

VCD Impact on Tata Motors Limited

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Abstract: TML drive to become India's largest automobile company started in the year 1945. TML the leading manufacturers in the commercial vehicle segment and among the top three in passenger vehicles with winning products in the compact, midsize car and utility vehicle segments in India. TML world's fourth largest truck and bus manufacturer. TML first Indian company under the engineering sector to be listed in the New York Stock Exchange in the year 2004 which further expanded horizon in international markets. TML global operations are located at South Korea, Thailand and Spain through subsidiaries and associate companies. Through subsidiaries, TML engaged in engineering and automotive solutions, construction equipment manufacturing, automotive vehicle components manufacturing, machine tools and factory automation solutions, high-precision tooling, plastic and electronic components for automotive and computer applications, and automotive retailing and service operations. TML manufacturing operations are classified into two business units - Commercial Vehicle Business Unit (CVBU) and Passenger Car Business Unit (PCBU). TML market presence is spread across Europe, Africa, the Middle East, South East Asia, South Asia and South America. TML product range includes passenger cars, utility vehicles, light commercial vehicles, medium and heavy commercial vehicles. TML manufacturing units in India are located at Jamshedpur, Pune, Lucknow, Pantnagar and Sanand and corporate office is located in Mumbai. Keeping in mind the progressive needs of customers, TML make vehicles that consume lesser fuel, have low environmental impact and demonstrate superior performance. This year saw multiple product launches in the passenger car segment including Indica Vista Drivetech4, Indigo e-CS, Aria, Indica eV2 and Manza. Indigo e-CS and Indica eV2 have raised the bar for fuel efficiency by demonstrating a segment leading mileage of 23.03 kmpl and 25kmpl respectively. Aria and Manza address the dual need luxury and robustness with high performing features along with stunning interiors and exteriors. Similarly, in the commercial vehicle segment, TML launched Ace Zip, Magic Iris, Venture and Prima Construck. This year, the domestic sales volumes increased by 22.8 percent to 778,540 vehicles from 633,862 vehicles in 2009-10, while export volumes showed improvement and increased by 70.3 percent to 58,089 vehicles from 34,109 vehicles in 2009-10.

Keywords: Value: - An amount, as of goods, services, or money, considered to be a fair and suitable equivalent for something else; a fair price or return. Creation: - An original product of human invention or artistic imagination. Delivery: - The act of transferring to another.

1. Introduction

Over the years, the automobile industry has contributed greatly in improving the quality of life of millions of people by providing access to efficient and cost effective modes of transport.

On the other hand, the industry has also come under the radar for issues related to environment and safety. Over time, TML had taken steps to address these issues as effectively as possible. TML conducted an assessment for revisiting material issues identified in the previous year.

All the issues of material significance were identified and assessed against six materiality filters – financial impacts and risks, legal drivers, internal policy drivers, peer based performance, stakeholder concerns and opportunity for innovation. The assessment confirmed climate change management, supply chain management, materials management, occupational health and safety and community stewardship.

2. Significant of impacts

Climate Change Management

Managing our impacts on climate change is a material issue for us by virtue of our processes and products that are heavily dependent on fossil fuels as a source of energy. Rising fuel costs and impending legislations impede the growth of the auto sector. Today, the sectoral focus is on developing fuel efficient vehicles, vehicles that are powered by alternative

fuels and that have a low environmental impact over their life cycle. TML have and will continue to research development of fuel efficient and alternate fuel vehicles, which will have a minimum impact on greenhouse gas emissions across their life cycle. In processes too, TML strive to increase energy efficiency, in order to minimize our carbon footprint.

Supply Chain Management

Procurement of appropriate raw materials and spare parts at the right time is essential for TML efficient functioning. Equally important is the delivering of finished goods to TML dealers and distributors. TML supply chain has a significant contribution on TML sustainability performance and thereby our long term growth. TML initiated several programmes to enhance environmental and social consciousness within TML supply chain. TML ultimate aim is to ensure that our supply chain has an equal understanding of our sustainability vision and strategy.

