Sustainability Report 2022-23

EVOLVING SUSTAINABLY

merino®

ECONOMY ◆ EXCELLENCE ◆ ETHICS

In all things of nature
there is something of the marvelous

Aristotle

Reporting Scope and Boundary

Merino Industries is committed to promoting sustainable impacts through its programs and disclosures, which adhere to 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 Report (BRR) published by the Securities and Exchange Board of India (SEBI), Govt. of India.
- Sustainable Development Goals (SDGs) released at the United Nations Sustainable Development Summit in 2015.
- Science Based Targets Initiative.
- 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 2022 to March 2023 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 Nadu.
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 and 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 and platforms. For detailed financial disclosures, please refer to our Annual Report for FY 2022-23 on our website.

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:

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Plants

Delhi- Hapur Road, Vill. Achheja,
P.O. Hapur-245 101, Dist. Hapur
Uttar Pradesh

Delhi- Rohtak Road, Vill. & P.O. Rohad,
Dist. Jhajjar, PIN: 124 501
Haryana

Bagalur Road, Vill. Kalahasthipuram,
Hosur - 635 103, Dist. Krishnagiri
Tamil Nadu

Plot No. D-2/CH/36, Dahej-2 Industrial Estate, Dist. Bharuch, PIN: 392 130
Gujarat

Evolving Sustainably

"Dharmo Rakshati Rakshitah"

धर्मो रक्षति रक्षितः

is the "Motto" of our Sustainability program under Nirmal

Merino Industries has been committed and focused to the cause of environment and society in a sustainable way, since its inception nearly 55 years ago. As a close-knit family business, environmental protection is an inseparable part of our economic activity. This aspect of doing business is also deeply enshrined in our Mission, that is, Universal weal through trade and industry. Personally, I am very privileged to lead this campaign along with Merino team, industry experts, academia, industry associations and organisations operating in this domain.

Under the five pillars of the Nirmal program–Bhūmih (soil), Apah (water), Analah (fire), Vayu (air), and Khang (space)–we are making significant strides in our ecosystem. Our sustainability commitments encompass the increased utilisation of green energy, water conservation, air pollution reduction, circular economy and waste recycling, large-scale plantation, and the implementation of organic manure while minimising the use of chemical fertilizers and pesticides in agro farming. This report outlines the initiatives undertaken and the resulting benefits for our stakeholders.

We continue to ideate, innovate, collaborate, and implement selected initiatives with rigor to reduce our CO_2 footprint, conserve water, control emissions, decrease reliance on fossil fuels, proactively meet regulatory requirements, and fulfil specific mandates from our global business partners.

Due to our pioneering efforts, Merino has emerged as a leader in the production of High-Pressure Laminates and other products among global manufacturing companies. Notably, we meets over 72% of our energy needs through renewable sources, that has significantly reduced our dependence on fossil fuels.

I firmly believe that our unwavering commitment to environmental protection and climate risk mitigation will persist, further enhancing Merino's path to market excellence. Merino Industries will continue its transformative journey, striving to change lives and evolve sustainably.

Prakash Lohia
Managing Director

Sustainability Strategy

Merino's sustainability strategy aims to create value for our stakeholders including social impacts, while reducing the ecological footprint of operations.

Merino's mission of "Universal Weal through Trade & Industry" emphasises creating wealth for stakeholders in a manner that is sustainable and considerate of nature. By pursuing this **"Weal"**, Merino ensures that wealth is generated without causing harm to 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 call the **Nirmal Way**. The **Nirmal Program**, a thoughtfully designed initiative, serves as a catalyst for Merino's commitment to becoming a sustainable and responsible industry.

Key Objectives

- Reduce dependency on Fossil fuel.
- Innovating for operational eco-efficiency by minimising water intensity, minimising energy intensity, minimising wastes intensity, and maximising circular economy under Wastes Management.
- Achieve global standards in verification, assessment and certification on tangible parameters related to Sustainability Index.
- Develop, maintain, and leverage from synergistic approach between Industry, Academia, Governments and Research/Scientific Community to achieve the aligned SDG (Sustainable Development Goals).
- Maintain the compliance to the Statutory requirements as stipulated by the competent authorities from time to time for the geographies that Merino focuses.
- Anticipate emerging Statutory requirements, proactively prepare and selectively achieve compliance in the larger interest of the stakeholders ahead of others.
- To become an industry leader in terms of focus and commitment to environment protection and sustainability factors.

Collaborations for Sustainability Initiatives

These include:

- Central and State Pollution Control Boards
- Commission for Air Quality Management for NCR (CAQM)
- International Standards Organization (ISO)
- Confederation of Indian Industry (CII)
- 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)

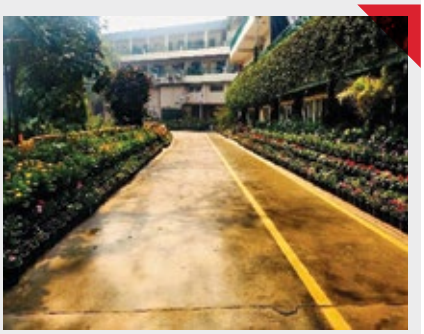
Industry – Academia Collaboration

For the year under review, Merino consolidated its relationship with Visvesvaraya National Institute of Technology (VNIT, Nagpur) to assist and complement Merino's in-house expertise and experience in multiple areas that includes:

- Assessing carbon footprint for third party verification and accreditation as per ISO standards.
- Creating products of higher economic value out of any process wastes.
- Research and laboratory facilities for developing circular economy principle-based projects of Nirmal Program.

