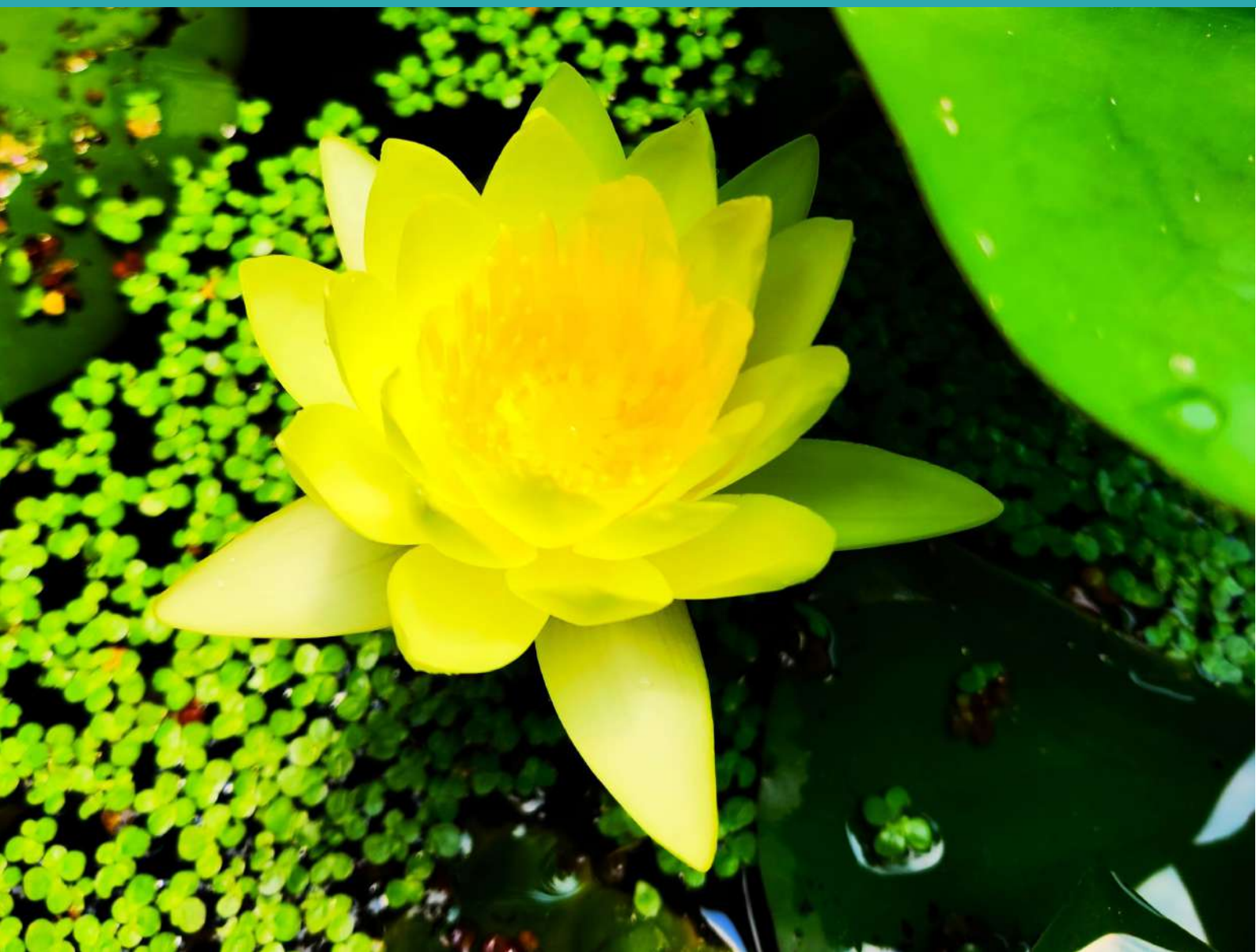
Sustainability Report 2023-24

EVOLVING SUSTAINABLY

merino®

ECONOMY ◆ EXCELLENCE ◆ ETHICS

Contents



From CMD's Desk

> **"Nirmal" program continues to draw inspiration from Merino's mission statement, "Universal Weal through Trade & Industry", emphasizing wealth creation for all stakeholders rather than profit maximization.**

It is an honour and privilege to present the Annual Sustainability Report 2023-24 for the stakeholders of Merino Industries Limited.

I am delighted to share that over the past year, the organization has truly embodied the motto of Leadership through Sustainability. We have evolved from being a pioneering user of Agro Residue and Solar Energy to now meeting nearly 75% of our overall energy requirements from non-fossil fuel sources. In fact, 80% of our process heat comes from non-fossil fuel sources such as agro residue and process wastes in waste-to-energy in-house setups.

The organization continues its steadfast commitment to protecting fragile environments and ecosystems through the "**Nirmal**" program, a holistic and integrated approach designed to bring positive interventions under five pillars across Merino establishments: Bhūmih (soil), Apah (water), Analah (fire), Vayu (air), and Akasha (space).

"**Nirmal**" program continues to take inspiration from Merino's mission statement, "**Universal Weal through Trade & Industry**", emphasizing wealth creation for all stakeholders rather than profit maximization. By pursuing this "Weal," Merino ensures wealth generation without environmental harm, leveraging nature's regenerative power.

Our sustainability practices under "Nirmal" include:

- Adherence to systems, compliance, and standards
- Increased adoption of non-fossil fuels for energy needs
- Water conservation and replenishment
- Air quality improvement
- Adoption of a circular economy
- Extensive tree plantation
- Use of organic fertilizers to minimize chemical inputs in agriculture

While the report highlights the progress of these initiatives and the benefits they bring to our stakeholders, preserving Mother Earth, I take this opportunity to summarize our commitment to sustainability standards:

- We currently comply with ISO 9001:2015, ISO 45001:2018, and ISO 14001:2015 standards.
- We measure our carbon footprint based on the ISO 14064 protocol through a cloud-based system.
- Merino Industries is a signatory to the Science Based Targets Initiative (SBTi).
- We are committed to publishing results as per Environmental Product Declaration (EPD) norms.

Our journey and accomplishments are the result of ongoing innovation, collaboration with academia, and the unwavering commitment of our leadership and Team Merino. Our ecological commitments, with a special focus on soil and carbon sink capacity building in line with the national mission of increasing farmers' income, have led to collaborative initiatives with small farmers and farmlands. We support farmers with the availability of organic manures, composts, biotechnology-based high-yield potato seeds for profitable and resilient farming, and local agro-socio-climatically suitable saplings for farm-forestry in Gujarat and Uttar Pradesh.

We are motivated and encouraged by recognition from organizations such as CII (Confederation of Indian Industry), IFGE (Indian Federation of Green Energy), ESG Foundation and environmental conscious global clients like IKEA and Steelcase, who continuously collaborate with us to achieve challenging targets and global standards.

As we move forward, we foresee a further increase in the use of non-fossil fuels, more innovative ways to reduce our energy and water intensity, and achieving global industry accreditations and reporting. **Sustained innovation, enhanced collaboration, and a global vision are the key drivers of our ongoing commitment to sustainability**.

Overall, I am convinced that Merino Industries' trajectory and progress towards achieving a best-in-class model for Environment, Society, and Governance (ESG) are well on track. We shall continue to advance in this crucial aspect of business journey for the benefit of both our internal and external stakeholders.

