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Thermax - Changing of the Guard

Profit is not only a set of figures, but of values.

– Rohinton D. Aga, erstwhile Chairman & Managing Director, Thermax Ltd.

Meher Pudumjee (Meher) was visiting Thermax's newest manufacturing plant at Sri City in Southern India on July 15, 2019. Nearly fifteen years had passed since she inherited the role of the Chairperson of Thermax Ltd. from her mother Anu Aga. She was 38 at the time, a mother of two young kids, unsure and apprehensive about her ability to assume this significant role. Thermax, an engineering company founded by Meher's grandfather in 1966 provided integrated solutions specializing in energy, environment and chemicals.

Meher reflected on the progress the company had made over the last 20 years. Post a re-structuring exercise in 2000, Thermax had transformed itself from a family managed company with a predominant presence in India to a professionally managed global organization serving small, medium and blue-chip firms across the world. A 6x increase in total sales and a commensurate increase in profitability since 2004 was a validation of this decision. (See **Exhibit 1**, Thermax financials).

However, with the incumbent CEO nearing retirement it was time for a change of guard. Moreover, Meher felt the company which had grown into 8 unique businesses over the last five decades stood at a critical inflexion point and needed to re-think its strategy for the future. While historically Thermax had groomed people from within to take on leadership roles, she felt the next chapter of growth required a completely fresh perspective and ideas. Consequently, a number of questions dominated her thoughts. What kind of a person would be best suited to lead the organization through its next phase? Which business segments were best positioned to drive growth in the future? How would the culture of this 53-year old organization need to adapt to support these changes?

India

India, the world's seventh largest country and second most populous country was located in southern Asia. A constitutional republic with a federal structure, it was acclaimed for being the largest democracy despite its wide ethnic and linguistic diversity. With a gross domestic product (GDP) of \$ 2.72 trillion, it was also the seventh largest economy in the world. However, it fared poorly on many socio-economic parameters.¹ (See **Exhibit 2**, India Socio-Economic Parameters.)

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India's economic growth showcased two distinct phases. Soon after independence, in 1947, India adopted a socialist economic model with industries of strategic importance such as iron and steel, mining and defence being owned and operated by the state. Although the private sector was allowed to operate in consumer industries, capacity building was curtailed through a system of licences to prevent monopolies. An inward focussed protectionist regime, complacent public sector and politically influenced lending decisions resulted in a culture of crony capitalism. Consequently, over the next four decades the economy grew at a modest 3-4 percent per annum.² An aversion towards foreign investments and a neglect of exports coupled with a huge dependence on oil imports to meet its energy needs caused a balance of payments crisis in the eighties. This forced the country to unleash economic reforms in 1991 dismantling the licensing system, reducing import tariffs and liberalizing foreign ownership restrictions.³

The reforms accelerated GDP growth rate to an average of 6% per annum in the nineties. The dismantling of capacity expansion curbs enabled domestic companies to upgrade technology and achieve scale efficiencies. With a view to building infrastructure, the private sector was allowed to invest in power, roads, telecommunications, air transport and ports spurring industrial sentiment and capital investments. To encourage foreign investments, 100% foreign ownership in a number of industries and majority ownership in others was approved. Investment procedures and approvals were simplified. These efforts resulted in foreign exchange reserves rising to over \$25 billion by 1997.⁴

Soon after, the 2008 global financial crisis led to a liquidity squeeze and crisis of confidence which impacted foreign investment flows and growth. Besides, populist political agendas driven by a multi-party democratic framework and corruption delayed the implementation of critical structural reforms in labor laws, banking, privatization and government finances. Thus, despite the reforms the country's rating on ease of doing business trailed in the 130's. An example of bottlenecks was reflected in the power sector where there were minimal investments by private players driven by the poor financial health of State Electricity Boards (SEBs). The SEBs in turn were constrained by unviable electricity tariffs mandated for categories of consumers and by losses in transmission due to theft and technical inefficiencies. Hence, energy consumption in India remained abysmally low at a third of the global per capita average.⁵