As a responsible business entity, Merino embraces a philosophical understanding of sustainability that encompasses the five fundamental elements of nature known as Pancha-Mahabhuta, i.e., Soil (Bhūmih), Water (Aapah), Fire (Analah), Air (Vayu), and Space (Khang). Hence, Merino Industries has factored all these five elements into the Nirmal Program, as a comprehensive framework for implementing sustainability factors.

Biodiversity with Green cover in Merino Factory, Hapur



Merino Factory, Administrative Section, Hapur

Sustainability Framework

Triple Bottom Line: Planet, People and Profit

Merino's sustainability factors are ingrained in the Triple Bottom Line Framework, encompassing three key dimensions: environmental, social, and financial impacts.

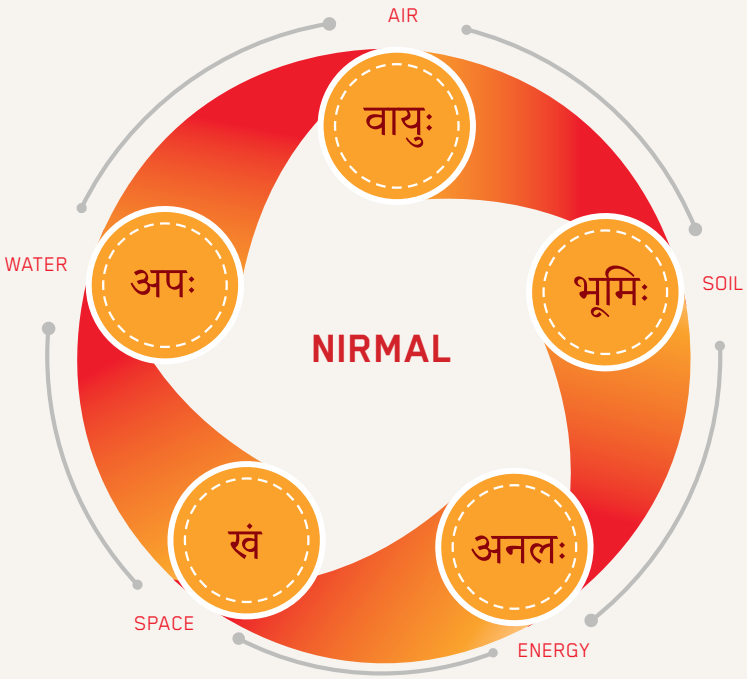
Merino is committed to safeguarding the planet, fostering a positive impact on society, and generating profits through excellence and ethical practices.

Integrated fields and factory, Merino Hapur

Parameters & Approaches

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.

Various committees have been formed within different functional units, ensuring accountability for each of their designated areas.



"Merino recognises that the environment is intricately intertwined with social and economic well-being. Therefore, the factors that support the environment have a significant impact on both business and society. This has inspired Merino to adopt 'Environment First' policy.

Merino Rohad

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: Achieving the lowest energy intensity, maintaining a low carbon footprint, and utilising predominantly renewable sources of energy.

2. Water Management: Pursuing a Water Neutrality Goal through efficient water management practices.

3. Air Emissions Mitigation and Air Quality Care: Striving for low emissions, containing the air pollutants, and taking measures to improve air quality.

4. Space: The space around our Earth serves as a symbiotic buffer and integrates us with the vast universe. Any disruption to this delicate balance, such as ozone layer depletion, can be disastrous and can affect the entire ecosystem. Therefore, it is essential to strive for low greenhouse gas (GHG) emissions and maintain the harmony of our space environment.

5. Soil Care, Green Activities, and Sustainable Agriculture: Focusing on soil conservation, engaging in green activities, and promoting sustainable agricultural practices.

6. Waste Management: Implementing Circular Economy principles to effectively manage waste.

Overall, the report provides detailed insights into these areas, highlighting the initiatives undertaken and the outcomes achieved.

I. Energy Management

I.1 Approach

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

Renewable Energy Source

Our primary goal is to decrease dependence on fossil fuels and increase the use of renewable energy sources, aligning with our objectives of ecological sustainability and local availability. Our major focus is on in-house energy production and consumption through the utilisation of biogenic fuels like sawdust, rice husk, and biogas, as well as harnessing solar power.

Increasing Efficiency

Our constant endeavor to make operations and processes more efficient so that with less consumption of energy we have more output.
To achieve this there is a constant upgradation of electrical tools, appliances, machinery, bringing in improved technology in operations, utilities, and lighting systems.