Prakash Lohia
Chairman & Managing Director

Reporting Scope and Boundary

Merino Industries is promoting sustainable practices through its internal multifunctionality program called 'Nirmal'. The performance report and disclosures align with a range of national and international charters, imperatives, and guidelines. These include:

- National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business (NVG) in India, issued by the Ministry of Corporate Affairs, Government of India.
- Format of Business Responsibility Sustainability Reporting (BRSR) framework introduced by the Securities and Exchange Board of India (SEBI), Govt. of India, in 2021.
- Sustainable Development Goals (SDGs) released at the United Nations Sustainable Development Summit in 2015.
- Science Based Targets Initiative (SBTi).
- Industry Standards - ISO 9001, ISO 14001, ISO 45001, FSC COC/CW, CE, NSF and AEO T-2.

This Report showcases Merino Industries' sustainability performance on environmental and social factors from April 2023 to March 2024 across five Indian manufacturing locations and various business verticals.

1. High Pressure Laminates (HPL) and Low-Pressure Laminates (LPL) Manufacturing Locations: a) Hapur, Uttar Pradesh; b) Rohad, Haryana; c) Dahej, Gujarat d) Hosur, Tamil Nādu.
2. Panel/Compact Boards Manufacturing Locations: a) Hapur; b) Rohad; c) Dahej.
3. Prelam Boards, Modular Furniture Manufacturing Locations: a) Hapur, b) Hosur
4. Potato Seeds & Flake Manufacturing Location: Hapur

Data Management

At Merino Industries, we diligently track our environmental impact in all manufacturing locations using the 'Nirmal' DATABASE, a cloud platform managed and monitored by a dedicated committee. Respective units monitor the remaining parameters through specific internal committees & platforms. For detailed financial disclosures, please refer to our Annual Report for FY 2023-24 on our website (https://www.merinoindia.com/).

We deeply value our stakeholders' perspectives and strive to improve our sustainability reporting and performance. Please share your feedback, inquiries, suggestions, or information with us at:

- Mr. Ajay Kumar– Sustainability Officer

  Email – ajaykumar@merinoindia.com
- Mr Manabendra Nath Sanyal – General Manager and Head of CSR

  Email- mnsanyal@merinoindia.com

Integrated fields and factory, Merino Hapur

Sustainability Framework

Triple Bottom Line: Planet, People and Profit

Merino's sustainability practices are rooted in the Triple Bottom Line Framework, creating impacts across three key dimensions: environmental, social, and financial.

Merino is committed to protecting the planet, making a positive societal impact, and achieving profitability through excellence and ethical practices. The company acknowledges the intrinsic link between environmental, social, and economic well-being. Recognizing that environmental factors significantly influence both business and society, Merino has adopted an **'Environment First'** policy. Consequently, this sustainability report, which complements the Annual Report of Merino Industries for FY2023-24, emphasizes Environmental Protection and Social Positive Interventions for community well-being.

Key Objectives

1. **Reduce dependency on fossil fuels.**
2. **Continuously Innovate for operational eco-efficiency** by minimizing water intensity, energy intensity, and waste intensity, while maximizing the circular economy under waste management.
3. **Achieve global standards** in verification, assessment, and certification on tangible parameters related to the Sustainability Index.
4. **Develop, maintain, and leverage synergistic approaches** between industry, academia, governments, and the research/scientific community to achieve the aligned Sustainable Development Goals (SDGs).
5. **Maintain compliance with statutory requirements** as stipulated by the competent authorities for the geographies Merino focuses on.

6. **Anticipate emerging statutory requirements**, proactively prepare, and selectively achieve compliance in the best interest of stakeholders.
7. **Become an industry leader** in terms of focus and commitment to environmental protection and sustainability factors.

Collaborations for Sustainability Initiatives -These include:

- Central and State Pollution Control Boards (CBCB, UPPCB, HPCB, GPCB,TNCPB)
- Commission for Air Quality Management for NCR (CAQM)
- International Standards Organization (ISO)
- Confederation of Indian Industry (CII)
- Indian Green Building Council (IGBC)
- Federation of Indian Chambers and Commerce (FICCI)
- Indian Agricultural Research Institute (IARI)
- National Bamboo Mission (NBM)
- Visvesvaraya National Institute of Technology (VNIT, Nagpur)
- Indian Federation of Green Energy (IFGE)
- ESG Research Foundation
- Merino group sponsored trust working for community services like SHKMT, SPCLMT, SMKLMT

Strengthening Industry-Academia Collaboration:

Merino's Strategic Partnership with VNIT, Nagpur:

- Deepened collaboration to leverage VNIT's cutting-edge research and facilities, amplifying Merino's in-house expertise.
- Joint efforts to transform process wastes into high-value products, advancing sustainable practices.
- Driving innovative circular economy projects under the 'Nirmal' Program, with VNIT providing critical research and laboratory support.

Green School Initiative with the Centre for Science and Environment (CSE):
Collaborating with CSE to elevate Merino's Green School Project, fostering environmental stewardship and sustainable education.

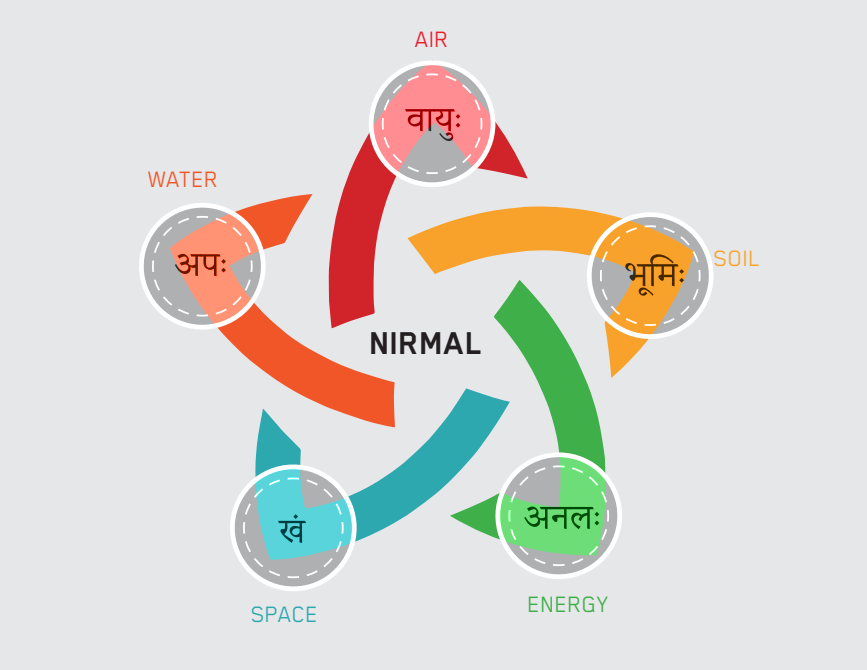
Educational Excellence with Ramanujan College:
Partnering with Ramanujan College for knowledge exchange, aiming to significantly enhance school effectiveness and impact.

Bamboo Plantation by Merino Industries- Hapur

‘Nirmal’ Program - Sustainability Practices & Performance

Merino's five major focus areas for sustainability are Energy, Water, Air, Space, and Soil, and along with that we are also trying to promote circular economy through waste management which encompass multiple parameters. These aspects are diligently tracked, measured, monitored, and continually improved through innovative and sustainable efforts.

Merino’s mission of “Universal Weal through Trade & Industry” emphasizes creating wealth for stakeholders in a sustainable and environmentally considerate manner. By pursuing this “Weal,” Merino ensures that wealth is generated without harming the environment. The goal is to maintain a clean and pure environment, fostering abundance for everyone. This understanding forms the foundation of Merino’s approach to sustainability, which we internally call the ‘’Nirmal’’. The ‘Nirmal’ Program, a thoughtfully designed initiative, serves as a catalyst for Merino’s commitment to becoming a sustainable and responsible industry.



