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Tega Industries Ltd: Journey of an Indian MNC (Part A)

Established in 1976, Tega Industries Ltd was in the business of designing and producing consumables for the mineral beneficiation, mining and bulk-solid–handling industries. Headquartered in Kolkata, India, Tega offered a wide range of abrasion- and wear-resistant products,[1] mainly mill liners, and services required for mining and beneficiation of minerals. (See Exhibit 1a for an overview of mineral processing and Tega's product line and Exhibit 1b for Tega India's financials.) Tega's core expertise was the design, manufacture and distribution of small-, medium- and, later, large-sized rubber mill liners. As of March 2016, its primary customers were from the copper- and gold-mining industries, and they contributed to 80% of Tega's revenue. The remaining revenue was from bauxite-ore, zinc-ore, uranium-ore and iron-ore mining industries.

By the end of March 2016, with manufacturing facilities in India, South Africa, Australia and Chile, Tega was exporting its products and solutions to 72 countries. Its sales and distribution network stretched across 16 countries, and the company had 1,600 employees worldwide. In 2016, Tega's management was debating whether it should close down operations in Chile or make one more attempt to revive its acquired subsidiary Tega-Acotec, which had been consistently incurring losses from 2013 and had accumulated a loss of approximately INR 2.5 billion (approximately USD 37.37 million) by 2016. The decision could affect Tega's ambition of achieving the second or third rank in the global market.

HISTORY OF TEGA INDUSTRIES LTD

Early Years

Madan Mohanka, popularly known as MM in his social circle, was born and brought up in Jamshedpur, India. After obtaining a Master of Business Administration (MBA) degree from the Indian Institute of Management (IIM) Ahmedabad (India) in 1967, he joined his family firm, Techno Electric, which was engaged in the electrical installation business. In June 1971, MM came across an advertisement in a mining journal of a Swedish company, Skega; Skega was a subsidiary of Incentive AB, which was owned by the Wallenberg Group from Sweden, and specialised in the design, development and manufacture of abrasion-resistant rubber products for the mining, cement and aggregate industries. The use of abrasion-resistant rubber in these industries was a completely new concept for India as mill linings had traditionally been made of steel and not rubber.

[1] As of March 2016, Tega's portfolio had many products and services; the list of products included wear products, hydrocyclones and conveyor components such as rollers, impact bars, Spillex skirt sealing and scrapers, and the list of services included mineral processing, screening, grinding and material handling.

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Intrigued by the product's potential in the Indian mining industry, MM wrote to Skega and expressed his interest in visiting Sweden in July 1971 to meet Skega's managing director.

MM said:

> Skega responded expressing their disinterest, but I never received the letter as it was sent through sea mail. So, a fortnight later, I decided to go to Sweden and sent them my date and time of arrival through a cable. Naturally, they were surprised by my visit. Since the managing director of Skega was out of town, I met the technical manager, Gustar Nelson. I was able to impress him. This was the first step of my relationship with Skega.

On August 24, 1971, Skega accepted Techno Electric as its representative in India and Nepal for a year, starting January 1, 1972, under certain conditions. In 1972, Manoj Basu, Development Engineer at Techno Electric, was sent to Skega in Sweden for training. Between 1972 and 1974, a representative from Skega and Basu travelled extensively in India to make presentations to prospective customers. They received positive feedback about the product. After many rounds of negotiations between Skega and Techno Electric and approvals from the government, Tega India Ltd was incorporated on May 15, 1976. The name Tega was inspired by Skega, and the "T" came from the family business, Techno Electric. Tega's products were pitched as replacements for manganese and steel that were being used as lining material for equipment and were prone to a high degree of wear and abrasion. The advantage of this new technology was that rubber liners reduced downtime and needed to be replaced less frequently. Customers for the company's products were ferrous and nonferrous mines, cement plants, steel plants, thermal power stations, ports designated for material (ore) handling, and other plants using material-handling equipment.

MM said:

> I was confident about the potential of the product; in spite of many industry experts' concerns related to the lack of readiness of the Indian market for high-technology and nonstandard products, I went ahead with my plan—from recruiting sales engineers to sending them for training in mineral processing and rubber technology at IIT Kharagpur and putting them through training programmes manned by senior executives trained in Sweden. It was expected that the marketing of Tega products could be done without much trouble.

After a few initial hurdles during the first two years of Tega, the plant eventually went on stream in April 1978. MM and his team set up a manufacturing facility in Kolkata, India, in which Skega AB acquired a 40% stake. The agreement with Skega restricted Tega from exporting any products for 20 years from the date of commissioning of the plant. The market research conducted by Basu and Skega's representatives had predicted high demand, but the orders were not forthcoming. According to MM, the market dominated by public sector units did not accept Tega's products because the management in these units had no incentive to take a risk by choosing a product whose efficiency had never been tested and whose cost was high. To push-start the sales cycle, only one avenue was open—obtaining a contract from Kudremukh Iron Ore Co. Ltd (KIOCL) to fabricate and rubber-line the equipment that KIOCL procured indigenously. However, KIOCL did not have a history of placing orders with a manufacturer who had not been making the product for at least three years. Despite this, Tega made a bid for KIOCL's order at a meagre price and won it. MM said:

> We were able to persuade KIOCL to consider us as a potential supplier, even though we had started production only in April 1978. This was possible only because of an assurance given by Skega that our products would meet the highest quality standard.

After receiving the order from KIOCL, the management team at Tega realised that they had neither the required moulds nor the capacity to fulfil the KIOCL order; therefore, Tega invested additional money to buy new moulds and outsourced a part of the production at a higher cost. Consequently, in April 1979, the company faced a cash crunch and could neither pay its employees their salaries nor pay suppliers on time.

MM said:

> The memory of the day when the company could not pay salaries is still vivid in my mind. I did not go to the office that day. Noticing something unusual, my wife asked me whether there was any problem. I explained to her the financial crisis. She only asked whether my confidence in the future of the company was shaken. I replied in the negative; the problems were of a temporary nature. On hearing this, she offered me her LIC policy and personal assets. She told me that I could use these assets if I were convinced that they could save the company, and I, for my part, sold my brand new car at half the price I had bought it for a few months before.

In reference to the original marketing plan, Tega could meet neither the first-year sales target worth INR 8 million nor the second-year sales target worth INR 12 million. According to MM, there were many reasons for the shortfall:

> This was a completely new technology where we were not selling a product; we were selling a concept. It took more than two years to get the first order. The gestation period was longer than we anticipated. The order placement time from the first contact turned out to be 10–12 months instead of 4–6 months. The workforce in the marketing division was below the planned level throughout. Time spent on installations was much more, resulting in the diversion of sales engineers' time from selling to installation. The movement of customers from the trial order to the bulk order stage did not take place after the first or even the second order. The cost of downtime was not assessed by buyers. Furthermore, investment in training was very high. We would not get engineers who knew all three technologies that needed to be assimilated, namely mechanical engineering, mineral processing and rubber technology. So, we had to arrange for their training at IIT Kharagpur and Indian School of Mines, Dhanbad.

Meanwhile, MM's family business was disintegrating rapidly with the onset of stressful times, and Techno Electric was eventually divided among MM's brothers and was subsequently sold. MM took sole charge of Tega, with a team of professionals from outside his family. Consequently, MM could devote his entire time to Tega, and he set about revising his strategy for the organisation.

MM said:

> We focused on fewer customers, down from 250 to 70 and finally to 25. We also improved our capability of executing the orders. We strengthened our team working on the installation of rubber liners in the equipment on site. As a result, in 1979–80, we were initially anticipating a cash loss, but we came through, and we did not incur any cash loss.

Consolidation in the 1980s and 1990s

In the early 1980s, Tega began to gradually receive orders from Indian companies such as Dempo Mining, Tata Robins Fraser, Chowgule Industries, Mysore Cements, McNally Bharat Engineering, Tata Steel, National Mineral Development Corporation (NMDC), Steel Authority of India Ltd and Hindustan Zinc Ltd.

After operations stabilised in 1983, Tega invested in some low-technology products, thus diversifying the risk from the high-tech mill liners and screen decks.

In the 1990–95 period, Tega added many products to its portfolio, such as slurry hoses, solid tyres, track pins, belt scrapers, ultrahigh molecular weight polyethylene (UHMW-PE) liners and hydrocyclones, via alliances and joint ventures with foreign companies that had a base in India.

In 1996, Tega developed a patented product called Spillex, in collaboration with TBK, a Dutch company. This product prevented spillage of material from a conveyor belt (see Exhibits 1a, 1b and 2 for information about Tega's products and market share in India). Tega also started exporting Spillex to Singapore through a tie-up with SETEC Far East Pte Ltd, a spin-off of Skega. Tega wanted to expand business in Southeast Asia through SETEC, but branding issues led to a breakup in the partnership.

MM reasoned, "We draw a lot of revenue from our branded technology, and therefore, if we are not allowed to retain our brand name, it could be fatal for Tega."