Conservation

We foster an eco-conscious work culture by promoting the use of natural light in all our establishments, resulting in direct energy savings and reduced consumption. Additionally, we implement automation to conserve electricity and raise awareness among our workforce, encouraging responsible energy usage.

- In FY 2022-23, Merino Industries sourced 15.3% of its energy from fossil fuels, with coal accounting for 13.6% and diesel for 1.7%. An additional 8% came from the State Electricity Boards (SEB) grid power. Process waste to energy contributed 5% to the overall energy requirements. The remaining 72% of energy (heat and electricity) was fulfilled through renewable and alternative sources, including solar, biomass-based turbine technologies (BTT), secondary furnaces (for heat energy) and biogas plants (BG).

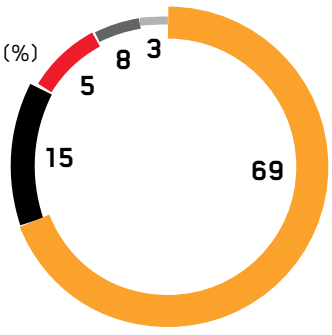
  Approximately 69% of the total energy requirement is contributed by BTT and BG, while solar power accounts for around 3%.

I.2 Biomass is the preferred choice for energy in Merino

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

This reliance on biomass for meeting energy requirements offers several advantages. Not only it is cost-effective, environment friendly, and effectively reducing carbon footprint, but it also carries significant social benefits. It is a sustainable source of livelihood for local communities within a 100-kilometer radius of Merino Factories, located in Hapur (Uttar Pradesh) and Rohad (Haryana).

Energy Sources of Merino

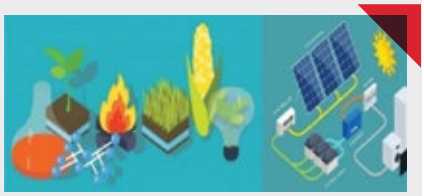


- Biomass
- Fossil Fuels (DG+Coal)
- Wastes - Incineration
- SEB
- Solar

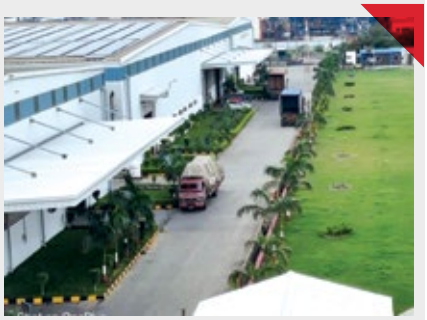
Merino uses both conventional sources of energy and Renewable Energy.

Fossil Fuels based System supplies 15% of total energy requirement.

Renewable sources constitute around 72% of total energy requirements in Merino.



Renewable Sources are Biomass & Solar



Merino Dahej

Green Fuel -Saw Dust, Hapur

I.3 Heat and Electrical Energy Supplies

Heat Energy

The in-house energy efficient boilers and secondary furnace (incinerators) for complete combustion of any kind of solid fuels/wastes produces whole of heat energy requirements for manufacturing processes in Merino.

Merino is dedicated to fulfilling its environmental obligations by actively substituting fossil fuels (such as coal, diesel, and LPG) with renewable alternatives, including sawdust, agricultural residues, waste woods, and processed paper materials, which possess higher biomass and calorific values. By utilising these alternative fuels, Merino's manufacturing units in Hapur and Rohad effectively meet most of their heat energy requirements from sustainable sources. This successful transition leads to minimal greenhouse gas emissions, aligning seamlessly with Merino's environmental commitments.

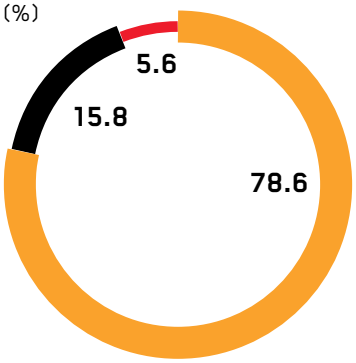
Electrical Energy

Out of the total electrical energy requirements, approximately 61% is sourced from various state electricity boards. Merino Industries generates around 39% of its power needs through a combination of solar energy, in-house biomass-based turbines, and the operation of diesel sets.

Merino has an installed capacity of 10.59 MW of solar power, which generates approximately 12.77 million kWh units of electrical energy. This accounts for around 24% of the total electrical energy requirement of 53.42 million kWh across all four manufacturing plants (Hapur, Rohad, Dahej, and Hosur). The energy generated is utilised for production processes, utilities, and lighting needs within the group.

Heat Energy Sources, MIL, FY 2022-23

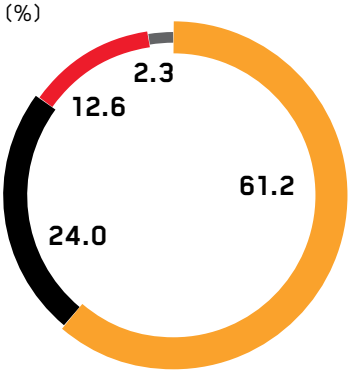
(%)



- Biomass
- Coals+LPG
- Process wastes

Electrical Energy Supplies Sources, FY 2022-23

(%)



- SEB
- Solar
- DG
- Biomass Turbine

Merino has harnessed around one million GJ of energy (heat and electrical) from biomass.