Parameters & Approaches

Merino’s five key focus areas for protecting and conserving environmental elements for sustainability are: Energy - Analah (fire), Water - Apah (water), Air - Vayu (air), Space - Akasha, and Soil - Bhūmih. Additionally, Merino promotes a circular economy through comprehensive waste management practices. These aspects are diligently tracked, measured, monitored, and continually improved through innovative and sustainable efforts under the ‘Nirmal’ Program. Various committees have been established within different functional units to ensure accountability for each designated area. The sustainability performance report provides a comprehensive overview of each identified area, detailing key initiatives and their outcomes across the following categories:

1. **Energy Management:** -**Analah (fire)-** Achieving the lowest energy intensity, maintaining a low carbon footprint, and utilizing predominantly renewable sources of energy.
2. **Water Management:** - **Apah (water)-** Water conservation, recycling and replenishments. Pursuing a Water Neutrality Goal through efficient water management practices.
3. **Air Emissions Mitigation and Air Quality Care- Vayu (air), -** Striving for low emissions, containing the air pollutants, and taking measures to improve air quality.
4. **Soil Care, Green Activities, and Sustainable Agriculture- Bhūmih (Soil)-** Focusing on soil conservation, engaging in green activities, and promoting sustainable agricultural practices.
5. **Waste Management- Akasha (Space) -** Implementing Circular Economy principles to effectively manage wastes, materials and spaces around establishments of Merino. It also includes to strive for low greenhouse gas (GHG) emissions and maintain the harmony of our space environment.

Merino Rohad

I. Energy Management

I.1 Approach - Merino has formulated a three-pronged approach for effective energy management.

A. Renewable & Alternate Sources of Energy – Merino's main objective is to decrease dependence on fossil fuels and enhance the use of renewable and process wastes as energy sources, thereby supporting ecological sustainability and utilizing locally available resources. We emphasize in-house energy generation and consumption using biogenic fuels like sawdust, rice husk, and biogas, as well as solar power. Additionally, we transform process waste into energy through Waste to Energy plants, deploying complete combustion technologies to capture thermal energy.

B. Increasing Efficiency - Merino consistently strives to improve the efficiency of our operations and processes, aiming to achieve higher output while reducing energy consumption. To achieve this, Merino continually upgrades electrical tools, appliances, and machinery, and incorporates advanced technology into our operations, utilities, and lighting system.

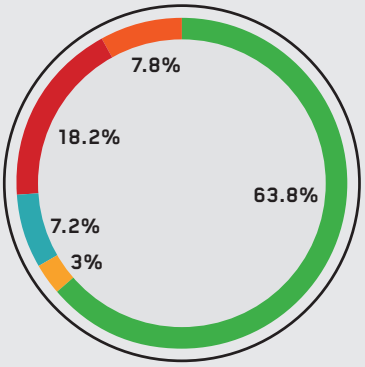
C. Conservation - Merino fosters an eco-conscious work environment by promoting the use of natural light in all our facilities, resulting in substantial energy savings and reduced consumption. Additionally, we utilize automation to conserve electricity and educate our workforce, encouraging responsible energy usage.

Renewable sources constitute around 75 % of total energy requirements in Merino.

Merino Industries met 18.2% of its energy needs using fossil fuels, with coal accounting for 17.6% and diesel for 0.6% during the fiscal year 2023-24. Additionally, 7.2% of the energy came from the grids of State Electricity Boards (SEB). Merino's energy roadmap aims to further reduce reliance on these sources.

Approximately 74.6% of the company's energy requirements (heat and electricity) were met through renewable and alternative sources. These include solar power, biomass-based turbine technologies (BTT), secondary furnaces (for heat energy), and biogas plants (BG). Specifically, BTT and BG contributed approximately 63.8% of the total energy requirement, solar power accounted for around 3%, and Waste to Energy (process waste to energy) contributed 7.8% to the overall energy needs.

Energy Sources of Merino



1.2 Biomass: Merino's Preferred Choice for Energy

Merino is harnessing around one million GJ of energy (heat & electrical) from biomass every year.

At Merino's manufacturing units, predominantly renewable energy is derived from combustible agricultural residual materials, primarily rice husk and sawdust. These biomass sources are utilized to generate heat in the furnaces, which subsequently produce steam and power through turbines.

Energy plant, Merino Halol

Biomass has emerged as an important fuel source in the fight against climate change. It is amongst the lowest carbon intensity fuel among fuel-based technology for production of heat and power in Merino.

This reliance on biomass for meeting energy requirements offers several advantages. It is cost-effective, environmentally friendly, and significantly reduces the carbon footprint. Merino Industries utilized approximately 76,000 MT of biomass in the fiscal year 2023-24 from indigenous sources, including 42,800 MT of rice husk and 33,200 MT of sawdust. This biomass is:

a) Procured from the local community, not located far from the point of consumption.

b) Used to produce around 1 million Gigajoules of energy (FY 2023-24), meeting the heat requirements of its processing units in Hapur (Uttar Pradesh) and Rohad (Haryana) through complete combustion technology.

c) This initiative has helped reduce GHG emissions by approximately 95,000 MT of CO2 equivalent, which would have otherwise been generated from burning fossil fuels like coal.

d) Merino Industries has been a pioneer in the use of biomass since 2005.

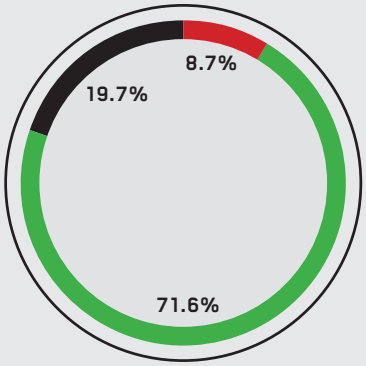
I.3 Heat /Thermal Energy – Processing Heat in Merino

100% of the required heat energy at Hapur, Rohad and Hosur, totaling 13.58 Lakh GJ during the year 2023-24, was produced in-house using boilers or secondary furnaces. The primary fuels used for this purpose were sawdust, rice husks, and various process wastes.

Merino is dedicated to fulfilling its environmental responsibilities by transitioning from fossil fuels, such as coal, diesel, and PNG/LPG, to renewable alternatives like sawdust, agricultural residues, waste wood, and processed waste materials.

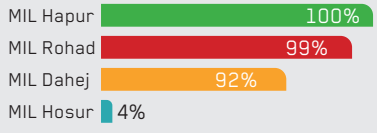
These renewable sources offer higher biomass and calorific values and are locally available. Approximately 80% of the company's total process heat requirements are met using these non-fossil fuel sources.

Heat Energy Sources, MIL, FY2023-24



By adopting these alternative fuels, Merino's manufacturing units in Hapur and Rohad can meet the majority of their heat energy needs from sustainable sources. This transition from non-fossil fuels has resulted in minimal greenhouse gas emissions, perfectly aligning with Merino's environmental goals.

Contribution of Non-Fossil Fuels for Process Heat Requirements in 2023-24



Hot Air (Steam) Generator from Non-Fossil Fuel Sources in Merino Hapur

Waste to Energy Plant of Merino-Utilizing Biomass and Process wastes

Merino is increasingly focusing on Waste to Energy within its factory premises. The in-house energy-efficient boilers and secondary furnaces are designed for the complete combustion of various solid fuels and wastes, meeting the entire heat energy requirements for Merino's manufacturing processes. Presently, almost 9% of the total process heat requirements are being met by these waste-to-energy setups.