Expansion policies led to problems related to the protection of intellectual property (IP) rights. Given that India had a weak IP regime, senior personnel from the company, based on their experience in Tega, could join hands and set up a new company that would start competing with Tega. Consequently, MM decided to hold on to the chief executive officer (CEO) position to safeguard sensitive firm-specific knowledge. While MM was trying to resolve issues related to senior management and intellectual property rights (IPR), a new wave of international mergers and acquisitions was about to change the competitive landscape in the Indian and global mining industry.

Turning Points for Internationalisation in 1998

Tega's licence agreement with Skega ended in September 1998. Therefore, Tega was no longer bound by the export restraint that Skega had imposed on it for 20 years. In 1998, Tega's turnover was INR 110 million and it had 120 employees. The company could now sell mining products in the international markets that had a huge demand.

At about the same time, another development took place. Skega's competitor Svedala, also headquartered in Sweden, had acquired Skega in 1995. Thus, between 1995 and 1998, Svedala had the dubious privilege of being Tega's competitor and a 40% stakeholder in Tega.

Svedala proposed that Tega should become a supplier to Svedala, which would then exclusively sell Tega's products through another subsidiary, Trelleborg. MM feared that Svedala would downsize the Tega brand name with time and slowly phase it out of the market. Eventually,

negotiations between the parties broke down; Svedala sold its stake in Tega to MM in 1998, and they became direct competitors in India.

Meanwhile, other players in the world market[2] were also consolidating their operations. Valmet from Finland was consolidating its presence in international markets through mergers and acquisitions. In July 1999, Valmet and Rauma Corporation merged to form a new company called Metso. In September 2001, Metso acquired Svedala.

Tega's management was deeply concerned about the ominous challenges for the company in this phase. MM said:

> Svedala was undercutting the market in India, and we could have been driven out of the market due to their pricing strategy. Also, several domestic players in rubber engineering from the organised as well as the unorganised sector had developed capabilities to produce Tega's range of products. Tega was still a small company and fighting against industry heavyweights was a huge challenge, so we decided to change the battlefield, and that is how Tega finalised its decision to set foot outside India.

INITIAL PHASE OF INTERNATIONALISATION: EXPORTS THROUGH PARTNER DISTRIBUTORS AND SALES SUBSIDIARIES

Ghana

Tega's first international footprint was through a sales subsidiary in Ghana. In 1998, two team members from Tega and Syed Yaver Imam, then General Manager, Marketing and Sales, Tega, explored the African market. However, these managers could not get clients. Later, agents from Skega's sales networks were roped in for help, but these efforts were unsuccessful. Tega obtained assistance from Tata International, India; however, this approach was also not successful.

MM shared:

> Africa seemingly was an ideal destination to start with. We thought that there would not be any prejudices against us being an Indian manufacturing firm of high-tech products, and we thought that our solution-centric approach would help in penetrating the markets. But we were proven wrong. In the B2B business, relationships between customers and sales agents were critical to procure repeat orders. Though Tega's personnel were technically proficient, there was always a scepticism related to an Indian manufacturing firm's expertise in offering cutting-edge solutions.

On a visit to Johannesburg for an Electra Mining exhibition in 1998, MM met Derek Hardman, General Manager, Rubber Engineering, at Envirotech, South Africa, and former general manager of Skega's London division. MM offered Hardman a job as business development manager at Tega, and he agreed to join in January 1999.

[2] Weir from the United Kingdom had a worldwide turnover of USD 3 billion; Multotec from South Africa was active in the African continent; Solidur from Germany and Valmet, a state-owned company from Finland, were consolidating their positions.

MM recalled:

> There were some merits in hiring a British engineer and having him as the face of the company. Nobody then asked us whether the products are from an Indian company or from elsewhere. His salary alone constituted 40% of the cost of the whole company, but he helped in building some references. SY Imam made all the technical presentations and Hardman negotiated the deals.

Finally, some breakthrough deals were struck. Tega's first international order for mill liners came from Ghana. By the end of 1999, the business grew from zero to INR 27.61 million (USD 650,000). After about three years, Hardman left Tega and joined rival firm Multotec as general manager in Ghana. Within five years of Tega's setting foot in Ghana, it held a market share of 68% there, as reported by the company's officials. The management thought that there were considerable prospects in other West African countries near Ghana; however, these countries were French-speaking, and therefore, the management preferred to first explore prospects in Australia and the USA.

Australia

Australia was rich in mining resources such as iron ore, coal and gold; this factor made it attractive for Tega to start a business in the country. It was envisaged that Australia's colonial past and the use of English as the primary language of communication in the country would make it much easier for MM and his team to develop business networks there. In 1999, Tata International introduced Tega to ITOCHU Minerals and Energy, which owned mines in Brisbane. ITOCHU placed orders with Tega for media screens in the same year. However, being new to international business, Tega needed a few months to set up installations. The lack of a local presence led to coordination issues and challenges in providing after-sales service and monitoring performance. Therefore, MM immediately began to search for a local resource who could manage ground sales and service activities.

After scrutinising several distributors, Tega zeroed in on DAMOS Screening Products Pty Ltd, a manufacturer of rubber, polyurethane, and ceramic compound panels and wear liners for screening, chutes and trommel applications. Over the next year, Imam from Tega and Dan Archer, a sales engineer at DAMOS, held several business meetings with miners in Australia, but business was hard to come by. In 2001, the agreement with DAMOS fell through because the partnership did not generate any sales.

According to MM*:*

> Australia was also a highly developed economy, with open systems, and its trade intensity with India had also been strong. The market potential in terms of sales volumes looked attractive. However, racial prejudice, India's poor-quality image and the lack of a local office became huge deterrents.

Tega floated a sales subsidiary, Tega Australia, in 2001, and Archer quit DAMOS to join Tega. Archer's professional networks helped procure orders for screen media from a medium-sized manufacturer of vibrating feeders and screens. With a fixed local base, Tega began to look for opportunities to cross-sell its proprietary products such as mill liners in Australia. The business was hard to develop, and until 2002, no orders were received. Tega's representatives continued

to visit several gold mines in the Kalgoorlie area,[3] where they tried to promote liners to big customers such as Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM).

MM fondly recalled:

> On a visit to a gold mine, SY Imam left his visiting card at the reception. As soon as the receptionist saw it, she told SY Imam that a new maintenance manager had joined the mine and he had been after her to find out about Tega's Office in Australia. We finally had hopes of a breakthrough!

KCGM awarded Tega a tender for an annual value of AUD 800,000 (INR 31 million, based on the exchange rate in 2002). The initial contract was for three years, but Tega managed to get orders for its mill liners from KCGM for 14 successive years. However, this sales subsidiary did not make profits until 2011, except in one year.

Imam said*:*

> In the gold- and copper-mining business, the mill is the heart of the plant. So, in the initial years, customers were not ready to switch to a new company like Tega, which was not known for technical competence. Customers did not want to experiment with new suppliers. In fact, that was the reason we set up sales subsidiaries in many countries so that we could be perceived as a local company who could provide after-sales service also. However, customers perceived it as a company whose supply chain is far away; they felt, in case of any emergency, they will not be able to rely on us.

North America

Tega set up a wholly owned sales subsidiary in Arizona, USA, in 2002. In the same year, Tega changed its name to Tega Industries Ltd. The USA was chosen as the destination for expansion because Tega's former partner Skega had a joint venture with another company in the USA. That venture had failed; therefore, Tega assumed that it could fill the void in the USA market. However, Tega had no experience in exporting to the American market. At a mining exhibition in Las Vegas, MM met a sales manager of a conveyor belt manufacturing company by chance and offered him the job of a business development manager in the Arizona office. A new office and warehouse space were opened in Arizona. The business development manager assessed the market and ordered material worth USD 1 million to be sold off the shelf. All of this material was manufactured in India and shipped to Arizona. The USA followed the imperial system of measurements; therefore, Tega had to adjust its tooling line for measurement in feet, pounds, inches and seconds instead of the metric system used in India. However, in the aftermath of the 9/11 attacks in the USA, the economy had slipped into a recession and sales were limited.

Consequently, a huge pile of non-moving inventory in the Arizona warehouse added to the cost of operations. MM decided to part ways with the business development manager and transferred a young manager, Sandeep Biswas, from Tega's Mumbai office to Arizona to supervise the US operations. Meanwhile, MM's son, Mehul Mohanka, had obtained an MBA degree from University of Pittsburgh and was assigned kick-starting operations in the USA. The young team found that the market surveys that had been conducted earlier to assess the sales potential of

[3] Kalgoorlie is a city in Western Australia; as of 2016, it had the largest open cut gold mine in Australia.

Tega's products were incorrect. Biswas took charge of distribution, and Mehul took on the responsibility of resolving the finance-related issues. Biswas drew a map of mining locations; he started developing connections with local distributors and entered the network of established distribution channels by promising them free after-sales technical services if they bought Tega's products. He visited copper mines to promote Tega's screening applications and mill liners.