With a view to weeding out corruption, the government effected a demonetization^a of currency in November 2016. Although this sucked out liquidity and impacted GDP growth, the incumbent government was voted back to power with an absolute majority in the 2019 national elections. Bolstered by his success, Narendra Modi, the incumbent prime minister and leader of the right wing Bharatiya Janta Party(BJP) pledged to make India a USD 5 trillion economy by FY 2025.⁶

Company History: Founding Thermax

The company (Wanson India) had a modest beginning with an equity capital of Rs 300000^b, a small shed of 5000 square feet, a band of 50-odd dedicated people and abundant enthusiasm.

— Rohinton Aga, erstwhile Managing Director, Thermax Ltd.⁷

^a De-monetization referred to the withdrawal of particular units of currency (Rs 500 and Rs.1000 bank notes) from being used as legal tender effective November 8, 2016

^b 1Usd = Rs. 69.02

Thermax, derived from “Therm”, a unit of heat ⁸ was founded by Adi S. Bhathena, Pudumjee’s grandfather in 1966 as Wanson (India) Pvt. Ltd. Initially, the company made surgical beds, incubators, water stills and sterilizers for hospitals. Soon after, frustrated by delayed payments from government hospitals, Bhathena partnered with Wanson (Belgium) to manufacture baby boilers^c in India. The Wanson collaboration ended in 1978 and a few years later in 1981, the company was renamed Thermax Pvt. Ltd. The Thermax brand was represented by a powerful ‘T’ logo inscribed in red that symbolized solidity and resonated with the word “heat”.

Rohinton Aga (1966–1996): Building the Business

Meher’s father Rohinton Aga (Rohinton), a graduate from Cambridge University, was hired by Bhathena and joined Wanson in 1966. Rohinton married Bhathena’s daughter Arnavaz (Anu) Bhathena. Subsequently, a professional fallout with Bhathena pushed Rohinton to galvanize funds from family and friends and he eventually took over the reins of the company, buying out Bhathena’s stake in 1980. A charismatic leader, Rohinton encouraged the creation of an ‘intrapreneurial’ culture in the company, giving employees freedom to explore new business opportunities presented by a changing economic environment. (See **Exhibit 3**, Timeline of key events in the company). He introduced a strong focus on R&D, and helped the group diversify and enter new business streams.

Diversification into Energy, Environment & Chemicals

By the early seventies, Thermax was well established in the boiler business. The Arab Oil Embargo^d of 1973⁹ caused crude oil prices to quadruple forcing Indian companies to innovate and optimize their use of energy. Thermax was successful in substituting the usage of oil by developing a coal-fired boiler and a water tube boiler that could operate using multiple fuel sources.

Committed to investing in solutions that conserved energy, in 1981, Rohinton set up the heat recovery division. This helped companies re-use combustible waste gases produced in manufacturing to generate steam for power and laid the foundation of Thermax’s cogeneration business.

Later, in the early nineties, the company commenced its absorption cooling business. All its equipment was powered by waste heat, a cheaper and more reliable alternative to compressor-based cooling.

A joint venture with Babcock and Wilcox in 1989 for building custom boilers ranging from 30-300 tons per hour allowed them to pitch for larger EPC^e turnkey power projects. The partnership also provided access to specific export markets. By the mid-nineties, Thermax had established offices in Europe, Asia and the Middle East and exports constituted 15% of its total turnover.

Rohinton decided to invest in the environment business in the seventies, encouraged by a stricter enforcement of pollution standards in India. Air pollution was a byproduct of emissions from coal-fired boilers. Addressing customer needs, Thermax developed multicyclones, dust collectors, bag

^c A boiler was a closed vessel exceeding 22.75 liters in capacity which was used expressly for generating steam under pressure.