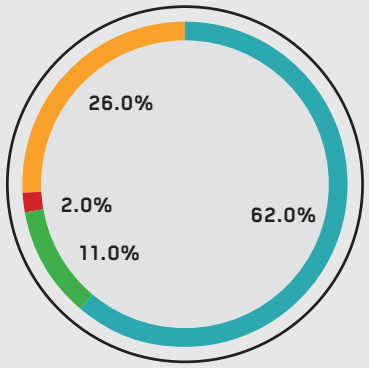
1.4 Power/ Electrical Energy

Out of the total electrical energy requirements, approximately 62% is sourced from various state electricity boards. Merino Industries generates around 38% of its power needs through a combination of solar energy, in-house biomass-based turbines, and diesel generators.

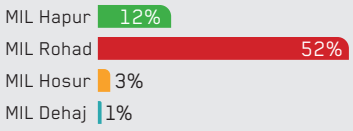
Merino has an installed capacity of 10.59 MW of solar power, generating approximately 12.90 million kWh of electrical energy consumed in FY 2023-24. This accounted for around 26% of the total electrical energy requirement of 50.38 million kWh across all four manufacturing plants (Hapur, Rohad, Dahej, and Hosur). The energy generated is utilized for production processes, utilities, and lighting needs within the group.

Solar power is key to clean energy for Merino Industries. The company has consistently emphasized this commitment by implementing solar panels and system installations to meet its growing power requirements. The group is working to gain more power from wind and solar-based captive setups in the upcoming year.

Electrical Energy Supplies Sources, FY23-24



Contribution of Solar Power in Total Electrical Energy in FY2023-24, Manufacturing Unit-Wise



5 MW Ground Mounted Solar Power of Merino Industries- Rohad (in Burak Haryana).

Biomass based turbine at Hapur

I.5 Key Initiatives for Energy Conservation in 2023-24:

The following initiatives were undertaken to promote energy conservation and reduce the environmental impact of our operations:

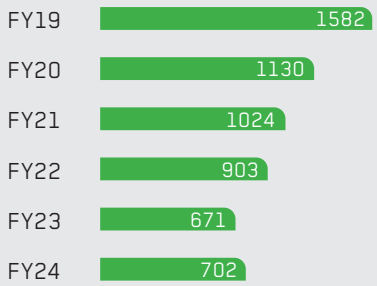
- Operational optimization of Hot-Press power requirements.
- Installation of rooftop solar panels of 15 KW and solar heaters at SVAV, resulting in electricity savings sourced from grid power.
- Implementation of an incinerator to convert process wastes into energy, with a capacity of 17.6 lakh kcal.
- Addition of new biogas capacity by 5 CMH, installation of a new biogas genset of 50 KVA, and operationalization of the existing 30 CMH in Hapur to utilize organic wastes for energy.
- Re-restoration of automation for the heating and cooling system in the hot press cycle to optimize pump/cooling tower operations.
- Insulation of hot wells and thermic fluid line valves to conserve energy.
- Optimization of hot-press power requirements for operational efficiency.
- Reduction of electrical energy consumption by installing motion sensors on quality tables.
- Installation of a higher-rated crusher at the incinerator to maximize waste heat recovery.

- Installation of a cooling tower pump with a VFD to conserve approximately 10,000 units of energy annually.
- Enhancements in thermal efficiency on VTA50 in Merino Rohad, leading to conservation of 3122 Gcal units and savings of 1.76 lakh kWh power units.
- Partial automation, upgradation of motors to IE3, fuel efficiency boosters, and installation of automation and energy conservation equipment across plants, resulting in increased energy efficiency.
- Installation of a higher rating crusher at the incinerator: Maximized waste heat recovery.
- Installation of a bailing machine: Reduced 12.354 tons of CO2 emissions per year and saved 195.9 GJ of energy annually.
- Signed up for Group Captive Solar with Sunsure from its UP set up, for approx. 10 million units of Renewable energy annually to Merino's Hapur plant

1.6 Energy Intensity- Downward Trend in Merino

Energy Intensity measures the amount of energy consumed in Gigajoules (GJ) per Crore of revenue generated annually. The graph below, showing a downward trend in energy intensity (except for current year 2023-24), highlights the group's commitment to resource conservation, a focused approach to energy conservation & efficiency, and promoting economic growth.

ENERGY INTENSITY :
GJ/ Cr, of Revenue



[1]Fixed fuel consumption with relatively decline in production in 2023-24 has led to an increase in intensity.

I.7 Alignments with SDGs under Energy Management of Merino

Merino is committed to contributing towards the United Nations' Sustainable Development Goals (SDGs) as adopted by the Government of India. We make direct positive interventions to address the following SDGs through MIL's Energy Management, focusing on the procurement of renewable fuels, conservation, and efficiency gains:

Goal 1: No Poverty - Livelihood

Goal 7: Affordable and Clean Energy

Goal 12: Responsible Consumption and Production

Goal 13: Climate Action

Rooftop Solar Panels and Bioler System – Non-Fossil Fuels Energy Supplies

II. Water management

Approach: Merino Industries Limited follows the 5R approach for water management, which includes Reduce, Recycle, Reuse, Replenish, and Restore.

Merino has implemented a holistic water management strategy to achieve water neutrality. This strategy aligns the amount of water consumed with the amount replenished within the same ecosystem. To achieve this goal, Merino employs the following practices:

1. Implementing efficient systems and processes to responsibly utilize fresh water, reducing overall water consumption and minimizing wastewater generation.

Water Pond – Adopted and maintained by Merino Industries- Rohad

2. Installing water reuse systems, such as rainwater harvesting and grey water recycling.
3. Compensating for any remaining water demand in current facilities by creating or adopting natural reservoirs, such as ponds.

II.1 Water Conservation / Reduced Water Consumption

Merino has implemented two fundamental principles, optimising water utilization and conservation, across all its manufacturing facilities. Through the utilization of advanced technology and tools, water usage optimization has been achieved, resulting in reduced water consumption per unit of laminate produced. Additionally, water recycling initiatives have further contributed to the efficient management of water resources at Merino's facilities.

II.2. Key Initiatives for Water Conservation or Efficiency Taken During 2023-24

- Creation of a rainwater harvesting system in Hapur, capable of storing more than 3 lakh liters of rainwater.
- Reuse of water gained from the sludge-dewatering machine and enhancement of the tube settler at the aerobic ETP in Hapur.
- Reuse of reactor distillate in the chemical section, reducing raw water consumption by approximately 200 KL annually.
- Installation of an RO system with a capacity of 220 KLD to treat high TDS rainwater, reducing groundwater consumption by around 20,000 KL annually.
- Reuse of treated ETP water in brick manufacturing after appropriate treatment.

Effectively 82,517 KL Water was reused in productions during FY2023-24.

II.3. Recycle and Reuse of Water through ETP and STP

At all our manufacturing facilities, Merino places significant emphasis on recycling waste and unused water that is discharged. This process is diligently executed through the implementation of Effluent Treatment Plants (ETPs) and Sewage Treatment Plants (STPs). These facilities ensure that the water is treated appropriately, enabling its reuse and minimizing the environmental impact of our manufacturing processes.

Merino has installed rainwater harvest system with reservoir capacity of over 5,000 KL.

II.4. Replenishing and restoration of water sources: A step towards Zero discharge and double recharge

The Merino Group has taken proactive measures to replenish and restore groundwater by implementing rainwater harvesting systems across all its establishments. These systems effectively and naturally replenish groundwater levels.

To support this initiative, the group has constructed reservoirs and implemented groundwater recharge systems in and around its factory premises. Specifically, three ponds have been adopted and developed in Hapur to recharge groundwater. Collectively, these ponds have the capacity to restore approximately 553,815 KL of water per year. Apart from these 3 ponds in Hapur, Merino has constructed another pond at Rohad (Haryana) and is also maintaining the same.

Merino's steadfast commitment and comprehensive water conservation plan highlight its dedication to two key objectives: zero discharge and double recharge. This approach aims to recharge twice the amount of water used in its manufacturing processes.