Consequently, in 2003, the first order was received from two large copper mines. Meanwhile, Mehul disposed of the idle inventory by 2003 and decided to bear the financial loss. He contracted with Tega India to finance Tega USA for a year to meet its operational expenses and kept the deal at arm's length. He also identified and signed contracts with dealers in Arizona, Texas and Minnesota to represent Tega in the mining markets in those regions. Gradually, the market for mill liners started to grow. In 2004, a new office was set up in Louisville to tap the eastern-U.S. market.

However, expansion plans to grow by increasing sales subsidiaries were hit when, in 2003, one of Tega's biggest customers, which accounted for 50% of Tega's sales, defaulted on a payment of USD 350,000 (INR 9.45 million). Tega filed a lawsuit to claim unpaid invoices and won it after five years. During this period, an office was set up in Mexico. Tega's mill liners started to serve 35 grinding companies in North America, including big miners such as Newmont, Barrick and Kinross. The main reason behind obtaining these big orders was the offer of free and quick after-sales technical services. After stabilising its position in the USA, when the subsidiary started making profits from 2006 onwards, Tega set up a sales office in Canada in 2007. MM reflected:

> We made a mistake in entering the USA before Canada. We had not carried out product-specific market surveys and only conducted a generic market study of the US mining industry. We assumed if Skega had a joint venture here, that would mean there was a demand. The real demand for mill liners was in Canada and not in the US.

Vinay Grover, formerly with Tega and Svedala, was given the charge of developing the Canadian market. He contacted end users, gained market knowledge and learned that the service standards of other players in the market were poor; he planned the expansion in Canada well. Grover decided not to pitch Tega's products as low-cost alternatives to products from developing economies. Tega offered trial offers for free or at a discounted price to its customers, thereby enabling them to test the products. After some time, the trial orders turned into bulk orders. These orders were matched with prompt after-sales service. As soon as Tega's headquarters in India received a message from the foreign branch manager for a part to be supplied to their branch location, the message and corresponding order were processed immediately without requiring approval from top management and the order was airlifted within 24 hours from the time of order placement. After penetrating the markets, Tega could command better prices at some locations, and sometimes, their prices were even higher than those of local competitors. The subsidiary started getting revenue in 2008 and showed profits from 2011 onwards. Mehul, Director Global Business and Chief Strategy Officer at Tega Industries, said:

> There are two key elements that made us successful overseas. First is the quality of our products that we ship globally. An equally important element is customer service. We had a policy that we would not sell a product to a customer who we could not service within 48 hours of their logging a call into our systems. That is the reason why we kept increasing our global footprint.

Over the next few years, Tega established an office in Brazil and started local companies for marketing in Chile, Russia, Peru, Sweden, France, Zambia, the UAE and Turkey. As of 2016, Tega was exporting its products, mainly small- and medium-sized mill liners, to 72 countries through its 16 overseas sales and distribution offices. It had more than 700 clients worldwide.

SETTING UP MANUFACTURING CAPACITY IN INTERNATIONAL MARKETS

Acquisition in South Africa

In 2004, Tega realised that exporting products (especially small- and medium-sized mill liners) to Africa was problematic. Customers would demand delivery within 4–5 weeks, whereas manufacturing and shipping from India would sometimes take longer. This situation called for a local presence in Africa. South Africa was among the top 10 countries for iron ore, gold and platinum production (see Exhibit 3 for copper and gold production in countries where Tega has a manufacturing presence and Exhibit 4 for top countries in selective ore production). It was also the most politically stable country in the African continent. Furthermore, all of the mill-liner suppliers (companies) in Africa had manufacturing capacity in South Africa. Soon, based on feedback from sales agents, Beruc Equipment Pty Ltd—a rubber- and mill-liner–manufacturing company—was identified as a potential target. Bentod Manufacturing was a subsidiary firm of Beruc that made specialised tooling equipment, which were niche products in the market and new for Tega. MM first targeted Beruc in 2003. Talks were initiated, but the parties disagreed over valuations. The deal could not be sealed, but MM's interest in the South African market continued. In 2006, based on Mehul's recommendation, MM approached Beruc again, and this time, the valuation was done on the basis of the customer base, product line and growth. Financial experts valued the firm at 85 million rand, and the Mohankas decided to acquire the company via a special-purpose vehicle.[4] Tega was advised to acquire an 80% stake in 2006, a 10% stake the following year and the remaining 10% two years after the acquisition. It was decided to retain existing practices and employees in the organisation.

Tega had a proprietary rubber compound that was made in India. It was hesitant to transfer the knowledge outside India. Therefore, for the South African subsidiary, the compound was exported from India and the remaining production took place in South Africa. This was an expensive proposition because the cost of the raw material was lower in South Africa, but Tega decided not to compromise on the quality and proprietary knowledge. The Indian headquarters gave autonomy to the subsidiary, but some unanticipated issues crept up after a few years.

The Indian management team thought that labour productivity at the South African subsidiary was not up to the mark. Unlike practices in India, staying back late after typical working hours was not a practice in South Africa. In India, task deadlines were prioritised over leaving the office on time. In South Africa, workers clocked out of the office right on time, irrespective of the deadline's criticality. The location of the factory in South Africa was far from residential areas.

[4] A new company called Tega Bahamas was floated; it was a special-purpose vehicle through which investments were redirected to South Africa. A shareholders' loan was issued to the subsidiary through which the deal was funded. Borrowings were also made from an Indian bank in the UK.

The route that workers passed through was prone to criminal activity, especially carjacking. Therefore, employees preferred to leave on time.

Furthermore, the Indian management thought that South African employees were unwilling to change and resistant to the introduction of advanced technologies because they feared downsizing. For example, when Tega tried to introduce gas-cut components that were cheaper than laser-cut components, the idea was not received well. The workers were more accustomed to laser-cut apparatus.

According to MM*:*

> My observation is that the former owners had been like family to employees and now the workers felt distanced and could not share their problems in quite the same way with Indian officials, who had a more professional approach as opposed to a familial one. Imperceptibly, management–labour relations deteriorated and resulted in a strike in 2010. The labour union called for norms of the National Union of Metal Sector Workers to be implemented. After prolonged discussions, the strike was resolved after six months, but relations remained strained.

After a few months of acquiring the company, the procurement officer at Tega India, on a visit to South Africa, observed that bargaining in the context of prices was frowned upon in South Africa and that no attempt was made to negotiate prices with suppliers. Therefore, the cost of raw material was high, leading to Tega's products being sold at a higher rate, thereby affecting their marketability. Tega's Indian management reasoned with their South African management counterparts that negotiations mattered. However, the South African management disagreed, and ultimately, an Indian procurement officer was placed in South Africa to negotiate purchase deals.

MM explained:

> Negotiation of the price with the supplier is the right of the purchaser in India, whereas in South Africa, suppliers never give you more than 4–5% discount and definitely never more than 10% under the normal circumstances.

After the acquisition by Tega, Beruc and Bentod were merged into a single firm. The firm's revenues started to increase after this union. One of the erstwhile owners of Beruc had resigned from the organisation and transferred the 10% of shares that he owned to Tega Industries in 2007; however, he continued to remain a technical consultant to the company, especially in the Bentod industrial goods division, a division about which Tega had limited knowledge. The other owner of Beruc, who was also the CEO of the company from 2006 to 2008, divested the 10% of shares that he owned and resigned in 2008 over issues related to lack of autonomy and centralisation of decision-making in the Indian headquarters.

Tapash Bhattacharya from the Indian headquarters, who had worked with Tega for 20 years, took over as general manager of the South African subsidiary (Beruc) in 2008. After a three-year stint, he had a fall-out with Tega's senior management and was replaced by a new CEO, who exited the organisation in 2012. These events stalled an expansion plan worth an investment of INR 1 billion in South Africa. Next, Fernando Monteiro, who had worked with Tega's competitor Multotec earlier, joined as managing director in 2012. Vishal Gautam, an Indian sales and

marketing manager, who worked as an under-trainee with Monteiro, headed South African operations after Monteiro left in 2016.

In 2013, Tega's management decided to establish new inventory-management practices in Beruc. The management realised that at that time, in South Africa, the inventory was being built based on potential orders instead of received orders. Consequently, some inventories continued to be carried forward in the books for many years, even before the acquisition by Tega. Some of these stocks were deficient in terms of quality, and clients rejected some. This non-moving inventory had to be liquidated in 2016 (see Exhibit 5 for the South African subsidiary's financials). Commenting on the Beruc acquisition, MM said:

> This deal helped Tega to service the African market from there instead of from India. Considering the savings in high cost of transporting mining equipment and customs duty and the time lags that were avoided,[5] this has been a good investment. As of March 2016, Tega has 37% market share and its closest competitor, Multotec, has 39% market share in South Africa.