Material Management

Optimizing material use is one of focus areas, with an aim of reducing consumption of virgin material and increasing recycle and reuse of waste. Through ERC, there is a dedicated focus on reduction and elimination of usage of toxic materials like hexavalent chromium, lead, asbestos, arsenic, ozone depleting substances etc. Material substitution also helps to contribute towards reducing the weight of the vehicles, thereby directly impacting fuel consumption and related greenhouse gas emissions. There is a serious focus on enhancing vehicle recoverability and recyclability to ensure appropriate disposal at end of vehicle life.

Health & Safety

TML address health and safety related issues at two levels – operations and products. TML follow a zero accident policy to ensure a safe operating environment. Customer safety is of paramount importance, TML continue to implement features in our vehicles to enhance vehicular safety. Through research efforts, we also focus on passerby safety, to minimize negative impacts that may occur in case of accidents.

Community Stewardship

TML consciously work hard to improve the quality of life of the community across our operations through well designed programmes in association with local authorities and non-profit organizations. TML focus areas are health, education, employability and environment, and linked them to the Human Rights Charter, Bharat Nirman Programme and Millennium Development Goals. As a Tata Group company, TML follow the Tata Corporate Sustainability (CS) protocol to assess the progress of our community initiatives. This has helped us mature from having a community based focus to a business linked strategic initiative with a nationwide footprint in managing our social responsibility programmes.

Corporate Social Responsibility

TML dedicated Corporate Social Responsibility cells across plants and also at the corporate level. Periodic community needs assessment surveys are conducted to understand expectations of the communities. TML programmes are designed to have active participation from communities, local governance bodies and NGOs, making them co-owners of the initiatives. TML undertake impact assessment studies to understand the effectiveness of initiatives and have regular reviews as per the Tata CS Protocol.

3. Capturing Ideas across the Value Chain**Systematic processes to capture ideas****From Employee**

Team structures, Suggestion scheme, share café, Idea generations, Job rotations, Systematic employee movement within domestic and international business, etc

Example: - NPI, Material cost movement for model LPT2515/48TC through employee CFTs, EDP programme

From Customers

VOC, Customer clinic, Dealer/Distributor meets, key accounts by leaders, Naka visits, Auto Expo, CRM, etc

Example:- Improvements in rear axle, Strong chassis frame, Load body & clutch plate

From Suppliers

Supplier meets, Technology day, SRM availability, etc.

Example:- Advanced Break System, Hydro forming

From Community

Development of volunteers, Community centres, Periodic group meetings, Government liaison, Student community, etc

Example:- Soak pits, Bunds, Alternate energy, Anti pollution drives, Nirmal Gram plans

From international business related customers / employees

Product / Country managers and regional managers along with focus team from distributors capturing customers' requirements, etc

Example:- Engine heating system in extreme cold conditions, reducing Engine wear in extreme hot conditions

Economic Performance For VCD

TML sales (including exports) of commercial and passenger vehicles for FY 2010-11 stood at 836,629 units, representing a growth of 25.2 percents compared to the previous year. This growth was supported by significant revival of export-import trade, infrastructure development, increased mining and construction activities, favourable financing environment and healthy freight availability. However, in recent months there have been developments which have the potential to adversely impact growth in the commercial vehicles market. These include slow-down in industrial sector and high inflation which has necessitated rise in interest rates. The Reserve Bank of India (RBI) has projected wholesale price index (WPI) inflation during FY 2011-12 to remain around 9 percent up to September 2011, and decline thereafter to 6 percent by March 2012. This is based on expectations of strong inflationary pressures emanating from high global commodity prices, as well as domestic price pressures and demand-supply mismatches. TML recorded a sale of 778,540 vehicles in this year, a growth of 22.8 percent over the previous year in the domestic market representing a 24.3 percent market share. TML exported 58,089 vehicles from India, a growth of 70.3 percent over the previous year. Our commercial vehicles sales in India increased by 22.7 percent year-on-year to 458,828 units, resulting in a market share of 61.8 percent. Growth in M&HCV segment has been accompanied by a structural alignment and shift in favour of higher tonnage trucks. Passenger vehicles, including Fiat and Jaguar and Land Rover vehicles distributed in India grew by 23.0 percent year-on-year to 319,712 units, resulting in a market share of 13.0 percent. Sales of Nano crossed 100,000 marks during FY 2010-11 and our total passenger vehicles sales crossed the two million mark, since inception. Our gross revenue for the year ended March 31, 2011 was ` 521.36 billion, posting a growth of 35.9 percent over 383.64 billion in the previous year. Cost pressure, including commodity price increase, resulted in a reduction in the operating margins to 9.9 percent and an operating profit (EBITDA) of ` 47.71 billion in the year, posting a growth of 14.2 percent over 41.78 billion the previous year. In FY 2011-12, TML plan to focus on vehicles specific to rural markets that are expected to drive growth. TML will continue transforming and strengthening our existing product portfolio through improved value propositions and benefitting from emerging trends. Competitive intensity and increasing costs in the passenger vehicle segment could pose a risk to operating margins, but we aim to address this issue by sustaining a low cost base with continuous cost reduction efforts and enhance customer care through an expanded sales and service network in India.

