.	SHRI. KUNAL TOSHKHANI	-	RAYMOND LTD

**MEMBERS (EX. OFFICIO), (WOOL RESEARCH ASSOCIATION)**

1. SHRI. M.K. BARDHAN, DIRECTOR GENERAL – EMERITUS
2. SHRI. K.K.MISRA, DIRECTOR

**SPECIAL INVITEES**

1. MR.JYOTIRANJAN PARIDA, WOOLMARK SERVICES INDIA PVT LTD
2. SECRETARY GENERAL, I.W.M.F., (EX. OFFICIO)
3. SHRI. POSHAK PATEL, MANAGING DIRECTOR, GUSHEEL, AHMEDABAD
4. DR. S.K. CHAUDHURI, FARIDABAD, HARYANA
5. THE GENERAL MANAGER, ORDNANCE CLOTHING FACTORY, SHAHJAHANPUR
6. ALL OTHER ORDINARY MEMBERS OF WRA.

**TECHNICAL CUM RESEARCH ADVISORY COMMITTEE (TRAC) MEMBERS OF WRA**  
**(APRIL, 2022 TO MARCH, 2024)**

CHAIRMAN

:

SHRI. H.K.CHATTERJEE

**MEMBERS :**

- |                              |   |
|------------------------------|---|
| 1. DR. R.V. ADIVAREKAR       | - I.C.T., MUMBAI                                  |
| 2. SHRI. G. S. BHATI         | - CENTRAL WOOL DEVELOPMENT BOARD, JODHPUR         |
| 3. DR. ARUN KUMAR TOMAR      | - C.S.W.R.I., AVIKANAGAR                          |
| 4. DR. S.K. CHAUDHURI        | - INTERNATIONAL INSPECTION INITIATIVE, FARIDABAD  |
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| 8. DR. RAJEEV KUMAR VARSHNEY | - DIRECTOR, IICT, BHADOHI                         |
| 9. DR. A.M. MIR              | - CASHMERE MARKETING AGENCIES, J&K                |
| 10. DR. J. PAMPAPATHI        | - M.D., K.S & W.D. CORPN. LTD, BENGALURU          |
| 11. SHRI. K.K. MISRA         | - INDIAN WOOLLEN MILLS FEDERATION, MUMBAI         |
| 12. SCIENTIST 'G'            | - DST, GOVT. OF INDIA, NEW DELHI                  |
| 13. SHRI. RAMESH C. KHANNA   | - SUNIL INDUSTRIES LTD, MUMBAI                    |
| 14. SHRI. RAJEEV SHARMA      | - SHIKHAR HANDLOOM WEAVERS SOCIETY, H.P.          |
| 15. DR. N.S. GANGAKHEDKAR    | - COMPUTE SPECTRA COLOUR PVT LTD, MUMBAI          |
| 16. SHRI. SEKATIA GHOSH      | - JAYASHREE TEXTILES, KOLKATTA                    |
| 17. SHRI. SUBODH DAGA        | - JAYASHREE TEXTILES, KOLKATTA                    |
| 18. SHRI. S. K. TYAGI        | - OCM INDIA LTD, AMRITSAR                         |
| 19. SHRI. VIJAY THAKUR       | - H.P. STATE COOP WOOL LTD, SHIMLA                |
| 20. SHRI. JAY KUMAR          | - MAHADEV WOOLLEN MILLS, H.P.                     |
| 21. SHRI. ADIL BHAI          | - MAHILA MANDAL, BALMER                           |
| 22. SHRI. ALIK SINHA         | - BSL LTD, BHILWARA                               |
| 23. DR. M.K. TALUKDAR        | - KUSUMGAR CORPORATE, MUMBAI                      |
| 24. DR. DILIP KUMAR DUREHA   | - L.N.I.P.E, GWALIOR                              |
| 25. DR. VIKAS B. THAKARE     | - JD, DEFENCE RES. & DEV. ESTABLISHMENT, GWALIOR  |
| 26. DR. R.S. CHAUHAN         | - IDST SCIENTIST, DRDE, GWALIOR                   |
| 27. DR. MILIND KHANDWE       | - THE BHOR CHEMICALS & PLASTICS PVT LTD, NASHIK   |
| 28. MR. ADITYA SHARMA        | - PPDC-MSME-TECHNOLOGY DEVELOPMENT CENTRE, MEEROT |
| 29. MR. ANJANI PRASAD        | - ARCHROMA INDIA PVT LTD, MUMBAI                  |
| 30. MR. ANUP RAKSHIT         | - INDIAN TECHNICAL TEXTILE ASSOCIATION, MUMBAI    |
| 31. SHRI. RAVIKANT KAPUR     | - CHAIRMAN EMERITUS, WRA (EX-OFFICIO)             |
| 32. SHRI. M.K. BARDHAN       | - DIRECTOR GENERAL - EMERITUS (EX-OFFICIO)        |
| 33. SHRI. K. K. MISRA        | - DIRECTOR, WRA (EX-OFFICIO)                      |
| 34. DR. MRINAL CHOUDHARI     | - JOINT DIRECTOR, WRA (EX-OFFICIO)                |
| 35. MS. SEEMA PATEL          | - JOINT DIRECTOR, WRA (EX-OFFICIO)                |

**NOTICE**

**NOTICE IS HEREBY GIVEN THAT** the 59<sup>th</sup> Annual General Meeting of The Wool Research Association will be held on **Thursday, 29<sup>th</sup> August, 2024 at Hotel Satkar Residency, Pokharan Road, Namber 1, J, K. Gram, Thane (West) - 400606. at 11.30 a.m.** to transact the following business :

1. To welcome Members and Invitees and to read the notice
2. To confirm the minutes of the last Annual General Meeting held on Wednesday, 27th September, 2023 at 12.30 p.m.
3. To receive and adopt the Annual Report and Accounts of the Association thereon for the year ended 31<sup>st</sup> March, 2024.
4. To elect The President, Sr. Vice President, Vice President and Members of the Governing Council for the year 2024-2026.
5. To appoint Auditors for the year 2024-25 and fix their remuneration by passing following resolution.

“Resolved that M/s. J.P.J ASSOCIATES LLP, Chartered Accountants, D/401, Shantidwar C & D Wing CHS., Shantivan, Borivali (East), Mumbai – 400 066, the retiring Auditors, being eligible for re-appointment, be and hereby appointed as the Auditors of Wool Research Association for the year 2024-2025 on remuneration of Rs.75,000/- plus GST”.

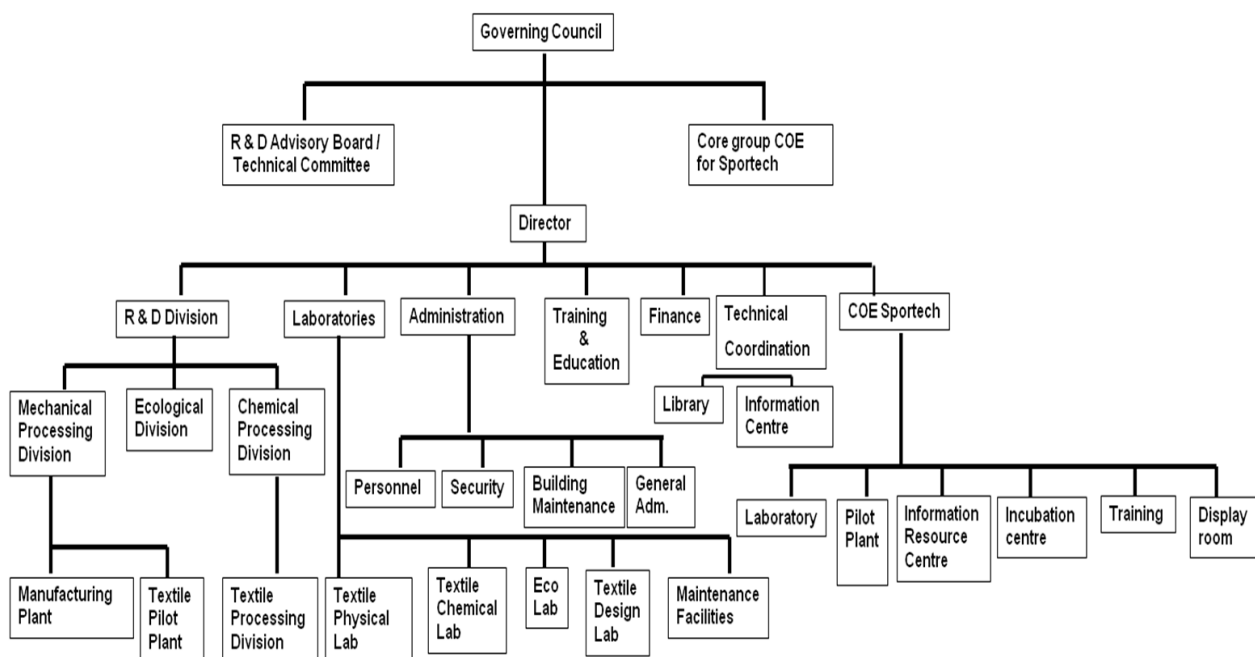
NOTE : (a) Member entitled to attend and vote at the meeting may appoint a Proxy to attend and vote instead of himself and the Proxy need not be a Member. The Proxy and Nomination Forms are enclosed.

**COUNCIL**

**BY ORDER OF THE GOVERNING**

Sd/-  
(K.K. Misra)  
Director

Date : 09<sup>th</sup> August, 2024

ANNUAL TECHNICAL REPORT 2023 - 2024**1.0 INFRASTRUCTURE**

Wool Research Association (WRA) is well equipped with necessary infrastructure in Research and other technical activities as expected from a TRA. The organization has its own sprawling campus of over 13 acres land at Thane.

It has its own accommodation where following infrastructure has been created over last five decades of its existence.

1. Accredited Textile Physical Laboratory
2. Accredited Textile Chemical Laboratory
3. Research & Development Division
4. Eco-testing Laboratory
5. Textile Technology Laboratory
6. Pilot Plant
7. Library
8. Training facilities with classrooms, teaching aids etc.
9. Auditorium & conference room with audio system
10. Computers, LCD projectors, Over head projectors
11. Information & Technology Co-ordination Centre
12. Administrative & Accounts Department
13. Center of Excellence – Sportech

Wool Research Association (WRA), Thane Maharashtra has been registered with the Department of Science and Industrial Research (DSIR) for the purpose of availing customs duty exemptions, the registration is valid up to March 2024.

## 2.0 CENTRE OF EXCELLENCE FOR SPORTECH

Under Ministry of Textiles Technology Mission in Technical Textiles, WRA has set up a Centre of Excellence in Sportech. A state of art testing facility and incubation centre has been established and simultaneous efforts have been made to attain international accreditations and collaborations. WRA has been serving user industry through its wide testing facilities and development of affordable products in India without compromising functionality and performance of our athletes. Wool Research Association's COE-Sportech team visited various Sportech Segments for market survey of Sportech, they covered areas such as North Zone – Panipat, Meerut, Jalandhar and Ludhiana, South zone – Tirupur and Coimbatore along with Hyderabad. WRA's COE conducted National level Conference for Stake holders, Students and Academic members with support of Ministry of Textiles, Government of India.

## 3.0 TYPE OF ACTIVITIES

- i. Research & Development
- ii. Testing/Evaluation service to the Industry, Export Oriented Organisations, Government organizations etc.
- iii. Colour Technology
- iv. Training & Education
- v. Research in the Emerging Technologies like Technical Textiles, Plasma & Nano technology, Phase change materials, IT, Smart Textiles, Supercritical Processing etc.
- vi. Technical services to the Decentralised Carpet Industry, SMEs, Cottage/Rural industry.
- vii. Technology Development in Woollens & Manmade Textiles
- viii. Technical Survey & Audit of Industrial Units
- ix. Technical Feasibility Report Formulation
- x. Turnkey Projects
- xi. Research, training, prototype development, etc in Sportech.
- xii. Market survey of Sportech segment

## 4.0 TEXTILE TESTING LABORATORY

### • Textile Testing and Analysis (2023-2024)

Detail	2022-23	2023-24
No. of Client Request received	5946	7589
No. of Samples Tested	32935	35529
Client Base	1300	1821
Revenue Generation (in lakhs)	422.73	431.21
NABL accreditation parameters	634	634

## 5.0 YARN & FABRIC MANUFACTURING FACILITIES – PILOT PLANT

The facilities available with pilot plant including machineries of Centre of Excellence - Sportech is as mentioned below:

### Technology & Application Centre

#### A. For Long Staple Fibre: Fiber to Sliver conversion

1. Carding Machine
2. Gill Box
3. Combing Machine

#### B. Yarn Innovation Center - From Sliver/Top to Innovative /functional yarn

1. Roving frame
2. Ring frame
3. Sliver to yarn ring frame
4. Friction Spinning System (DREF 2)
5. Winding machine (Cheese)
6. Two for one Twister

Pilot plant is equipped with yarn manufacturing facilities for spinning worsted yarn, friction spun yarn, blends of wool with other natural and synthetic fibers. The friction spun yarn manufacturing constitutes a full - fledged six spindle friction spinning machine to spin homogeneous yarn from textile wastes and special technical fibers and engineered yarn for specifically technical textiles.

#### C. Weaving Centre From Innovative Yarn to fabric

1. Sectional warping machine
2. Weaving Machine (Rapier Loom)
3. Handloom Weaving

### Carpet Manufacturing Facility

Apart from the above, Pilot plant is also equipped with carpet manufacturing facility. Hand Knotted Carpet Looms are available. Miniature handlooms for developing woven fabric samples.

#### D. Warp & Weft Knitting Centre From Innovative Yarn to fabric

1. Circular Knitting Machine – InterLock - 24 gauge, 30 inch dia
  2. Circular Knitting Machine – Single Jersey & Terry - 24 gauge, 30 inch dia
  3. Direct Warping Machine – 720 Ends Creel Capacity
  4. Warp Knitting Machine (Tricot) – 28 gauge
  5. Warp Knitting Machine (Raschel) – 10 gauge
  6. Hand Knitting & Flat bed Knitting machines
- Knitting Facility also includes hand knitting machine, semi automatic flat bed knitting machine.

#### E. Coating & Laminating Facility

1. Hot melt Coating and laminating machine
2. Fabric rolling machine (Fabric preparation for coating/lamination: fabric from fold to roll, roll to roll)



**F. Light Weight Sport Goods Composite Center (Facility under Installation)**

1. Heating oven
2. Cold storage chamber
3. Degassing unit
4. Zero grade granite surface table
5. Vacuum pump
6. Braiding machine
7. Precision winding machine

**G. Other Machines**

1. Compression Moulding Machine & Mixing Mill machine
2. Shoe stitching machine
3. Industrial Sewing Machine
4. Ultrasonic Sealing Machine
5. RF sealing machine
6. Hank to cone winding machine

These machines are being utilized for product development related to sport textiles and other technical textiles.

**Major Products Developed**

- Sport Fabrics
- Terry (Corduroy) Fabrics
- Mattee Fabrics
- UV Repellent Sport Nets
- Tubular Nets for Oil Boom
- Seat Cover Fabrics for Automobile Applications
- Stretchable fabrics
- Curtains
- WK Fabrics for lamination
- Flag fabrics
- Home Furnishing Fabrics
- Jute/Wool Based Hand Knotted & Hand Tufted Carpets
- Indian Wool Based Denim Fabrics
- Agro Nets for Packaging of Agro products including Support Net, Plant net, Tubular Net, Pallet Packaging Net, Vegetable & Fruit Mesh, Root Ball Net, Packing Sacks

**6.0 ECO LABORATORY**

Eco Laboratory is well equipped to take up complete testing of Dyes, Pigments and Finished Textile Products for all the tests as per international Standards and has been providing the testing services to the textile and pharmaceutical industry.

**Eco Lab Testing Facilities :**

- DSC (Differential Scanning Calorimetry for Melting point and Glass Transition Temperature Analysis)
- HPLC with DAD detector for % Assay, Related substance study.
- ICP-OES (Induced coupled plasma-Optical Emission Spectroscopy) for Heavy metal analysis at ppm and ppb level.

- FTIR-ATR/Kbr for qualitative analysis and structural and functional identification.
- Particle Size Analyser -Dry and Liquid sample for the quantification of size distribution of samples in terms of D10, D50 and D90.
- Moth Proofing ( ISO 3998 - Bio Assay)
- Moth proofing ( TM-27 - Chemical Assay)
- Kjeldahl Nitrogen
- Ash Content
- Alpha Amino Nitrogen Content
- Loss on Drying ( LOD)
- Loss on Ignition ( LOI)

## 7.0 TEXTILE CHEMICAL & COLOUR DEPARTMENT

**Textile Chemical & Colour Department** is involved in R&D and testing related to Textile Wet Processing (Textile pre-treatment, dyeing & Finishing), advanced textile technology like Plasma treatment, ultrasonic treatment, functional finishing, coating, colour difference measurement, quality control, yellowness & whiteness index measurement. It is also involved in colour recipe prediction service for all customer specific requirements.

### **Colour department is equipped with:**

- UV-Visible Spectrophotometer for Absorbance ,Transmittance analysis and quantification of Free and Released Formaldehyde
- Viscometer Brookfield for viscosity analysis of samples.
- Turbidimeter for analysis of turbidity in samples.
- Color spectrophotometer for the analysis of LAB Value, Delta E Value ,Opacity, Whiteness Index, Yellow index.
- Surface Tension.
- Bench Top Spectrophotometer (i7, X-Rite)
- Robotic Auto Dispensing System (Colour Focus 72, Dye Focus/ Daelim Starlet),
- Infra Colour Dyeing Machine
- Laboratory Jigger Dyeing Machine and HTHP Top Dyeing Machine.

### **Textile Chemical Department is equipped with :**

- Ultra sonicator equipments
- Laboratory Pad-Dry-Cure machine with IR Pre-heater,
- Laboratory Coating Machine.
- Planetary ball milling machine.
- Mixer mill machine

## 8.0 NEW R & D PROJECTS PROPOSALS SUBMITTED TO:

### 8.1 MINISTRY OF TEXTILES, GOVERNMENT OF INDIA, UNDER NTTM SCHEME

- I Smart Clothing with capability of continuously sensing wearer's physiological data in a non-intrusive way for affordable health care and sports area.
- ii. Development of Indigenous Cost-effective Hand/Motorized Knotting machine for knotting warp yarn mounted on the machines like Narrow Fabric machine, Warp Knitting Machine, Sample Weaving Loom (Power loom & Handloom) for Development of Indigenous Machinery.

- iii. Design and Development of Sustainable Smart Shoe Insoles with Integrated IOT based System.
- iv. Lightweight composite based on the non- conventional natural fibers for the application of sport equipment's.
- v. GREAT Scheme Project: Wearable Inertial Sensors for Exergames and rehabilitation.

## 9.0 ON-GOING R & D PROJECTS

### 9.1 MINISTRY OF TEXTILES, GOVERNMENT OF INDIA UNDER NTTM SCHEME

- (i) Development of eco-friendly natural fibres based sustainable agro-textiles for packaging of agro products with protection against rodents, microorganisms including bacteria, fungi and viruses and UV repellent properties.

#### Objectives of the Project

- i To develop eco-friendly natural fibres based sustainable agro-packaging material for agro-products using warp knitted technology.
- ii. To develop elastic as well as non-elastic nets for agro products
- iii. Synthesis and application of microencapsulated finishes for rodent repellence, anti microbial/anti-bacterial, UV repellent finish on the developed nets for better durability.
- iv. To validate the performance of developed fabric as per International and National Standards.
- v. To conduct Field Trials of the developed natural fibre based agro packaging products & nets for the crops in different Agro-climatic zones.

#### Progress of work :

- Literature Survey & Organizing the experiments was completed.
- Review Article is published & Book Chapter Accepted for Publication (Publisher: Taylor & Francis).
- Procurement of Existing Products has been completed & testing work with respect to their physical parameters is also completed.
- Consumables purchase is partially completed.