Imam added*:*

> In South Africa, we could get customers. You can see that our revenues have increased over time. There, the problem was getting profitability and the main reason for that was lack of customisation by the sales team and entrenched competition in South Africa. In the mill-lining business, each customer has a different demand, and we customise products according to customers' demands. But this process of getting orders for customisation depends upon the sales team. The sales team was not so proactive in South Africa; however, we did well in Ghana and made far higher margins in Ghana than in South Africa mainly because our competitors were not having manufacturing units in Ghana and prices of products were higher in Ghana.

Over the years, the South African subsidiary served orders from countries such as Congo, Zambia and, sometimes, Kenya. However, orders from Ghana were mainly served from India because the requirements of customers in Ghana were very specific.[6]

[5] The customs duty was 10% in South Africa; freight cost varied between 6% and 10%, including local freight from the port to Johannesburg. Therefore, the savings in cost was approximately 16–20%, according to information from company officials.

[6] The market in Ghana had few competitors because many people were scared of the fatal yellow fever, which was common in the country and, therefore, did not set up base there. Tega had acquired a small plant in Beruc, which had to be renovated completely to serve other countries in Africa. However, customers in Ghana had specific product requirements; the South African subsidiary could not manufacture such products even after renovation. Furthermore, the cost of the moulds required to manufacture mill liners could vary from INR 20 lakh (1 lakh = 0.1 million) to INR 50 lakh and the same moulds could be used to serve the needs of multiple customers. Therefore, moulds needed to be used multiple times to justify their manufacturing costs. In the South African subsidiary, those moulds would have been underutilised; in addition, the cost of manufacturing such moulds in South Africa was double that of their manufacture in India. Therefore, orders from customers in Ghana that mainly required the use of these moulds were being served from the Indian headquarters.

According to company officials, as a group, Tega Industries grew at a compound annual growth rate of 40% between 2004 and 2011. This growth encouraged the Mohankas to further expand Tega's global footprint.

Acquisition in Australia

Australia was among the top 10 countries in the production of all the main ores that Tega dealt with—iron, gold, copper, zinc, bauxite and platinum.

Despite having a sales subsidiary in Australia for almost a decade, according to Tega's management, the revenues were not adequate because the management team found it difficult to recruit the right people and develop an organisation in Australia. Consequently, Tega's top management decided to acquire a company in order to increase Tega's foothold in Australian markets. A company named Losugen Pty Ltd, which had been founded by Daniel McMohan and was a well-known company in Western Australia, was shortlisted. Losugen had products that were similar to Tega's product line, such as chute liners, screening media, trammel screen and wear products.

Imam shared:

> In 2010, the mill-lining business was the most profitable one; we decided to increase our product portfolio by adding products like screens. We looked for companies that were in the mining industry but had these new products also. Losugen was ideal: a niche company with niche products. In addition, it came at a good price.

Tega's competitor in India, Thejo, was a supplier to Losugen and was becoming a threat to Tega. Therefore, the acquisition of Losugen would have also helped Tega to cut down its competition. The management of Tega and Losugen met in August 2010 and signed the deal on the same day; finally, Losugen was acquired by the end of 2010. Graeme Kibbel,[7] an Australian employee who had joined Tega as the production head in India in 2007, was given the charge to head Losugen because of his knowledge of the manufacturing, product range and application aspects. Losugen provided complete technical solutions to the customer with regard to liner selection, fast delivery and installation, for which the customer was willing to pay a premium price. Tega decided to run it as a stand-alone company.

Although the company continued to make a profit, its customer base and product line were both stagnant. The main reason for this stagnancy was the changes in top management, which resulted in the appointment of two CEOs over four years. Meanwhile, the competition had increased, with similar offerings from other companies. To establish stability in the company, Tega brought on board another Australian sales manager to help Kibbel. However, these efforts did not have the desired result because the trust in the team was broken owing to frequent changes at the top-management level. Consequently, three of the five key salespersons in Tega joined Thejo in 2015. Another Indian person, who lived in Australia and had knowledge of Tega's products, was

[7] Kibbel had 30 years of work experience in the production department in Metso, Tega's competitor in Australia. The sales manager of Tega's Australian sales subsidiary had introduced Kibbel to MM in 2007, and MM had offered Kibbel a position in Tega, India, which he had accepted in 2007.

brought in as the sales head in 2015; however, growth did not pick up (see Exhibit 6 for the financials of Tega-Losugen).

MM shared:

> The firm that Tega bought in 2010–11 has not evolved with changing market needs. New competitors emerged and they offered a wider range of products and services than Losugen. Losugen's customer base too has not changed since, with no push to expand markets or services. The Losugen business was ideal for Tega in 2010 but is stale in 2016.

Acquisition in Chile

In 2011, Tega's management decided to increase its foothold in the South American market.

Mehul shared:

> We identified South America as a key market for us because it is the largest market for the mining industry, and our presence there was an important decision. We were trying to replicate our Africa success story in the Americas.

MM, in agreement, added:

> South America constitutes a sizeable chunk of the world mining markets. We saw an opportunity wherein we could become world number 2 or 3 and close the gap with the world leader, Metso, but if we were not present in South America, this objective could not have been achieved. In South America, we found Chile as the best destination because of the advancement of the economy and technology compared to Brazil. In 2011, the Chilean market was going through a phase of growth in CapEx (large projects) in both greenfield and brownfield expansion, and we decided to invest there.

Tega already had a sales office in Chile and had sold mill liners through this office earlier; however, this sales office had a revenue of USD 2,000 to USD 3,000 a year, which was not even sufficient to cover the cost of the office. It was decided that expansion via acquisition was a better bet than setting up a new manufacturing capacity.

Mehul shared:

> Chile was a relatively new market for us; we did not know how regulations work there and how a new manufacturing unit should be set up. Further, we did not have much customer contacts in Chile. Relationships and brand matter in our industry. In addition, we had to start from close to zero revenue, and it would have taken a long time to generate returns.

Therefore, in November 2010, Tega hired a financial services firm[8] to explore a potential target in Chile; as a result, Acotec was recommended as a potential target. The parent company, Acotec SA, had two divisions named Weartec and Pipetec and three subsidiaries named Bombatek,

[8] The same firm was responsible for identifying Losugen in Australia earlier. Tega also hired one of the big four consultancies in Chile for due diligence related to the potential target(s) and to verify the revenues and balance sheets of the past two years, make projections, assess working capital requirements and contingent liabilities, and verify capacity utilisation.

Corrosiontec and Edoctum. Gabriel Berczely, who held a PhD in management from Cleveland, USA, owned Acotec SA, a parent company of seven companies in Chile in diverse fields such as consulting, distribution, manufacturing, real estate and renewable energy. Berczely was the Honorary Consul of Hungary in Chile and president of several associations, including the Finnish-Chilean Chamber of Commerce. He was the founder of the ESE Business School in Chile and the president of the Chartered Accountants Association, Chile. Berczely held a stake of 80% in Acotec. The firm also had two executive directors, Carlos Cruz and Pablo Escanella, each of whom held a 10% stake in the company. The manufacturing business of Acotec was mainly reliant on two customers, whereas the business of its subsidiaries came directly from customers or through engineering procurement contractors for capacity-expansion requirements. After acquiring this information about Acotec SA, the firm's valuation was done based on Acotec's projections, which had shown a 10% growth year-over-year (y-o-y). The valuation was performed by multiplying earnings before interest, taxes, depreciation and amortisation (EBITDA) by six, and then adding the cost of goodwill. Tega decided to acquire a 100% stake in the firm.

According to Mehul:

> Acotec provided products and solutions for abrasion, corrosion and fluid transportation systems in the mining industry. Acquiring this company was a historic moment for us at Tega. Firstly, it gave Tega a much-desired foothold in Chile. Secondly, two back-to-back acquisitions, in the month of January 2011 with Losugen Pty Ltd in Australia and Acotec SA in February 2011, was a first in Tega. The deal opened up the large and growing South American mining market for us. Acquisition of Acotec was in line with Tega's strategy of continuously adding new products such as pipes and pumps to its portfolio and expanding its geographical footprint, in order to offer better solutions to the global mining industry. With this acquisition, Tega has truly transformed into a global organisation with capabilities to service its clients through multiple locations. For example, if the South African subsidiary was running full capacity, then additional orders from the African market were served from the Indian manufacturing unit.

After the acquisition, the company was renamed Tega-Acotec SA. Cruz was retained as the CEO (Latin American market) in Tega-Acotec SA. Escanella was designated as general manager and given the charge of handing the operational aspects of the business. It was decided not to downsize the firm or make any changes that could disturb the existing organisational structure. After the acquisition, the three main directors from Tega's headquarters—MM, Mehul and Imam—would visit Chile every quarter to review the company's performance. Within two years, Acotec and its subsidiaries started to report a declining financial performance. Tega-Acotec did not make any profit from 2013 onwards; Tega Industries lost INR 2.5 billion over five years in Tega-Acotec. See Exhibits 7a, 7b and 8 for the financials of Tega-Acotec. Exhibits 9a and 9b provide information on the product-wise and geographical sales of Tega Industries as a group. Exhibit 10 shows the organisational chart of Tega Industries (India).