Integrated Cost Reduction –collaborating to create value

The 'Integrated Cost Reduction' drive was a multi functional initiative across the PCBU to reduce redundant costs and

resource wastage across the supply chain. The aim was to generate innovative ways of meeting the customer needs without compromising on value. The effort was led by ERC and procurement teams with equal participation from manufacturing and quality departments forming cross functional teams (CFTs) that helped to drive improvements in business areas across the value chain. Each CFT was given a specific target for reduction of cost of aggregates. The teams worked under platforms like direct material cost, variable conversion, fixed conversion cost and working capital. 22 CFTs started working this year along with 200 dedicated officers. The initiative has gathered momentum and has started to provide results through collaboration across locations.

Building a robust supply chain

TML won Architecture Excellence Award in the IT Service Management category at the ICMG World Conclave. TML competitive advantage includes a world class CRM solution with integrated dealer management system (DMS) used by over Economic performance 2,500 channel partners. Further the supplier self service initiative with design collaboration solution has been extended to an additional 550 vendors this year. At an organizational level, we have been successful in implementing the model of third party logistics. These logistics provider immensely cut down on the overall transportation costs and time as they follow a hub and spoke model in delivering the consignments efficiently. This has ensured that we have an enhanced control on our inventory. This also helps in reducing fuel costs and thereby the related emissions. An important aspect of our initiative to green the supply chain has been to seek transparent disclosure from all our vendors on the hazardous material content in each part that they supply.

The amount of heavy metals present in the parts have to be declared and are procured only if they meet our stringent material criteria. The chemical composition of the parts is thoroughly checked by our cross-functional team of experts. At Sanand and Pantnagar, adjacent to our plant boundary, TML have established a vendor park with all basic amenities in place which would house vendors supplying exclusively to Tata Motors. TML aim to source more than 60 percent of our components from the vendor park, thus increasing our resource efficiency and decreasing our emissions due to reduction in logistics related transportation. Through these vendor parks we have created employment for about 3,750 persons in and around Sanand, out of which 750 are on fixed roll and 3,000 on contract roll. Apart from this, there are about 1,000 persons employed with tier-2 vendors and support functions like logistics, canteens etc. The employment numbers will increase considerably with the scale of operation. Almost 95 percent of the materials supplied from the vendor park are transported in trolleys and returnable packaging. This initiative is aimed at ensuring flow of component supplies on a real-time basis, and thereby reducing logistics and inventory costs as well as lowering uncertainties in the long-distance supply-chain. In the reporting period, TML manufacturing plants sourced approximately 58.57 percent of materials and services from vendors within their state of operations. Additionally TML

have specific initiatives to enhance the environmental and social performance of our vendors. Every vendor in the vendor park has installed vortex flow meters for monitoring water usage which gives readings remotely at set frequencies. This helps in analyzing consumption pattern and thus optimizing the water use based on production and manpower engagement.