ETP to treat Industrial Waste Water- Merino Industries- Hapur

Water Pond in Raghunathpur- Created for Water Recharge by Merino Industries-Hapur

Achheja pond

II.5 Water Intensity and Water Stewardship

Water Intensity measures the fresh water intake in KL per Crore of revenue generated annually. The ongoing reduction in water intensity over the years highlights Merino's leadership in efficient water use and conservation, while contributing to economic growth.

Merino is working towards achieving 'Water Neutrality Goals' aiming for 90% by 2030. The company focuses on quantifiable and verifiable water savings through implemented strategies, as well as future efforts to improve operational water use efficiencies and conservation initiatives to meet at least 90% of additional freshwater requirements. This strategy further emphasizes Merino's dedication to water stewardship by maximizing the use of every drop of water and implementing water-saving measures wherever possible.

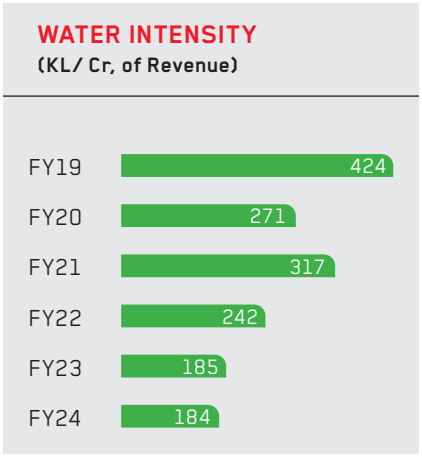
By the end of FY2023-24 almost 75% of water neutrality has been achieved by Merino.

II.6. Alignments for SDG impacts under Water Management of Merino

Our water management strategy involves reducing water consumption, implementing water recycling and reuse practices, and replenishing and restoring water sources. By adopting these initiatives, Merino actively supports Sustainable Development Goals (SDGs) as given below

Goal 6: Clean Water & Sanitation

Goal 12: Responsible Consumption and Production



III. Air Emissions Mitigation & Care for Air Quality

Merino diligently adheres to maintaining lower emissions than stipulated under manufacturing activities and is committed to keeping the workplace green and clean.

III.1 Key Initiatives

- **Air Pollution Control Measures:** Merino has implemented various measures to control air pollution across its manufacturing units. These measures include the installation of electrostatic precipitators, bag filters, and wet scrubbers. Installation of RECD devices in DG sets to further reduce emissions (Rohad, Hapur).
- **Continuous Emissions Monitoring System (CEMS):** Merino has installed CEMS, an integrated system to measure flow, dust, and concentration of air pollutants (such as SO_2, NOx, CO, CO_2, THC, and O_2), along with other parameters in accordance with applicable regulations for emission sources.
- **Waste Heat utilization in Cooling System:** To address its cooling needs, Merino utilizes VAM chillers that use waste heat instead of traditional refrigerant gas-powered compressors. These chillers, used for both process and comfort cooling in production units, employ the latest environment-friendly technology.
- **Refrigerant Replacement:** Merino has replaced chlorinated fluorocarbon (CFC) refrigerants with advanced hydrofluorocarbons (such as R-410A) in their refrigeration systems, amounting to over 400 tons of refrigeration (TR) annually. This substitution has effectively mitigated an equivalent amount of ODG emissions. Merino's plants are equipped with comprehensive refrigeration facilities that exclusively utilize non-CFC refrigerants.

Clean and Green Manufacturing Campus- Merino Industries-Rohad

Indoor plantation in office area

III.2 GHG Emissions Intensity (tCO_2/ Crore, of Revenue)

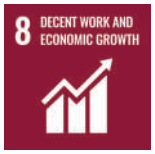
Our sustainable practices involve converting waste at our facilities into useful gases and compost without emitting greenhouse gases. This approach has greatly enhanced air quality within and around our establishments.

GHG Emissions Intensity measures emissions in terms of tons of CO2 equivalents per Crore of revenue generated annually. The consistent decline in GHG emissions intensity each year demonstrates the group's commitment to reducing their carbon footprint hence safeguarding environment while supporting economic growth.

III.3 Alignments for SDG Impacts by Air Emissions Control and Care for Quality Air

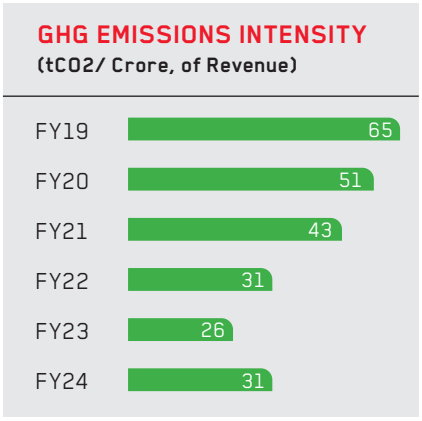
Merino's dedicated efforts towards air emissions and quality have successfully kept the levels of particulate matter within our factory premises lower than those in the surrounding environment. This aligns with the following Sustainable Development Goals (SDGs):

Goal 3: Good Health & Well-Being



Goal 8: Decent Work and Economic Growth

Goal 13: Climate Action



* There was an increase in GHG emissions in 2023-24 compared to 2022-23 due to using more process wastes (solid wastes) in the Waste to Energy Plant.

IV. Soil Care, Green Activities and Sustainable Agriculture

Approach - Merino is committed to soil conservation and enhancing soil health through various initiatives such as promoting organic manures, supporting plantations, agro-forestry, and resilient agriculture. We actively pursue projects like bio-composting, vermicomposting, tissue-culture labs, bio-gas and bio-nutrient projects, aiming to make a positive impact on soil quality.

IV.1. Soil Care by Enriching Soils with Natural Composts/Manures

To improve soil biological health and its conservation, Merino focus on increasing the carbon content of the soil using bio manures and implementing effective soil health management practices. Each year, the orgnaisation produce high-quality vermicompost, around 100 Metric Tons, which not only enriches soil health but also reduces reliance on chemical fertilizers.

Over 75,000 metric tons of GHG (greenhouse gas) or tCO2e (metric tons of carbon dioxide equivalent) emissions in air were saved in the reporting year by utilizing agro-residues (biogenic fuels) instead of coal in the boilers of the manufacturing facilities at the Rohad and Hapur plant of Merino.

Indoor and outdoor Greenery maintained within factory premises, Hapur

Vermicompost Beds in Bamboo Plantation of Merino Industries-Hapur

IV.2. Green Cover, Afforestation/ Agroforestry by Merino

Merino recognizes the significance of trees and plants for various aspects of our well-being and the environment, such as clean air, habitat preservation, livelihoods, watershed protection, soil erosion prevention, and climate change mitigation. The following are some highlights of Merino's green initiatives:

- Afforestation and agroforestry are key components of Merino's green initiatives.
- We have set targets to increase green cover both within and outside our premises, leading to the planting of over 20,000 tree saplings throughout India every year.
- We actively support farmers in agroforestry by providing over 58.68 lakh Eucalyptus saplings in FY2023-24.
- In Hapur, we have allocated 5 acres of land specifically for bamboo cultivation, further enhancing our agroforestry efforts.
- These green activities, including plantations, farming, and agroforestry, contribute to carbon sequestration. Annually, Merino's green initiatives effectively remove around 20,000 tons of CO2 equivalent greenhouse gas emissions.