#### Development of Support nets

- Jute based Hand Knotted supports nets are developed (12-inch diameter, 6 ply yarn)
- Coir based Hand Knotted support nets are developed (Angango coir, 2 ply yarn)
- Cotton based Knotless support nets are in development. (1 inch mesh size)
- Viscose based Knotless support net are in development (1 inch mesh size)
- Bamboo based Knotless support net are in development (1 inch mesh size)
- Recycled cotton based Knotless support net are in development (2/20 Ne Count)
- Cotton Bamboo based Knotless support net are in development (2/20 Ne)

**Development of Plant nets**

- Cotton based Hand Knotted plant nets are developed (2 inch mesh size)
- Cotton based Knotless plant nets are in development (1 inch mesh size)
- Bamboo based Knotless plant nets are in development (1 inch mesh size)
- Viscose based Knotless plants nets are in development (1 inch mesh size)

**Development of Leno Bags**

- Cotton mesh-based Leno bags are developed (10"x19", 12"x26", 22"x38", 32"x50")
- Bamboo mesh-based Leno bags are developed (10"x19", 12"x26", 22"x38", 32"x50")
- Jute based Leno bag fabric is development (Woven Leno material)

**Development of Tubular packing nets for fruit & vegetables**

- Cotton based tubular nets are developed (Raschel Warp Knitting)
- Bamboo based tubular nets are developed (Raschel Warp Knitting)
- Bamboo Excel based tubular nets are developed (Raschel Warp Knitting)
- Recycled polyester based tubular nets are developed (Raschel Warp Knitting)
- Recycled cotton yarn based tubular nets are in development (Raschel Warp Knitting)
- Cotton Bamboo yarn based tubular nets are in development (Raschel Warp Knitting)

**Development of Nets for covering pallets**

- Cotton based Hand knotted pallet packing nets are developed (3 ft. x 4ft.)
- Development of Flower and vegetable support net
- Cotton based hand knotted support nets are developed (6ft. x 5ft.)
- Cotton based Knotless support nets are in development. (1 inch mesh size)
- Viscose based Knotless support net are in development (1 inch mesh size)
- Bamboo based Knotless support net are in development (1 inch mesh size)

**Development of Packing sacks for vegetables**

- Cotton based packaging fabric is developed
- Jute- cotton based packaging fabric is developed
- Jute-cotton-Hemp based packaging fabric is developed
- Jute-hemp-Tencel based packaging fabric is developed
- Jute-Cotton-Linen based packaging fabric is developed
- Jute-Wool based packaging fabric is developed

**Development of Root ball nets**

- Jute based Root-ball Net fabric are developed (Woven Leno material)
- Cotton based Root-ball Net fabric are in development (1 cm mesh size)

**Development of Support Nets**

- Jute based Hand Knotted supports nets are developed (12-inch diameter, 6 ply yarn).
- Coir based Hand Knotted support nets are developed (Angango coir, 2 ply yarn)

**Development of Tubular packing nets for fruit & vegetables**

- Cotton based tubular nets are developed (Raschel Warp Knitting)
- Bamboo based tubular nets are developed (Raschel Warp Knitting)
- Bamboo Excel based tubular nets are developed (Raschel Warp Knitting)
- Recycled polyester based tubular nets are developed (Raschel Warp Knitting)

**Development of Nets for covering pallets**

- Cotton based Hand knotted pallet packing nets are developed (3 ft. x 4ft.)

**Development of Flower and vegetable support net**

- Cotton based hand knotted support nets are developed (6ft. x 5ft.)

**Development of Packing sacks for vegetables**

- Cotton based packaging fabric is developed
- Jute- cotton based packaging fabric is developed
- Jute-cotton-Hemp based packaging fabric is developed
- Jute-hemp-Tencel based packaging fabric is developed
- Jute-Cotton-Linen based packaging fabric is developed
- Jute-Wool based packaging fabric is developed

**Development of Root ball nets**

- Jute based Root-ball Net fabric are developed (Woven Leno material)

**Developed Pest-Repellent Finish formulation**

The formulation is a non-hazardous, non-toxic and non-metallic that has a pungent odour and foul taste. The chemicals invoke behaviour modification against targeted species and avert the pests away from the product without causing any harm. This liquid formulation is free for application on all textile material. Concentrated bitter and pungent additive comprising aqueous acrylate medium with ant, cockroach, fleas, ticks, mites and rodent-repelling properties

**Developed Antimicrobial and Anti-viral finishing agent**

A potent and safe antimicrobial and anti-viral finishing agent based on active elemental copper. It is specialty formulated for padding application for all textiles. It is based on age old copper antimicrobial chemistry and deactivates bacteria, viruses, fungi and algae

**Developed Anti-microbial and Pesticidal Formulation**

A non-toxic, non -hazardous natural ingredient that has been dispersed in an acrylate solvent and made super stable using a unique concoction. The resulting emulsion can find use as a safe, sustainable, anti-microbial, pesticidal, and insecticidal preparation

## 9.2 CENTRAL WOOL DEVELOPMENT BOARD, (CWDB)

### (i) Sustainable Enhancement of Aesthetic Values of Woolens by Digital Printing

#### Objectives of the Project-

- Developing precoating system for digital printing on wool for controlled absorption, minimum spreading & sharp print pattern.
- Formulating Acid dye, Reactive Dye & Pigment Ink systems for digital printing on Ink-Jet Printing systems.
- Developing print -dry steam or print-dry-cure process as per the colorant component.
- Devising wash off sequence as per the ink system for fault free printing.

#### Project Progress:

- **Fabric Procurement:** Wool and wool-blend fabrics were procured from HP Singh Pvt Ltd and Sanjay Shah India Pvt Ltd.
- **Capex Procurement:** A state-of-the-art Ink Jet Digital Printing Machine [DC-S1] was procured from Jaysynth Dyestuff (India) Ltd to facilitate the printing process.
- **Precoating Formulation:** Preparation and optimization of precoating formulations for wool and woolen blends were conducted to enhance substrate adhesion and print quality.
- **Fabric Testing:** Precoated fabrics underwent rigorous physical textile testing, including tensile strength evaluation and washing durability assessment.
- **Ink Formulation:** Various ink formulations including Reactive Ink, Acid Ink, Pigment Ink, and Basic Ink were developed to cater to different printing requirements.
- **Ink Absorption Properties:** The formulated inks demonstrated excellent adsorption properties on textile substrates, ensuring vibrant and durable prints.
- **Ink Optimization:** Optimization of the formulated digital printing inks was carried out, followed by comparative testing with commercial inks to assess performance.
- **Quality Testing:** Parameters such as viscosity, surface tension, pH, total solids, heat aging stability, foaming and moisture content were rigorously tested to ensure ink quality and stability.
- **Biodegradability Testing:** Biodegradability testing using OECD 302B Zahn-Wellens test (28 Days) was conducted on developed Reactive Ink, Acid Ink, Pigment Ink, and Basic Ink formulations. Results showed superior biodegradability compared to commercially available inks.
- **Ink Trials:** Ink trials were conducted on various wool-based textiles including 100% wool shirting fabric, 60/40 polyester-wool shirting fabric, 100% woolen shawls, and 100% woolen stoles with varying GSM (grams per square meter).

**Proof of Concept:**

- Presented a poster at the International Conference on Sustainable Development 2023, held virtually on September 19, 2023, showcasing research on "Surface Modification of Wool and Wool Blends for Digital Printings."
- Participated and showcased our research at the Bharat Tex 2024 event, highlighting advancements in digital printing on wool and wool-blend textiles.
- Filed a Provisional Patent for "Digital Printing Ink Composition for Wool Based Fabrics" with Application No. 202421007998, filed on February 6, 2024, aiming to protect innovative formulations developed for inkjet printing on wool substrates.

**(ii) Utilization of Indian Coarse Wool as insulating Material for Building Construction as a Green Building Material and Comparison of such coarse wool based developed products against conventional materials like glass wool/rock wool.**

**Objectives of the Proposal**

- To Explore the possibility to utilize coarse Wool for Building for Insulation as Green building Material
- To further Explore the possibility of coarse Wool for Building as Acoustic
- Comparison of above wool based products against conventional materials like glass wool/rock wool.

**Project Progress**

- Literature Survey of existing insulation products like rock-wool, glass-wool, etc. and their performance as thermal insulators & Acoustic - ongoing
- Industry interaction initiated and attended round table conference on building insulation materials conducted by Centre of Pastoralism at Triveni Kala Sangam, Delhi
- Consumables purchased –partly
- Initial sampling of insulation material is being carried out.
- Testing of developed panel w. r. t. Thermal Insulation properties as per ASTM D 1518 – ongoing
- Testing of developed prototype panel against moth proofing (Bio-assay)
- Mothproofing treatment to loose scoured wool fibre using (Permethrin) for durable finish
- Designing the wool-based insulation panels using natural bio-degradable honeycomb structured solution, which will be ready to fit in the building.
- Initial test results show that developed prototypes of thermal insulation panels need to be modified.
- Redesigning of panels are ongoing using 3D corrugated light weight box which will be customised and ready for installation.
- Enhancing the thermal insulation of wool with graphene involves creating Graphene Oxide (GO) with particle sizes of 10.82 microns and over 54.29 microns.

- Assessing the particle sizes, transforming GO into Reduced Graphene Oxide (rgo) and applying it to a nonwoven material.
- Test: Particle size analysis Beckman Coulter LS13320 Laser Diffraction Particle size Analyzer (Wet module)

**(iii) Development of sustainable and Biodegradable Mulching for Agro Textiles application using Deccani Wool Fibre with added Functionality using Plant Micronutrient.**

**Objectives of the Proposal**

- I Development of sustainable and biodegradable mulch for Agro Textiles application using Deccani Wool Fibre.
- ii. To enhance the durability of the natural fibre based mulch by adding natural biopolymers such as chitosan, alginate and starch.
- iii. Incorporation of micronutrient in developed mulch for crop and soil enrichment.
- iv. Field trial of the developed wool fibre based mulch for selected fruit and vegetable crops to study the effect of developed Mulching material on Phenology and Agronomic Trait of the crop.
- v. To study the life span of developed mulching in terms of biodegradability and soil enrichment in comparison with the existing polyethylene based material.

**Progress of the Project**

- A field study was conducted at Dr. Annasaheb Shinde College of Agricultural Engineering & Technology, Mahatma Phule Krishi Vidyapeeth Rahuri, comparing the performance of different mulching materials during the first season with groundnut and green chillis crops.
- The study included 100% wool mulch, conventional synthetic mulch and micronutrient - coated wool mulch.





*Fig 1 : Represents the on field layering of 100% wool mulch, micronutrient coated mulch and synthetic mulch.*



*Fig 2 : Represents the on crop growth with 100% wool mulch, micronutrient coated mulch and synthetic mulch.*



*Fig 3: Represents the sowing of seeds in the field trials*



*Fig 4: Represents the Fertilizer application in the field trials*



*Fig 5 : Represents the insecticide spraying*



*M1: Biodegradable (100 % wool)*



*Mo: Control-no mulch*



*M4: Silver-Black Plastic mulch*

**(iv) Design & Development of Wool (Special fibres & blends) based Novel Denim Fabric with Multifunctional Properties such as Moisture Management, Anti-microbial etc. using Eco-friendly finishing techniques.**

**Objectives of the Proposal**

- i. To produce Wool (Special fibres & blends) Novel Denim fabric by utilizing pure wool and special yarns
- ii. To impart suitable finishing treatment such as Moisture management, anti-microbial etc. using eco-friendly finishing techniques.
- iii. To evaluate the performance of the developed denim fabric.

**Progress of work:**

- Twelve different types of special wool blend yarn Wool/Yak, Wool/Camel, Wool/Pashmina
- Wool/Angora each made from 1/62,2/62,2/42 Nm count developed at Mahadev Woollen Mills, Sundar Nagar, Himachal Pradesh
- Wool / lycra Strectahble Yarn 2/56,2/68 Nm count developed at Bansal Spinning Mills Ludhiana
- Stretchable special wool blend 100% Wool, Wool/Yak(70/30), Wool/Camel (70/30) Wool/Camel((70/30), Wool/Pashmina(90/10) development at M/s Dhwani Cooperation Pvt. Ltd. Surat, Gujarat.
- Four different types of non-stretchable bull denim developed using special wool yarns.
- Four different types of non-stretchable lightweight GSM fabric developed using special wool yarns
- Two different types of stretchable lightweight GSM fabric developed using 100% wool yarn.
- Two varieties of wool-based single jersey knitted stretchy denim fabric of 200 GSM NIFTTEA, Tirupur, Tamil Nadu.
- Denim fabrics finishing Trials for shrink proofing using BAP, Chitosan, Potassium permanganate, Alkaline protease carried out.
- Four different types of non-stretchable bull denim developed using special wool yarns
- Heavyweight Wool based denim Fabric developed using 7 Ne indigo dyed cotton as warp and 8 Ne 100% wool yarn as weft on air jet machine for jacket, jeans, caps.
- Heavyweight pashmina-based denim Fabric developed using 7 Ne indigo dyed cotton as warp and 7 Ne 100% pashmina yarn as weft on air jet machine for jeans, caps.
- Heavyweight camel-based denim Fabric developed using 8 Ne indigo dyed cotton as warp and 6 Ne 100% camel yarn as weft on air jet machine for shirt.
- Heavyweight Angora based denim Fabric developed using 8 Ne indigo dyed cotton as warp and 7 Ne 100% camel yarn as weft on air jet machine for jeans, caps.
- Four different types of non-stretchable lightweight GSM fabric developed using special wool yarns
- Lightweight Wool/Yak blend-based denim fabric developed using 42 Nm Indigo dyed cotton yarn as warp and 2/42 Nm Wool/Yak (70/30) yarn as weft on air jet machine.
- Lightweight Wool/Pashmina blend-based denim fabric developed using 42 Nm Indigo dyed cotton yarn as warp and 2/42 Nm Wool/Pashmina (90/10) yarn as weft on air jet machine.
- Lightweight Wool/Camel blend-based denim fabric developed using 42 Nm Indigo dyed cotton yarn as warp and 2/42 Nm Wool/Camel (70/30) yarn as weft on air jet machine.
- Lightweight Wool/Angora blend-based denim fabric developed using 42 Nm Indigo dyed cotton yarn as warp and 2/42 Nm Wool/Angora (70/30) yarn as weft on air jet machine.
- Stretchable denim fabric.
- Two different types of lightweight Stretchable woven denim of 200 GSM each developpe using 42 Nm indigo dyed cotton yarn as warp and 2/56 Nm wool/lycra as weft for shirts, ladies wear.
- Two varieties of wool-based single jersey knitted stretchy denim fabric of 200 and 250 GSM have been developed using Pailung Knitting m/c the yarn of 26 Ne indigo-dyed cotton used as the warp and 22 Ne wool yarn as the weft for T-shirts and pants, respectively.

- Chitosan based anti-shrinkage trials completed.
- NaCl-K<sub>2</sub>MnO<sub>4</sub> based anti-shrinkage trials ongoing
- BAP (Bisulphite adduct of polyisocyanate polyurethane anionic) trials are ongoing.
- Antimicrobial & Moisture management trials are ongoing.
- Trial work for Chemical modification of wool yarn for machine washability with multiple approaches
  - Treatment of wool yarn with potassium permanganate in saturated sodium chloride solution (NaCl-K<sub>2</sub>MnO<sub>4</sub>) treatment at various temp, conc and time combinations.
  - Application of chitosan by varying different finishing parameters eg. PH, Temp, time to get optimum shrink resistance.
  - Currently, trials are being conducted for shrink proofing of wool utilizing, eco-friendly L- cysteine and protease 16L as well as using UV radiation and a biopolymer.

**(V) Development, Application and Benchmarking of Eco-friendly Moth Repellent and Moth Proofing finish for Woolen textiles.**

**Objectives of the Proposal**

- i. To develop ecofriendly moth proofing finish for woolens, the exercise is for replacing the toxic insecticides to provide a safer moth proofing agent to the wool processors.
- ii. To give treatment of developed moth proofing finish on woolens. The evaluation would involve the testing for moth resistance against the potential moth species to determine the minimum effective concentration.
- iii. Studies on the fastness properties, wet fastness and fastness to dry cleaning would be carried out to determine the permanency of the treatment.
- iv. To do benchmarking of developed product

**Progress of work:**

- Literature Survey is in the Final stage
- Raw material and Chemical Purchases are on-going.
- Capex Purchase Done.
- Provisional Patent and paper writing in progress.
- Development herbal based moth proofing agents (NeemAza., Tobacco Extract, Camphor, Nano silver neem extract)
- Application of Eco-friendly Herbal and Chemical based moth proofing agents on wool is done and evaluation for performance is done
- Testing of the Applied moth proofing agents on wool fabric by Bioassay Method (TM-20)

**9.3 NATIONAL JUTE BOARD (NJB), GOVT. OF INDIA**

- (i) **Development of Cost Effective Handmade Carpets & Floor Coverings, Home Furnishings & Knitwears using Jute (Treated Woolenised or Untreated) & other natural fibers with value added Eco Friendly Finishes such as with Flame Retardancy, Mosquito Repellent, Anti-Bacterial /Antimicrobial Properties etc.**

**Objectives of the Proposal**

- i. To develop woven/knitted fabrics (union blends or otherwise) using Jute (treated woolenised or untreated) with other natural fibers for home furnishings, handmade carpets and floor coverings.

- ii. To impart value added multi-functional and ecofriendly finishing such as Flame Retardancy, Mosquito Repellence, and Anti-Bacterial/Antimicrobial Properties, etc on the developed product for Floor coverings, home furnishings & Knitwears application as per requirement.
- iii. To study and evaluate the performance of the different developed products
- iv. To study the techno commercial feasibility of the developed products

#### **Progress of work:**

- Four different types of special wool jute blend yarn developed at Navkar Woolen Mill, Bikaner
- Development of Hand Made Shaggy Carpets from Wool/Jute yarn at VC Vishal Carpets, Bhadohi
- Development of Home Furnishing Fabrics are ongoing from Jute in blends with the Other Natural Fibers Yarn at M/s SV Textiles, Bhiwandi
- Bulk Scale Trials of Woolenization, Bleaching and softening of Jute fibre at Vishal Carpets, Bhadohi
- Development of Home Furnishing Fabrics are ongoing at M/s Maa Sipra Creation, Ranaghat, West Bengal
- Development of Hand Tufted/Knotted Carpets from Wool/Jute yarn at VC Vishal Carpets, Bhadohi
- Development of hand-woven carpet -shaggy rugs at Lucky Export, Bhadohi
- Development of Jute/Cotton core sheath Dref yarn
- Development of Eco-Friendly Finishes such as with Mosquito Repellent, Anti-Bacterial /Antimicrobial Properties, Flame Retardancy
- Completed microencapsulation trials for 11 types of essential oils includes Citronella Oil, Eucalyptus Oil, Lemongrass Oil, Cedar wood Oil, Basil Oil, Eucalyptus Citodora Oils, Lavandin Oil Grasso, Spearmint Oil, Clove Oil, Thyme Oil & Peppermint Oil.
- Application of developed microencapsulated moth repellency agent on the fabrics
- Development of knitted products using Dref yarn (50/50) wool/woolenized jute blends
- Mosquito repellent Finish using herbal microencapsulated oil on Jute cotton fabric & its testing
- Development of Eco-friendly Flame Retardant Finished Jute /Cotton (43/57) Based Curtain
- Antimicrobial Finish using herbal microencapsulated oil on Jute cotton fabric & its testing
- Development of Jute/Wool Blended (20/80, 30/70, 40/60, 50/50) Hand Tufted and Hand Knotted carpets at Carpet Kart, Bhadohi
- Developed Hand tufted and hand knotted of different blend of wool/jute at RR Rugs, Bhadohi
- Developed Handmade wall hangings of different blend of wool/jute at RR Rugs, Bhadohi
- Development of Jute /Wool/ Mohair-based carpets (Logo Design) at RR Rugs, Bhadohi
- Testing of FTIR test results for treated FR and non-treated Home Furnishing fabrics
- Development of Jute /Wool-based apparel wear at Shingora Textile Pvt. Ltd, Ludhiana
- Development of 100% Jute and Jute/Cotton blended Cushion Covers and Curtains.
- Development of Flame-Retardant Handmade Carpets & Floor Coverings, Home Furnishings.