Environment procurement policy

TML aim is to adopt a holistic approach to the procurement process by expanding awareness of our environment policy and TCoC amongst vendors, contractors and service providers. To this effect TML formulated an environment procurement policy that provides guidance on evaluating the environmental performance of our business associates along with quality and cost. In line with this policy TML have taken an initiative to encourage our vendors and service providers to establish their own environment management systems. Awareness campaigns to improve their manufacturing process, reducing their carbon footprint and use of hazardous chemicals have also been formulated under the aegis of this policy. At our Jamshedpur plant, close to 1,120 service providers have participated in the awareness sessions. We have seen vendors implement ideas to reduce packaging material and increase use of recycled material as a result of the various programmes conducted, since the inception of this policy. One such outcome has been the use of retainer bins, which are used to pack the consignments and once delivered, these bins are reclaimed by the supplier for reuse. This has significantly cut down our packaging material footprint. TML aim to create awareness and promote good environmental practices and management systems in our supply chain with the aid of ISO14001 certification for our channel partners.

Supplier performance enhancement

Under the policy initiative of supplier performance enhancement, TML conduct in house vendor council meetings to formulate a sound system for evaluation and enhancement of supplier performance. At PCBU, the meetings are held under the guidance of the Head-Car Plant, Head-Supply chain management, Head-Quality and Assistant General Manager-Vendor development. In order to make the evaluation system more comprehensive, new metrics were identified for continuous evaluation of supplier performance in this year. These include a monthly quality index, monthly delivery index and a monthly vendor rating system based on quality, cost, delivery, design development and management systems. The grading of suppliers would be done based on these parameters on a scale of 'A' to 'E', with 'A' being the best. This would help our suppliers improve their performance and work towards continuous improvement. Further, TML conduct surprise audits under the TCoC framework and third party audits under the purview of SA8000 to ensure that there are no incidents of human rights violations including child labour and forced labour in our supply chain.

Environmental Stewardship For VCD

TML focus on environmental management to help preserve the long-term health of people and ecosystems and build strong positive relationships with local communities. TML have been at the forefront in developing vehicles that meet the various environmental protection regulations, while striving to go beyond compliance. TML have developed an organization wide environment policy that highlights the use of environmentally sustainable technologies and practices for prevention of pollution and continual improvement in environmental performance. This policy comprehensively addresses the need to conserve natural resources and energy, minimize waste generation, enhance recovery and recycling of material and develop eco-friendly waste disposal practices. TML endeavour has been to establish environmental management as an integral part of the standard operating systems to achieve best-in-class performance. Further, an intranet website 'Yugandhara' is used for creating climate change consciousness amongst the employees. This year, we have invested ₹ 346.90 million towards environment management activities across operations.

Resource efficiency

The primary materials and components we use in our vehicle production are steel sheets and plates, castings, forgings, tyres, fuel injection equipment, batteries, electrical items and rubber and plastic parts, consumables (paints, oils, thinner, welding consumables, chemicals, adhesives and sealants) and fuels. TML also require aggregates like axles, engines, gear boxes and cabs for our vehicles, which are manufactured by us or by our subsidiaries, affiliates or strategic suppliers. Close to 80 percent of the parts in our vehicles are made at our vendor's end and assembled in our plants. Use of alternative material has been a key focus area for ERC department over the years. This year we have reused 37,373 tonnes of metal scrap and forgings in our process thereby avoiding use of virgin material. Jute and polypropylene based composite was used for the first time for headlining application on Tata Nano as a replacement to glass fibres. Jute fibres are safe for handling and have lower life cycle energy consumption as compared to glass fibres.

Increasing life of aggregates – 'Recon' business

TML reconditioning business was started to service customers who require an overhauling of aggregates. Instead of going to a local mechanic workshop, the customer can approach any of our designated channel partners and exchange the failed vehicular aggregate assemblies for a reconditioned one, thereby avoiding a complete overhaul. This also ensures that the customer is assured of better quality and a renewed warranty for the reconditioned part. This has enabled us to rapidly adapt to rising material costs by improving resource efficiency and reclaiming material value. TML reconditioning business is based out of Lucknow where we have a dedicated facility for reconditioning the aggregates to the desired quality and enhance the life of the product.

Through a network of close to 700 dealers, TML source old aggregates from our customers and dispatch reconditioned ones. In 2010-11 a total of 13,788 engines and 8,690 other parts were reconditioned. TML also taken multiple steps for

further resource conservation like reusing engine oil for multiple testing cycles. A 200 litre engine oil barrel can now be used to test 170 engines instead of 85. The total turnover of this business is close to ₹ 780 million. The hazardous wastes generated are disposed as per the rules and regulations prescribed by the respective State Pollution Control Board (SPCB) as per the Hazardous Wastes Management & Handling Rules. TML follow a system of waste segregation at source through standardized colour coded bins. TML also installed secondary containment measures to manage spills on the shop floor. In Jamshedpur, there are close to 80 secondary containment points across the plant. At Jamshedpur and Lucknow the wet garbage from our canteens is converted to usable organic manure through converters.