Weartec Division

This division of Acotec was in the business of wear products such as polyurethane screens, rubber screens and wear plates. After the acquisition, at the start of 2013, the senior management at Tega found that Acotec had only marketed the rubber screens and had outsourced the manufacturing of screens to a contractor firm whose main business was the manufacturing of shoe soles. Owing to quality-related issues, the management cancelled the contract with the contractor firm and

chose to manufacture the screens in-house. Meanwhile, the sales manager at Tega-Acotec quit the firm to join the contractor firm, which had then started manufacturing the screens as a competitor. The management at Tega contemplated taking legal action to prevent the contractor firm from manufacturing the screens, but they discovered that the agreement between the contractor firm and Acotec had no clauses on IPR protection, termination, confidentiality, non-circumvention, non-use or non-compete. Moreover, Tega's Indian management had differences with the management team in the Weartec division of Acotec concerning their "approach towards business". Tega believed in selling solutions and charging a premium, whereas Acotec (Weartec) believed in selling on price as a commodity. These differences continued until 2016.

Pipetec Division

The Pipetec division of Acotec was in the business of high-pressure piping, valves, flanges, and medium- and low-pressure piping systems. This division was the biggest revenue centre among all divisions and subsidiaries under Acotec. After the acquisition, this division also faced several problems.

The first jolt was when Escanella decided to leave the organisation in 2012; after his exit, the piping division could not be managed effectively. The management appointed two other officers, but according to MM, they found the job to be "too technical". In the same year, the Indian senior management team found that prices of some supplies in Chile were 20%–40% higher than in India. They approached the suppliers directly and negotiated with them, and the suppliers agreed to offer discounts in the range 18%–43% as they feared losing the business to India if they did not yield. Furthermore, in 2013–14, the Pipetec division began to make requests to the Indian headquarters for funds to pay out salaries.

MM recalled:

> This was a warning sign. In the financial years 2012 and 2013, Acotec did make profits. Then why would a company in profits demand support from head office for salary payments? At first, the request was only for a month. Then, it became a regular habit, and every quarter, additional financial support was being requested. Something was amiss.

In addition, the Indian management found some accounting discrepancies in Acotec. For example, accounting conventions do not allow sales entries to be recorded in the ledger when an order is received. At the stage of order receipt, sales or sales revenues are not realised; therefore, the company is not entitled to show it as accounts receivable at that point. Generally, the sale and the related receivable are recorded when the goods are shipped (free-on-board (FOB) shipping point) or when the customer receives the goods (FOB destination). However, Acotec and its divisions were following a different practice.

In 2014, it was found that large amounts of inventory from the Pipetec division had been carried forward in the books for over five years, i.e. the inventory was being shown as an asset from the time before the acquisition. According to MM, the Indian management had not seen this issue earlier because the nomenclature and quality of inventory in the books were different from the actual records. In addition to handling the problem of disposal of this inventory, Tega had to bear additional expenses related to its storage, rental and insurance.

Furthermore, prevailing labour laws in Chile made it very difficult to terminate the employment of the workforce whose work ethic did not match that of the Indian management. In 2014, Cruz decided to retire and leave the company and Escanella joined again as the CEO.

The management team in Pipetec rented new premises for Pipetec's painting work and purchased equipment, thereby spending USD 1 million, without obtaining formal approval from the company's board. The premises were vast, and therefore, the Bombatek plant was also shifted to the same facility. An additional amount of USD 100,000 was spent on refurbishing the place. After some time, it was found that the place was unsuitable for any of Pipetec's painting work, and in three years, the company had lost a lot of money on account of the risk purchase clause with clients. According to this clause, if the vendor could not complete the job on time or in accordance with quality specifications, customers could get the job done at the vendor's risk at any cost.

MM shared:

> When we found out that the premises was unusable for the very purpose for which it was taken, we wanted to move to another facility. But to my surprise, an additional USD 200,000 had to be borne as the contract did not have an exit clause. We also had to shift Bombatek out of these premises, which made Vinal (General Manager, Bombatek) very upset. We then created a new facility along with new environment systems in our old plant at the cost of USD 20,000.

All these incidents triggered questions from MM and Mehul about the series of events that incurred huge costs to the company in 2015. On inquiry, many revelations were made; some critical components shipped from India were untraceable in the maintenance department in Chile. The existence of unfair practices within the division was discovered. Some managers had given subcontracts to their relatives. Finally, in 2016, Escanella decided to leave the company.

MM commented, "I knew things were not right and felt helpless at times. Not knowing the Spanish language became a huge impediment in management. It was really hard to control the firm with the language being a barrier."

Bombatek

Bombatek's product line included horizontal and vertical pumps for abrasive, corrosive and clean liquids. The company also supplied submersible, high-pressure multistage pumps and performed pump repairs and repowering. This product line was completely new for Tega. General Manager Vinal D'Souza,[9] who had been advanced an interest-free loan by Acotec to acquire a 35% stake in the company, ran the company independently; the remaining 65% stake was with Acotec.

According to MM:

> Vinal D'Souza was technically and commercially a competent man and important for the business of Acotec. He was also a member of the Board of Directors and had extraordinary powers such as the right of first refusal and veto over any important decisions taken at

[9] The actual name has been disguised.

Acotec. His position in the company was perhaps, at the time of the acquisition, underestimated by the senior management at Tega.

In 2013, D'Souza had offered to buy out Bombatek but could not arrange requisite finances for the deal. In FY2014, when Acotec and other subsidiaries recorded heavy losses, Bombatek registered a reasonable profit. D'Souza reached out to the management to seek a higher status within the group and demanded better perquisites; however, the Indian management did not agree to D'Souza's demands. Consequently, D'Souza, along with some employees of Bombatek, started a rival company in the same line of business and left Tega without any formal notice. Tega initiated legal action against D'Souza for breach of a non-compete clause, which went in favour of D'Souza because of the equivocacy of the non-compete clause in his contract with Bombatek. D'Souza sold his shares to Tega.

Corrosiontec

The company Corrosiontec was engaged in the corrosion lining of equipment and vessels at client sites. Acotec had a 99% stake in this subsidiary. The work involved spraying polyurethane on equipment at the site to protect it from deterioration and corrosion. The job of corrosion lining was purely contractual; whenever an inquiry was raised, the team had to estimate the labour and time required for the work and estimate the quantity of material required for the job. Adherence to timelines was essential in this work. If the job was not completed on time, the customers could impose steep penalties, as vendors would stand in breach of the risk purchase clause of the contract.

These jobs were generally requested when mills were shut down for annual repair and maintenance. After Cruz left the company in 2014, no one in the organisation could make accurate estimates and organise execution of corrosion lining to get the job completed on time. Consequently, the company started drawing penalties; the person in charge would buy excess raw materials, which could not be used for long periods and would then deteriorate owing to their limited shelf-life. Sometimes, the company erred in the bidding itself. Corrosiontec started to run into losses between FY2012 and 2015; eventually, it became bankrupt and had to be merged with the parent company in 2016.

Edoctum

Edoctum was a service company that organised seminars and conferences in areas of interest for Chile's mining and mineral processing industry. Acotec had a stake of 80% in this subsidiary. The conferences brought together professionals from the industry and academicians from educational institutions to network, display products and meet customers. The first president of Edoctum resigned due to a disagreement with Tega's management; he then started a similar company, thereby causing a reduction in clientele at Edoctum's meetings. The person who was next in authority was related to Cruz and left when Cruz decided to resign from the company. This subsidiary made a profit from 2012 to 2015 but reported losses after 2015. However, Tega intended to continue supporting the division as it was the company's marketing arm and offered opportunities to develop professional networks. Owing to losses in previous years, some cost-cutting measures were undertaken. The business office, located in the heart of the town, was closed down, and the staff started to work from an office at the Acotec plant.