**10.0 REVENUE GENERATING ACTIVITIES**

Revenue for Year 2023-2024	
Description	Rs. in Lacs
Textile Testing Laboratory & Eco Lab	431.21
Incubation Activities	34.08
MAVIM	57.33
Consultancy & Training	0.90

**11.0 MAJOR ASSIGNMENTS UNDERTAKEN****I. Memorandum of Understanding (MOU) signed between WRA & Industries/ Institutions etc:**

- **SNDT Women's University** on 8<sup>th</sup> August 2023 at 10.00 am in the Committee Hall, SNDT Women's University Churchgate Campus. The Honorable Vice Chancellor of SNDT Women's University Mumbai along with Registrar and Director of Wool Research Association, Thane along with Joint Director and Assistant Directors. MoU has been Signed for Signing of the MOU is in the initial Step for.
- Faculty of Textile Engineering Technical University Liberec, Czech Republic to work on advancement and innovations for Sportech segment. Availability of consultancy services in the sports textiles, sport accessories, sports goods, technical textiles in both the countries.
- Process-cum-Product Development Centre MSME - Technology Development Centre, MSME for Development of new Sportech goods, training and dissemination of knowledge in the Sportech field for MSMEs, available Standards and SOPs for Sportech segment. Entrepreneurship development in Sportech.
- Indian Rubber Manufacturers Research Association (IRMRA) for Cross utilization of Testing Facilities of both the organization. Capacity building and development of protective gears for the sports applications based on rubber and allied composites.
- Pillai HOC College of Engineering & Technology, Rasayani (PHCET) for Academic Joint Collaboration Program for Research in Cutting Edge Technology and Innovation and Employment Generation through Internships, Training and Mentorship.
- Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth to carry out field studies to evaluate effectiveness of crop production technologies by offering sustainable alternative to plastic mulching materials viz. biodegradable products with enhanced soil enrichment.
- Dr. Annasaheb Shinde College of Agricultural Engineering & Technology (ASCVAET) to carry out field studies to evaluate effectiveness of crop production technologies by offering sustainable alternative to plastic mulching materials viz. biodegradable products with enhanced soil enrichment.
- Greenlife Cropcare LLP- is manufacturer and supplier of Agro chemical inputs such as plant growth promoters, micro nutrients, nutrition based PGR's, bio insecticides and pesticides as per the customers need. Greenlife Cropcare LLP, Mumbai is the Industry Partner in CWDB Sponsored Project Development of sustainable and biodegradable mulching for agrotexiles application using deccani wool fibre with added functionality using plant micronutrient.

## II. Consultancy:

- **Technical Consultancy for Development of Pashmina Wool Project at Leh for KVIC is ongoing. Specifications of Machineries indented to be procured were finalized & quality parameters of Pashmina roving were evaluated.**

Technical Consultancy to LAHDC to establish Pashmina Dehairing plant at Leh - Visit to a running Dehairing Plant for the inspection and trial run of Indian Pashmina is Planned.

- **“To set up a Pashmina Specific DNA-PCR Testing Laboratory at Leh for Department of Sheep Husbandry, Ladakh Autonomous Hill Development Council (LAHDC), Leh.**

Project Proposal "To set up a Pashmina Specific DNA-PCR Testing Laboratory at Leh" Under Integrated Wool Development Programme (IWDP) of CWDB, Jodhpur for FY 2021-22 to 2025-26 to Department of Sheep Husbandry, Ladakh Autonomous Hill Development Council (LAHDC), Leh. WRA has been appointed as Technical Consultant and LAHDC has sought funds from CWDB under the Project.

- **Consultancy Services for NABL Accreditation of Laboratory of IICT, Srinagar**

WRA had participated through an e tender enquiry Notice No. 13 and Tender ID:2021-IC 153454. IICT, Srinagar has selected WRA for providing its Technical consultancy for getting NABL Accreditation of Laboratory of IICT, Srinagar.

Technical Consultant for setting up a state-of-the-art Laboratory for Pashmina Testing & Certification in Ladakh to Industries & Commerce Department (I&C), Ladakh (UT).

- **Consultancy Services for Export Promotion Council for Handicrafts (EPCH) in Delhi NCR.**

Consultancy Services for Setting up Testing Laboratory for Pashmina and Pashmina Products for Export Promotion Council for Handicrafts (EPCH) in Delhi NCR.

## III. Training to Industry :

WRA in Association with Govt. Of Maharashtra (Through its entity MAVIM), is successfully running Hand Made Carpet Production cum training centre at Two (02) centres at Pombhurna & Mul taluka, Distt. Chandrapur, where around 120 nos. of women have been trained and working with Centre to earn their wages through commercial production of exportable Hand-Made carpet manufacturing activities. The objective of above setup is to skill the manpower from rural background in Hand made carpet manufacturing and to augment their family income by providing earning opportunity at their door step to prevent migration and improve their livelihood.

On the ground of Success of Previously set up Carpet Production cum Training centres at Pombhurna & Mul taluka, Distt. Chandrapur. WRA has additionally proposed three (03) Nos. of New Carpet Training cum Production Centres at Brahmpuri, Saoli & Sindebai Taluka at Distt. Chandrapur to train 240 women. All three Projects have been sanctioned out of which two (02) centres i.e. Brahmpuri & Saoli Dist. Chandrapur, Maharashtra are now operational.

**12.0 PAPERS PRESENTED/PUBLISHED & PATENTS APPLIED**

During the year 2023-24 following Article/ write up were published by technical staff of WRA.

- Light- Sensitive Colorants & its utilization in Smart Chameleonic Textile, **JUNIPER**: Current Trend in Fashion Technology & Textile Engineering, Volume 8, Issue 5- November 2023
- Sustainable packaging of agro- products in Agro textile: A review, **COLOURAGE**: February 2024
- Denim Fabric: Construction, Thermophysiological Comfort and Future Trends **IJIRAE**: International Journal of Innovative Research in Advanced Engineering ISSN: 2349-2163, Volume 11, Issue 03, March 2024.

**PATENTS:****Patent has been granted for Research Work details are as follows**

Title of the Patent: Novel Detergent Formulation for Wool with immobilised enzymes

Patent No.: 498456

Application No. 201921041169

Date of Filing: 11/04/2020

Date of Grant: 12/01/2024

Patentee: Wool Research Association

Principle Investigator: Dr. Mrinal Choudhari, Joint Director

**13.0 MEETINGS ATTENDED:****Shri. K. K. Misra, Director WRA**

- Meeting with Welan Technologies, Pune regarding discussion on IoT & sensor based technologies
- Meeting with PerfecTen, Mumbai regarding discussion solution for developing Jackets for sports shooting
- Attended Meeting for Sportech Demonstration Center with Acosa Sports Infrastructure Pvt. Ltd., Mumbai
- Meeting with Prapti Texco Mumbai regarding discussion on the scope of the new machines available.
- Meeting with PerfecTen, Mumbai regarding discussion solution for developing Jackets for sports shooting
- Attended Stakeholder Conference as Speaker on "Challenges and Way Forward in the India Wool sector" scheduled on 9th December 2023 at Triveni Kala Sangam, New Delhi organized by Central Wool Development Board, Jodhpur.
- Attended 61st Joint Technological Conference at BTRA, Mumbai on 14<sup>th</sup> & 15<sup>th</sup> Dec., 2023.
- Attended Meeting on Review of TRAs under the chairmanship of Shri Rajeev Saxena, Joint Secretary, Ministry of Textiles, GOI dated 14<sup>th</sup> Dec 2023 at BTRA, Mumbai.
- Attended Jute Symposium Exhibition New Delhi Dec 2023 to showcase developed products of jute and Jute blend based under National Jute Board (NJB).

- Mr. K.K.Misra, Dr. M. Choudhari & Mr. Shishir Tyagi Visited Padukone - Dravid Centre for Sports Excellence and Lakshyan Academy of Sports Pvt Ltd at Bangalore on 16<sup>th</sup> January 2024.
- Attended meeting at Collector Office, Bhandara regarding setting up new Garment centre at Bhandara 5<sup>th</sup> Feb 2024.
- Attended Bharat Tex Exhibition New Delhi Feb 2024 to showcase products of WRA's developed under different projects from February 26–29, 2024 at Bharat Mandapam, New Delhi.
- Attended CWDB sponsored projects review meeting held at WRA on 18<sup>th</sup> March 2024 under chairmanship of Executive Director, CWDB.

#### **Dr. Mrinal Choudhari, Joint Director, WRA**

- Attended BIS Meeting of TXDC Division Council on Friday on 19-May-2023 online mode.
- Visited palghar on 17<sup>th</sup> May 2023 to meet SNTD Registrar and Account officer for discussing about the new proposed upcoming carpet skill development project to be set up at Palghar area, Maharashtra.
- Attended CII Annual Session 2023 organised on 24<sup>th</sup> and 25<sup>th</sup> May at New Delhi. One of the major highlights of the CII Annual Session 2023 was the opportunity to schedule Business-to Business (B2B) meetings, which allows attendees to network with other participants and establish new professional alliances.
- Visited Mantralaya to attend the Meeting for Discussion of Integrated and Sustainable Textile Policy for 2023-2028 on 27<sup>th</sup> June 2023 at Room no 303 Annex 3rd Floor Mantralaya Mumbai called by Commissioner of Textile, Maharashtra .
- Attended the meeting on skill development programe for setting up a new Carpet Training cum production Centre in association with SNTD College at Palghar was called by Shri. Ravindra Chaan, PWD & Guardian Minister at Mantralaya, Mumbai on 28<sup>th</sup> June 2023
- Attended 6th meeting of MOT FICCI-BIS National Conclave on Standard and Regulations for Technical Textile on 25<sup>th</sup> July 2023 at FICCI House New Delhi
- Visited SNTD Women's University Churchgate campus on 8th August 2023 for MOU signing
- Attended the 8th Dr. M. V. Nimkar Endowment Oration Lecture, 5<sup>th</sup> September 2023 (Tuesday) at Institute Chemical Technology, Mumbai - 400019.
- Attended Annual General Meeting (AGM) meeting of WRA Organised on Sept 27<sup>th</sup>, 2023
- Chaired the meeting organized by BIS of TXD 37 Sectional Committee for Sportech on 27<sup>th</sup> October 2023
- Participated in the G20 Standards Dialogue, being organized by the Bureau of Indian Standards on 2<sup>nd</sup> and 3<sup>rd</sup> November, 2023 at the Iconic Bharat Mandapam, New Delhi
- Dr. Mrinal Choudhari along with Shri. K.K. Misra, Mr. Mayur Basuk and Dr Swati Mahadik attended meeting of PerfecTen, Mumbai for developing Jackets for sports shooting
- Attended Dr. G M Naber Endowment Lecture on Sustainability Challenges of Textiel Industry- way forward 3R- (Reduce, Reuse and Recycle) organised by ICT on 4<sup>th</sup> January 2024
- Attended 16<sup>th</sup> PAMC meeting at O/O Textile Comissioner held on 8<sup>th</sup> January 2024
- Visited BTRA on 11<sup>th</sup> January 2024 for Impact Testing of Devolped Cricket Pad under R & D Project



- Visited St. Xavier Institute at Mahin on 12<sup>th</sup> January 2024 for GAIT analysis of Developed Cricket Pad under R & D Project
- Visited Padukone -Dravid Centre for Sports Excellence, Bangalore on 16<sup>th</sup> January 2024 for seeking the opportunities to set up Demonstration Center for Sportech CoE.
- Lakshyan Academy of Sports Pvt. Ltd, Bangalore on 16<sup>th</sup> January 2024 for seeking the opportunities to set up Demonstration Center for Sportech CoE.
- Visited the Grentex & Co Pvt. Ltd, Ghatkopar, to discuss the moth proofing study on 31<sup>st</sup> January 2024.
- Visited Ministry of Textile & New Delhi to attend Project Approval Committee (PAC) meeting dated 13<sup>th</sup> February 2024 under the Scheme for Research & Development for Textiles Industry including Jute, under Chairmanship of Joint Secretary Mr. Rajeev Saxena MoT.
- Attended 4 days Bharat Tex 2024 Global Textile Expo organized by Ministry of Textiles, Government of India at Bharat Mandapam between 26<sup>th</sup> to 29<sup>th</sup> February 2024, New Delhi.
- Visited Nimker Tek Pvt. Ltd. for Meeting with Mr Ulhas Nimker on 13<sup>th</sup> March 2024 for discussion as a laboratory partner in the upcoming Research Project on Microfiber and Micro-plastic study
- Dr. Mrinal Choudhari, along with Mr. K. K. Misra, Mr. Mayur Basuk, Dr. Swati Mahadik, Mr. Dinesh Marewad, Mr. Vaibhav Vankundre, Mr. Atharvan Deshpande, Mr. Sharan Shetty, Mr. Amit Yadav, Mr. Darpan and Mr Sumit attended review meeting of ongoing R&D project sponsored by CWDB on 18<sup>th</sup> March 2024 at WRA.
- Attended Project Approval Committee (PAC) (for Component I & III) under the Scheme for Research & Development for Textiles Industry including Jute, scheduled under the chairmanship of Shri Rajeev Saxena, Joint Secretary on 19<sup>th</sup> March, 2024 at 11:30 A.M. (online mode).
- Attended meeting held with Dr. Mahesh Tendulkar (R&D Head of IFB) for the upcoming Research project and their collaboration as an Industry Partner in the Project Work held on 26<sup>th</sup> March at WRA attended 18<sup>th</sup> meeting of the Project Appraisal and Monitoring Committee (PAMC) scheduled on 27<sup>th</sup> March, 2024 on online mode under Chairmanship of Textiles Commissioner

#### **Mr. Mayur Basuk, Senior Deputy Director, WRA**

- Attended Meeting on Review of TRAs under the chairmanship of Shri Rajeev Saxena, Joint Secretary, Ministry of Textiles, Gol dated 5th October 2023 at Udyog Bhawan, New Delhi
- Attended National Conclave on Agrotech emphasizing on the importance of accelerating productivity of agriculture & horticulture products in India organized by Ministry of Textiles, under its flagship scheme National Technical Textiles Mission (NTTM), in association with ITTA and SASMIRA on 06<sup>th</sup> Oct. 2023.
- Attended 13<sup>th</sup> EMC Review meeting on ongoing project "Development of Cost Effective Handmade Carpets & Floor Coverings, Home Furnishings & Knitwears using Jute (Treated Woolenised or Untreated) & other natural fibres with value added Eco Friendly Finishes such as with Flame Retardancy, Mosquito Repellent, Anti Bacterial/Antimicrobial Properties etc." held by Expert & Monitoring Committee (EMC) Chaired by the Jute Commissioner on 27/10/2023.
- Attended Review Meeting of the progress of Research Projects approved under National Technical Textiles Mission (NTTM) held on 10<sup>th</sup> Oct. 2023
- Attended BIS TC Meeting TXD 37 Sectional Committee on 27/10/2023

- Attended BIS 24<sup>th</sup> TC Meeting of Wool, Wool Products and Textile Floor Coverings Sectional Committee, TXD 04 on 27/10/2023
- Meeting with Welan Technologies, Pune regarding discussion on IoT & sensor based technologies
- Meeting with PerfectTen, Mumbai regarding discussion solution for developing Jackets for sports shooting
- Attended Meeting for Sportech Demonstration Center with Acosa Sports Infrastructure Pvt. Ltd., Mumbai
- Meeting with Prapti Texco Mumbai regarding discussion on the scope of the new machines available.
- Attended Review Meeting of the progress of Research Projects approved under the National Technical Textiles Mission (NTTM) held on 15<sup>th</sup> Nov. 2023 under the Chairpersonship of Secretary, Ministry of Textiles
- Meeting with Shreedham Silk Industry, Bhiwandi regarding discussion of project trials under NJB on 22<sup>nd</sup> November, 2023.
- Attended 26<sup>th</sup> Meeting of Physical Methods of Test Sectional Committee, TXD 01 of BIS on 23<sup>rd</sup> Nov 2023
- Attended OSH South India Expo - Largest Occupational Safety and Health Show from 23<sup>rd</sup> 25<sup>th</sup> November 2023 at Bombay Exhibition Centre, Goregaon (E), Mumbai.
- Visited SASMIRA CoE for Agro tech for discussion of project trials under NTTM on 28<sup>th</sup> November 2023 at Bombay Exhibition Centre, Goregaon (E), Mumbai.
- Attended Stakeholder Conference on "Challenges and Way Forward in the India Wool sector" scheduled on 9<sup>th</sup> December 2023 at Triveni Kala Sangam, New Delhi organized by Central Wool Development Board, Jodhpur
- Meeting with Ameet Trading Company, Mumbai regarding discussion of project trials under NTTM on 11<sup>th</sup> Dec., 2023.
- Attended 61<sup>st</sup> Joint Technological Conference at BTRA, Mumbai on 14<sup>th</sup> & 15<sup>th</sup> Dec., 2023
- Visited Pillai HOC College of Engineering and Technology (PHCET) Rasayani, Navi Mumbai on 08<sup>th</sup> Jan 24.
- Mr. Mayur Basuk & Ms Seema Patel Visited Grentex & Co Pvt Ltd.
- Mr. Mayur Basuk & Ms Seema Patel Visited Domotex 2024, Hannover, Germany from 11<sup>th</sup> - 14<sup>th</sup> Jan 24 to showcase the products developed in the ongoing R&D project sponsored by National Jute Board, Kolkata along with the Industry Partner.
- Mr. Mayur Basuk & Ms Seema Patel Visited Herzog, Germany on 15<sup>th</sup> Jan 24 to explore the collaborative work in the area of Sport Composites & Braiding Technology.
- Exhibited Products in Fibers & Yarns Expo from 22<sup>nd</sup> February to 24<sup>th</sup> February 2024 at Jio World Convention Centre, BKC, Mumbai, India
- Attended Jute Symposium Exhibition New Delhi Dec 2023 to showcase developed products of Jute and Jute blend based under National Jute Board (NJB).
- Attended Bharat Tex Exhibition New Delhi Feb 2024 to showcase developed products of Jute and Jute blend based under National Jute Board (NJB) project , eco-friendly agro textile products for packaging application, sponsored by NTTM project and Developed Wool (Special fibres & blends) based Novel Denim Fabric under CWDB project

**Mr. Shishir Tyagi, Sr. Deputy Director, WRA**

- Attended Meeting with TRADC (a unit of Aditya Birla), Khaharch Personnels (in VC Mode) on 3<sup>rd</sup> April 2023 for Joint developmental work of sports dresses suitable for Indian Athletes for Tropical environment conditions.
- Attended Meeting with MD, MAVIM (Government Of Maharashtra) to discuss new Garment proposal to be set up at Chandrapur on 17<sup>th</sup> July 2023.
- Visited Carpet site due to visit of Hon'ble Shri Vinay Gowda G C (IAS), District Collector, Chandrapur to Carpet CFC at Taluka Saoli and newly constructed Carpet Centre at MIDC, Mul on 27<sup>th</sup> October 2023.
- Meeting with Welan Technologies, Pune regarding discussion on IoT & sensor based technologies
- Meeting with PerfecTen, Mumbai regarding discussion solution for developing Jackets for sports shooting
- Attended Meeting for Sportech Demonstration Center with Acosa Sports Infrastructure Pvt.ltd., Mumbai
- Meeting with Prapti Texco Mumbai regarding discussion on the scope of the new machine available.
- Attended Stakeholder Conference as Speaker on "Challenges and Way Forward in the India Wool sector" on 9<sup>th</sup> December 2023 at Triveni Kala Sangam, New Delhi organized by Central Wool Development Board, Jodhpur.
- Attended 61<sup>st</sup> Joint Technological Conference at BTRA, Mumbai on 14<sup>th</sup> & 15<sup>th</sup> Dec., 2023
- Attended meeting on Review of TRAs under the chairmanship of Shri Rajeev Saxena, Joint Secretary, Ministry of Textiles, Gol dated 14<sup>th</sup> Dec 2023 at BTRA, Mumbai.
- Mr. K.K.Misra, Dr. M. Choudhari & Mr. Shishir Tyagi Visited Padukone - Dravid Centre for Sports Excellence and Lakshyan Academy of Sports Pvt Ltd at Bangalore on 16<sup>th</sup> January 2024.
- Attended meeting at Collector Office, Bhandara regarding setting up new Garment centre at Bhandara 5<sup>th</sup> Feb 2024.
- Attended Bharat Tex Exhibition New Delhi Feb 2024 to showcase products of WRA's developed under different projects from February 26–29, 2024 at Bharat Mandapam, New Delhi.
- Attended CWDB sponsored projects review meeting held at WRA on 18<sup>th</sup> March 2024 under chairmanship of Executive Director, CWDB.