Reusing paint sludge and thinner

At PCBU Pune, approximately 390 tonnes of hazardous paint sludge was sent for processing to an authorized party for conversion to paint. Although the paint obtained from this process does not meet the quality standards for automobile painting, TML procure the same for floor painting. Before the introduction of this process, the paint sludge was incinerated and this process has eliminated the emissions caused due to this incineration. A similar initiative is practiced at Jamshedpur plant where we utilize close to 35 MT of paint sludge every month. Apart from utilization of paint sludge, at Jamshedpur plant, TML also developed a process to convert the incinerator ash to pavement bricks that can be used in walkways within the plant. This model has been very successful and ash from the incineration of phosphate sludge, oil / paint soaked jute gloves, rags, cardboard etc has been utilised effectively. Through this, we have significantly reduced the amount of hazardous incineration ash that is sent to landfills.

At Pune PCBU, an innovative methodology of recycling the paint thinner has been adopted in partnership with an authorized service provider. The waste thinner from the top coat is collected from the paint shop and stored in a temporary yard from where it is transported to the recycling unit of the service provider. The recovered thinner forms almost 80 percent of the waste thinner processed, while the remaining part is discarded safely as sludge.

Reducing packaging material

TML has taken measures to reduce our packaging footprint by either using sustainable packaging (replacing wood with metal) or reusing existing packaging (recycling wood). TML recycle close to 69 percent of the wood packaging thus eliminating use of fresh wood. TML developed collapsible custom-built polypropylene (PP) boxes for components that are unwieldy to handle (e.g. dashboards) and bought from external vendors. With a cycle time of more than 150 trips, these polypropylene boxes have resulted in significant savings on component packaging. At our Pantnagar plant we have eliminated the use of bubble wrap for packing of spares, body shells and load bodies.

Tackling climate change

TML adopted a climate change policy which draws from the Tata Group's Policy on Climate Change. This policy addresses key issues relating to products, processes and

services. TML continually working to develop low carbon, fuel saving technologies which will help reduce greenhouse gas emissions. Development of CNG vehicles, electric vehicles and hybrids are at the forefront of our efforts towards this end. TML manufactured CNG versions of buses and light commercial vehicles, LPG versions of Indica and CNG versions of ACE goods carrier. PCBU business has developed its own climate change strategy which details both short term and long term goals for managing climate change. All the major initiatives will fall under the ambit of this strategy with concrete execution plans and monitoring systems. Clean development mechanism is an important aspect of our climate change strategy. For our 20.85MW wind power project, United Nations Framework Convention for Climate Change (UNFCCC) has issued 27,554 CERs on January 20, 2011 for the period 2008-09. In our operations, the major fuels used for energy are high speed diesel (HSD), light diesel oil (LDO), furnace oil (FO), liquefied petroleum gas (LPG), propane and petrol. TML indirect energy consumption is the energy purchased externally in the form of electricity. TML utilise wind energy at our Pune complex and solar energy for lighting and heating purposes at our Lucknow plant, which together amount to 4.54 percent of our total energy¹² consumption. TML achieved annualized energy savings of 230,959 GJ through the conservation initiatives across our operations, an increase of 30 percent from the previous year. This was possible due to increased awareness and active participation from the workforce in conservation initiatives. A number of energy saving ideas implemented at the shop floor were contributed by our employees. In Pune PCBU, for the first time, climate changes CFTs were formed and were assigned targets for reduction. With the help of numerous energy saving initiatives across all our plants, TML able to reduce our specific GHG emissions over the last year¹³. Some of the major initiatives undertaken across the organization include:

- Installing turbo ventilators and variable frequency drives
- Shifting in plant lighting to energy efficient and lower wattage lamps
- Utilizing solar water heater for canteens and hostels
- Shifting to high pressure cold wash from hot wash
- Switching over from manual painting to robotic painting
- Eliminating hot water generators and using direct fired burners
- Optimizing shop floor heat load through reflective coating of the roof
- Minimizing compressed air leakages
- Installing efficient weishaupt burners in plant and waste heat recovery from furnace flue gases to heat water for process