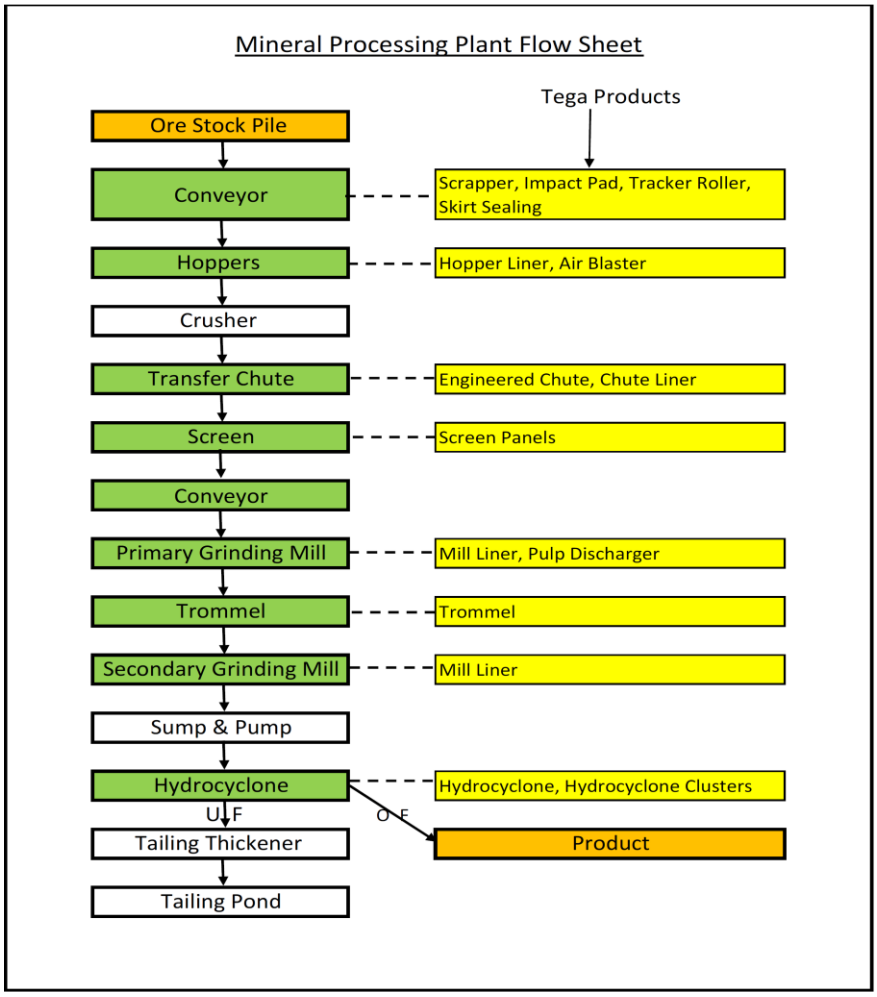
While Tega was struggling with issues in all of the divisions and subsidiaries of Acotec, during the 2013–15 period, Chile's mining industry witnessed slow capital expansion and growth, according to information shared by company officials. This situation directly affected the demand for Acotec's products and solutions because Acotec was a supplier to the mining industry. Pipetec's business was **CapEx**-oriented; all of its projects had dried up, resulting in almost nil revenue. The Weartec division faced considerable competition from local companies in Chile. Owing to the availability of low-priced commoditised products, Tega's desire to sell products at premium prices took away market share from the Weartec division. Some key employees left Tega-Acotec and joined its competitors; according to company officials, owing to Tega-Acotec's poor IPR policies, these employees were able to take confidential pricing-related information with them. Furthermore, there was a sharp depreciation in the Chilean peso during this period. This depreciation led to an increase in costs due to wages and salaries. When Acotec was acquired, the exchange rate of the U.S. dollar to the Chilean peso was 397, and by 2016, it was approximately 664.

CHALLENGES AHEAD

The management team members of Tega were reviewing their learnings from the internationalisation experience. More importantly, they needed to make a decision on the future of the Chilean subsidiary in the short term. With losses mounting, MM, Mehul and Imam had two options: closing down the business in Chile and divesting the company, or giving the business in Chile one more chance for revival.

If the management decided to write off the assets, the balance sheet—both assets and liabilities accounts—would be affected substantially in a year and Tega Industries would encounter issues raised by the banks. If the management decided to revive the business, the money required for revival would be large and most of the amount would have to be raised from India because no bank in Chile was willing to offer any loans or facilities for Acotec. Furthermore, it was possible that the Reserve Bank of India (RBI) would not give an Indian company permission for remittance of any additional money for Acotec.

Exhibit 1a
Stages in Mineral Processing and Product Line of Tega



Source: Tega Industries Ltd. Detailed information about Tega's products is available at https://www.tegaindustries.com/wp-content/uploads/2017/04/Tega-Product-Overview-Brochure-A4-aw.pdf

Exhibit 1b
Financials of Tega Industries Ltd (India)

Particulars	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16
I. SOURCES OF FUNDS (in INR million)													
Shareholders' fund													
Share capital	34	41	41	41	44	44	44	44	51	51	663	663	663
Reserves and surplus	76	105	125	217	409	618	863	1,178	3,210	3,815	3,755	4,073	4,206
Net worth	**10**	**146**	**167**	**259**	**454**	**663**	**908**	**1,222**	**3,261**	**3,866**	**4,418**	**4,736**	**4,869**
Loan funds	11	180	263	250	364	365	198	552	625	614	534	702	450
Deferred tax liability (Net)	6	7	4	8	11	18	18	16	18	4	–	35	37
Total	**27**	**334**	**33**	**517**	**829**	**1,046**	**1,123**	**1,791**	**3,904**	**4,484**	**4,952**	**5,473**	**5,355**
II. APPLICATION OF FUNDS (in INR million)													
Fixed assets													
Gross fixed assets	122	151	234	279	343	546	598	686	827	1,027	1,125	1,240	1,313
Less: Accumulated depreciation	−66	−74	−88	−109	−135	−164	−211	−264	−333	−406	−495	−588	−669
Net block	56	77	146	169	208	382	387	422	494	622	629	651	644
Capital work-in-progress	–	21	–	4	25	–	7	48	50	33	36	68	37
	56	**98**	**146**	**174**	**233**	**382**	**395**	**471**	**544**	**654**	**665**	**719**	**681**
Investment	16	14	14	16	152	23	17	248	1,703	2,174	2,509	2,548	2,751
Deferred tax asset (Net)	–	–	–	–	–	–	–	–	–	–	7	–	–
Current assets, loans and advances	261	369	444	524	693	1,085	1,048	1,651	2,118	2,276	2,312	2,689	2,397
Less: Current liability	106	147	170	197	250	444	336	579	460.69	620.82	533.27	483.67	472.88
Net current assets	155	222	274	327	443	642	712	1,072	1,657	1,655	1,778	2,206	1,924
Total	**227**	**334**	**433**	**517**	**829**	**1,046**	**1,123**	**1,791**	**3,904**	**4,484**	**4,952**	**5,473**	**5,355**

Particulars	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16
III. INCOME STATEMENT (in INR million)													
Revenue	361	464	552	926	1,184	1,634	1,731	2,121	3,024	3,480	3,865	3,296	2,203
Other income	19	27	29	51	69	120	122	166	106	144	79	98	208
Gross revenue	**379**	**491**	**581**	**978**	**1,253**	**1,754**	**1,853**	**2,287**	**3,130**	**3,624**	**3,944**	**3,394**	**2,411**
Cost of sales	173	236	259	431	533	707	738	928	1,306	1,390	1,403	1,213	802
Operating expenses	150	187	250	327	380	563	576	716	923	1,252	1,345	1,455	1,272
Depreciation	7	9	14	22	26	39	53	60	72	75	96	90	95
Interest	8	5	23	31	34	38	25	32	43	49	45	65	40
Total expenses	**337**	**447**	**545**	**811**	**973**	**1,347**	**1,392**	**1,736**	**2,343**	**2,766**	**2,888**	**2,823**	**2,209**
Profit before tax	42	44	36	166	280	407	461	551	787	858	1,056	571	202
Less: Tax	−16	−15	−15	−60	−104	−146	−164	−184	−248	−253	−349	−248	−70
Profit after tax	**26**	**29**	**21**	**106**	**75**	**261**	**297**	**366**	**539**	**605**	**707**	**324**	**132**

Exhibit 2
Comparison of Market Share in India for the Wear-resistant Mill Liners (Non-metallic) Segment in 1990 and 2016

	Indian market size = 10 crore[10] (tentative)		Indian market size = 200 crore
Competitor	**Market share in 1990, in %**	**Competitor**	**Market share in 2016, in %**
Tega Industries	65	Tega Industries	55
Debi Rubber	10	Kaveri	5
Kaveri	6	Metso	3
Hilton (now Forech)	10	Trelleborg	10
Thejo	4	Weir Minerals	4
Others	5	Flexco	7
		Martin	8
		Jyoti Cerro	0.5
		Carborundum	0.5
		Sarkar Rubber	0.5
		International Combustion	1
		Swagath	1
		Air - o - Boost	0.5
		MM Fabricators	0.5
		SRG	0.5
		Others	3
Source: Data provided by Tega Industries			