**Dr Swati Mahadik, Senior Research Fellow, WRA**

- Attended Dr. G M Naber Endowment Lecture on Sustainability Challenges of Textile Industry- way forward 3R- (Reduce, Reuse and Recycle) organised by ICT on 4<sup>th</sup> January 2024
- Attended meeting of PerfecTen, Mumbai for developing Jackets for sports shooting
- Visited BTRA on 11<sup>th</sup> January 2024 for Impact Testing of Developed Cricket Pad under R & D Project
- Visited St. Xavier Institute at Mahin on 12<sup>th</sup> January 2024 for GAIT analysis of Developed Cricket Pad under R & D Project.

- Visited Nimkar Tek Pvt. Ltd. for meeting with Mr Ulhas Nimker on 13<sup>th</sup> March 2024 for discussion as a laboratory partner in the upcoming Research Project on Microfiber and Micro-plastic study
- Attended meeting held with Dr. Mahesh Tendulkar (R&D Head of IFB) for the upcoming Research project and their collaboration as an Industry Partner in the Project Work held on 26<sup>th</sup> March 2024 at WRA

#### **Mr. Dinesh Marewad Senior Research Fellow, WRA**

- Visited Mantralaya to attend the Meeting for Discussion of Integrated and Sustainable Textile Policy for 2023-2028 on 27<sup>th</sup> June 2023 at Room no 303 Annex 3<sup>rd</sup> Floor Mantralaya Mumbai called by Commissioner of Textile Maharashtra
- Visited St. Xavier Institute at Mahin on 12<sup>th</sup> January 2024 for GAIT analysis of Developed Cricket Pad under R & D Project
- Attended meeting held with Dr. Mahesh Tendulkar (R&D Head of IFB) for the upcoming Research project and their collaboration as an Industry Partner in the Project Work held on 26<sup>th</sup> March 2024 at WRA

#### **14.0 VISIT OF INDUSTRY PERSON'S / EDUCATIONAL INSTITUTES / FOREIGN DELEGATES**

- Mr. R.K. Prasad Nadella, Head - Application Technology/Technical Services, Industrial Formulators, Care Chemicals, BASF INDIA LIMITED, Innovation Campus, Mumbai visited Wool Research Association on 9<sup>th</sup> June 2023 to explore the collaboration for wool product and services.
- Mr. Yogesh Gaikwad, Director SDC International Limited visited Wool Research Association on along with Mr. D. J Gohain Director and Publisher Textile Excellence for participation of Wool Research Association in Dyechem World Tirupur organised on 6<sup>th</sup> to 8<sup>th</sup> July 2023.
- Mr. Shivanand Patil of M/s Siddeshwar Techtessile Pvt. Ltd, Kolhapur visited WRA. Discussed about the coating facility available in their company. Took them around WRA premises and introduced the facilities available here. Have also discussed about the government schemes available and what upcoming projects that can be taken up further.
- Mrs. Sarmishtha Dutta Director Finance & Economic Services, National Jute Board, Ministry of Textiles, GOI, Kolkatta visited Wool Research Association on 17<sup>th</sup> and 18<sup>th</sup> August for exploring New Opportunities of Research and understanding current ongoing R & D Project activities.
- Shri. G.S. Bhati, Executive Director, CWDB visited Wool Research Association, on 28<sup>th</sup> August 2023 to discuss the Physical & Financial progress of five ongoing CWDB sponsored project's.
- The students from Anjuman-I-Islam's Kalsekar Technical Campus Engineering School in Navi Mumbai, (AIKTC), Panvel, visited the Wool Research Association, on 11<sup>th</sup> October, 2023 at 10.30 a.m. to know the Wool fiber Processing for Hackathon
- Dr. S. Periyasamy Director CSTRI, CENTRAL SILK BOARD, Bangalore, Mr. Prakash Bhat (Sc. D), Dr. P. Mathiazhagan (Sc. D) visited Wool Research Association, on 16<sup>th</sup> Sep. 2023

- Shri Prashant Kumar Meena, Joint Mission Director, National Technical Textiles Mission (NTTM) visited Wool Research Association, on 14<sup>th</sup> September 2023
- Ashish Vaidya (Consultant in NTTM Project) visited Wool Research Association, on Feb 8, 2024 to discuss about the NTTM-sponsored Agro textile packaging product and how to proceed on with project related activities
- Mr. Vinit Mittal, Proprietor Innalogue India Pvt Ltd. visited WRA for Moth Proof project discussion on 15<sup>th</sup> March 2024.

## 15.0 WORK DONE BY THE PROJECT TEAM

- Dr. Mrinal Choudhari and Mr. Dinesh Marewad visited Rahuri, Ahmednagar & Nagapur (Ambegaon) Pune Maharashtra on 05<sup>th</sup> and 6<sup>th</sup> April 2023 to discuss about the Biodegradable mulching mat project and to explore the Testing facilities at Dr. Annasaheb Shinde College of Agricultural Engineering & Technology, Mahatma Phule Krishi Vidyapeeth Rahuri, Ahmednagar. To visit the local wool growers and explained them about market values of coarser wool at Nagapur Post- Ranjani Tal Ambegoan Dist- Pune Maharashtra.
- Dr. Mrinal Choudhari and Dr. Swati Mahadik visited Jaysynth Dyestuff (India) Ltd Patalganga, Maharashtra on 12<sup>th</sup> April 2023 for Inspection of the Digital Printing Machine and to understand the standard operating procedure of the machine.
- Mr. Dinesh Marewad visited the local Wool Growers in Latur, for Collection of Coarser Wool and Explain about the Market value of wool from 08-Jan-2024 to 16- Jan-2024.
- Dr. Mrinal Choudhari and Mr. Dinesh Marewad on 17<sup>th</sup> November, 2023 visited ERRL-Enviro Remediation & Research Laboratory, Chandansar Rd, Sai Nath Nagar, Virar East, Maharashtra to discuss about Biodegradability of our developed mulching mat using coarser wool and other natural fibers like Jute, Coir etc., and also to discuss about Photo degradation of mulching mat by ASTM 6954 under CWDB mulch project
- Mr. Atharvan Deshpande visited Saurashtra-Tamil Sangamam, Somnath, Gujarat on 17<sup>th</sup> April 2023 to participate in the exhibition to display the innovative and wool-based products developed by WRA under R & D projects sponsored by CWDB
- Mr. Atharvan Deshpande visited GARTEX TEXPROCESS on 04,05 August 2023 to take part in the expo to learn about the latest advancements and innovations in the denim industry, obtain first hand knowledge, and establish connections with local and global enterprises. Pragati maidan Delhi 2023
- Mr. Atharvan Deshpande visited Mahadev Woollen Mills Sunder Nagar for finalisation of special wool blended (pashmina, angora, yak, etc) for design and development of wool based novel denim project during 5 Dec-18 Dec 2023
- Dr. Mrinal Choudhari and Mr. Dinesh Marewad visited the local Grower to explain them about market values of Coarser wool and collected the coarser wool for the project purpose at Lonand, District- Satara of Maharashtra & also visited the DKTE Non woven COE, Laxmi Co-operative Industrial Estate, Hatkanangale Ichalkaranji from 17<sup>th</sup> January 2024 to 20<sup>th</sup> January 2024.
- Dr. Mrinal Choudhari, Dr. Swati Mahadik and Mr. Dinesh Marewad visited Dr. Annasaheb Shinde College of Agricultural Engineering & Technology, Mahatma Phule Krishi Vidyapeeth Rahuri, Ahmednagar to finalize the MoU with and to initiate the Field study of our developed Mulching Mat Material with crop summer Ground nuts, from 29<sup>th</sup> January 2024 to 30<sup>th</sup> January 2024.



- Dr. Mrinal Choudhari visited ICT- Matunga for Meeting with Prof. Ashok Athlye on 7<sup>th</sup> February 2024 for discussion of Ongoing CWDB sponsored Project Digital Printing.
- Mr. Dinesh Marewad visited Kumaraguru College of Technology Athipalayam Rd, Chinnavedampatti, Coimbatore, Tamilnadu from 15<sup>th</sup> May, 2023 to 22<sup>nd</sup> April 2023 to develop the Mulching mat samples with Natural Fibers (like Coarser Wool, Jute and Coir fibers)
- Mr. Dinesh Marewad visited DKTE College Kolhapur, Bulk Trials for the Development of Mulch Mat. From 11<sup>th</sup> July 2023 to 14<sup>th</sup> July 2023
- Mr. Sharan Shetty, Mr. Atharvan Deshpande and Mr. Abhishek Boske exhibited in Fibers & Yarns Expo from 22<sup>nd</sup> February to 24<sup>th</sup> February 2024 at Jio World Convention Centre, BKC, Mumbai.
- Mr. Atharvan & Mr. Sharan Shetty visited GARTEX TEXPROCESS Jio World Convention Centre, BKC, Mumbai. on 02 Feb 2024 to deeper understanding of new trends, communication with local and global enterprises and strengthens ties with sponsors opportunity to study the tactics of their rivals, get inspiration, and draw well-informed comparisons.
- Mr. Amit Yadav attended Yarnex Exhibition Tirupur, Tamil Nadu to discuss natural yarn required under the project – Development of eco-friendly agro-textile products for packaging application, sponsored by NTTM.
- Mr. Amit Yadav visited Vishal Carpets Bhadohi, Uttar Pradesh for development of handmade carpets under NJB project.
- Mr. Amit Yadav, Mr. Sharan Shetty attended Jute Symposium Exhibition, New Delhi Dec 2023 to showcase developed products of Jute and Jute blend based under National Jute Board (NJB)
- Mr. Amit Yadav attended Bharat Tex Exhibition, New Delhi Feb 2024 to showcase developed products of Jute and Jute blend based under National Jute Board (NJB) project, eco-friendly agro-textile products for packaging application, sponsored by NTTM project and Developed Wool (Special fibres & blends) based Novel Denim Fabric under CWDB project.
- Mr. Sharan Shetty visited Denim India Jeans Show held at Hotel Lalit Ashok Bangalore on 15<sup>th</sup> May 2024 to learn about the denim washing trends and the current status of denim and scope of wool denim
- Mr. Sharan Shetty visited Mahatma Phule Krishi Vidyapeeth, Rahauri and Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli to introduce and communicate regarding the field trials for the NTTM project
- Dr. Mrinal Choudhari along with Mr. K.K. Misra, Mr. Dinesh Marewad visited Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth on 19<sup>th</sup> March 2024 for the field study of the undergoing research project funded by CWDB

## 16.0 WEBINAR/ SEMINAR/ CONFERENCES /EXHIBITIONS/WORKSHOPS ATTENDED:

### 16.01 Conference /Seminar Organized :

Wool Research Association organised One day **NATIONAL CONCLAVE ON SPORTECH- "The Future of Sport Textiles & Accessories Industry in India"** on 2<sup>nd</sup> June 2023 at Hotel Shangri-La Eros, New Delhi"







Wool Research Association (WRA) and Indian Technical Textile Association (ITTA) organised the NATIONAL CONCLAVE ON SPORTECH- "The Future of Sport Textiles & Accessories Industry in India". The conclave was held on 2<sup>nd</sup> June 2023 from 9:30am to 5 pm. More than 300 participants from Textile and Technical Textile Industries, Institutions, Faculties, Research Scholars and Students, were benefited out of the event.

**Smt. Darshana Jardosh Hon'ble Minister of State for Textiles & Railways, GoI**, Guest of honour of the conclave in his inaugural address spoke about the Technical Textile Industry and its Growth and Challenges. She emphasized the penetration of Technical Textiles in India which is very less compared to First-World Countries. She stressed the importance of becoming net Exporters of Technical Textiles in the world and guided the attendees on the same.

**Smt. Rachna Shah** is an **Indian Administrative Service (IAS) Officer** and a **Secretary in the Ministry of Textiles**.

and



**Ms. Roop Rashi IA&AS Textile Commissioner, Ministry of Textiles, Government of India**, Chief Guest of the webinar in her special address stressed the importance of **Technical Textiles in the future of India**. She motivated Industries to become self-reliant, especially in the Sportech segment as we do a lot of import for this sector. She suggested that industries and various sports boards should come together and discuss product development and the needs of the consumer.

**Shri. Amit Agarwal Chairman-ITTA** in his welcome address discussed ITTA's vision for the Technical Textile business in India. He also mentioned the Policy Initiatives on Technical Textiles introduced by the Ministry of Textiles, Government of India.

**Shri. K. K. Misra, Director, WRA** welcomed all the attendees and panellists on behalf of the Organizing team. He briefed audience about work done at WRA and elaborated on the collaboration with ITTA and other industries for Sportech Sector.

Technical Session one was based on Market size, Gaps, Experience and Expectations of consumers towards adoption of Indian Sports Textiles. This session deliberated ways to unlock the requirements & experience of Indian Sportech consumers like Sports Authority of India, Sports Associations, SGEPC, Mountaineering Institutes, Leisure Sport Agencies, etc.

In this session it was discussed about the upliftment of the whole ecosystem of Indian sports textiles from Gap analysis done by WRA, market size assessment by Invest India & other organisations. Opportunities in producing Products used in Mountaineering & Leisure Sports, which are currently imported.

The moderator in the first Technical session was **Ms. Bhavna Rathee, Assistant Vice President, Invest India**. She started with the presentation on Market size and opportunities for the textile sector. Textiles Industry on a way to become a Global Manufacturing Hub with the market size USD 154 Bn (2021-22) and is supposed to increase by more 150 billion (2030).

India is one of the largest producer of Cotton, Jute, Silk, and Polyester. It is the 2<sup>nd</sup> largest manufacturer of Textiles and Apparel (T&A) in the World. She discussed about Production Linked Incentive or PLI scheme which is a scheme that aims to give companies incentives on incremental sales from products manufactured in domestic units. Growth opportunities in Sportech in the areas of Performance Sportswear, Smart Wearables, Modern Sport Infrastructure, Sports Composite & Protective Gears, Sustainable Textiles.

In the first session **Shiv Prakash Singh, Managing Director, Shiv Naresh Sports Pvt Ltd, New Delhi**; discussed about the digital era which showcased after the pandemic. Considering the digital area, people are spending more time on E-commerce rather than their personal time. Before pandemic there were only few international sportswear brands but after pandemic new Indian Sportswear Brands were showcased in market.

Further the moderator introduced the speaker **Dr. N. Mohan, Director and CEO, Kothari Industrial Corp. Ltd**. He has introduced the relevance of Textile in footwear industry. He had discussed about the global footwear market which is around 24.3 billion pairs. While the Indian market for footwear industry is around 2.6 billion pairs. China produces more than half of all shoes despite decreasing trend in favour of other Asian countries. India has reinforced its position as world's 2<sup>nd</sup> largest footwear manufacturer in 2021. He has also discussed about the opportunities for Indian footwear industry which includes evolution of high-performance textiles and their use in shoe designs, smart textiles and their relevance in shoe designs.

**Shri Amit Jain, Managing Director Shingora Textiles**, has completed his degree on textiles major and business minor from the University of Kentucky. He started an advanced materials division called Express Expertex within Shingora Textiles. This is a forward thinking and highly focused area of specialized performance Technical Textiles. This division has been at the forefront of various collaborations with DRDO. He takes active part in the activities of CII Punjab State Council.

**Shri R. Selvam, Executive Director Council for Leather Exports**, He joined IS in 2001 has been allotted to the Himachal Pradesh. Kader recently joined as Executive Director Council for Leather Exposed Chennai in April 2018. He served in the ministry of Home Affairs, ministry of Chemicals and Fertilizers and Ministry of Commerce and Industry. He has been successfully implementing several State and Government of India programs. He also significantly involved in framing new Pharma pricing policy, new Uria investment policy and various other policy making issues at the national level.

**Smt. Subhra Agarwal, Trade Advisor, Ministry of Textiles**, is an officer from 1989 India Trade Service had joined Ministry of Textiles as trade advisor in the month of December 2021. Before joining the Ministry of Textiles she was with Department of Agriculture and Farmers Welfare. As the trade advisor. Ms. Shubraji is responsible for textile trade promotion. She is well versed with the various policy matters and sustainability targets.

**Ms. Aparajita Saini , Manager Start up India**, is a manager at the startup India. At startup India works closely with the State and the Union Territory Nardal Department of Startups in order to ensure a cohesive support to the startup ecosystem. Previously, she was managing various sectors including infrastructure and logistics, automobile and electric mobility at Agne Mission housed at Invest India. Before joining Invest India Ms.Aparajita has worked in private sector in investment banking and tourism and hospitality.

Technical Session Two on Sports Goods and Accessories : Coated fabrics, Nets, Leather and Rubber Products. This session will cover the products falling under Sports Goods and Accessories, its Raw materials & Process used to manufacture. Policy related issues on availability of RM, machinery, processes, testing equipment, etc. Current market trends & future growth potentials of various Sportech products and Investment Opportunities.

The moderator of the second session was **Dr. Anup Rakshit**, Executive Director of Indian Technical Textile Association (ITTA), India. He has over 38 years of experience in the textile industry. He has done his doctorate at the Leeds University, UK (British Council scholarship). Dr Rakshit has worked in various capacities in companies & institutions including Reliance Industries, Bombay Dyeing, JCT Ltd, Bombay Textile Research Association, and Suvin Advisors Pvt Ltd. ITTA is the only association of the technical textile industry in the country. Formation of ITTA was facilitated by office of the Textile Commissioner, Ministry of Textiles, Government of India. ITTA membership represents the entire technical textile value chain from raw material to finished goods producers, machinery manufacturers, converters, centers of excellence and R&D institutes.

**Mr. Sunil Gupta, PRINCIPAL DIRECTOR Msme Technology Development Centre (Ppdc),Ministry Of MSME, Govt. Of India**

In this session, Sir expressed his views on alternative solution for the materials to be used in sports textile. PPDC provides Testing of Sports Goods is also of high importance in ascertaining the

**Quality of Sports Goods.** With the development of science and technology, new materials will be recognized and accepted by more people, and the price will also be reduced. At the same time, the application of new materials in sports equipment will become more common. Therefore, while developing competitive sports, the government must attach great importance to the development, modification, and utilisation of new high-tech materials so as to achieve faster and better development of sports. With the increasing demand for individualization, future sports equipment will develop in the direction of personalization and intelligence. At the same time, people will pay more and more attention to environmentally friendly and biodegradable sports equipment with new materials.

**Technical Session Three: Innovations & Research in Composites and Smart Textiles.** This session will focus on the latest innovations & future opportunities in Composites and Smart Technology in Sportswear. Raw materials & Process used to manufacture Composite material, Application of Composite materials, 3D Spacer Structures (Inflatable Structures/ PCM Containing Layers Thermal Energy Storage), Raw materials -Conductive Threads and Fabrics used and Current market trends & future growth potentials.

**Moderator Dr. Bipin Kumar** Assistant Professor in the Department of Textile Technology at IIT Delhi, India. He is the first recipient from India to be selected for the Fulbright Postdoctoral Program (2013) in the field of textiles. His main research focuses on smart fibrous/polymeric materials and related fabric structures. With his research outcomes and achievements in textiles, he was selected as the member of advisory council of the Techtextile North America Symposium 2016, a major professional platform focusing on latest technological development and international industry trends in textiles. Currently, he is engaged in research and development of functional textiles for several engineering and medical applications. Major efforts are underway to commercialize these innovations for various innovative fabric products.

**Dr. Sanjay R. Dhakate, Chief Scientist and Head, Advanced Materials Devices & Metrology Division CSIR-NPL.**

He is working on various forms of carbon materials for structural, energy, and environmental applications, such as carbon fibers, carbon and polymer foams, carbon-carbon composites, ceramic-carbon composite, electrospun polymer, and carbon nanofibers, graphene, graphene oxide-based composites, polymer nanocomposites, carbon fiber paper as electrode material and graphite composites bipolar plates for polymer electrolyte membrane fuel cell, carbon fiber paper-based Infrared heater, new generation carbon nanotubes based for personal body armour materials, activated carbon from waste biomass, and value-added products from coal tar. He has authored or coauthored more than 110 research papers in various International reputed journals.