Biomass Based Steam System, Rohad

During FY 2022-23 period, 100% of the heat energy required, totaling 12.64 Lakh GJ, was produced in-house using boilers or secondary furnaces. The primary fuels utilised for this purpose were sawdust, rice husks, and various process wastes.

Biomass based Turbine, Hapur

Rooftop Solar, MIL Rohad

Solar power serves as the key to clean energy for Merino Industries. The company has consistently emphasised this commitment by implementing solar panel and system installations to meet its growing energy requirements.

Energy Intensity refers to the measurement of energy consumption in terms of Gigajoules (GJ) per Crore of revenue generated, on a yearly basis. The graph above, exemplifies the group's dedication to harmonising resource conservation, minimising carbon footprint, and fostering economic growth.

Key Initiatives for Energy Conservation in FY 2022-23:
The following initiatives were undertaken to promote energy conservation and reduce the environmental impact of our operations.

- Retrofitting back pressure turbines, resulting in an annual saving of 4.29 MWh of electricity and 42,900 KL of water.
- Synchronisation of blower running time with coolant pump, leading to an annual saving of 5,428.8 KWh of electricity.
- Restoration of automation for Heating and Cooling System in the Hot Press cycle to optimise pump and cooling tower operations.
- Installation of a bailing machine, resulting in a reduction of 12.354 tons of CO_2 emissions per year and energy savings of 195.9 GJ per year.
- Augmentation of heating zone facilities in existing Impregnation lines to eliminate the need for new PF Impregnation lines.
- Insulation of hot well and thermic fluid line valves.
- Operational optimisation of Hot-Press power requirements.
- Installation of air boosters and energy optimisation for CNC HOLZER machine.
- Reduction of electrical energy consumption by installing motion sensors on the quality table.

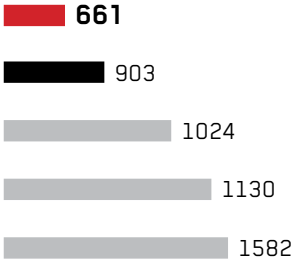
Contribution of Solar power for electrical energy

Facilities	Share of Solar power
Rohad	54.3%
Hapur	24%
Dahej	11%
Hosur	3%

I.4 Energy Intensity

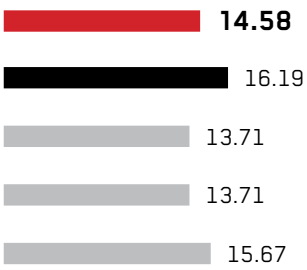
Energy Intensity

(GJ/Cr of Revenue)



Total Energy Consumptions

(Lakh Gigajoule)



Solar power is a significant renewable source of electrical energy for Merino Industries.

Ground Mounted Solar System of 5.5 MW in Burrak by Merino

Rooftop Solar, MIL Hapur

I.5 SDG impacts through Energy Management

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

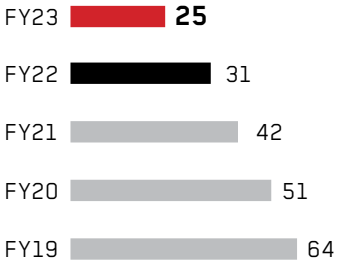
Goal 13: Climate Action

I.6 GHG Emissions Intensity

The continuous decline in GHG emission intensity with every passing year, shows the commitment of the group to contain and minimise the carbon footprint along with the economic growth.

GHG Emissions

(tCO_2e/Cr of Revenue)



Merino believes that the factors sustaining the environment have profound impact on business and society. Thus, to assess the carbon and water footprint of its industrial activities, Merino partnered with Visvesvaraya National Institute of Technology (VNIT), Nagpur. The study conducted by VNIT by using the standards, ISO 14044:2006 for Life Cycle Assessment (LCA) , and ISO 14064:2006 for Green House Gas (GHG) evaluation at the manufacturing facility in Hapur revealed the following:

- Per sheet of Laminate Production – 4.34 Kg of CO_2 equivalent or Global Warming Potential (GWP) of 1.55 per kilogram of Laminate production.
- Per kilogram of Potato Flakes Production – 1.05 Kg of CO_2 equivalent.

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.

Hot Water generation system of Co-Gen Plant, Hapur

Over 10,000 metric tons of GHG (greenhouse gas) or tCO_2e (metric tons of carbon dioxide equivalent) were reduced in the reporting year by utilising agri-residues (biogenic fuels) instead of coal in the boilers of the manufacturing facilities at the Rohad plant of Merino.

Biogas system, MIL Hapur

Study Conducted in 2018. Almost similar energy mix and processes with material inputs prevailed till now.