Exhibit 3
Copper and Gold Production Data in Selective Countries

Copper production in metric tonne (1 metric tonne = 1,000 kilogram)						**Gold production in kilogram**				
Year	**Chile**	**Australia**	**India**	**South Africa**		**Year**	**Chile**	**Australia**	**India**	**South Africa**
2002	2,979,000	790,700	31,500	129,589		2002	38,688	266,100	3,800	398,523
2003	3,251,100	772,600	28,500	120,800		2003	38,954	282,000	3,200	373,300
2004	3,776,200	795,800	29,500	87,000		2004	39,986	259,000	3,700	337,223
2005	3,735,900	865,300	26,900	88,600		2005	40,447	262,000	3,100	294,671
2006	3,669,000	806,400	27,400	89,500		2006	42,100	247,000	2,400	272,128
2007	3,724,900	828,000	33,900	97,000		2007	41,527	247,000	3,000	252,598
2008	3,356,600	833,000	30,600	108,700		2008	39,162	215,000	2,700	212,571
2009	3,276,900	831,000	29,500	107,600		2009	40,834	224,000	2,800	197,628
2010	3,330,400	856,000	35,500	102,600		2010	39,494	261,000	2,700	188,702
2011	3,238,000	922,300	37,700	96,600		2011	45,137	260,000	2,300	180,184
2012	3,405,100	914,000	34,000	77,000		2012	49,936	250,000	1,800	160,000

Source: Data from Indexmundi.com; https://www.indexmundi.com/minerals/?product=copper&graph=production and https://www.indexmundi.com/minerals/?product=gold&graph=production

[10] 1 lakh = 0.1 million; 1 crore = 10 million

Exhibit 4
Top 10 Countries in Terms of Production of Selective Ores in 2012

	Iron Ore	Copper	Gold	Zinc	Bauxite	Platinum
1	China	**Chile**	China	China	**Australia**	Russian Federation
2	**Australia**	China	**Australia**	**Australia**	China	**South Africa**
3	**Brazil**	**Peru**	United States	**Peru**	**Brazil**	United States
4	**India**	**Australia**	Russian Federation	**India**	**India**	Canada
5	Russian Federation	Russian Federation	**Peru**	United States	**Guinea**	Zimbabwe
6	Ukraine	United States	**South Africa**	Mexico	**Jamaica**	Japan
7	**South Africa**	Canada	Canada	Canada	Russian Federation	Botswana
8	United States	Zambia	Mexico	Bolivia	Kazakhstan	**Australia**
9	Canada	Poland	Uzbekistan	Kazakhstan	Suriname	Poland
10	Iran	Kazakhstan	**Ghana**	Ireland	Venezuela	Serbia

Source: Data from Indexmundi.com; https://www.indexmundi.com/minerals/?product=platinum&graph=production

Exhibit 5
Financials of Tega Industries Africa Pty Ltd (in ZAR million)

Details	**FY 06**	**FY 07**	**FY 08**	**FY 09**	**FY 10**	**FY 11**	**FY 12**	**FY 13**	**FY 14**	**FY 15**	**FY 16**
Reserves and surplus	7.33	9.31	12.66	20.90	30.89	43.00	41.32	55.01	71.62	61.31	64.49
Loan fund	0.86	0.18	2.90	2.49	5.99	6.09	11.23	24.33	41.62	55.25	59.53
Gross fixed assets	5.09	7.25	9.19	10.32	16.62	19.74	22.52	26.89	61.49	90.92	100.92
Less: Accumulated depreciation	3.25	3.11	2.22	3.12	3.99	5.50	6.99	9.19	11.69	16.35	22.80
Net fixed assets	1.84	4.14	6.97	7.20	12.63	14.23	15.53	17.70	49.80	74.57	78.12
Investment property (land)	–	–	–	–	6.72	6.72	9.80	9.84	7.80	7.80	7.80
Total current assets	14.12	14.11	20.49	28.24	33.03	49.34	59.99	90.54	89.45	74.31	81.79
Total current liability	8.46	8.08	11.35	11.15	14.49	19.54	31.60	37.66	33.47	43.38	46.04
Net worth	7.33	9.31	12.66	20.90	30.89	43.00	41.32	55.01	71.62	61.31	64.49
Income Statement of Tega Industries Africa Pty Ltd (in ZAR million)											
Revenue	37.96	32.39	59.19	80.04	87.91	117.05	109.14	157.38	179.67	145.31	153.88
Other income	0.17	0.36	1.21	0.37	0.50	0.88	1.26	0.71	3.28	2.59	3.63
Gross revenue	38.14	32.76	60.40	80.41	88.41	117.93	110.40	158.09	182.95	147.90	157.50
Cost of sales	15.30	14.58	28.20	39.01	37.06	61.63	62.16	78.21	84.18	67.29	65.20
Other operating expenses	14.82	14.40	23.28	27.07	30.58	35.73	47.28	57.09	70.24	85.81	74.88
Depreciation	0.54	0.40	0.81	1.01	1.28	1.71	1.65	2.78	2.93	4.69	7.64
Interest	0.11	0.04	0.30	0.49	0.62	0.61	0.57	0.93	1.66	3.98	5.48
Total operating expenses	30.77	29.42	52.58	67.58	69.54	99.67	111.66	139.01	159.01	161.77	153.20
PBT	7.37	3.33	7.82	12.83	18.87	18.26	−1.25	19.08	23.94	−13.87	4.31
Less: Tax	2.38	0.98	2.57	3.39	5.29	5.14	−0.47	5.38	6.33	−3.57	0.92
PAT	4.98	2.35	5.25	9.44	13.58	13.12	−0.79	13.70	17.61	−10.30	3.39

Source: Data provided by Tega Industries Ltd

Exhibit 6
Financials of Losugen Pty Ltd (in AUD)

Details	**2010–11**	**2011–12**	**2012–13**	**2013–14**	**2014–15**	**2015–16**
Reserves and surplus	28,06,714	29,71,608	36,21,584	34,11,683	29,45,532	26,81,988
Loan fund	–	–	–	–	–	–
Gross fixed assets	10,94,499	11,51,157	12,43,218	12,82,721	13,24,344	13,57,873
Less: Accumulated depreciation	4,87,671	6,17,348	7,22,220	8,24,293	8,84,183	9,35,794
Net fixed assets	6,06,828	5,33,809	5,20,998	4,58,428	4,40,161	4,22,079
Total current assets	34,61,761	51,16,888	41,00,174	44,29,649	44,22,530	34,86,284
Total current liability	12,61,873	27,15,014	10,20,098	14,94,995	19,43,450	12,21,683
Net worth	**28,06,716**	**29,71,610**	**36,21,586**	**34,11,685**	**29,45,534**	**26,81,990**
Financial statement						
Revenue	85,73,539	1,20,58,984	1,03,28,331	80,25,592	84,99,100	82,53,698
Other income	(11,442)	59,173	54,357	59,127	66,913	89,972
Gross revenue	**85,62,097**	**1,21,18,157**	**1,03,82,688**	**80,84,719**	**85,66,013**	**83,43,670**
Cost of sales	43,58,157	71,01,427	54,80,823	39,97,306	43,96,343	42,96,677
Other operating expenses	27,02,842	26,23,731	28,06,414	25,47,517	30,23,959	26,11,134
Depreciation	1,12,495	1,29,677	1,04,872	1,02,073	93,674	89,853
Interest	18,552	6,328	16,056	12,075	4,169	4,888
Total operating expenses	**71,92,046**	**98,61,163**	**84,08,165**	**66,58,971**	**75,18,145**	**70,02,552**
PBT	13,70,051	22,56,994	19,74,523	14,25,748	10,47,868	13,41,118
Less: Tax	4,23,322	6,49,256	5,74,547	4,35,649	3,14,019	4,04,662
PAT	**9,46,729**	**16,07,738**	**13,99,976**	**9,90,099**	**7,33,849**	**9,36,456**

Source: Data provided by Tega Industries Ltd

Exhibit 7a
Acotec's Divisions and Subsidiaries

Name of Division	Contribution to Total Sales of Acotec as of 2011 (in %)
Weartec	16
Pipetec	64
Corrosiontec	11
Bombatek	9
Source: Data provided by Tega Industries Ltd	

Exhibit 7b

Product-wise Sales for Tega-Acotec (in CLP million)

Division/ Subsidiary	Products	Sales at the Time of Acquisition (2011)	Sales in 2016
Weartec	Polyurethane screens	639	798
Weartec	Rubber screens	943	715
Weartec	Wear plates	781	968
Pipetec	High-pressure piping, valves and flanges	6,696	1,464
Pipetec	Medium- and low-pressure piping systems		
Bombatek	Horizontal and vertical pumps for abrasive, corrosive and clean liquids	1,121	0
Bombatek	Submersible, high-pressure multistage pumps		0
Bombatek	Services—pump repairs and repowering		0
Corrosiontec	Services—corrosion lining of equipment and vessels	371	0
Edoctum	Service–organising seminars and conferences	572	358
Total		10,484	4,303
Source: Data provided by Tega Industries Ltd			

Exhibit 8
Financials of Tega-Acotec SA (Chile) (in CLP million)