**Dr. Nandan Kumar, Managing Director at High Performance Textiles Pvt Ltd.** The company specializes in processing staple fibre that are further reinforced with multi filament components as per knitting, weaving and braiding needs. He has been involved in the development of commercial products for personal protection, automotive and healthcare market in India.

**Shri K. K. Misra, Director, WRA**

Awareness of Performance Enhancement, Government Initiatives and Sports Infrastructure Development, Athleisure Trend and Fashion Convergence, E-commerce Growth and Online Retail and Export Potential.

Special Interactive Session with **Shri. Rajeev Saxena, Joint Secretary, Ministry of Textiles, Gol.** He emphasized on sport technical textiles or Sportech to be used for sports purposes. This includes all types of fabrics related to clothing as well as equipment. Some of the key opportunities in sportech were:

- Phase-changing material (PCM) applications in active wears
- Sustainable environmentally friendly sportswear for various applications
- Composites for sports goods like hockey sticks, tennis rackets, badminton rackets, Golf shafts, fishing rods etc.
- Development of Artificial turfs

#### **Technical Session Four - Focusing on Design, Branding, Quality in the Value Chain**

This session objective would be on Availability of critical raw materials and other inputs, Problems for availing latest technology for manufacturing sportswear, Hi-tech and Smart Technology in Sportswear, Sustainable solutions to the specific issues & concerns, Challenges faced in supply chain management, Process aspects, Quality standards required for QCO and Product Certification hurdles for export

Moderator **Shri. Anjani Kumar Prasad**, M.D & Head Business, Archroma India Pvt. Ltd. He was graduated from UDCT Textile Chemistry. He is Chartered colorist and a Lean Six Sigma Champion. he was appointed as the Global Head of New Business development to handle open innovation projects, Alliances, JVs, collaborations for the company and working on new areas of business at Archroma. He was appointed as the Sales head-BPT India in the year 2015 and as a Vice President Cluster India responsible for Textile, Paper and Coatings business. Presently he is the Managing Director of Archroma India. He is also member of various Indian Textiles and Chemical Committees. Archroma India provides dyes and specialty chemicals to the performance textiles, packaging and paper, coatings, adhesives and sealants markets. But there's one solution the firm is focusing on most – turning the chemical industry into a sustainable one.

**Dr. Ketankumar Vadodaria, NID, Ahmedabad**, He expressed his thoughts on Focusing on Design, Branding, Quality in the Value Chain. Sportech is one of the most promising and technologically driven segments of technical textiles with innovations and advancements in design and development of sport specific attires. Technological textiles have been able to produce some materials harder than wood which keep the skin dry, waterproof like rubber and at the same time environmentally friendly and highly profitable. Due to the widespread use of advanced and smart technology in today's sports textiles, it is becoming possible to produce high quality and high-performance sports garments and the quality of sports textiles is increasing day by day.

#### **Dr. Senthil Kumar Venkatalu Head, Department of fashion technology NIFT, New Delhi**

The fashion industry is the second largest industrial polluter after aviation, accounting for up to 10% of global pollution. Global per-capita textile production has increased from 5.9 kg to 13 kg per year over the period 1975–2018. Environmental impacts from the fashion industry. Over 92 million tonnes of waste produced per year, 1.5 trillion litres of water consumed.

The wearable textile products that improve the performance characteristics of the athlete at the moment of activity. When designing a sports product, each detail of the product's material, structural design, and production technique affects the performance characteristics of the product. Sustainable sports textiles refer to textiles or fabrics used in the sports industry that are designed and manufactured with a focus on minimizing environmental impact and promoting social

responsibility. These textiles are produced using eco-friendly processes, and often incorporate innovative technologies to enhance performance and durability

**Dr. Mrinal Choudhari, Joint Director, Wool Research Association, Thane**

She enlightened the Gap Analysis on Sportech Industry. These high-functional and smart textiles are increasingly adding value to the sports and leisure industry by combining utilitarian functions with wearing comfort that leads to achieving high level of performance. She highlighted R & D opportunities:

- Manufacturing of Seamless garment and its technical know how
- Artificial turf manufacturing as per International Norms of FIFA, Hockey Federation etc.
- Development of knitting technology for fabric using yarn with higher Lycra percentage (Current Knitting technology can utilize the yarn up to 15% of Elastomeric yarn content)
- Dyed Nylon 66 knitted fabric with good fastness properties

**Wool Research Association participated in Bharat Tex 2024 from 26<sup>th</sup> to 29<sup>th</sup> February 2024**

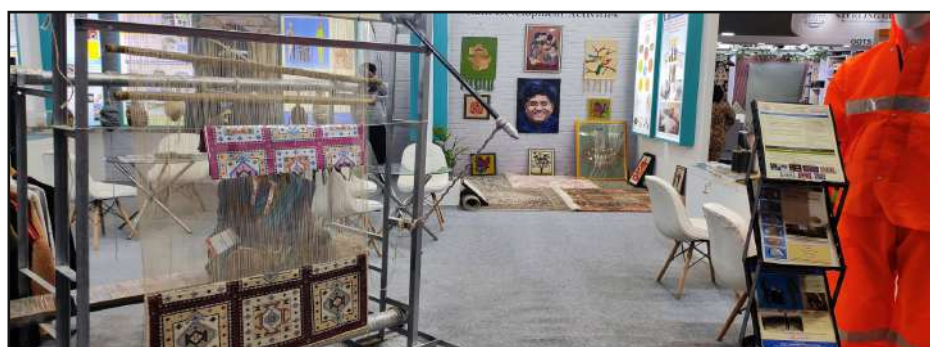
Marking an exceptional celebration of the country's rich textile heritage and its modern innovations, Bharat Tex 2024 was held in New Delhi, concluded its maiden edition with resounding success. The event, inaugurated by Prime Minister Shri Narendra Modi, witnessed an overwhelming response from both Indian and Global participants, including Top Brands and Retailers organized by a consortium of 11 Textile Export Promotion Councils and supported by the Ministry of Textiles, Bharat Tex 2024 showcased the best of India's textile industry, focusing on trade, investment, and sustainability. With over 3,500 exhibitors, 3,000 buyers from 111 countries, and more than one lakh trade visitors, the event highlighted the immense potential of India's textile sector on the global stage. From vibrant exhibitions to engaging knowledge sessions and high-profile business meetings, Bharat Tex 2024 offered an unparalleled platform for industry leaders to connect, collaborate, and drive the textile revolution forward.

Wool Research Association participated and displayed its activities of Research and Development, Testing facilities and Incubation activities and Technical Consultancy and Skill development Activities.

WRA has showcased their innovative out come under various Research Projects such as Light Weight Cricket Pad, Smart T shirt , Digital Printed Shawls and Strolls, Denims garments , Carpets and Wall Hangings.

WRA also displayed ongoing project work through Prototype Models of Coarse Wool Mulch application in agriculture, Coarse Wool application in Building Material and Use of Sustainable Packaging alternatives.





**CONFERENCE /SEMINAR ATTENDED:**

- Dr. Mrinal Choudhari attended One day long workshop for Chairpersons of Technical Committees at NITS Noida on 9<sup>th</sup> May 2023 organized by BIS.
- Dr. Mrinal Choudhari and Mr. Dinesh Marwad visited Srinagr to attend “The Upcoming field Technology showcase and Emersion Workshop organized by Agni Mission and Directorate of Handcraft and Handloom of Srinagar from 21<sup>st</sup> to 25<sup>th</sup> June 2023.
- Poster Presented on ongoing research Project “Surface modification of Wool and Wool blends for Digital Printings” at 11<sup>th</sup> Annual International Conference on Sustainable Development (ICSD), September 18 – 20, 2023 Hybrid, presented by Dr. Swati Mahadik, Dr. Mrinal Choudhari and Mr. Dinesh Marewad.
- Mr. K.K. Misra, Mr. Shishir Tyagi and Mr. Mayur Basuk attended Techtexil India 2023 on 13<sup>th</sup> October 2023 at Jio World Convention Centre, BKC, Mumbai.
- Mr. Shishir Tyagi attended Consultation workshop organized by Mahila Arthik Vikash Mahamandal (MAVIM), Government of Maharashtra in Collaboration with IFAD's Gender Transformative Mechanism (GTM) held on 16<sup>th</sup> October, 2023 at Taj President, Mumbai. The objective of workshop was formulation of next five-year strategy of Centre of Excellence under Gender Transformative Mechanism.
- Dr. Swati Mahadik attended the IFAT India 2023 at Bombay Exhibition Centre, Mumbai from 17-19 October 2023, for Water, Sewage, Solid Waste, and Recycling, offers a unique platform for industry players, innovators, and business partners from around the world to network.
- Dr. Swati Mahadik, attended the 3<sup>rd</sup> International Conference on Sports Engineering (ICSE 2023), 02<sup>nd</sup> to 04<sup>th</sup> November 2023 at BITS Pilani, Rajasthan and Presented a Research paper on “Light Weight Cricket Pads using Non-Newtonian fluids”.
- Dr. Mrinal Choudhari Joint Director attended as a Jury for Poster presentation during the Conference on Sustainable Technical Textiles: Innovative Materials & Machinery Development on 2<sup>nd</sup> Dec. 2023 organized by VJTI under NTTM scheme.
- Mr.K.K.Misra, Dr. Mrinal Choudhari, Mr. Mayur Basuk and Dr. Swati Mahadik attended a conference on sustainability and circularity in Textiles organized by the Textiles Association of India (Mumbai Unit) on 31<sup>st</sup> January 2024 at Hotel Lalit Mumbai.
- Dr. Mrinal Choudhari, Mr. Dinesh Marewad attended a 2 days National workshop organized by Tamil Nadu Government between 2<sup>nd</sup> and 3<sup>rd</sup> Feb, 2024 at Hotel Jenny's Residency, Coimbatore.
- Mr. Sharan Shetty and Atharvan Deshpande attended the Gartex Denim show exhibition held at Jio BKC Bandra on 2<sup>nd</sup> February 2024 to network with the industry professionals, and stay updated with current trends in the denim market and to get leads in accordance with our Wool Denim Project.
- Mr. Mayur Basuk, Mr. Sharan Shetty and Mr. Abhisek Boske Exhibited at IIC Regional meet held at Pillai College of Engineering HOCL campus, Rasayani on 6<sup>th</sup> February 2024 and displayed the range of products researched and developed at Wool Research Association.
- Mr. Mayur Basuk, Mr. Sharan Shetty, Atharvan Deshpande and Mr. Abhisek Boske Exhibited at Fibers and Yarn Exhibition, Mumbai 2024 on 22<sup>nd</sup>-24<sup>th</sup> February to display the range of products developed by WRA, to network and stay updated with the current trends in the market.
- Mr. K. K. Misra, Dr. Mrinal Choudhari, Ms. Seema Patel, Mr. Shishir Tyagi, Mr. Mayur Basuk, Dr. Swati Mahadik, Mr. Dinesh Marewad, Mr. Vaibhav Vankundre, Mr. Amit Yadav and Mrs. Prity Singh attended 4 days Bharat Tex 2024 Global Textile Expo organized by Ministry of Textiles Government of India at Bharat Mandapam between 26<sup>th</sup> to 29<sup>th</sup> February 2024, New Delhi.

**17.0 TRAINING PROGRAMME CONDUCTED / ATTENDED :**

- Students from elite institutes viz: VJTI , ICT , DKTE etc. were imparted hands on training on various aspects of Textiles including Technical Textiles during their Summer Internship Programme

**18.0 COUNCIL MEETINGS**

Three Governing Council Meetings and One Annual General Meeting were held during the year 2023-2024.

**159<sup>th</sup> Governing Council Meeting**

Wool Research Association's 159<sup>th</sup> Governing Council Meeting was held on Thursday, 23<sup>rd</sup> March, 2023 at 12.30 p.m. in the Conference Room, Wool Research Association, P.O. Sandoz Baug, Kolshet Road, Thane – 400607

**160<sup>th</sup> Governing Council Meeting**

Wool Research Association's 160<sup>th</sup> Governing Council Meeting of Wool Research Association was held on Thursday, 24<sup>th</sup> August, 2023 at 12.30 p.m. in the Conference Room, Wool Research Association, P.O. Sandoz Baug, Kolshet Road, Thane – 400 607

**161<sup>st</sup> Governing Council Meeting**

Wool Research Association's 161<sup>st</sup> Governing Council Meeting of Wool Research Association was held on Wednesday, 24<sup>th</sup> January, 2024 at 12.30 p.m. in the Conference Room, Wool Research Association, P.O. Sandoz Baug, Kolshet Road, Thane – 400 607

**58<sup>th</sup> Annual General Meeting**

58<sup>th</sup> Annual General Meeting of the Members of the Wool Research Association was held on Wednesday, 27<sup>th</sup> September, 2023 at 12.30 p.m. in the Conference Room, Wool Research Association, P.O. Sandoz Baug, Kolshet Road, Thane – 400 607

**19.0 MEMBERS OF WRA****ORDINARY MEMBERS :**

01. M/s. Bhilwara Synthetics Ltd, Bhilwara
02. M/s. Banswara Syntex Limited, Banswara
03. M/s. Cashmere Marketing Agencies, Srinagar
04. M/s. Centex International Pvt. Ltd., Ludhiana
05. M/s. G. R. Woollen Mills Pvt. Ltd., Mumbai
06. M/s. Grentex & Co. Pvt. Ltd. Mumbai
07. M/s. Gujarat Sheep & Wool Development Corporation, Gandhinagar
08. M/s. Geetanjali Woollens Pvt. Ltd., Panchmahal
09. M/s. Grasim Industries (Jaya Shree Textiles), Hooghly
10. M/s. Kusumgar Corporates Pvt. Ltd., Mumbai
11. M/s. Kapotex Industries Pvt. Ltd., Gujarat
12. M/s. Modern Woollens , Mumbai



13. M/s. Raymond Limited., Thane
14. M/s. Saravanabava Mills, Mumbai
15. M/s. Shree Ram Textile Mills Ltd., Silvasa
16. M/s. Thaker Felts Pvt. Ltd., Vadodara
17. M/s. Wooltex Associates, Mumbai

**ASSOCIATE MEMBERS :**

18. M/s. Indian Woollen Mills Federation, Mumbai
19. M/s. Woolmark Services India Pvt. Ltd, Thane

**SPECIAL ASSOCIATE MEMBERS :**

20. M/s. The Synthetic & Art Silk Mills Research Association, Mumbai
21. M/s. OCM India Ltd, Amritsar

**20.0 FOUNDER MEMBERS OF WOOL RESEARCH ASSOCIATION IN 1963**

1. Mr. T.N. Khaitan.  
Dhruva Woollen Mills Pvt. Ltd.,  
Sun Mill Compound, Lower Parel, Bombay
2. Mr. G.K. Singhania  
Raymond Woollen Mills Ltd., J.K. Building,  
Ballard Estate, Bombay
3. Mr. B.M. Grover  
Modella Woollen Mills,  
50, Vulcan Insurance Bldg.,  
Veer Nariman Road, Bombay
4. Mr. L.P. Pittie  
Bombay Woollen Mills P. Ltd.  
20, Hamam Street, Bombay
5. Mr. R.K. Seth  
Simplex Woollen Mills  
Sadhana Raymond House,  
D.N. Road, Bombay
6. Mr. R.B. Kanwar Rajnath  
Ahmed Woollen Mills  
Amernath C. Rly.  
Office : 87, Tamba Kanta  
Nakhoda Street, Bombay
7. Mr. T.K. Nagpal  
Nagpal Woollen Mills  
Old Atlas Mills Compound,  
Reay Road, Bombay
8. Mr. R.K. Birla  
Shree Digjam Woollen Mills  
Aerodrome Road, Jamnagar

**21.0 LIST OF CHAIRMAN EMERITUS / PRESIDENTS / SR.VICE PRESIDENTS & VICE PRESIDENTS SINCE INCEPTION**

PERIOD/ YEAR	CHAIRMAN EMERITUS	PRESIDENT	SR. VICE PRESIDENT	VICE PRESIDENT
1964/65 to 1968/69	-	Mr.G..K. Singhania Raymond Woollen Mills	Mr. T.N. Khaitan Dhruva Woollen Mills	Mr. L.P. Pittie Bombay Woollen Mills
1969/70	-	Mr. U.M. Patel Dinesh Woollen Mills	Mr. B.M. Grover Modella Woollen Mills	Mr. B.B. Nagpal Nagpal Woollen Mills
1970/71 to 1975/76	-	Mr. B.M. Grover Modella Woollen Mills	Mr. L.P. Pittie Bombay Woollen Mills	Mr. R.K. Seth Simplex Woollen Mills
1976/77 to 1977/78	-	Mr. B.M. Grover Modella Woollen Mills	Mr. L.P. Pittie Bombay Woollen Mills	Mr. T.N. Khaitan Dhruva Woollen Mills
1978/79 to 1981/82	-	Mr. B.M. Grover Modella Woollen Mills	Mr. T.N. Khaitan Dhruva Woollen Mills	Mr. B.K. Kedia Raymond Woollen Mills
1982/83	-	Mr. T.N. Khaitan Dhruva Woollen Mills	Mr. B.K. Kedia Raymond Woollen Mills	Mr. U.M. Patel Dinesh Woollen Mills
1983/84	-	Mr. Ravikant Kapur G.R. Woollen Mills Ltd	Mr. U.M. Patel Dinesh Woollen Mills	Mr. K.V. Iyer Raymond Woollen Mills
1984/85 to 1993/94	-	Mr. B.K. Kedia Raymond Woollen Mills	Mr. U.M. Patel Dinesh Woollen Mills	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd.
1994/95 to 1997/98	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd	Mr. U.M. Patel Dinesh Woollen Mills	Mr. K.V. Iyer Raymond Woollen Mills
1998/99 to 1999-2000	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd	Mr. Hari Prasad Kedia Raymond Limited	Mr. A.N. Choudhary Jayashree Textiles
2000-2002	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd	Mr. V.K. Bhartia Raymond Limited	Mr. A.N. Choudhary Jayashree Textiles
2002-2004	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. V.K. Bhartia Raymond Limited	Mr. A.N. Choudhary Jayashree Textiles
2004-2006	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. V.K. Bhartia Raymond Limited	Mr. A.N. Choudhary Jayashree Textiles
2006-2008	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr.S.K. Singhal Raymond Limited	Mr. R.K.Khanna Amritsar Swadeshi Woollen Mills
2008-2010	Mr. B.K. Kedia Raymond Woollen Mills	Mr. Ravikant Kapur G.R. Woollen Mills Ltd	Mr. S.K. Singhal Raymond Limited	Mr. R.K.Khanna Amritsar Swadeshi Woollen Mills
2010-2012	-	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. S.K. Singhal Raymond Limited	Mr. R.K.Khanna Amritsar Swadeshi Woollen Mills
2012-2014	-	Mr. Ravikant Kapur G.R. Woollen Mills Ltd.	Mr. S.L. Pokharna Raymond Ltd	Mr. R.K.Khanna Amritsar Swadeshi Mr. R.K. Khandelwal Raymond Ltd
2014-2016	-	Mr. Ravikant Kapur G.R. Woollen Mills Ltd	Mr. H.K. Chatterjee Raymond Ltd	Mr. Deepak Goel Geetanjali Woollens P.Ltd. Mr. R.K. Khandelwal Raymond Ltd
2016-2018	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd	Mr. H.K. Chatterjee Raymond Ltd	Mr. Deepak Goel Geetanjali Woollens P. Ltd.	Mr. R.K. Khandelwal Raymond Ltd
2018-2020	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd	Mr. H.K. Chatterjee Raymond Ltd	Mr. Deepak Goel Geetanjali Woollens P. Ltd.	-
2020-2022	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd	Mr. H.K. Chatterjee Raymond Ltd	Mr. Deepak Goel Geetanjali Woollens P. Ltd.	-
2022-2024	Mr. Ravikant Kapur Grentex & Co. Pvt. Ltd	Mr. H.K. Chatterjee Raymond Ltd	Mr. Deepak Goel Geetanjali Woollens P. Ltd.	-