II. Water management

Approach

Merino Industries Limited follows the 5R approach for water management, i.e., Reduce, Recycle, Reuse, Replenish and Restore.

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

- Implementing efficient systems and processes to responsibly utilise fresh water, reducing overall water consumption and minimising wastewater generation.
- Installing water reuse systems, such as rainwater harvesting and grey water recycling.
- 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, maximising water utilisation and conservation, across all its manufacturing facilities. Through the utilisation of advanced technology and tools, water usage optimisation 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.

Key initiatives for Water conservation or efficiency taken during FY 2022-23

- 1.7 MW Backpressure turbine retrofitting- the cooling tower operation minimised due to elimination of condenser in the turbine resulting in water savings of 42,900 KL annually.
- Installation of Condenser to arrest flash steam and pump the condensate resulting in water savings of 726 KL annually.
- Reuse of reactor Distillate in the Chemical section which reduces the raw water consumption by 189 KL annually.
- Installation of RO of 220 KLD capacity to treat high TDS rainwater and use in process thus reducing ground water consumption by around 20,000 KL annually.

II.2 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 minimising the environmental impact of our manufacturing processes.

Effectively 72,084 KL Water was reused in productions during FY 2022-23.

RO plant for water filtration and recycling in Hapur

By the end of FY 2022-23 almost 75% of water neutrality has been achieved by Merino.

Water Pond by Merino Hapur in village Raghunathpur

II.3. 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 serve as an effective means to naturally replenish and restore groundwater levels.

To support this endeavour, the group has constructed reservoirs and implemented groundwater recharge systems in and around its factory premises. Specifically, three ponds have been developed in Hapur for the purpose of recharging groundwater. These ponds collectively have the capacity to restore approximately 5,53,815 KL of water per year.

Merino's unwavering commitment and comprehensive water conservation plan exemplify its dedication to achieving two important objectives: zero discharge and double recharge. This means aiming to recharge double the amount of water used in its manufacturing processes.

II.4 SDG impacts through Water Management of Merino

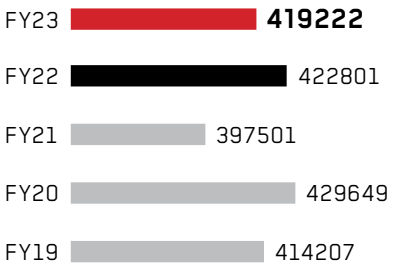
The approach to water management involves reducing water consumption, implementing water recycling and reuse practices, as well as replenishing and restoring water sources. By undertaking these initiatives, Merino actively contributes to several Sustainable Development Goals (SDGs), including Clean Water and Sanitation, Responsible Consumption and Production, and Life Below Water.

II.5 Water Intensity and Stewardship

The continuous decrease in water intensity over the years showcases Merino leadership's dedication to efficient water use and conservation, all while facilitating economic growth. This approach further highlights Merino's commitment to water stewardship by maximising the utilisation of every drop of water and implementing water-saving measures wherever possible.

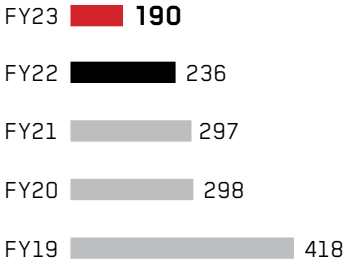
Yearwise water intake

(Kilolitres)



Water consumtion

(KL / Crore of Revenue)



The ponds constructed and supported by Merino have the collective capacity to restore approximately 5,53,815 KL of water per year.

Pond constructed and maintained by Merino Rohad

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

The Achheja village pond in Hapur by Merino

III. Air emissions mitigation and Care for air quality

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

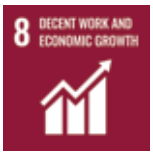
III.1 Key initiatives

- Merino has implemented various measures to control air pollution in its lamination plants located in Hapur, Rohad, and Dahej. These measures include the installation of electrostatic precipitators, bag filters, and wet scrubbers.
- To address its cooling requirements, Merino utilises VAM chillers that utilise waste heat instead of traditional refrigerant gas-powered compressors. These chillers, which are used for both process and comfort cooling in production units, employ the latest environment friendly technology.
- Merino recognises the significance of ozone-depleting gases (ODG) emitted in industrial processes. To tackle this issue, the company has focused on acquiring knowledge, providing training, and implementing technological advancements.
- Furthermore, 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 in Rohad, Hosur, and Dahej are equipped with comprehensive refrigeration facilities that exclusively utilise non-CFC refrigerants.

III.2 SDG impacts through 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):

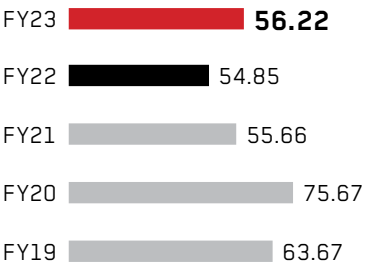
SDG 3: Good Health and Well-Being



SDG 8: Decent Work and Economic Growth

GHG Emissions, tCO_2e

(in '000 MT)



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. Additionally, the utilisation of biomass and solar energy as fuel sources has contributed to reducing our carbon footprint.