IV.3.Some of the key Green interventions by Merino for promoting agro-forestry on farmers' land are

- Supplying clone saplings at concessional prices, considering farmers' soil conditions, socio-economic factors, and other relevant conditions to ensure better yields and economic returns.
- Linking and supporting people involved in the development of clones, providing plant care assistance, and offering capacity development programs to timber-growing communities.
- Our dedicated Plantations team guides and supports farmers to increase their timber yields.
- Actively participating in policy discussions and initiatives related to farm and social forestry, promoting standardized agronomic practices for the benefit of timber growers.

Clone Jumbo Eucalyptus to Famers by Merino Industries- Halol

Bamboo Saplings for Framers by Merino Industries- Hapur

IV.4 Miyawaki in Merino

To rapidly grow forests within our manufacturing facility in Hapur, we have adopted the Miyawaki method, which involves using native species to create dense, multi-layered forests.

Miyawaki Forests inside the factory of Merino Industries- Hapur

Vertical Garden within the Factory Premise.

IV.5. Sustainable Agriculture

Merino's Agro Division is deeply rooted in sustainable farming and soil conservation practices. Collaborating with renowned agricultural institutes like ICAR and State Universities, we have undertaken various projects to develop Standardized Agronomic Practices (SAP) tailored to our catchment area. These initiatives aim to promote locally adaptable farm practices, optimize the use of agricultural inputs to maintain soil health, crop ecology, and enhance the income of the large number of farmers associated with the Merino group.

IV.6 Alignments for SDG impacts by Soil Management and Green Cover Initiatives

Aligned with our commitment to green cover and soil conservation, we actively promote the use of organic manures, conduct plantation drives, encourage resilient agricultural practices, and engage in non-chemical agroforestry partnerships with farmers.

These efforts contribute to several Sustainable Development Goals (SDGs), directly linked to

Goal 12: Responsible Consumption and Production

Goal 13: Climate Action

Goal 15: Life on Land

Goal 17: Partnerships for the Goals.

V. Waste Management through Circular Economy Principles

Approach - **Recycle or creating positive value out of wastes.**

Waste segregation at the source is crucial, and the company has implemented a system to collect and categorize waste into hazardous/non-recyclable, non-hazardous/recyclable, organic, non-organic, liquid, and solid. This enables effective reuse of recyclable waste and proper disposal of hazardous waste.

- **Combustible Waste:** Waste from manufacturing processes, such as paper residue, laminates, and panel products, is utilized in furnaces for heat generation, aiding in biomass drying, a key energy source for Merino.
- **Ash Utilization:** Ash from boilers, incinerators, and NTPC power plants is repurposed to manufacture bricks and tiles, primarily for internal pavements within the factory premises.
- **Organic Waste Conversion:** Organic waste from production processes and canteens undergoes bio-conversion using bacteria and micro-organisms, transforming it into valuable manure. This organic manure is then utilized for plants and plantations across Merino establishments.
- **Hazardous Waste Management:** Hazardous and other wastes not processed by Merino are given to registered recyclers or establishments with government-authorized disposal systems.

The decomposed (mineralized) slurry from the bio-gas plants is used as fertilizer in gardens, crops or plantation fields. Solid waste from potato peels and discarded potatoes are collected and converted into compost, which are in tune of around 200 MT.

Agro-residues like saw dust for Energy Plant of Merino Industries

Key Objectives under Waste Management of Merino:

1. Reducing waste
1. Reusing waste
1. Recycling waste
4. Adopting environment-friendly approaches to recycling organic waste

V.1 Wastes Management- Wastes Recycled or Reused by Merino

Wastes Management- Wastes Recycled or Reused by Merino							
	Wastes Type	**Source**	**Disposal Method**	**Treatment & Reuse**	**Units**	**2022-23**	**2023-24**
A	**Non-Hazardous**						
A.1	Paper wastes	Storage/ Defects/ Process	Recyclers	Sells	MT	2,882	2,897
A.2	Solid Scrapes (process wastes) Steel, Aluminum, Plastic, Bopp, Wooden waste etc.	Storage/ Defects/ Process	Recyclers	Sells	MT	733	1,297
A.3	Chemical Bags	Storage	PCB Approved Vendor	Sells	MT	9.5	9.9
A.4	Plywood Wastes	Cutting	Incinerator	Complete combustion for energy	MT	1,370	995
A.5	Slurry/Sludge	STP/ETP	Dry Cake/Solid	Horticulture & Landfill	MT	11,152	28,322
A.6	Waste Water / Distillate	Rejected from 3rd RO	Evaporation	Through incinerator	KL	9,618	7,587
A.7	Waste Water	RO Reject / Human Waste	Electrcogugulation	Sent to ETP	KL	7,791	11,538
B	**Hazardous**						
B.1	Used/old Oil	DG Sets/ Vehicles	Authorized Recyclers	Sells	KL	5,598	4,226
B.2	Discarded Batteries	DG Sets/ Vehicles	Authorized Recyclers	Sells	MT	4.89	5.26
B.3	Laminates Sanding/ trimming wastes	Sanding/Cutting process	Incinerator	Complete Combustion for energy	MT	3,984	4,700
B.4	Wastepaper containing resin	Dryer/Press	Incinerator	Complete Combustion for energy	MT	123	412
B.5	Fly ash	HWG, TFH & Incinerator ash	landfilling,Brick making, TSDF	Bicks for internal roads/premises	MT	7,678	2,018
B.6	Dicarded Container	Chemical Plants	Authorized Recyclers	Sells	MT	13.8	15.8

Source: Wastes Disposal Nirmal Databank of MIL

V.2. Treatment and Reuse of Wastes from Potato Flakes Plant

The liquid and semi-solid wastes generated at the Potato Flakes Plant (PFP) are appropriately separated, treated, and reused. The liquid waste and sludge undergo processing in the Effluent Treatment Plant (ETP). Within the ETP, the waste undergoes an anaerobic decomposition process called Up-flow Anaerobic Sludge Blanket Reactor (UASBR) to produce biogas. This biogas is then utilized for electricity generation or direct use in cooking. The waste then undergoes further treatment through aerobic decomposition. After this treatment, the resulting water is utilized for plantation, potato washing, and flushing systems. This comprehensive process effectively recycles water and generates energy.

V.3. Valuable Chemicals from Potato Peel

The VEGIT plant generates a substantial amount of peel waste. To address this, Merino and VNIT collaborated to develop an innovative process that utilizes Potato Peel Waste (PPW) to create valuable products. A sustainable approach was devised to separate the clean peel from the residual starch slurry. The peel is then used to extract valuable substances such as polyphenols and dietary fibers, effectively transforming waste into wealth.

Additionally, the starch slurry is used for energy generation through anaerobic digestion, while the remaining compost serves as nutrient-rich manure to enrich the soil. This comprehensive process ensures that no waste is produced, resulting in a zero-waste outcome.

V.4. Bio Manure from Wastes under Industry-Academia Collaborations

Merino produces approximately 215 MT of bio-manure by utilizing around 50 MT of paddy straw and 170 MT of other organic waste materials, such as potato peel, biogas slurry, neem, sawdust, bio ash, and water. This bio-manure is created through the decomposition of these organic materials using effective microorganisms.

The composting process generates valuable nutrients, including nitrogen, phosphorus, and potassium, which are highly beneficial for paddy crops. These nutrients are readily absorbed by the plants, promoting enhanced growth and yield. By incorporating bio-manure into agricultural practices, Merino contributes to more sustainable farming methods and supports the development of greener and more efficient farming practices.

V.5.Alignments with SDG having Waste Management Better Practices

Merino's improved waste management practices are helping to align with and achieve many of the United Nations Sustainable Development Goals (SDGs). These practices support goals by reducing environmental impacts, promoting socioeconomic development, and safeguarding public health. These efforts directly linked to 'Promoting responsible consumption and production' and 'Managing natural resources sustainably' and by way of implementing SDG3,12 and 13.