## 22.0 LIST OF DIRECTOR GENERAL /DIRECTORS/ JOINT DIRECTOR /SR /DY.DIRECTORS SINCE INCEPTION

PERIOD (YEAR)	SECRETARY	DIRECTOR	DIRECTOR GENERAL	JOINT	SR / DEPUTY DIRECTOR
1964/65	Mr. J.N. Chaudhuri	-	-	-	
1965/66	Mr. A.C. Chaudhuri	-	-	-	Dr.M.G. Kulkarni
1966/67 & 1967/68	Mr. A.C. Chaudhuri	-	-	-	Dr. N.P. Badve
1968/69 & 1969/70	Mr. A.C. Chaudhuri	-	-	-	Dr. N.P. Badve
1970/71 to 1977/78	Mr. A.C. Chaudhuri	-	Mr. Sule <b>Assistant Director</b> (from 1971 to 1975)	-	-
1978/79	Mr. A.C. Chaudhuri	-	Dr.V.G. Kulkarni	-	-
1979/80	Mr. A.C. Chaudhuri	-	-	-	Dr (Mrs) Usha Nandurkar
1980/81 & 1981/82	-	-	Dr.A.D.M. Nath	-	Dr (Mrs) Usha Nandurkar
1983/84 to 1985/86	-	-	Dr (Mrs) Usha Nandurkar	-	-
1986/87 to 1987/88	-	-	Dr.(Mrs) S Patwardhan (Offg)	-	-
1988/89 to 1998/99.	-	-	Dr. (Mrs) S Patwardhan	-	-
Jan' 2000 7 <sup>th</sup> Sept.2003	-	-	Mrs. G.P. Rane Acting Director (Offg)	-	-
8 <sup>th</sup> Sept.2003 7 <sup>th</sup> Sept.2006	-	-	Mr. S.C. Agarwal	-	Mrs. G.P. Rane
8 <sup>th</sup> Sept.2006	-	-	-	-	Mrs. G.P. Rane
2 <sup>nd</sup> July, 2007 to 2015	-	-	Mr. M.K. Bardhan	-	-
1 <sup>st</sup> March 2012-15	-	-	-	-	Dr (Mrs) Mrinal Choudhari
January,2016 onwards	-	Mr. M.K. Bardhan	-	Dr (Mrs) Mrinal Choudhar	Mr. P.R.Kulkarni
May- Dec,16	-	-	Dr.SumanBhattacharyya	-	-
June, 2016	-	-	-	-	Mr. S. Parmar
Feb.'2017 till Sept, 2019 June,2017 onwards August,2017 onwards	-	-	Dr. A.K. Sharma Choudhari	Dr (Mrs) Mrinal  Ms. Seema Patel  Mr. Pawan Sharma	-
July, 2019	-	-	Dr. Md.S. Rahman	Dr (Mrs) Mrinal Choudhari Ms. Seema Patel Mr. Pawan Sharma	-
Dec.,2020 onwards	-	-	Mr.K.K.Misra Director (Officiating) & C.O.O.	Dr. Mrs. Mrinal Choudhari Ms. Seema Patel	
April, 2021 Onwards	-	-	Mr..K.K.Misra Director (Officiating) & C.O.O.	Dr (Mrs) Mrinal Choudhari Ms. Seema Patel	Dr. Smita Bait Mr.ShishirTyagi Mr. Mayur Basuk
Jan, 2023	-	Mr. M.K. Bardhan Director General Emeritus	Mr.K.K.Misra Director & C.O.O.	Dr (Mrs) Mrinal Choudhari Ms. Seema Patel	Mr.ShishirTyagi Mr. Mayur Basuk

**23.0 LIST OF DONOR MEMBERS**

SR NO.	NAME OF THE ORGANISATION	YEAR OF DONATION
1.	M/s Raymond Woollen Mills	1971-72
2.	M/s Modella Woollens Ltd	1971-72
3.	M/s Shree Dinesh Mills	1971-72
4.	M/s G.K. Nagpal & Sons	1971-72
5.	M/s Beekay & Sons	1971-72
6.	M/s Shree Digvijay Woollen Mills Ltd.	1971-72
7.	M/s Dhruva Woollen Mills	1971-72
8.	M/s Wool Combers of India	1971-72
9.	M/s Bombay Woollen Mills	1971-72
10.	M/s Karamchand Tulsidas	1971-72
11.	Shri. B.M. Grover - Chairman - Modella (For Physical & Colour Research Laboratory)	1976-77
12.	Shri Gopal Krishna Singhania - Raymond (For Chemical Research Laboratory)	1980-81
13.	Shri. Upendrabhai M. Patel - Chairman Shri Dinesh Mills Ltd (For Textile Research Department)	1992-93
14.	M/s R.G. Deshpande and Bros.	1999-2000
15.	Shri. M.K. Bardhan, Ex-Director, WRA	2019-2020

**24.0 EDUCATIONAL ACTIVITIES**

Shri. Mayur Basuk is pursuing Ph.D.

**25.0 ACKNOWLEDGEMENT**

We are thankful to Ministry of Textiles, Ministry of Finance, Central Wool Development Board, Office of the Textile Commissioner, Department of Science & Technology, National Technical Textile Mission, National Jute Board Indian Woollen Mills Federation for the help extended to Wool Research Association from time to time.



**J.P.J. ASSOCIATES LLP  
CHARTERED ACCOUNTANTS**

**Registered Office :**  
D/401, Shantidwar C & D Wing CHS  
Shantivan, Borivali (East)  
Mumbai - 400066

**Tel : 022 – 6883 1279**  
**Email : jpj@jpjassociates.com**

## **AUDITOR'S REPORT**

**To the Members  
Wool Research Association  
Thane**

### **Report on the Financial Statements**

We have audited the accompanying financial statements of Wool Research Association ("the Society"), which comprise the Balance Sheet as at March 31, 2024, 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 a true and fair view of the financial position, financial performance in accordance with the Accounting Standards and Generally accepted accounting principles. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements 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 of 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 the auditor's judgment, including the assessment of the risks 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 the Society's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. 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 the information required by the Act in the manner so required and give a true and fair view subject to

- a) Note No.3 regarding Balance Confirmations and GST reconciliation,
- b) Note No. 4 regarding Subscription
- c) Note No. 6 Non provision of diminution of Value of investment.

d) Note No. 10 Non Provision of Depreciation.  
in conformity with the accounting principles generally accepted in India:

(a) in the case of the Balance Sheet, of the state of affairs of the Society as at March 31, 2024;

(b) in the case of the Income and Expenditure Account, the Excess of Expenditure over Income for the year ended on that date; and

**Report on Other Legal and Regulatory Requirements**

a. we have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit;

b. in our opinion proper books of account as required by law have been kept by the Society so far as appears from our examination of those books;

c. the Balance Sheet, Income and Expenditure Account dealt with by this Report are in agreement with the books of account;

For J.P.J. ASSOCIATES LLP CHARTERED ACCOUNTANTS FIRM REG.NO. 113012  
W/W100296

**Sd/-**

VAIBHAV VAIDYA

PARTNER

MEM. NO. 157754

Date: 09/08/2024

UDIN: 23157754BGUAHZ7662



**WOOL RESEARCH ASSOCIATION, THANE.**  
**BALANCE SHEET AS ON 31st MARCH 2024**

AS ON 31/03/2023 Rs.	LIABILITIES	SCH- DULE	AS ON 31/03/2024 Rs.	AS ON 31/03/2023 Rs.	ASSETS	SCH- DULE	AS ON 31/03/2024 Rs.
11,53,50,036	<b>CAPITAL FUND</b>	A	11,77,68,567	37,94,94,772	<b>FIXED ASSETS</b>	E	38,29,77,788
16,27,01,598	<b>RESERVES</b>	B	20,28,76,820	11,56,400	<b>INVESTMENT AT COST</b>		11,56,400
					11564/- Equity shares of		
3,50,26,013	<b>SUNDRY LIABILITIES</b>	C	2,00,10,226		Rs.100/- each fully paid up of		
24,79,85,674	<b>GRANT-IN-AID FROM MOT, KVIC, AIHB, &amp; UNDP TOWARDS CAPITAL EXPS. FOR SPECIAL PROJECTS</b>	D	24,59,96,696		M/s.Gujarat Sheep & Wool Development Corpn. Ltd., (for break-up value of the shares, please refer to Note 6 the notes on Account schedule "L" )		
	<b>COE - SPORTECH</b>			16,47,07,506	<b>CURRENT ASSETS</b>	F	17,99,64,180
	OP.Balance		24,361				
	Grant recd.		-				
	Add: F.Ds closed		2,27,76,951		<b>LOANS &amp; ADVANCES</b>	G	1,39,15,254
	Add: Other receipts		1,03,08,149		<b>PROJECTS</b>	H	1,02,90,266
			3,31,09,461				
24,361	Less : Funds applied/utilised		5,38,443				
	<b>Design &amp; Dev.of Light weight.</b>						
	OP.Balance		25,634				
	Grant recd.		5,82,546				
	Industry's/Institute's Share		-				
	Add: Other receipts		-				
			6,08,180				
25,634	Less : Funds applied/utilised		5,81,027				
	<b>MAVIM</b>			27,153			
	OP.Balance		84,56,956				
	Grant recd.		0				
	Add: Int.recd. on F.D.		21,36,020				
	Add: Other receipts		1,35,55,976				
			2,41,48,952				
84,56,956	Less : Funds applied/utilised		2,30,62,969				
<b>56,95,70,272</b>	<b>TOTAL</b>		<b>58,83,03,888</b>	<b>56,95,70,272</b>	<b>TOTAL</b>		<b>58,83,03,888</b>

NOTE : SEE SCHEDULE " L " OF NOTES ON ACCOUNTS AS PER OUR REPORT OF EVEN DATE ATTACHED.

for J.P.J. ASSOCIATES LLP  
 CHARTERED ACCOUNTANTS  
 FIRM REG.NO. 113012 W/W100296

Sd/-  
 VAIBHAV VAIDYA  
 PARTNER  
 MEM. NO. 157754

Sd/-  
 R.V. BHANDARKAR  
 SR. ACCTS OFFICER

Sd/-  
 K.K.MISRA  
 DIRECTOR

Sd/-  
 H.K. CHATTERJEE  
 PRESIDENT

PLACE : MUMBAI  
 DATE : 09/08/2024

**WOOL RESEARCH ASSOCIATION, THANE.**  
**INCOME AND EXPENDITURE ACCOUNT FOR NON-PLAN A/C FOR THE YEAR ENDED 31st MARCH, 2024**

AS ON 31/03/2023 Rs.	EXPENDITURE	SCHE- DULE	AS ON 31/03/2024 Rs.	AS ON 31/03/2023 Rs.	INCOME	SCHE- DULE	AS ON 31/03/2024 Rs.
2,55,41,363	STAFF SALARY	I	3,03,16,588	2,10,00,000	GRANT-IN-AID FROM MINISTRY OF TEXTILES, GOVT., OF INDIA TOWARDS RECURRING EXPENDITURE		2,10,00,000
1,63,79,819	ESTABLISHMENT CHARGES	J	1,74,41,869				
60,000	AUDIT FEES		75,000				
48,509	AGM ,SEMINAR & MEETING AND CONFERENCE EXPS.		18,52,062	2,27,72,649	<b>SCHEDULE - (INCOME)</b> INDUSTRY'S CONTRIBUTION TOWARDS RECURRING EXPS.	K	3,01,70,645
8,77,114	CHEMICALS AND RAW MATERIAL		5,15,396				
7,75,937	BAD DEBTS WRITTEN OFF		-				
89,908	PROJECT COST INCURRED BY WRA		969,730.00	887,333	EXCESS OF EXPENDITURE OVER INCOME CARRIED TO BALANCE SHEET		1,146,829
887,333	DEPRECIATION		1,146,829				
<b>4,46,59,983</b>	<b>TOTAL</b>		<b>5,23,17,474</b>	<b>4,46,59,983</b>	<b>TOTAL</b>		<b>5,23,17,474</b>

NOTE : SEE SCHEDULE " L " OF NOTES ON ACCOUNTS AS PER OUR REPORT OF EVEN DATE ATTACHED.

for J.P.J. ASSOCIATES LLP  
 CHARTERED ACCOUNTANTS  
 FIRM REG.NO. 113012 W/W100296

Sd/-  
 VAIBHAV VAIDYA  
 PARTNER  
 MEM. NO. 157754

PLACE : MUMBAI  
 DATE : 09/08/2024

Sd/-  
 R.V. BHANDARKAR  
 SR. ACCTS. OFFICER

Sd/-  
 K.K.MISRA  
 DIRECTOR

Sd/-  
 H.K. CHATTERJEE  
 PRESIDENT

**WOOL RESEARCH ASSOCIATION**  
**(R & D PROJECT)**  
**INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2024**

PROJECT : Development of Novel Detergent Formulation for wool with immobilized enzymes for enhancing machine wash ability of wool fabric.  
(SCHEDULE - 1)

PREVIOUS YEAR	EXPENDITURE	CURRENT YR. (Rs.)	PREVIOUS YR. (Rs.)	INCOME (Rs.)	CURRENT YR. (Rs.)
-	Raw material/consumables	-	46060	Grant-in-Aid from Ministry of Textiles, New Delhi	28000
-	Consultancy	-			
65800	Promotion/Proof of Concept	40000	19740	Industry's/WRA's contribution	12000
65800	TOTAL	40000	65800	TOTAL	40000

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP  
CHARTERED ACCOUNTANTS  
FIRM REG.NO. 113012 W/W100296

Sd/-  
VAIBHAV VAIDYA  
PARTNER  
MEM.NO. 157754

PLACE : MUMBAI  
DATE : 09/08/2024

Sd/-  
R.V. BHANDARKAR  
SR. ACCTS. OFFICER

Sd/-  
K.K.MISRA  
DIRECTOR

Sd/-  
H.K. CHATTERJEE  
PRESIDENT

**WOOL RESEARCH ASSOCIATION****(R & D PROJECT)****INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2024**

**PROJECT :** Design and Development of sportwear and sports accessories having Thermo Physiological comfort properties in order to enhance the performance assessed by using a Sweating Thermal Manikin system under different environmental conditions

(SCHEDULE - 2)

PREVIOUS YEAR	EXPENDITURE	CURRENT YR. (Rs.)	PREVIOUS YR. (Rs.)	INCOME (Rs.)	CURRENT YR. (Rs.)
150000	Salaries/Wages	-	145880	Grant-in-Aid from Ministry of Textiles, New Delhi	284390
20400	Raw material/consumables	406250			
18000	Consultancy	-	62520	Industry's/WRA's contribution towards project expenses	121860
20000	Overhead/Contingencies	-			
<b>208400</b>	<b>TOTAL</b>	<b>406250</b>	<b>208400</b>	<b>TOTAL</b>	<b>406250</b>

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP  
**CHARTERED ACCOUNTANTS**  
**FIRM REG.NO. 113012 WW100296**

Sd/-  
**VAIBHAV VAIDYA**  
**PARTNER**  
**MEM.NO. 157754**

**PLACE : MUMBAI**  
**DATE : 09/08/2024**

Sd/-  
**R.V. BHANDARKAR**  
**SR. ACCTS. OFFICER**

Sd/-  
**K.K.MISRA**  
**DIRECTOR**  
  
Sd/-  
**H.K. CHATTERJEE**  
**PRESIDENT**

**WOOL RESEARCH ASSOCIATION**  
**(R & D PROJECT)**

**INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2024**

**PROJECT :** Development of cost effective handmade carpets & Floor Coverings, Home Furnishings & Knitwears using Jute (Treated Woolenised or Untreated) & other natural fibres with value added eco-friendly finishes such as with Flame Retardancy, Mosquito Repellent, Anti-Bacterial/Antimicrobial Properties etc."

(SCHEDULE - 3)

PREVIOUS YEAR	EXPENDITURE	CURRENT YR. (Rs.)	PREVIOUS YR. (Rs.)	INCOME (Rs.)	CURRENT YR. (Rs.)
613850	Salaries/Wages	986677	1434821	Grant-in-Aid from National Jute Board, Ministry of Textiles, Govt. of India Kolkatta	3042825
47595	Consultancy	187000			
189187	Raw material/consumables	593018			
226202	Proof of Concept	247222			
126049	Trial & Testing	184025			
36414	Monitoring & Review	44026			
153562	Overhead/Contingencies	271050			
41962	Travelling	529807			
<b>1434821.00</b>	<b>TOTAL</b>	<b>3042825</b>	<b>1434821.00</b>	<b>TOTAL</b>	<b>3042825</b>

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP  
CHARTERED ACCOUNTANTS  
FIRM REG.NO. 113012 W/W100296

Sd/-  
VAIBHAV VAIDYA  
PARTNER  
MEM.NO. 157754

Sd/-  
R.V. BHANDARKAR  
SR. ACCTS. OFFICER

Sd/-  
K.K.MISRA  
DIRECTOR  
Sd/-  
H.K. CHATTERJEE  
PRESIDENT

PLACE : MUMBAI  
DATE : 09/08/2024



WOOL RESEARCH ASSOCIATION  
(R & D PROJECT)  
INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2024

PROJECT : Sustainable Enhancement of Aesthetic values of Woolens by Digital Printing (SCHEDULE - 4)

PREVIOUS YEAR	EXPENDITURE	CURRENT YR. (Rs.)	PREVIOUS YR. (Rs.)	INCOME (Rs.)	CURRENT YR. (Rs.)
600000	Salaries/Wages	550000	615613	Grant-in-Aid from Central Wool Development Board	1229087
399	Raw material/consumables	423973		Ministry of Textiles, Govt. of India, Jodhpur	
2840	Travelling	6705			
12374	Administrative expenses	58022			
	Testing & other costs	99790			
	Proof of concept/ promotion & dissemination of knowledge	90597			
615613	TOTAL	1229087	615613.00	TOTAL	1229087

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP  
CHARTERED ACCOUNTANTS  
FIRM REG.NO. 113012 W/W100296

Sd/-  
VAIBHAV VAIDYA  
PARTNER  
MEM.NO. 157754

PLACE : MUMBAI  
DATE : 09/08/2024

Sd/-  
R.V. BHANDARKAR  
SR. ACCTS. OFFICER

Sd/-  
K.K.MISRA  
DIRECTOR  
  
Sd/-  
H.K. CHATTERJEE  
PRESIDENT

**WOOL RESEARCH ASSOCIATION  
PROJECT A/C - COE-SPORTECH**

(SCHEDULE - 5)

PREVIOUS YEAR (2022-23) (Rs.)	RECEIPTS	CURRENT YR. (2023-24) (Rs.)	PREVIOUS YR. (2022-23) (Rs.)	PAYMENTS	CURRENT YR. (2023-24) (Rs.)
25,010	Opening Balance	24,361	145,083	Sundry Debtors	-
8,82,960	Interest on FD	-	88,308	TDS receivable (23-24)	25,065
8,496	Accrued Interest (Net)	12,636	-	Deposites against PBG	64,800
-	Sundry Debtors	10,295,513	-	EMD refunded	754,500
-	Fixed Deposits	227,76,951	803,148	Fixed Deposits	-
145,083	TDS refund (recd.)	-		Interest on FD	31,352,969
				Sundry Creditors	3,73,637
				Bank Charges	47
				Bank Balance	5,38,443
<b>10,61,549</b>	<b>TOTAL</b>	<b>331,09,461</b>	<b>10,61,549</b>	<b>TOTAL</b>	<b>331,09,461</b>

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP  
CHARTERED ACCOUNTANTS  
FIRM REG.NO. 113012 W/W100296

Sd/-  
VAIBHAV VAIDYA  
PARTNER  
MEM.NO. 157754

PLACE : MUMBAI  
DATE : 09/08/2024

Sd/-  
R.V. BHANDARKAR  
SR. ACCTS. OFFICER

Sd/-  
K.K.MISRA  
DIRECTOR

Sd/-  
H.K. CHATTERJEE  
PRESIDENT

**WOOL RESEARCH ASSOCIATION**  
**PROJECT A/C. - LAB UPGRADATION**

(SCHEDULE - 6)