^d Referred to the turmoil in the 1970’s sparked by the decision of Arab oil producers to boycott US and punish the West for their support for Israel in the Yom Kippur war against Egypt. This caused the price of crude to rise from \$3 per barrel in the early seventies to \$12 by 1974.

^e The engineering, procurement & construction (EPC) project business entailed coordinating design, procurement of parts, construction and commissioning of projects within a stipulated time period.

filters and other products. Simultaneously, the company networked with Pollution Control Boards and environmental groups to develop the market. As varied water quality at industrial plants caused choking problems from residues in boilers, Rohinton urged his team to manufacture water treatment plants. These were often sold in tandem with their boilers. Eventually, their expertise in water treatment prompted them to acquire a company that specialized in ion exchange resins. This led to the beginning of the chemical division. Reflecting on Thermax's growth, Pravin Karve, Business Head Boilers and Heaters explained, "we have always collaborated with our customers to develop solutions and new products." By 1995, under Rohinton's leadership, Thermax had established itself as a highly respected \$50 million company with a dominant presence in energy and environment solutions. (See **Exhibit 4**, for Business Segments.)

A focus on learning and innovation laid the foundation of Thermax's people culture. Rohinton's quarterly column titled 'Dialogue' in *Fireside*, the company's house magazine, amplified this. He was successful in creating a collegiate and professional culture which enabled Thermax to access the best talent. Having studied at the Harvard Business School (HBS), eight members of his senior management team were nominated to attend the Program for Management Development¹⁰ at HBS. Opportunities for growth and development coupled with an intrapreneurial culture ensured loyalty. B.C. Mahesh, Business Head Projects and a 32-year Thermax loyalist, explained, "an atmosphere of trust, the willingness to take bets on people and an emphasis on values has enabled Thermax to build employee and customer stickiness." Sharad Gangal, Head People Processes added, "people practices have to be judged by whether they percolate down to the last employee and we do that well at Thermax." Although the culture promoted inclusivity, female engineers were few driven by the paucity of women enrolled at engineering schools.

Going Public

A liberal economic climate in India in the nineties incentivized Thermax to make exploratory investments in electronics, software development, post-harvest equipment, control and automation, paint systems, bottled water and energy services. However, building capacity and marketing infrastructure required funds. Consequently, Rohinton decided to take the company public. Explaining his decision, he stated:

The title of the movie *The Reluctant Debutante* seemed to ring a bell as we made halting moves towards "Going Public". I guess the time has come for "The Reluctant Debutante" to shed some of her coyness and her modesty. The last 25 years have seen the start and growth of a fine organization. But it was in the context of a sheltered, highly constricted economy. Now, with the "Indian tiger uncaged", the potential is immense.¹¹

As a result, in March 1995 Thermax made a successful debut on the Bombay Stock Exchange. Anu and Rohinton Aga continued to own a controlling 62% stake in the company. (See **Exhibit 5**, for Thermax Shareholding Structure). Soon after its public issue, Rohinton died of a massive heart attack in 1996 forcing his wife Anu Aga to take on the reins of the company.

Anu Aga (1996–2004): Re-structuring Thermax

Let us look upon our exercise with BCG as an opportunity to come out of a dark tunnel. I can see a clear light at the end. Let us mobilize ourselves and start the change process with alacrity. Please join hands in restoring Thermax's glory.

– Anu Aga, erstwhile Chairperson, Thermax Ltd¹²

Anu Aga, a graduate in Economics with post-graduate qualifications in Social Work grew up in an upper middle class Parsi^f family. Soon after marrying Rohinton, the couple had two children, a daughter Meher and son Kurush. Induced to enter the business in 1985 after her husband suffered a stroke, Anu joined human resources eventually becoming the division head in 1991. Anu reflected:

When I joined the company, my challenge was to not only retain the brand image we had built as an innovator but to capitalize on it and grow. Keeping our employee happy was at the heart of this. My personal challenge was to be accepted in my own right, rather than as an Aga, who owns majority of shares.