AQM in Merino Factory

Natural plants as air purifier in factory workstations

IV. Care for Soil, 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-refineries, 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, we focus on increasing the carbon content of the soil using bio manures and implementing effective soil health management practices. Each year, we produce high-quality vermicompost, totaling 95 Metric Tons, which not only enriches soil health but also reduces reliance on chemical fertilizers.

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

Merino recognises 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 of the 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.
- We actively support farmers in agroforestry by providing more than 35 lakh Eucalyptus saplings in FY 2022-23.
- 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 18,000 tons of CO_2 equivalent greenhouse gas emissions.

Some of the key positive 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.
- We link and support people involved in development of clones, provide plant care assistance, and offer capacity development programs to timber-growing communities.
- Our dedicated Plantations team guides and supports farmers to increase their timber yields.
- We actively participate in policy discussions and initiatives related to farm and social forestry, promoting standardised agronomic practices for the benefit of timber growers

The group produces quality vermicompost to the tune of 95 Metric Tons annually.

Vermicompost by Merino

Support farmers in agro-forestry by supplying more than 35 lakh of Eucalyptus saplings in FY 2022-23 and aimed at 100 lakh saplings supplies in year ahead.

Euclytptus saplings facilitated by Merino's Plantation Team

IV.3 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.

IV.4. 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 Standardised Agronomic Practices (SAP) tailored to our catchment area.

These initiatives aim to promote locally adaptable farm practices, optimise 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.5 SDG impacts of Soil 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), including Responsible Consumption and Production, Life on Land, Climate Action, and Partnerships for the Goals.

The green campus Rohad, Bio-compost utilised by Merino

Trees/forest grow about 10 times faster in Miyawaki method of plantations.

Miyawaki Forestry in Merino Factory at Hapur

Eucalyptus Sapling for Farm-forestry in MIL

The interdependence of life and soil is fundamental, they are inseparable and one is unable to exist without the other. To conserve and improve soil health, we promote organic manures, green covers, resilient agriculture, and tree plantations. These actions contribute to SDGs, ensuring environmental sustainability and overall well-being.

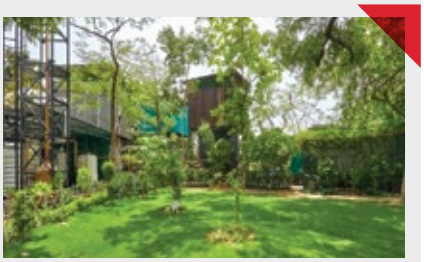
V. Waste Management through Circular Economy Principles

Approach
Recycle or creating positive value out of wastes.

Merino Industries employs innovative methods to achieve its goal of zero waste. Waste segregation at the source is crucial, and the company has implemented a system to collect and categorise 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 from manufacturing processes, such as paper residue, laminates, and panel products, is utilised in furnaces for heat generation, aiding in biomass drying, a key energy source for Merino.
- 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 from production processes and canteens undergoes bio-conversion processes using bacteria and micro-organisms, transforming them into valuable manure. This organic manure is then utilised for plants and plantations across Merino establishments.

By upgrading to technologically advanced machineries and focusing on raw material conservation, Merino has brought a paradigm shift in waste management and is steadily moving towards its long-term goal of Zero Waste.



Bio compost and Biogas unit, Hapur

The decomposed (mineralised) 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.

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

Wastes Management- Wastes Recycled or Reused by Merino							
	Wastes Type	**Source**	**Disposal Method**	**Treatment and Reuse**	**Units**	**2021-22**	**2022-23**
A	Non-Hazardous						
A.1	Paper wastes	Storage/ Defects/ Process	Recyclers	Sells in Secondary Market	MT	2,453	2,882
A.2	Solid Scrapes (process wastes) Steel, Aluminum, Plastic, Bopp, Wooden waste etc.	Storage/ Defects/ Process	Recyclers	Sells in Secondary Market	MT	760	742
A.3	Chemical Bags	Storage	PCB Approved Vendor	Sells in Secondary Market	MT	7.8	9.5
A.4	Plywood Wastes	Cutting	Incinerator	Complete combustion for energy	MT	622	1,370
A.5	Slurry/Sludge	STP/ETP	Dry Cake/Solid	Horticulture and Landfill	MT	8,210	11,152
A.6	Waste Water / Distillate	Rejected from 3rd RO	Evaporation	Through incinerator	KL	10,481	9,618
A.7	Waste Water	RO Reject / Human Waste	Electrcogugulation	Sent to ETP	KL	7,791	11,538