PREVIOUS YEAR (2022-23) (Rs.)	RECEIPTS	CURRENT YR. (2023-24) (Rs.)	PREVIOUS YR. (2022-23) (Rs.)	PAYMENTS	CURRENT YR. (2023-24) (Rs.)
870,696	Sundry Debtors	976,322	870,696	Sundry Creditors	784,895
			-	EMD etc..	191,427
<b>8,70,696</b>	<b>TOTAL</b>	<b>9,76,322</b>	<b>8,70,696</b>	<b>TOTAL</b>	<b>976,322</b>

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP  
CHARTERED ACCOUNTANTS  
FIRM REG.NO. 113012 W/W100296

Sd/-  
VAIBHAV VAIDYA  
PARTNER  
MEM.NO. 157754

PLACE : MUMBAI  
DATE : 09/08/2024

Sd/-  
R.V. BHANDARKAR  
SR. ACCTS. OFFICER

Sd/-  
K.K.MISRA  
DIRECTOR

Sd/-  
H.K. CHATTERJEE  
PRESIDENT

**WOOL RESEARCH ASSOCIATION**  
**PROJECT A/C. - Design and Development of Light Weight and high Impact resistance sports goods**

(SCHEDULE - 7)

PREVIOUS YEAR (2022-23) (Rs.)	RECEIPTS	CURRENT YR. (2023-24) (Rs.)	PREVIOUS YR. (2022-23) (Rs.)	PAYMENTS	CURRENT YR. (2023-24) (Rs.)
25,826	Opening Balance	25,634	387,044	Consultancy Charges	99,965
582,546	Grant received from MOT	582,546	161,803	Consumables	-
			-	Proof of concept	148,800
			8,632	Sundry Creditors	3,10,801
			5,192	Bank Charges	3,481
			20,067	Overhead exps.	17,980
			25,634	Bank Balance	27,153
<b>608,372</b>	<b>TOTAL</b>	<b>608,180</b>	<b>6,08,372</b>	<b>TOTAL</b>	<b>6,08,180</b>

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP  
 CHARTERED ACCOUNTANTS  
 FIRM REG.NO. 113012 W/W100296

Sd/-  
 VAIBHAV VAIDYA  
 PARTNER  
 MEM.NO. 157754

PLACE : MUMBAI  
 DATE : 09/08/2024

Sd/-  
 R.V. BHANDARKAR  
 SR. ACCTS. OFFICER

Sd/-  
 K.K. MISRA  
 DIRECTOR

Sd/-  
 H.K. CHATTERJEE  
 PRESIDENT

**WOOL RESEARCH ASSOCIATION**  
**PROJECT A/C. - Mahila Arthik Vikas Mahamandal (MAVIM)**

(SCHEDULE - 8)

PREVIOUS YEAR (2022-23) (Rs.)	RECEIPTS	CURRENT YR. (2023-24) (Rs.)	PREVIOUS YR. (2022-23) (Rs.)	PAYMENTS	CURRENT YR. (2023-24) (Rs.)
167,65,087	Opening balance	84,56,956	3,407,310	Sundry Creditors	-
116,00,000	Grant from MAVIM (Govt. of Maharashtra)	-	4,904,198	Fixed assets	9,675,711
-	Sundry Creditors	4,591,052	-	Sundry Debtors	1,119,092
2,038,119	Interest earned	2,136,020	10,781,000	Mandays/Salary expenses	2,530,200
2,752,032	Fixed Deposit	8,830,402	-	Consultancy	5,733,000
3,021,003	Sundry Debtors	-	643,839	Travelling expenses	907,537
82,732	TDS receivable (recd.)	134,522	3,271,374	Raw material	1,783,400
			452,401	Testing and Inspection charges	314,632
			69,450	Salary payable	61,550
			66,059	Interest accrued (Net)	-
			-	Interest reversed	168,224
			203,717	TDS receivable	202,408
			1,011,787	Misc. exps.	566,527
			195,300	Processing cost	-
			2,448,197	Carpet Designs	-
			1,286	Bank Charges	689
			296,100	Designing/hardware/software	-
			50,000	Web designing	-
			8,456,956	Bank Balance	1,085,983
<b>36,258,974</b>	<b>TOTAL</b>	<b>241,48,952</b>	<b>362,58,974</b>	<b>TOTAL</b>	<b>241,48,952</b>

for J.P.J. ASSOCIATES LLP  
 CHARTERED ACCOUNTANTS  
 FIRM REG.NO. 113012 W/W100296

Sd/-  
 VAIBHAV VAIDYA  
 PARTNER  
 MEM.NO. 157754

PLACE : MUMBAI  
 DATE : 09/08/2024

Sd/-  
 R.V. BHANDARKAR  
 SR. ACCTS. OFFICER

Sd/-  
 K.K. MISRA  
 DIRECTOR

Sd/-  
 H.K. CHATTERJEE  
 PRESIDENT



**WOOL RESEARCH ASSOCIATION**  
**PROJECT A/C. - CENTRAL WOOL DEVELOPMENT BOARD (CWDB)**

(SCHEDULE - 9)

PREVIOUS YEAR (2022-23) (Rs.)	RECEIPTS	CURRENT YR. (2023-24) (Rs.)	PREVIOUS YR. (2022-23) (Rs.)	PAYMENTS	CURRENT YR. (2023-24) (Rs.)
2,298,207	Grant -in Aid	7,717,338	524,051	Sundry Debtors	-
99,000	Sundry Creditors	414,972	1,244,743	Consumables	1,880,205
2,68,338	Axis Bank	-	655,000	Manpower cost (Salary exps.)	3,472,176
-	Sundry Debtors	3,91,363	227,349	Lab equipment (Capex)	1,125,000
			9,911	Travelling exps.	757,432
			4,490	Bank charges	-
			-	Testing and other misc.cost	1,234,184
			-	Excess grant accounted in previous year now adjusted	39,800
			-	Over head	14,876
<b>26,65,545</b>	<b>TOTAL</b>	<b>85,23,673</b>	<b>26,65,545</b>	<b>TOTAL</b>	<b>8,523,673</b>

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J.ASSOCIATES LLP.  
 CHARTERED ACCOUNTANTS  
 FIRM REG.NO. 113012 W/W100296

Sd/-  
 VAIBHAV VAIDYA  
 PARTNER  
 MEM.NO. 157754

Sd/-  
 R.V. BHANDARKAR  
 SR. ACCTS. OFFICER

Sd/-  
 K.K. MISRA  
 DIRECTOR

Sd/-  
 H.K. CHATTERJEE  
 PRESIDENT

PLACE : MUMBAI  
 DATE : 09/08/2024

**WOOL RESEARCH ASSOCIATION**  
**PROJECT A/C. - NATIONAL TECHNICAL TEXTILE MISSION (NTTM)**

(SCHEDULE - 10)

PREVIOUS YEAR (2022-23) (Rs.)	RECEIPTS	CURRENT YR. (2023-24) (Rs.)	PREVIOUS YR. (2022-23) (Rs.)	PAYMENTS	CURRENT YR. (2023-24) (Rs.)
-	Opening Balance	-	-	Man Days Charges (Salary exps.)	1153818
-	Grant credited from NTTM	5,298,753	-	Consultancy	360,000
-	Sundry debtors	1,538,273	-	Consumables	1,146,899
				Promotion/Proof of concept	880,600
				Travelling exps.	353,865
				Testing & other misc.cost	12,81,215
				Sundry creditors	5,36,663
				Overhead exps.	11,23,965
				Closing balance	-
-	<b>TOTAL</b>	<b>6,837,026</b>		<b>TOTAL</b>	<b>6,837,026</b>

Note : See schedule 'L' of Note on Accounts as per our report even date attached.

for J.P.J. ASSOCIATES LLP  
 CHARTERED ACCOUNTANTS  
 FIRM REG.NO. 113012 W/W100296

Sd/-  
 VAIBHAV VAIDYA  
 PARTNER  
 MEM.NO. 157754

PLACE : MUMBAI  
 DATE : 09/08/2024

Sd/-  
 R.V. BHANDARKAR  
 SR. ACCTS. OFFICER

Sd/-  
 K.K. MISRA  
 DIRECTOR

Sd/-  
 H.K. CHATTERJEE  
 PRESIDENT

**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE "A"**

<b>AS ON 31/03/2023 Rs.</b>	<b>CAPITAL FUND</b>	<b>AS ON 31/03/2024 Rs.</b>
11,21,47,683	Balance as per last Balance sheet.	11,41,93,636
11,21,47,683	Add : Project Assets taken over during the year	11,41,93,636
20,45,953		24,18,531
11,41,93,636		11,66,12,167
-		-
11,41,93,636	a) EARMARKED CAPITAL FUND : [Being donation received from members for investment in M/s. Gujarat Sheep & Wool Development Corporation Ltd., in terms of resolution passed in 23rd G.C. meeting held on 26th August.' 1971.]	11,66,12,167
11,56,400		11,56,400
<b>11,53,50,036</b>	<b>TOTAL</b>	<b>11,77,68,567</b>

**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE "B"****RESERVES**

AS ON 31/03/2023 Rs.	PARTICULARS	AS ON 31/03/2024 Rs.
	<b><u>I. DEPRECIATION RESERVE A/C.</u></b>	
1,33,46,494	a] Depreciation upto last year	1,42,33,827
8,87,333	b] Depreciation for the year	11,46,829
1,42,33,827		1,53,80,656
	<b><u>II. RESEARCH AND DEVELOPMENT AND REPLACEMENT / UPGRADATION RESERVE</u></b>	
1,10,00,508	Balance as per last balance sheet.	1,10,00,508
'--	Add : Addition during the year.	'--
1,10,00,508		1,10,00,508
	<b><u>III. EDUCATION FUND.</u></b>	
3,76,430	Balance as per last balance sheet.	3,86,448
10,018	Add : Interest received during the year	12,150
3,86,448		3,98,598
	<b><u>IV. CORPUS FUND</u></b>	
10,16,28,059	Balance as per last balance sheet.	13,70,80,815
3,63,40,089	Add : Addition during the year.	4,01,63,072
13,79,68,148		17,72,43,887
8,87,333	Less : Excess of expenditure over income transferred.	11,46,829
13,70,80,815		17,60,97,058
	<b><u>V.DONATION CORPUS FUND</u></b>	
221,743	Balance as per last balance sheet.	-
6,214	Add : Interest received during the year	-
2,27,957		-
227,957	Less : Returned during the year	-
-		-
16,27,01,598	<b>TOTAL ( I+II+III+IV+V )</b>	<b>20,28,76,820</b>

**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE "C"****OUTSTANDING LIABILITIES**

<b>AS ON 31/03/2023 Rs.</b>	<b>PARTICULARS</b>	<b>AS ON 31/03/2024 Rs.</b>
59,47,886	For the year 2017-2018	0.00
31,605	For the year 2018-2019	0.00
582	For the year 2020-2021	0.00
42,000	For the year 2021-2022	42,000
9,75,243	For the year 2022-2023	0.00
0.00	For the year 2023-2024	10,31,765
25,000	Security Deposit (EMD )	25,000
55,34,326	Gratuity provision.	75,84,788
56,98,810	Leave salary provision.	73,58,626
8,04,853	Sundry liabilities (WRA)	9,81,846
13,217,746	COE - Sportech	2,922,233
13,42,551	Amount Refundable to MOT	0.00
2,22,100	Duties and taxes (Net)	17,760
	<b><u>PROJECT LIABILITIES :</u></b>	
1,60,781	CWDB - IWDP Schemes	0.00
10,22,530	Lab Upgradation A\c	46,208
<b>3,50,26,013</b>	<b>TOTAL</b>	<b>2,00,10,226</b>



**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE "D"****ASSETS OF PROJECT (MINISTRY OF TEXTILES)**

NAME OF THE PROJECT	PARTICULARS	AS ON 31/03/2023 Rs.	ADDITION DURING THE YEAR. Rs.	TAKEN OVER DURING THE YEAR Rs.	ASSETS AS ON 31/03/2024 Rs.
<b>SPENT GRANT</b>					
1) COE - Sportech	Lab equipments/Machinery	21,54,50,989	-	-	21,54,50,989
2) COE - Sportech	Books& Journals	59,50,058	-	-	59,50,058
3) COE - Sportech	IT -Infrastructure/Web Site	11,99,237	-	-	11,99,237
4) Development of Membrane Bioreactors ....	Lab equipments	565,921	-	565,921	-
5) Dev.of Novel Detergent Formulation for wool	Lab equipments	1,132,800	-	1,132,800	-
6) Dev.of fitness clothing like gym and Yoga wear with	Lab equipments	-	-	-	-
7) Development of sports gears (inner wears,socks,etc)	Lab equipments	418,000	-	418,000	-
8) Synthesis of water soluble fluroscent colorants for	Lab equipments	301,810	-	301,810	-
9) MAVIM project	Lab equipments/Furniture	20,717,550	-	-	2,07,17,550
10) Sustainable enhancement of Aesthetic values..	Lab equipments	15,508	-	-	15,508
11) Central Wool Dev. Board (IWDP) Schemes	Lab equipments	227,349	1,125,000	-	13,52,349
	<b>TOTAL</b>	<b>24,59,79,222</b>	<b>11,25,000</b>	<b>24,18,531</b>	<b>24,46,85,691</b>
NOTE : 1) Grant-in-Aid due has been shown under the head of "Current Assets."					
<b>UNSPENT GRANT</b>		<b>CAPITAL</b>	<b>RECURRING</b>	<b>W/BACK</b>	<b>TOTAL (Rs.)</b>
a) Sustainable Enhancement of Aesthetic values by digital printing....		-	-	-	-
b) Dev.of Cost Effective hand made carpets & floor covering...using Jute....		-	538,352	-	5,38,352
c) Development of Membrane Bioreactors as a solution for compact....		3,26,525	-	-	3,26,525
d) Dev.of Novel Detergent Formulation for wool with immobilized enzymes..		-	80,671	-	80,671
e) Design & Dev.of sportswear having Thermo Physiology..			55,984		55,984
f) Synthesis of water soluble fluroscent colorants for			309,471		3,09,471
	<b>TOTAL</b>	<b>3,26,525</b>	<b>9,84,479</b>	<b>0</b>	<b>13,11,004</b>
<b>TOTAL OF SPENT AND UNSPENT.</b>			<b>TOTAL</b>		<b>24,59,96,696</b>

## WOOLRESEARCH ASSOCIATION, THANE.

## SCHEDULE 'E' 2023-2024

SR. NO.	PARTICULARS	RATE %	GROSS BLOCK				DEPRECIATION				NET BLOCK	
			ASON 01.04.2023	ADDITION DURING THE YEAR	DEDUCTION DURING THE YEAR	ASON 31.3.2024	UPTO 01.04.2023	DEPRECIATION FOR THE YEAR	ADJUSTMENT DUE TO SALE/LOSS	TOTAL UPTO 31.3.2024	ASON 31.3.2024	ASON 31.3.2023
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1)	LAND		5,83,883	--	--	5,83,883	--	--	--	--	5,83,883	5,83,883
2)	BUILDING (Old)	2.5	26,43,986	--	--	26,43,986	17,51,269	22,318	--	1,773,587	8,70,399	8,92,717
3)	FURNITURE AND FIXTURE	15	8,46,817	65,100	--	9,11,917	6,23,689	41,839	--	665,528	2,46,389	2,23,128
4)	LAB EQUIPMENT	15	68,57,385	413,500	--	72,70,885	40,22,879	4,56,189	--	4,479,088	27,91,817	28,34,507
5)	OFFICE EQUIPMENT	15	12,25,516	--	--	12,25,516	6,21,929	90,538	--	712,467	5,13,049	6,03,587
6)	AIRCOND. WDG. PLANT	15	1,77,025	--	--	1,77,025	1,76,966	9	--	176,975	50	60
7)	ELECT. INSTALLATION	15	22,16,126	1,323,700	--	35,39,826	11,00,847	2,66,569	--	1,367,416	21,72,410	11,15,279
8)	LAB FURNISHING	10	14,72,715	--	--	14,72,715	11,37,673	33,504	--	1,171,177	3,01,538	3,35,042
9)	WATER COOLER	15	12,182	27,000	--	39,182	9,732	2,393	--	12,125	27,057	2,450
10)	AIR CONDITIONER	15	3,07,543	79,969	--	3,87,512	2,43,195	19,660	--	262,855	1,24,657	64,348
11)	FIRE FIGHTING EQUIPMENTS	15	59,232	--	--	59,232	46,735	1,875	--	48,610	10,623	12,498
12)	WATER TANK	15	31,600	--	--	31,600	31,447	23	--	31,470	130	153
13)	MOPED (LUNA)	15	11,300	--	--	11,300	11,246	8	--	11,254	46	54
14)	BUILDING (New)	2.5	13,37,551	--	--	13,37,551	6,61,903	16,891	--	678,794	6,58,757	6,75,648
15)	BUILDING (WRA'S CONTR.PILOT PLANT)	2.5	7,50,000	--	--	7,50,000	3,71,147	9,471	--	380,618	3,69,382	3,78,853
	FOR PILOT PLANT)											
16)	MOTOR CAR ( BUS & CAR)	15	24,82,764	--	--	24,82,764	20,89,663	58,965	--	2,148,628	3,34,136	3,93,101
17)	AIR CONDITIONING PLANT FOR COE LAB	15	14,96,477	--	--	14,96,477	11,49,868	51,991	--	1,201,859	2,94,618	3,46,609
18)	CCTV INSTALLATIONS	15	310,518	17,119	--	3,27,637	183,639	20,777	--	204,416	1,23,221	126,879
19)	COMPUTER SYSTEMS/PRINTERS	15	--	431,628	--	4,31,628	--	53,809	--	53,809	3,77,819	--
	<b>Total</b>		<b>2,28,22,622</b>	<b>23,58,016</b>	<b>--</b>	<b>2,51,80,638</b>	<b>1,42,33,827</b>	<b>11,46,829</b>	<b>--</b>	<b>1,53,80,657</b>	<b>97,99,981</b>	<b>88,88,795</b>

Note : 1 : Rate of depreciation constant since 1970-71.