Description	FY10(A)*	FY11(A)**	FY12(A)	FY13(A)	FY14(A)	FY15(A)	FY16(A)
Current assets							
Cash and cash equivalent	243	135	332	167	346	394	45
Other nonfinancial assets, current	96	127	52	544	322	313	347
Trade and other current receivables, current	2,784	2,649	4,310	4,172	3,811	1,901	1,025
Receivables from related entities, current	240	30	30	42	301	444	141
Inventories	2,031	2,037	1,760	2,113	2,040	1,566	1,367
Taxes recoverable	262	295	65	102	–	–	–
Deferred tax assets	64	68	153	114	–	–	–
Current tax assets	–	–	–	–	91	161	39
Other current assets	78	139	94	122	–	–	–
Total current assets	**5,796**	**5,479**	**6,797**	**7,376**	**6,912**	**4,777**	**2,964**
Noncurrent assets							
Intangible assets other than goodwill	18	15	5	4	28	25	22
Investments accounted for using the equity method	–	–	–	14	22	77	129
Property, plant and equipment	2,527	2,525	2,380	2,244	2,120	2,013	2,545
Deferred tax assets	–	–	–	–	377	523	609
ROU assets	–	–	–	–	–	–	–
Other noncurrent nonfinancial assets	2	–	86	125	–	–	–
Total noncurrent assets	**2,547**	**2,540**	**2,471**	**2,387**	**2,547**	**2,639**	**3,305**
Total assets	**8,342**	**8,019**	**9,268**	**9,763**	**9,459**	**7,416**	**6,269**
Current liabilities							
Other financial liabilities, current	1,998	1,753	2,183	1,542	3,194	2,406	2,047
Trade and other payables	1,749	2,059	2,012	2,075	1,940	1,356	1,623
Payables to related entities, current	–	–	–	–	1,459	1,429	1,009
Current tax liabilities	29	15	15	26	68	9	3
Current provisions for employee benefits	–	–	–	–	105	100	95
Other nonfinancial liabilities, current	1,006	944	1,262	2,032	187	118	46
Total current liabilities	**4,782**	**4,770**	**5,472**	**5,675**	**6,954**	**5,419**	**4,822**
Noncurrent liabilities							
Current payables to related parties	–	–	–	–	–	–	–

Description	**FY10(A)***	**FY11(A)****	**FY12(A)**	**FY13(A)**	**FY14(A)**	**FY15(A)**	**FY16(A)**
Other financial liabilities, noncurrent	122	175	76	63	40	49	5
Deferred tax liabilities	19	–	33	43	34	22	99
Total noncurrent liabilities	**142**	**175**	**109**	**105**	**73**	**71**	**104**
Equity							
Issued capital	2,533	2,580	2,821	2,821	2,687	3,757	5,109
Retained earnings (losses)	1,596	1,628	291	595	(73)	(1,630)	(3,554)
Other reserves	(846)	(1,283)	315	323	(313)	(313)	(313)
Equity attributable to owners of the parent (NETWORTH)	**3,282**	**2,925**	**3,427**	**3,738**	**2,301**	**1,815**	**1,242**
Non-controlling interest	136	149	259	244	131	111	101
Shares of its stock	–	–	–	–	–	–	–
Total equity	**3,419**	**3,074**	**3,687**	**3,982**	**2,432**	**1,925**	**1,343**
Total liabilities and equity	**8,342**	**8,019**	**9,268**	**9,763**	**9,459**	**7,416**	**6,269**
Income Statement (in CLP million)							
Revenue	17,426	20,034	12,803	12,569	8,638	8,041	6,898
Non-operating (income)/expenditure	224	242	(32)	(43)	(36)	195	(97)
Gross revenue	17,650	20,276	12,835	12,612	8,674	8,041	6,995
Cost of sales	13,696	16,038	10,446	10,113	7,565	7,229	5,173
Other operational expenses	2,191	2,616	1,150	1,110	1,441	1,501	2,831
Depreciation	530	677	651	643	531	583	573
Forex (gain)/loss	(38)	23	(80)	34	148	129	193
Finance costs or interest	246	305	264	282	401	342	165
Total operating expenses	16,624	19,658	12,430	12,182	10,086	9,784	8,935
PBT	1,026	618	405	430	(1,412)	(1,744)	(1,940)
Tax	105	109	(11)	71	(152)	(192)	(6)
PAT	**921**	**508**	**416**	**359**	**(1,260)**	**(1,552)**	**(1,934)**
U.S. dollar (USD) to Chilean peso (CLP)	**521.73**	**479.52**	**487.23**	**474.07**	**550.51**	**626.75**	**690.01**

*Figures for 2009–10 represent the period from January 1, 2010 to December 31, 2010. **Figures for 2010–11 represent a period of 15 months, from January 1, 2010 to March 31, 2011.

Source: Data provided by Tega Industries Ltd

Exhibit 9a

Product-wise Sales for Tega Industries as a Group (in INR million)

Product lines	Domestic sales in 2000	Export sales in 2000	Domestic sales in 2010	Export sales in 2010	Domestic sales in 2016	Export sales in 2016	Sales via acquired companies in South Africa, Australia and Chile in 2016	Losugen sales 2016	SAF sales 2016	Chile sales 2016
Mill liners	79	38	122	1,344	151	2,406	466	32	340	95
Conveyor components (Tega + Hosch)	29	3	265	38	282	39	23	15	7	
Hydrocyclones	8.3		35	9	27	7	0	0	0	
Screens	12	1	127	25	130	127	92	70	22	
Wear products	20	0.5	223	8	220	26	236	225	11	
Pumps					3	4	0			
Others							84	84		
Industrial							103		103	
Weartec							285			285
Pipetec							184			184
	148.3	42.5	770	1,424	813	2,607	1,471	426	482	563

Source: Data provided by Tega Industries Ltd

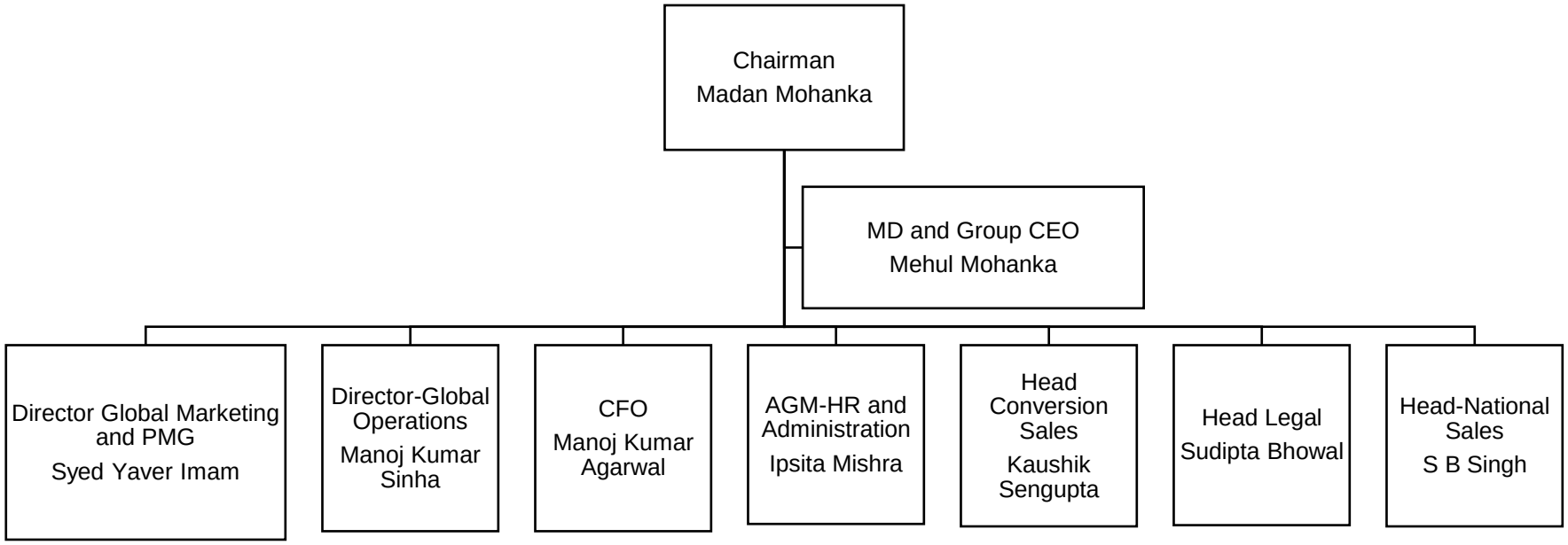
Exhibit 9b

Geographical Exports Sales Breakup for Tega Industries as a Group (in INR million)

Year	North America	South America	Australia	Africa	Europe	Other Locations	Total
2010	200	64	121	410	300	329	1,424
2016	400	95	426	686	100	900	2,607

Exhibit 10

Organisational Chart: Tega Industries Ltd, India (2015–16)



Source: Data provided by Tega Industries Ltd