Wastes Management- Wastes Recycled or Reused by Merino							
	Wastes Type	**Source**	**Disposal Method**	**Treatment and Reuse**	**Units**	**2021-22**	**2022-23**
B	Hazardous						
B.1	Used/old Oil	DG Sets/ Vehicles	Authorised Recyclers	Sells	KL	7,336	5,598
B.2	Discarded Batteries	DG Sets/ Vehicles	Authorised Recyclers	Sells	No	48	130
B.3	Laminates Sanding/ trimming wastes	Sanding/Cutting process	Incinerator	Complete Combustion for energy	MT	3,441	3,984
B.4	Wastepaper containing resin	Dryer/Press	Incinerator	Complete Combustion for energy	MT	123	123
B.5	Fly ash	HWG, TFH and Incinerator ash	landfilling,Brick making, TSDF	Bricks for internal roads/premises	MT	7,871	7,687
B.6	Discarded Container	Chemical Plants	Authorised Recyclers	Sale	MT	5.9	11.3

Source: Wastes Disposal Nirmal Databank of MIL

V.2. Treatment and reuse of wastes of 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 biogases. These biogases are then utilised for electricity generation or for direct use in cooking. The waste then undergoes further treatment through aerobic decomposition. After this treatment, the resulting water is utilised 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 significant amount of peel waste. To address this, Merino and VNIT collaborated to develop an innovative process that utilises 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 utilised to extract valuable substances such as polyphenols and dietary fibers, effectively turning waste into wealth.

Moreover, the starch slurry is employed for energy generation through anaerobic digestion, while the remaining compost serves as nutrient-rich manure to enrich the soil. This comprehensive process ensures that there is no waste 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 utilising 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 leads to the generation of valuable nutrients, including nitrogen, phosphorous, 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 a greener and more efficient farming practices.

Vermicompost bed in Bamboo forestry by Merino

Merino produced ~215 MT Bio-manure, utilising 47 MT paddy straw, 170 MT potato peel and other organic wastes.

Fostering Community Wellbeing

Merino's perspective hinges on the symbiotic relationship between business growth and societal prosperity. At Merino, Corporate Social Responsibility (CSR) is a mindset that blends expertise and resources to drive positive transformations in the lives of marginalised communities while also stewarding environmental well-being. Our strong belief is that by prioritising people, the planet, and sustainable product offerings, enterprises can thrive.

The Sri Hara Kasturi Memorial Trust (HKMT) serves as the cornerstone of our CSR initiatives, dedicated to enhancing the well-being of society and communities. Our strategic focus within our comprehensive CSR framework encompasses education, healthcare, and women's empowerment, reflecting our commitment to making a meaningful impact in these vital areas.

EDUCATION

Our Education Program is aligned with five key Sustainable Development Goals (SDGs): Quality Education (SDG-4), No Poverty (SDG-1), Zero Hunger (SDG-2), Gender Equality (SDG-5), and Reduced Inequalities (SDG-10). Our focus on these SDGs drives our commitment to creating a positive impact.

Our program revolves around the core principle of providing equal opportunities to marginalised families in society. Through various educational initiatives, we empower underprivileged youth, to break the cycle of poverty. Currently, our impactful contributions extend to Northern and Eastern India.

Our Educational Initiatives encompass two main programs, which are:

a) **Swami Vivekananda Arunoday Vidyalay (SVAV):** A formal primary school up to class VIII in Hapur, Uttar Pradesh.

b) **Yogakshema:** A Scholarship Program benefiting academically gifted children from economically disadvantaged backgrounds, operating in Kolkata, West Bengal.

Merino believes that business could grow only when the society thrives.

Cheering Students at SVAV

Students attending the morning assembly.

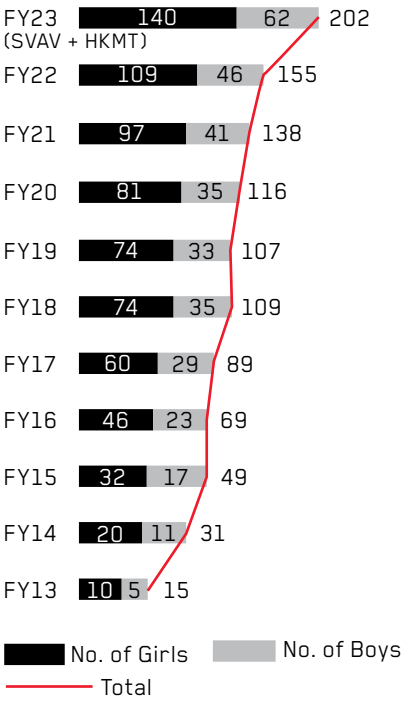
Yogakshema Achievers 2022-23

To promote girl child education, SVAV maintains a ratio of 14 Girls : 6 Boys in each class.

a) Swami Vivekananda Arunoday Vidyalay (SVAV), Hapur, Uttar Pradesh

Established in 2013, this coeducational institution maintains an impressive 1:11 teacher-to-student ratio, serving 157 students (111 girls and 46 boys) up to the 8th grade. Additionally, it supports 45 passed out students in pursuing their education up to 12th grade, taking the total number of students to 202. Special coaching is offered to these students after their regular school hours. The school maintains a girl boy ratio of 14:6 in each class, reflecting a commitment to girls' education.