Green infrastructure

While conservation initiatives are prominent across our operations, a lot of effort is also directed towards use of alternative clean technologies. In Jamshedpur, translucent poly carbonate sheets have been provided covering close to 50 percent of the shop floor roofing to increase natural light thereby minimizing daytime lighting load. A new technology of using light pipes as a source of light has been tried in Jamshedpur and will be implemented in Lucknow by the first quarter of FY 2011-12. The light pipes unlike conventional

roof lighting ensure that there is uniform dispersion of light and additionally prevent build up of heat. While lighting is just one aspect of creating a green building, TML also developed a comprehensive green building policy which encourages the use of materials from recycled content, minimization of waste and use of hazardous materials, minimization of energy and water consumption right from the conceptualization phase. TML plant at Lucknow has considered factors such as double bricked walls, double skinned sheeting and sandwiched roof for temperature control and comfortable working environment while designing new shops. CVBU Pune received the "GOLD" rating (for its green factory building) from Indian Green Building Council (IGBC) and is the first-of-its-kind in India and for the Tata Group. All existing buildings at Pimpri operations are rated as GOLD rating factory buildings. Tata Motors is the first company to receive this award for existing factory buildings.

New avenues of energy

At our Lucknow plant, there has been a drastic increase in electrical energy consumption due to commencement of a new production facility. Hike in electricity tariff has further increased the energy cost. In order to harness the abundant availability of sunlight, a pilot solar power project of 25KW, the first among all the locations was set up by the Energy Management Cell. Learnings from its operations will be used as inputs for achieving the future goal of setting up a 1 MW solar plant at Lucknow. Apart from resulting in cost savings over the long run, the project will significantly reduce our carbon footprint.

Cutting emissions due to travel

TML invested heavily to provide bus transportation facilities for all our employees. TML increased the number of trips and the coverage of pick up and drop stations encouraging more employees to utilise the said transportation. This serves a dual purpose of cutting down on the emissions due to the commute of our employees, as well as ensures their safety. Over 50 percent of buses used for employees commuting are CNG based and hence have lower emission levels.

Partnering for a cause

In Jharkand, Gram Vikas Kendra (GVK), a NGO actively supported by Jamshedpur plant has been recognised as a regional resource agency (RRA) under the National Environment Awareness Campaign (NEAC). The NEAC was launched by the Ministry of Environment & Forests, Government of India in 1986. Several NGOs, educational and training institutions, professional associations, scientific bodies, community organizations and a whole range of other agencies participate in the campaign. These bodies singularly or in partnership with other organizations, organize programmes for creating environmental awareness followed by field action at the local, regional and national level. Through coordination between NEAC, GVK and Tata Motors, Jamshedpur has been able to network with around 500 NGOs in the state of Jharkand highlighting the importance of bio-diversity conservation and the immediate steps to be taken.

Water management

TML continuously working towards reducing our water footprint, evidenced by a decrease in our specific water consumption. TML promote recycling and reuse of water at all our plants, and also invest in developing systems for rain water harvesting. The total water utilised by our plants increased by nearly 14 percent from 6,819,413 KL in the previous year to 7,785,748 KL in this year; while in the same period the average water use per unit of automobile production reduced by 3.8 percent, from 11.25 KL to 10.82 KL. Our major source of water is municipal supplies; however there has been a constant increase in the usage of harvested rainwater across our operations in the last decade. At Lucknow, a rainwater harvesting scheme with a total harvesting potential of 1,456,920 KL per annum is under implementation. TML continue to increase water use efficiency through implementation of advanced technology and generation of awareness amongst employees. Our Lucknow and Sanand plants are zero discharge plants, while plans are underway to make our Jamshedpur unit zero discharge too. The total water discharged from our manufacturing locations was 900,812 KL. At Pantnagar, the treated effluent is recycled through a reverse osmosis plant and then reused in the paint shop to fulfill raw water requirements. This resulted in reduction of close to 70 percent in our groundwater consumption.