SDG 3: Good Health and Well-Being

SDG 12: Responsible Consumption and Production

SDG 17: Partnerships for the Goals.

Ariel view of Anaerobic Digestor

Paddy-Straw from Farmers to convert into organic manure- Merino Industries, Hapur

Vermicompost Beds

Merino's Holistic Approach to Corporate Social Responsibility

At Merino, we view Corporate Social Responsibility (CSR) as a holistic approach that integrates expertise and resources to foster positive changes in the lives of the less fortunate and protect the environment. We firmly believe that businesses can thrive and build goodwill by prioritizing the welfare of people and the planet while offering products and services sustainably.

Our CSR initiatives focus on four key areas: Education, Environment, Health, and Women Empowerment. To bring our vision to life, we established the Sri Hara Kasturi Memorial Trust (HKMT), dedicated to community and social projects aligned with our CSR strategy.

Education: Empowering the Underprivileged

Our educational initiatives aim to provide equal opportunities to underprivileged children, helping them break the cycle of poverty. Our efforts impact communities in Northern and Eastern India and address five key Sustainable Development Goals (SDGs):

SDG 1: No Poverty

SDG 2: Zero Hunger

SDG 4: Quality Education

SDG 5: Gender Equality

SDG 10: Reduced Inequalities

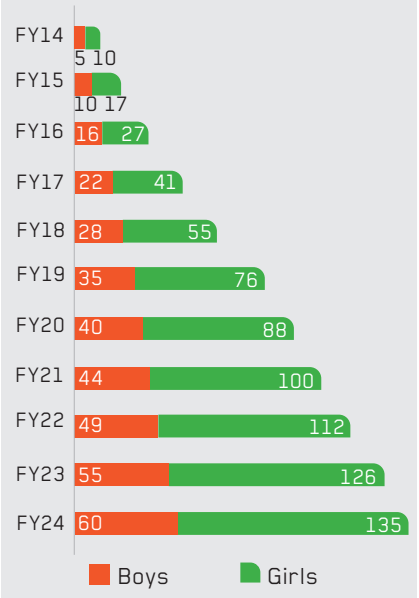
Key Programs:

The following two major programs are implemented as a part of our educational initiatives:

(a) Swami Vivekananda Arunoday Vidyalay (SVAV) - A day boarding co-educational primary school up to 8th grade in Hapur, Uttar Pradesh.

(b) Yogakshema - A scholarship program for academically bright children from economically weaker sections in Kolkata, West Bengal.

Year-wise Growth of Students in SVAV



(a) Swami Vivekananda Arunoday Vidyalay (SVAV), Hapur, UP

Established in 2013, this day boarding co-educational school is currently upto 8th Grade and supports 155 regular students, along with 38 passed out students, who receive financial assistance for higher education up from 9th to 12th grade. In order to ensure that these students after passing out continue to do well in their academics, hence, special coaching classes are also arranged for them after school hours. Among these 192 students (including the pass outs), 132 are girls and 60 are boys. As all our students are from economically weaker families, hence, their entire schooling is free, and they are also provided, books, stationery, school uniforms, and three times meal, i.e., Breakfast, Lunch, and Evening Supper, from the school management.

Yogakshema Program, Kolkata

Swami Vivekananda Arunoday Vidyalay

(b) Full-day and Mid-day Meal Program:

- **Full-day Meal Program**: Recognizing the impact of poor nutrition on mental growth, the school serves three balanced meals (breakfast, lunch, and evening supper) to all its students every day, including the passed-out students. The menu includes freshly cooked seasonal vegetables, cereals, and pulses, served six days a week.
- **Mid-day Meal Program:** In order to reach out to other needy children, the school also runs a mid-day meal program for other low income schools, so as to help the children not only meet their nutritional needs, but also encourage them to come to school daily. Under our mid-day meal program, we support two schools covering over 100 students in Hapur, UP, and also 70 inmates of Savera School for Mentally Challenged in Rohad, Haryana.

(c) Green School Project: Nirmal Sankalp

Our sustainability efforts extend beyond our factory to our students through the Green School Project, developed by the Centre for Science and Environment (CSE). Registered under this initiative, our students actively engage in water harvesting, waste management, energy conservation, vermicomposting, and plantation activities, while continuously monitoring air quality and light intensity in classrooms.

The following activities have been undertaken under this project.

- **Project Name:** The project has been named as NIRMAL SANKALP as the students are determined and committed to keep the environment clean and pure.
- **Group Formation:** Six groups of 8 students each, guided by 2-3 teachers, focus on different environmental aspects: Air, Water, Soil, Energy, Waste, and Food.

Meals to SVAV Students, Hapur

Students Planting Trees

Mid-day meal support to other low-income school, Hapur

Students engaged in Vermicomposting

Key Activities:

- **Plantation:** Students are encouraged to plant trees and promote bio-diversity.
- **Composting:** Students learn to compost organic waste and segregate degradable, non-degradable, and hazardous waste, embracing the principles of waste reduction, reuse, and recycling.
- **Air Quality Monitoring:** Using tools like AQI and Lux meters, students assess air quality, identify pollutants, and explore the effects of light intensity on vision.
- **Water Conservation:** Students practice water-saving techniques and rainwater harvesting to replenish groundwater. Apart from that they also monitor the Sewage Treatment Plant to ensure the waste water is treated and used for gardening purposes.
- **Energy Awareness:** They analyze the school's energy consumption and explore renewable energy sources such as solar, wind, and biomass.

Students learning about Biogas Plant

- **Food Awareness:** The food team educates peers on the dangers of junk food and promotes the benefits of the school's freshly prepared meals, provided thrice daily (breakfast, lunch, and evening supper).

Nirmal Sankalp not only enhances students' understanding of environmental issues but also instills a sense of responsibility towards sustainable living, preparing them to face evolving environmental challenges with practical knowledge and hands-on experience.

(d) Yogakshema (Yk) – Scholarships for bright and needy students

Since 2018, Merino, under the aegis of Shri Hara Kasturi Memorial Trust (HKMT), has been running the Yogakshema Scholarship Program in West Bengal for economically disadvantaged but academically bright students who have got 80% and above in their Secondary School Examination. 20 students are selected each year through a rigorous selection process. Finally selected student receives a monthly grant of Rs. 4000 for two years to cover educational expenses, some nutritional needs, and a family Mediclaim policy. Apart from the financial assistance they are also provided especially designed online coaching platform for Science subjects (Physics, Chemistry, Biology), English, Mathematics and Bengali.

Achievements of Yogakshema Students:

The 5th batch of 18 students, who joined Yogakshema in 2022, completed their Higher Secondary Examination in 2024 and performed well. Out of the 18 students, 6 students have scored 80% and above, 12 students scored 70% and above.

HEALTH CARE

SDG 3: Good Health and Well-Being

At Merino, we recognize that the development and progress of any nation heavily rely on the health and wellbeing of its citizens. We are dedicated to fostering a healthy society by providing free healthcare services to prevent diseases among the impoverished and needy.

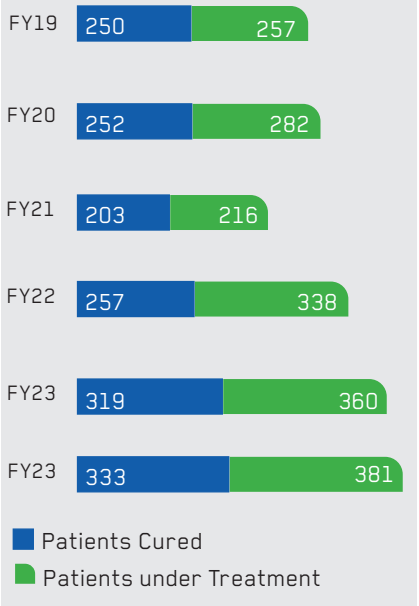
Our healthcare initiative is focused on addressing Good Health and Wellbeing, aligning with SDG-3.