Year-wise Growth of Students



Beyond academics, the school also addresses the nutritional and financial challenges of these students. Besides free education, it also provides complementary books, stationery, uniforms, and nourishing meals thrice a day, ensuring that these essential needs are met effectively.

Full-day Meal Program:

Recognising the critical role of nutrition in cognitive development, HKMT has implemented a comprehensive meal program, that provides breakfast, lunch, and evening supper to present students and the alumni. Our thoughtfully crafted menu ensures a well-balanced diet, featuring freshly prepared seasonal vegetables, grains, and legumes. This nutritional offering is extended to all children three times a day, six days a week.

Mid-day Meal Program:

Post the COVID-19 pandemic, efforts were made to encourage students' return to their respective schools and foster their nutrition. The Mid-day meal program, serving nourishing lunch, was reintroduced in two schools benefiting around 100 students in Hapur, UP, and 70 residents at Savera School for Mentally Challenged in Rohad, Haryana.

b) Yogakshema (Yk) – Scholarship for bright & needy students:

Since 2018, the Yogakshema Scholarship Program has been managed in West Bengal by the Shri Hara Kasturi Memorial Trust, sponsored by Merino Industries Ltd. This initiative supports financially disadvantaged yet academically talented students by providing a monthly scholarship of ₹4,000 for two years, facilitating education up to the 12th grade after their matriculation. The scholarship covers academic expenses, nutrition, and a Mediclaim policy for the student's family .

Achievements of Yogakshema Students:

During 2022-2023, the accomplishments include the third cohort of 17 students, enrolled for the program in 2020, excelling in their Higher Secondary Examination. 10 students achieved over 90%, while 7 scored commendably in the 80% and above range. Among them Anish Gayen Scored 97.4% in Higher Secondary Examination and cracked the NEET examination. Along with Anish, Chetana Ghosh with 80% blindness scored 95.6% in her Higher Secondary Examination.

Meals being served at SVAV

Mid-day meal being served at other school

Yogakshema Program – Achievers with Board Members

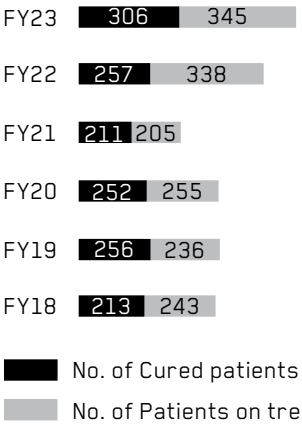
Yogakshema Program – Achievers being felicitated

HEALTH CARE

Our healthcare program is deeply committed to advancing Good Health and Wellbeing, in alignment with Sustainable Development Goal 3. At Merino, we firmly believe that a nation's progress is intricately linked to the health and wellbeing of its populace. With this core conviction, we are dedicated to fostering a healthier society by delivering free healthcare services to prevent diseases among the underprivileged.

Executed through the Shri Premchand Lohia Health Centre (SPLHC), our healthcare initiative is currently operational in Hapur, Uttar Pradesh. Recognising the alarming prevalence of tuberculosis (TB) cases in this region, we have partnered with the Department of Tuberculosis (DOT), Government of India, to achieve TB elimination by 2025. The SPLHC currently oversees three dispensaries, staffed by 1 MBBS doctor, 1 BAMS doctor, 1 pharmacist, 1 lab assistant, and 3 medical support personnel. Additionally, the Centre extends free outpatient services to the marginalised sections of the society.

Year-wise Status of TB Patient



The above graph illustrates the annual progress of SPLHC in treating and curing TB patients from 2017-18.

Launched in 2004, our TB program has facilitated the cure of a total of 6252 TB patients till 31st March 2023.

Presently, our initiatives span across 48 villages, encompassing various activities such as awareness campaigns about TB, confirmed case treatments, and crucial dietary support for TB patients. Despite the government's provision of ₹500 per TB patient per month for a span of 6 months, this allocation is rarely utilised for dietary purposes. Recognising the critical role of nutrition in TB recuperation, we have identified and provided in kind dietary support to 48 needy patients during the period 2022-2023.

In addition to our TB care efforts, our services extend to the broader patient community. In 2022-2023, a total of 6674 patients benefited from our outpatient services, comprising 3512 new patients and 3162 returning ones. Our services also provide Ayurvedic Treatment for common ailments such as arthritis, leucorrhoea, renal stones, cough and cold, and indigestion. During the year, 905 patients benefitted from our Ayurvedic Treatment offerings.

WOMEN EMPOWERMENT

In line with SDG-5, our women empowerment program is dedicated to achieving Gender Equality. Economic autonomy being the key in this pursuit, our initiatives include a Stitching Centre in Rohad, Haryana, fostering female skills since September 2017. Till date 200 female students have benefitted from the successful completion of 14 training batches. Presently, 16 girls are honing their stitching skills at this centre under the guidance of two skilled trainers.

Since the time the TB program was launched in 2004, a total of 6250 TB patients have been cured through our direct intervention

Dietary Support for TB Patients.

OPD services being provided to general Patients.