# ANNUAL REPORT 2023-2024

## WOOL RESEARCH ASSOCIATION, THANE.

### SCHEDULE "E" ( 1 )

#### PROJECT ASSETS TAKEN OVER ON COMPLETION OF PROJECTS

SR. NO. (1)	NAME OF THE PROJECTS. (2)	FURNITURE (3)	LAB EQUIPMENTS (4)	AIR CONDITIONER (5)	BUILDING (6)	TOTAL (7)
1	Dying of wool	4,156	30,628	--	--	34,785
2	Blending of wool	7,074	1,36,211	--	--	1,43,285
3	Chemical finishing of carpet	6,622	87,345	--	--	93,967
4	Designing of wool	--	4,49,307	--	--	4,49,307
5	Color Research project	--	54,637	--	--	54,637
6	Carpet Weaving programme	23,997	3,438	--	--	27,435
7	Standardisation of yarn.	--	2,85,481	--	--	2,85,481
8	Computer Aided Designing (Old)	--	5,44,495	--	--	5,44,495
9	Evaluation of Wool Jute.	--	5,00,000	--	--	5,00,000
10	Techno Economic study of shoddy.	--	4,77,130	--	--	4,77,130
11	Development of cheap furnishing.	--	3,00,000	--	--	3,00,000
12	Software for garment designing.	--	9,34,800	--	--	9,34,800
13	Extraction of various dyes.	--	24,255	--	--	24,255
14	Cad for Textiles.	--	10,34,620	--	--	10,34,620
15	To set of norms (Siro Fast)	--	9,93,851	--	--	9,93,851
16	Pilot Plant.	--	--	--	7,50,000	7,50,000
17	Modification of reactive dyeing.	--	2,25,134	--	--	2,25,134
18	Development of Eco-friendly.	--	1,76,956	--	--	1,76,956
19	Eco-Testing Lab.	1,27,829	31,42,640	--	--	32,70,468
20	Angora Rabbit Wool	--	2,05,060	--	--	2,05,060
21	To Investigate the factors.	47,310	1,03,191	--	--	1,50,501
22	To Make the Natural dyeing.	4,400	1,70,601	--	--	1,75,001
23	To Develop the Software.	49,210	1,36,288	--	--	1,85,498
24	Development of Design for carpet.	8,743	4,56,774	--	--	4,65,517
25	Value Added.	11,257	65,112	--	--	76,369
26	Computer Aided Emproidary.	31,131	5,94,775	--	--	6,25,906
27	Development of Instrumental.	1,16,760	12,83,985	--	--	14,00,745
28	To Develop Software Prediction.	--	1,75,350	--	--	1,75,350
29	Role of Enzymes.	--	45,552	--	--	45,552
30	Study of Technical Aspects.	--	25,097	--	--	25,097
31	To Develop Different Type of Knitwear	--	66,062	--	--	66,062
32	To Improve Aesthetics Value	--	1,99,842	--	--	1,99,842
33	Textiles committee	--	64,68,437	--	--	64,68,437
34	To Dev. Innovation Yarn	--	5,50,000	--	--	5,50,000
35	To Dev. Cotton Core	--	2,75,000	--	--	2,75,000
36	Enrichment of Painting	--	2,00,000	--	--	2,00,000
37	Dyeing of Wool	--	50,000	--	--	50,000
38	Information Technology	--	2,89,550	--	--	2,89,550
39	CAD Jaquard	--	2,70,650	--	--	2,70,650
40	Design and Fabricate	--	14,22,816	--	--	14,22,816
41	To Improve Processing	--	7,38,812	--	--	7,38,812
42	UNDP -GOI project	2,25,350	1,17,82,004	1,05,000	25,02,829	1,46,15,183
43	To Develop Itch free woollen(Plasma)....	--	12,00,717	--	--	12,00,717
44	Ultra Sound assisted...	--	7,99,191	--	--	7,99,191
45	To assesas Quality norms....	--	45,39,900	--	--	45,39,900
46	Blind dyeing..	--	10,64,885	--	--	10,64,885
47	Softening..	--	3,66,593	--	--	3,66,593
48	Preloom processing.....	--	3,46,747	--	--	3,46,747
49	Dev. of Composites....	--	2,15,543	--	--	2,15,543
50	To evolve feasible...	--	51,150	--	--	51,150
51	To Synthesise wool dyes....	--	24,23,882	--	--	24,23,882
52	Dev. of Internet based...	--	37,19,940	--	--	37,19,940
53	Surface Topographical...	--	4,04,438	--	--	4,04,438
54	To Dev. cost effective ETP	--	6,04,685	--	--	6,04,685
55	Effluent treatment system for Power generation	--	1,50,849	--	--	1,50,849
56	Upgradation of Indian wool	--	12,26,307	--	--	12,26,307
57	Dev. of Thermal Responsive HighAltitude (CWDB)	--	2,12,653	--	--	2,12,653
58	Negative ion finishing for woollen carpets...	--	12,17,367	--	--	12,17,367
59	Dev. of pollutin free and eco-friendly dry scouring.	--	6,49,624	--	--	6,49,624
60	Dev. of Multifunctional finish with anti bacterial..	--	10,63,034	--	--	10,63,034
61	To impart superwash property to Indian wool..	--	2,21,557	--	--	2,21,557
62	UNDP-Pasmina Project	--	53,17,564	--	--	53,17,564
63	Dev. Effective & eco-friendly electroflocculation ..	--	8,73,285	--	--	8,73,285
64	Dev. Waterproof Breathable sports wear..	--	4,82,550	--	--	4,82,550
65	Fibre Length Measurent Instrument(DST)	--	4,33,968	--	--	4,33,968
66	Instrumentto Determine...	--	7,65,763	--	--	7,65,763
67	Synthesis & Application of Solar Ultraviolet ....	--	1,003,268	--	--	10,03,268
68	Innovation of Bulky yarns of woolenised Jute....	--	705,050	--	--	7,05,050
69	To design & develop evaporative cooling textiles	--	4,02,713	--	--	4,02,713
70	Enhancement of Moisture management properties ..	--	202,960	--	--	2,02,960
71	To develop light sensitive Photo-Chromic Smart	--	57,605	--	--	57,605
72	Design & Dev. of Indian Wool based Smart Textiles...	--	20,66,147	--	--	20,66,147
73	Design & Dev. of Indian Wool based Tech. Textiles.	--	9,22,630	--	--	9,22,630
74	Lab Upgdadation- Equipments	--	3,59,36,858	--	--	3,59,36,858
75	Dev. and appl. of eco friendly microencapsulated..	--	5,06,990	--	--	5,06,990
76	Dev. of high performance, smart sportswear...	--	4,18,653	--	--	4,18,653
77	Dev. of innovative sportech products...(Hot melt)	--	7,18,697	--	--	7,18,697
78	Dev. of fitness clothing like gym and Yoga wear ..	--	4,01,613	--	--	4,01,613
79	Development of Membrane Bioreactors ....	--	565,921	--	--	5,65,921
80	Dev. of Novel Detergent Formulation for wool	--	1,132,800	--	--	11,32,800
81	Development of sports gears (inner wears, socks, etc)	--	418,000	--	--	4,18,000
82	Synthesis of water soluble fluroscent colorants for	--	301,810	--	--	3,01,810
<b>Total (Rs.)</b>		<b>6,63,839</b>	<b>10,90,89,792</b>	<b>1,05,000</b>	<b>32,52,829</b>	<b>11,31,11,460</b>
WRA Assets.						2,51,80,638
Project Assets taken over upto 2023-2024.						11,31,11,460
Assets of existing projects.						24,46,85,691
<b>TOTAL (Rs.)</b>						<b>38,29,77,788</b>

**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE "F"**

AS ON 31/03/2023 Rs.	PARTICULARS	AS ON 31/03/2024 Rs.
	<b><u>FIXED DEPOSITS</u></b>	
	<b><u>Corpus Fund/R &amp; D Replacement Fund</u></b>	
7,76,87,622	Fixed Deposits with State Bank of India	8,09,51,302
4,11,55,422	Fixed Deposits with Central Bank of India	6,81,85,465
25,07,313	Fixed Deposits with Axis Bank	-
40,17,714	Interest accrued on FD (SBI)	51,77,785
4,44,608	Interest accrued on FD (CBI)	8,03,503
	<b><u>CASH &amp; BANK BALANCES</u></b>	
	10,77,500 Current Account with S.B.I. ( A/c. 11100522024 )	68,91,468
	24,361 ESCROW A/C with S.B.I. ( A/c. 32424163025 )	5,38,443
	4,287 Cash on hand	7,536
	11,37,167 CWDB Project Account C.B.I. ( A/c. 1334639360 )	14,135
	1,91,37,801 Central Bank Of India (Testing fees) ( A/c. 1334641891 )	49,41,796
	9,556 WRA Trustee's Account. C.B.I. ( A/c. 1334698893 )	8,317
	84,56,956 MAVIM Account with S.B.I. ( A/c. 39012931052 )	10,85,983
	11,42,145 Axis Bank Ltd. ( A/c. 061020003285 )	11,54,047
3,10,15,407	25,634 Axis Bank Ltd.(Project; Light weight....) ( A/c. 918020094870444 )	27,153
		1,46,68,879
1,188,997	MAVIM Project A/c.	69,905
	NTTM	15,38,273
	CWDB - IWDP Schemes	2,30,583
	<b><u>SUNDRY DEBTORS.</u></b>	
64,41,869	Testing Fees outstanding considered good	80,89,931
	<b><u>OUTSTANDING SUBSCRIPTION</u></b>	
	81,018 Considered Good for the year ( 2020-2021 )	81,018
	81,018 Considered Good for the year ( 2021-2022 )	81,018
2,48,554	86,518 Considered Good for the year ( 2022-2023 )	86,518
		2,48,554
<b>16,47,07,506</b>	<b>TOTAL</b>	<b>17,99,64,180</b>

**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE "G"****ADVANCE RECOVERABLE**

<b>AS ON 31/03/2023 Rs.</b>	<b>PARTICULARS</b>	<b>AS ON 31/03/2024 Rs.</b>
5,76,928	Deposits with MSEDCL/TMC etc..	10,17,648
4,912,191	Gratuity fund with L.I.C. of India	5,323,447
3,13,098	Other Advances	10,92,127
2,36,828	Prepaid expenses	3,37,532
1,97,498	TDS Receivable (10-11)	1,97,498
30,42,050	TDS Receivable (22-23)	30,42,278
-	TDS Receivable (23-24)	29,04,724
<b>92,78,593</b>	<b>TOTAL</b>	<b>1,39,15,254</b>

**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE "H"****CURRENT ASSETS ( PROJECT )**

<b>AS ON 31/03/2023 Rs.</b>	<b>PARTICULARS</b>	<b>AS ON 31/03/2024 Rs.</b>
	<b><u>GRANT-IN-AID DUE FOR RECURRING EXPENSES.</u></b>	
2,86,131	Dev.waterproof breathable sportswear....	0.00
12,27,674	Dev. effective & eco-friendly electroflocculation ..	12,27,674
12,38,790	Dev.of keratin based bio-composite fils and electro spun..	12,38,790
4,52,625	Dev.smart indigenous sleeping bag with heating property..	0.00
13,54,516	Synthesis & Application of Solar Ultraviolet ....	13,54,516
19,75,150	Dev.of high performance,smart sportswear...	19,75,150
17,34,744	To develop light sensitive Photo-Chromic Smart	17,34,744
11,95,275	To design & develop evaporative cooling textiles ,,,,,,	11,95,275
11,08,166	Enhancement of Moisture management properties of polyester....	11,08,155
97,115	Development of sports gears (inner wears,socks,bands,leggiings ets.)	0.00
32,55,129	Synthesis of water soluble fluroscent colorants for	0.00
1,94,367	Design & Dev.of sportswear having Thermo Physiology..	0.00
6,62,744	Design & Dev.of Light weight and high impact resistance sport goods	3,51,943
1,50,577	Indian Technical Textile Association (ITTA )	0.00
0.00	Sustainable Enhancement of Aesthetic values by digital printing....	104,020
<b>1,49,33,001</b>	<b>TOTAL</b>	<b>1,02,90,266</b>



**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE " I "****STAFF SALARIES**

<b>AS ON 31/03/2023 Rs.</b>	<b>PARTICULARS</b>	<b>AS ON 31/03/2024 Rs.</b>
2,32,75,517	Salaries & Allowances ( Includes PF/PPF, ADMN. charges & EDLIS premiums )	2,75,96,820
1,044	Maharashtra Labour Welfare Fund.	2,988
43,367	Staff Medical Expenses.	28,829
5,40,570	Staff Welfare Expenses	5,42,491
51,999	Staff Leave Travel Concession.	41,399
16,28,866	Group Gratuity Scheme	21,04,061
<b>2,55,41,363</b>	<b>TOTAL</b>	<b>3,03,16,588</b>

**WOOL RESEARCH ASSOCIATION, THANE****SCHEDULE " J "****ESTABLISHMENT CHARGES**

<b>AS ON 31/03/2023 Rs.</b>	<b>PARTICULARS</b>	<b>AS ON 31/03/2024 Rs.</b>
2,99,345	Printing & Stationery.	4,21,852
2,26,848	Postage, Telegram & Telephones.	2,06,563
27,74,526	Electricity & Water Charges.	25,71,133
31,900	Advertisement & Publicity	98,568
54,14,428	Repairs & Maintenance	38,00,252
27,125	Rates & Taxes.	27,125
3,00,629	Insurance Exps.	3,26,664
11,81,755	Conveyance & Travelling.	11,28,505
0	Foreign Travel Exps.	4,22,348
40,341	Entertainment Exps.	50,235
20,592	Bank Charges.	52,966
10,500	Journals & Periodicals.	1,500
46,250	Subscription to the other Association.	42,000
2,87,199	Miscellaneous exps.	1,89,820
10,24,934	Security Service Charges.	13,55,013
8,09,980	Motor car exps.	5,62,646
8,31,653	Professional charges.	19,25,571
1,870,964	Testing charges.	2,251,848
11,66,001	Labour charges/wages to casual workers	20,04,007
3,004	Interest on delay payments/GST liabilities etc..	752
9,345	Discount Allowed	-
2,500	Employer's contribution to MPT	2,500
<b>1,63,79,819</b>	<b>TOTAL</b>	<b>1,74,41,869</b>

**WOOL RESEARCH ASSOCIATION, THANE.****SCHEDULE " K "****INCOME**

<b>AS ON 31/03/2023 Rs.</b>	<b>PARTICULARS</b>	<b>AS ON 31/03/2024 Rs.</b>
3,27,718	Members Subscription.	3,08,995
4,18,32,499	Testing Fees Income.	4,31,21,432
1,03,11,592	Consultancy Service charges and R & D	91,40,627
1,49,197	Miscellaneous receipts.	1,29,243
--	Old liabilities written back	92,84,630
55,38,732	Interest on Fixed Deposites.	78,70,555
2,61,905	Interest credited by LIC for Gratuity fund	3,57,808
2,50,285	Interest on Income Tax Refund	-
4,40,810	Foreign Exchange Gain	1,20,426
5,91,12,738	<b>TOTAL</b>	<b>7,03,33,717</b>
3,63,40,089	Less : Transferred to Corpus Fund	4,01,63,072
<b>2,27,72,648</b>	Transferred to Income & Expenditure A/c.towards Industry's contr.	<b>3,01,70,645</b>

## WOOL RESEARCH ASSOCIATION

## SCHEDULE 'L'

## NOTE ON ACCOUNTS

## 1. Significant Accounting Policies

Accounts have been prepared under the historical cost convention. The significant account policies are as under:

- a. Fixed Assets: Fixed assets are stated at cost of acquisition inclusive of expenses relating to acquisition.
- b. Depreciation: Depreciation is provided on Assts acquired by the Association, out of its own funds by the WDV method at the following rates.
 

Building	-	2.5 %
Furniture, Fixtures & Equipments	-	15 %
Furnishing	-	10 %
- c. Investment: Investments acquired out of donation from members are valued at cost of acquisition.
- d. Inventory: Consumable items such as Laboratory chemicals and Wool Consumables, Color Software development and computer stationery and other consumables purchased during the year are treated as consumed during the year.
- e. Retirement Benefits
  - i. Provident fund contribution is funded with Regional Provident Fund Commissioner.
  - ii. Provision of Leave Salary:  
Provision of leave salary is made by the Association on the basis of leave accumulated to the credit of employee at the year end.
  - iii. Liability for gratuity is provided on the basis of calculation made by the Association as per the payment of Gratuity Act, 1972 on Balance Sheet date. However, valuation has been estimated by the WRA at Rs. 75,84,788.00. The premium paid to LIC for the Group Gratuity Trust is shown as Deposits as Rs. 53,23,447.00.
- f. Foreign currency transaction: All foreign currency transaction during the year are converted at the standard rate as specified by Grant Sanctioning Authority.
- g. Grant-inAid :
  - 1) Grant-in-aid from Government authorities is accounted for on the basis of amount sanctioned.
  - 2) Grant-in-aid for recurring expenses (WRA as well as specific projects) is adjusted as and when the expenses are incurred.
  - 3) Grant-in-aid of Capital nature on WRA account is transferred to capital fund on purchase of fixed assets.

- h)
  - a) Interest on Fixed Deposits is accounted for on accrual basis and is shown under income
  - b) Subscription and testing fees are accounted for on accrual basis and consultancy service charges and other income are accounted for on receipt basis and the same is first utilized for off setting the industry's contribution to meet capital expenses as well as revenue expenses and the balance has been transferred to R & D Replacement Fund.
- i) Corpus Fund :  
 As per Ministry of Textiles O.M. No. 20/21/98/A & MMT dated 9<sup>th</sup> September, 1998 – Minutes of the 13<sup>th</sup> Meeting of the Co-ordination Council for Textile Research Association (TRA) held on 11<sup>th</sup> August, 1998. TRAs' are authorized to retain 100 % of the earned income by building a Corpus Fund from such retained income and utilize interest from such Corpus Fund to meet their need based requirement.
- j) Education Fund :  
 Education fund has been created out of donation received for the purpose of enhancing the educational facilities at Training Centre and improving the level of training.
- k) All expenses are accounted for on accrual basis. Allocation of various recurring expenses to the various projects is done on the basis determined by the Management.
- 2 a) In the opinion of the Governing Council, subject to these note, current assets, loan and advances, including grant receivable, have value on realization in the ordinary course of activities of the Association, not less than at which these are stated in the Balance Sheet, except subscription and testing fees of previous years which may prove irrevocable for which no provision has been made. Provision for all known liabilities has been made in the accounts and the same is not in excess of what is reasonably necessary.
- b) During the year the management has carried out physical verification of fixed assets. However there are some discrepancies found with book record and the management is in the process of reconciling the same with book record.
- 3. No confirmations from creditors, deposits and in respect of loan and advances have been obtained. Confirmations in respect of debtors fixed deposits placed bank are being obtained. WRA has done reconciliation of Goods and Service Tax (GST) balances as per books of accounts and as per GST returns filed.
- 4 The provision of subscription receivable from ordinary and Special associate members and the details of the installed capacity of the member mills on the basis of which calculation of subscription is made is as prepared by the management and is relied upon by the auditors without verification for want of relevant records.
- 5 The mutual adjustment of grant for capital to revenue and vice versa are made and not yet confirmed by the granting authorities for relevant years.
- 6 Investment in M/s Gujarat Sheep & Wool Development Corpn. Ltd. Rs. 11,56,400/- represent the contribution from industry through WRA in sheep breeding program of M/s Gusheel. Audited Accounts of Company are still awaited. In the absence of audited

accounts, the net worth, diminution in value of investment can not be ascertained.

- 7 The apportionment of staff salaries, freight charges, raw material, traveling, spares and other overheads including testing charges between the Association and various projects is made as per the advice from the respective project-in-charge/Director in this regard.
- 8 Depreciation on fixed assets amounting to Rs.11,46,829/- for the current year (Previous year Rs.8,87,333/-) on WRA assets has been provided for and shown under depreciation reserve.
- 9 Impairment of Assets.  
The carrying amount of assets, other than inventories is reviewed at each balance sheet date to assess whether there is any indication of impairment in respect of such asset or group of assets. If such indication exists, the recoverable amounts of such assets or group of assets is estimated. If such recoverable amount of asset or group of assets is less than its carrying amount, an impairment loss is reckoned by reducing the carrying amount to its recoverable amount. If there is an indication at the balance sheet date that the previously assessed impairment loss no longer exists, the recoverable amount is reassessed and the asset is reflected at the recoverable amount subject to a maximum of depreciable historical costs.
- 10 Fixed Assets: The Association has purchased/taken over assets worth , Rs.11.25 Lakhs, Rs. 23.58 Lakhs and Rs. 1131.11 lakhs as on 31.03.2024 out of the Projects funded by MOT, COE Sportech Project, MAVIM and other agencies respectively. These assets are being used by the Association to carry out the activities. However, no depreciation has been provided during the year as well as during the earlier years on such assets. The impact of depreciation is not quantified.
- 11 The Association has not identified the creditors having registration under Micro, Small and Medium Enterprises Act 2006 and the Small Scale Industries Act. Hence the disclosure as required is not made in the accounts.
- 12 During the year, excess expenditure incurred on project of Rs.9,69,730/- has been shown as project cost incurred by WRA as expenditure of WRA.
- 13 Assets Of Bikaner and Kullu purchased by WRA : As per the sanction letter received from Central Wool Research Board, Ministry of Textiles, the WRA is implementing agency for the "Upgradation and strengthening of existing Wool Testing Laboratory of CWDB at Bikaner and Kullu". Fixed assets are purchased for this project which are not recorded as "Fixed Assets" in the Books of WRA and the same is shown under amount spent for the project.
- 14 Previous year figures are re-grouped/re-arranged wherever necessary to make them comparable with those of current years.

#### SIGNATURES TO SCHEDULES 'A' TO 'L'

FOR J.P.J.ASSOCIATES LLP  
CHARTERED ACCOUNTANTS  
FIRM REG.NO. 113012 W/W100296

For & on behalf of the  
GOVERNING COUNCIL



**Sd/-**

VAIBHAV VAIDYA  
PARTNER  
MEM. NO. 157754

**Sd/-**

H.K. CHATTERJEE  
PRESIDENT

**Sd/-**

R.V. BHANDARKAR  
SR. ACCOUNTS OFFICER

**Sd/-**

K. K. MISRA  
DIRECTOR

PLACE : MUMBAI  
DATE : 09/08/2024