Air emissions monitoring

Major emissions due to our manufacturing activities include particulate matter (PM), oxides of nitrogen (NO_x) and sulphur (SO_x). TML made significant investments to effectively monitor air emissions from our production facilities including an on-line monitoring and alarm system for incinerator emissions. At our PCBU facility in Pune, we have set up a volatile organic compound (VOC) emission reduction roadmap at the paint shop to significantly mitigate harmful effects. TML installed an automatic thinner collection system and optimized the paint flow rate and air pressure, in order to reduce VOC emissions. Other initiatives like reduction of thinner pressure during the flushing cycle and sequencing of paint cycles have been incorporated. Switching over from LDO to propane in some of our operations has further helped in reducing the overall air emissions. At Jamshedpur this year TML installed a fume extraction system in the melting shop of the foundry. Scrubbers have been installed to enable the neutralization of Tri Ethyl Amine ensuring that the air quality parameters do not exceed the prescribed limits. TML use R134a which has zero ozone depleting potential as a refrigerant in our products. TML also ensure that no refrigerant is released to the atmosphere during any service, repair and maintenance of air-conditioning equipment of products. Ozone depleting substances (ODS) are no longer used in the manufacturing supporting processes or in our production at Pantnagar and Sanand. Our Lucknow, Pune and Jamshedpur plants used 101.8 kg of CFC-11 equivalent ODS in the reporting period.

4. Product Safety and Innovation

TML committed to develop best-in-class products, with the latest technologies for passenger safety and comfort. World-

class automotive research and development are key factors that contribute to our leadership. We have set up two in-house ERCs that house India's only certified crash test facility. We pursue state-of-the-art technologies to address safety issues and have a safety roadmap in place which is reviewed at the steering committee level. During the year we spent ` 11.87 billion, 2.47 percent of the net turnover, on research and development activities including expenditure on capital assets purchased for research and development.

During the year, we filed 141 patent applications and 41 design applications. Till date, we have been granted 11 patents and 36 design registrations. We invested in facilities for optimization and emission measurements and for enhancing safety performance. Some of these technologies are:

- Heavy duty chassis dynamometer for vehicle level performance development and various calibrations for utility vehicles and passenger cars
- Robotic driver mileage accumulation for light, medium and heavy commercial vehicles
- Enhancement of chassis dynamometer emission lab for passenger cars and small commercial vehicles for Euro V emission norms onward
- Facilities and Equipment to meet safety regulations such as mobile crash test barrier for side impact testing (as per US regulations), rear impact testing (as per Korean regulation)
- Introduction of xenon negative arc flicker free lighting system for high speed digital photography during crash events
- Rapid prototyping equipment with selective laser sintering (SLS) technology for 'ready to test' plastic prototype parts

ACING the race

The Ace has helped many small time business owners grow from an unorganized set up to an organized set up. About 55 percent of the Ace's customer base is formed by first time users who purchase the vehicle to start a goods transportation business. The Ace became the single largest commercial vehicle brand in 2010 with a sale of over 100,000 units. The first mover advantage combined with the Ace's combination of reliability, safety, comfort and affordability induced a paradigm shift in the goods transportation business. Our Lucknow plant is currently working on custom made body solutions on the Ace platform for different business needs for both local and export markets.

5. Occupational Health and Safety**Workplace safety**

Ensuring safe working conditions is of paramount importance to us. TML believe that a safe workplace instills a sense of security and confidence among our workforce which enhances our productivity. TML put in place a companywide occupational health and safety policy. This policy coupled with our strong implementation and assessment measures helps us achieve our objective of minimizing workplace injuries as well as occupational diseases. We strive to ensure that every individual working within our plant premises is protected from any inherent risks related to workplace safety. Towards this end, we recently completed a diagnostic of the