Our healthcare program operates through the Shri Premchand Lohia Health Centre (SPCLHC) and is currently concentrated in Hapur, Uttar Pradesh. Given the high prevalence of TB in this region, we have partnered with the Department of Tuberculosis (DOT), Government of India, to aim for the elimination of TB by 2025. SPLHC currently manages three dispensaries with a team comprising 1 MBBS doctor, 1 Ayurvedic doctor (BAMS), 1 pharmacist, 1 lab assistant, and 3 medical support staff. We also offer free OPD services to the economically disadvantaged segments of the population.

Apart from that we are also organising Nikshay Diwas (i.e., No TB Day) on a monthly basis to create awareness about TB and also to conduct free health check-up of people at their locations. During the year 2023-24 we conducted 11 Nikshay Camps through which a total of 3505 patients got benefitted, out of these patients, Sputum Test was done for 190 patients, 120 patients were referred for X-ray, and blood sugar level was tested for 395 patients.

The accompanying graph illustrates SPCLHC's annual efforts to treat and cure TB patients since 2018-19.

Patients under treatement and cured



Yogakshema Students with MD, Shri P Lohia

Yogakshema Students being felicitated

Nikshay Diwas Camp in Progress

Sputum test in Progress

At present, 48 villages are being targeted for TB awareness and treatment of confirmed cases. Proper nutrition is the key for TB patients to overcome the disease, hence, we also provide dietary support to the TB Patients. Although the government allocates ₹500 per TB patient per month for six months, this amount is seldom spent on diet. During 2023-2024, a total of 190 needy patients were provided nutritious dietary support to help them overcome the ailment.

In addition to TB care, we also serve general patients. During the year 2023-24, a total of 12,125 patients utilized our OPD services, through the three dispensaries that we operate. Among these 5263 were new patients and 6862 were returning patients.

We also offer Ayurvedic treatment for common ailments such as arthritis, leukorrhea, renal stones, common cold, indigestion, and more. During the year, 1972 patients benefitted from our Ayurvedic treatments, out of which 652 were new and 1320 were returning patients.

WOMEN EMPOWERMENT

Through our women empowerment program we are trying to bring in Gender Equality that meets SDG-5.

Economic independence plays a very important role in empowering women. Thus, to help women in developing certain skills, we are running a stitching centre in Rohad, Haryana, for females since September 2017. Till date 18 batches have completed training, benefiting 280 females. Currently, 15 girls are learning stitching skills in this centre, with the help of two master trainers.

Dietary support to needy TB Patients

OPD services by in house Medical Officer of Merino

Learning to earn

Stitching Centre, Rohad

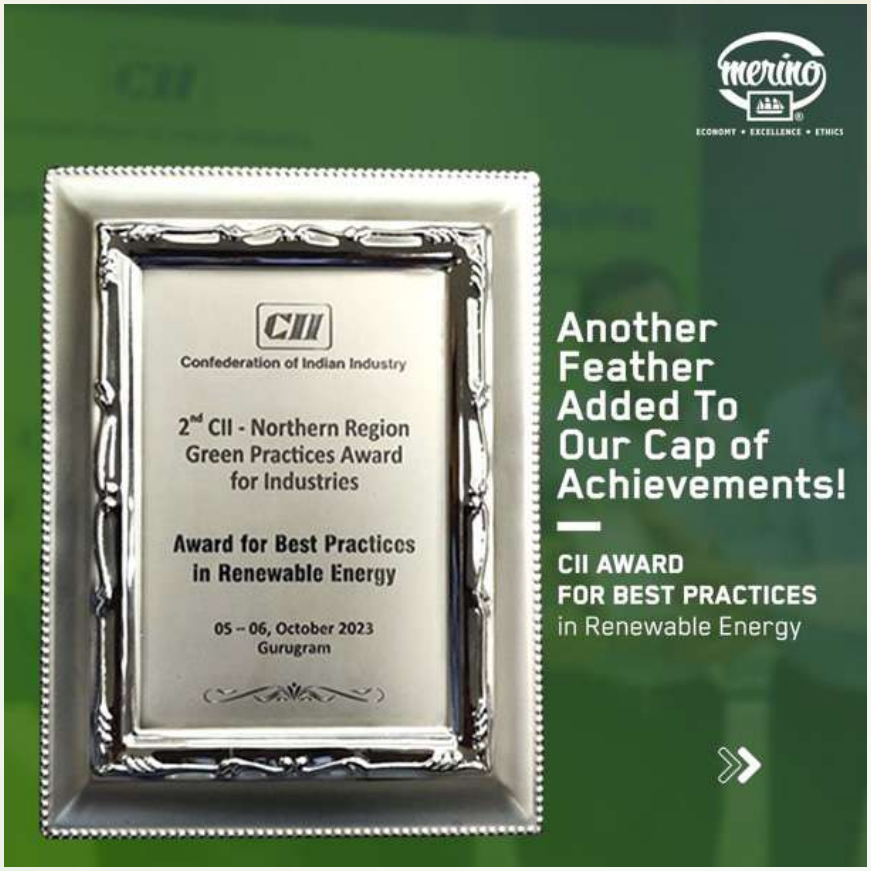
Leading the Way in Sustainability with Prestigious Awards (2023-24)

Merino Industries continues to make its mark in sustainability and increasing use of renewable energy, with multiple recognitions highlighting its steadfast commitment to green practices. Through its transformative sustainability program named, **'Nirmal'**, the company has made significant strides in reducing its dependence on fossil fuels thereby cutting down GHG Emissions, thereby garnering the attention of analysts and securing prestigious awards that highlight its growing impact.

These recognitions not only celebrate Merino's achievements but also affirm its leadership role in environmental stewardship and reflects its unstinted faith and commitment to strike a right balance between business and protecting mother earth.

Merino's standout achievement was the **Prithvi Awards 2023**, presented at the Global Conference on Environmental, Social, and Governance (ESG) organized by the ESG Research Foundation on **14th July 2023**. This esteemed recognition was conferred by **Shri Arjun Ram Meghwal**, Honourable Minister for Law and Justice and Parliamentary Affairs, Government of India, further solidifying Merino's leadership in advancing ESG principles and sustainability.

In addition, Merino was awarded the "**Best Practices in Renewable Energy**" by the **Confederation of Indian Industry (CII), Northern Region** during the **Green Practices Award for Industries 2023** held in Gurgaon on **6th October 2023**. This recognition celebrates Merino's remarkable achievement of sourcing **72% of its total energy needs from renewable sources,** positioning it as a benchmark among large industries in Northern India, thus setting a new benchmark and inspiring the industrial sector to shift toward a greener future and remaining globally competitive.



The accolades did not stop there. Merino's leadership in sustainable practices was further recognized by the **Indian Federation of Green Energy (IFGE)** during an event on 21st February 2024. The award was presented by **Shri Nitin Gadkari**, Honourable Minister of Road Transport and Highways, Government of India, for Merino's continued advancements in using renewable energy and reducing dependence on fossil fuels. This honour underscores the company's relentless pursuit towards a sustainable future.

Designed by NEXT STEPS (engage@nextsteps.net.in)

Merino Industries Limited

CIN: U51909WB1965PLC026556
Registered Office: 5, Alexandra Court, 60/1, Chowringhee Road, Kolkata: 700 020
Phone: 033-2290-1214, Fax: 91-33-2287-0314, E-mail: balaji@merinoindia.com
Website: www.merinoindia.com