existing safety systems through DuPont and are taking steps to raise the safety standards continuously. This activity would enable us to identify the gaps and assess the as-is scenario. As part of this assessment, a safety perception survey was also conducted to understand employee insights on safety. Across our plants, we have dedicated teams of safety and health professionals working to devise safer work procedures. Safety measures have been ingrained into the standard operating procedures at each of the processes at our facilities. Work related hazards have been identified in specific areas of operations including the foundry, paint shop, welding line, etc. and their individual task related safety procedures have been devised. We have procedures in place to ensure that all the workers entering the plant premises are medically fit to carry out the job they are assigned. We have made it mandatory for all workers to undergo a primary health check-up on joining and similar checkups at regular intervals. A host of initiatives on health and wellness were taken across the plants. At Pune a 'Health Index' was created and an ergonomics study was conducted to improve the workplace environment. Safety observations and incidents receive a high priority, with the top management being directly involved in all such matters. A steering committee headed by the Managing Director addresses safety, health and environment issues on a monthly basis, in order to track performance and identify areas of improvement. Workplace safety is supported by a divisional safety council structure comprising of the divisional head, safety steward, maintenance and production representative, medical officer and safety officer from the plant safety department. Workmen participate in various proactive safety and IR committees to suggest and aid implementation of improvements at the workplace. Currently 210 of our employees are part of statutory plant level safety committees with equal representation from management and non-management staff. In addition to the statutory plant level safety committees, we also have management level safety committees at each of our plants. While the number of reportable injuries has been steadily decreasing, the number of near misses has increased due to increased awareness of safety among our employees. All reportable injuries are duly communicated and investigated. Of all the reportable injuries to our employees, three have been sustained by female associates resulting in a loss of 149 work days. In spite of having heightened safety awareness and safe work practices in place, we are sad to report the demise of two 19 personnel at our operations. We are committed to our goal of achieving zero fatalities in our operations. ZAP meetings are held across all plants and defined bay owners champion these meetings. The injury rate and lost day rate are given in the graphs below:-

Contractor safety management

To address the issue of inculcating a safety culture within our contract workforce, we have developed a centralized system for contractor safety management. The salient features of this system are:-

- Distribution of contractor safety guidelines along with work order
- Obtaining a declaration from the contractor as per requirements of the safety department (list of equipments,

certifications, list of employees and their medical records etc)

- Compulsory safety induction training for all contractors before commencing work inside the factory premises
- Implementation of personal protective equipment (PPE) clause in the contractors work order
- Submission of Safety report (in prescribed format) by all contractors by second of every month.
- Regular work related safety trainings to contractor workmen
- Regular inspection and audit of contractor work area
- Review of safety performance on a common platform (Contractor safety meet)
- Evaluation of contractors based on their safety initiatives and rewarding near miss reporting and incident free workdays

TML select service providers based on techno-commercial evaluation including evaluation of their safety practices. Additionally, we have a monthly safety committee meeting with the service provider, which is also a common platform for raising any grievances. The head of the contract cell and its senior members are part of this meeting and devise a plan to execute the action points, with the measures being reviewed in following safety meeting. Going forward we intend to have bi-annual safety performance evaluation of the service providers to inculcate awareness on improved safety practices. To improve our incident and near miss reporting, at our Lucknow plant we have started a system of "Safety Alert Card" where employees fill in a card with the details of any incident and drop it at a collection point at the shop floor. This ensures capturing of incidents on a timely and regular basis and enables us to implement appropriate trainings required to prevent such incidents in the future. TML also started a special suggestion campaign for seeking ideas on improving safety measures from all our employees as well as educating them on basic safety. Every month, we select safety related topics for spreading awareness amongst our workforce. This year we have covered topics like safe material handling, over head safety, fire safety, handling and storage of hazardous materials, electrical safety and road safety. Apart from workplace safety procedures we also take care of the continued well being of our employees through employee health programmes.

These include the following:

- In house blood testing
- Health awareness lectures and seminars
- Awareness on management of chronic diseases such as diabetes and hypertension and treatment support for the same
- Issuance of diabetic cards to keep track of the required tests and their results

Medical centres with qualified doctors, paramedical staff and emergency medical equipment are available at all our locations and provide round-the-clock services.

Health inclusivity

The SA 8000 team from PCBU Pune set an example of altruistic service and commitment towards society by

distributing some essential items to the workers in the scrap yard. They provided summer coats, head scarves, caps etc. to the scrap yard workers and intend to repeat this exercise every six months. As a part of the medical check up all the women workers was carried out in our dispensary. Those who were found to have adverse health conditions were given free consultation and medicines by the company doctors.

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Author Profile



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