Despite her initial reluctance, Anu was elected executive chairperson of Thermax a few days after Rohinton's death. Abhay Nalawade, a marketing executive and Thermax veteran was appointed its managing director (MD). Meher and her husband Pheroz Pudumjee (Pheroz) who were based in the UK turning around one of Thermax's subsidiaries, returned to India to support Anu. They eventually joined the board as directors. (See **Exhibit 6**, Thermax Organization Structure, 1998). With Rohinton's larger than life persona dominating the corridors and heart of the company Anu knew she had a tough act to follow. Reflecting on those days she said, "I had no time to mourn. I kept comparing myself to my husband and constantly devaluing myself. Fortunately, a Buddhist meditation program called Vipassana helped me come to terms with death."

Fourteen months after Rohinton's death, Anu's son Kurush Aga (25 years) met with a fatal car accident and died. Within the same fortnight she had to contend with the death of her husband's mother and her pet dog. Around the same time, tailwinds of the South Asian crisis of 1997¹³ accompanied by a global economic slowdown impacted export markets and GDP growth rates in India. Diversification into unrelated areas, a deceleration of the core business accompanied by a distracted management caused a dip in sales and profitability, heightening Anu's earlier misgivings about running the company.

In order to establish a clear framework of authority and accountability she handed over executive charge to Nalawade in 1998. While she continued to represent Thermax at industry forums and stayed involved in key HR decisions, she ceased to participate in the day to day management of the company.

However, the company's performance continued to slide, and it posted an operating loss in FY 2000 causing a 90% erosion in market capitalization.¹⁴ Soon after, Anu received an anonymous letter from a shareholder admonishing her for letting down shareholders. This had a deep impact on her. She reminisced, "I couldn't sleep for days because it was not acceptable to my husband and me that we let down stakeholders. I didn't know what to do - but knew something had to be done." Accepting that she was out of her depth and needed external advice, she enlisted Boston Consulting Group to suggest a turnaround strategy. She explained, "I was not afraid to show my ignorance and seek help. One of my strengths is that once I am convinced, I carry out my decision however tough it may be."

To begin with, BCG conducted one on one discussions with 30-40 senior managers, probing them on what ailed Thermax. Based on these discussions and a review of the business, they suggested significant changes. These included a divestment of non-core businesses, inducting performance efficiency measures and a complete re-haul of the board which had nine company executives in addition to independent directors. The family was asked to choose between taking executive roles in the company and staying off the board or handing charge to a professional management team and

^f **Parsi**, which means "Persians," constitute a religious group that emigrated to India from Iran to avoid religious persecution. Parsi's are followers of the Iranian prophet Zarathustra.

joining the board in a non-executive capacity. Meher and Pheroz were conflicted about having to make this decision. Moreover, the recommendation to close down businesses and fire employees was a huge cultural shift for Thermax with its people focused values. However, Anu held firm on all counts. Her column 'Reaching Out' in the June 2000 issue of the house magazine, explained:

We have excellent individuals who are trapped in a dysfunctional culture. In the past, we have accommodated non-performers and built structures to suit the individual. In our new culture while an individual is important the interest of the company is paramount. We need to realize our responsibility and be aware that each time we make compromises, we are letting down 3,000 employees and numerous shareholders who have placed their faith in us.¹⁵

Re-structuring the Business

Acting on BCG's recommendations, the company implemented a slew of changes. It sold its software and bottled water business and closed its electronics, instrumentation venture laying off over hundred employees. Four core business segments were identified—Boilers and Heaters, Absorption Cooling, Water and Waste Management and Chemicals. A number of steps were taken to improve profitability. Coordinated sourcing, better management of working capital, efficient utilization and sharing of fixed costs across divisions and strict design parameters kept costs within budget. The earlier organization construct, where each divisional head reported to an executive director was replaced with an executive council consisting of the heads of the four core divisions, the MD and a few select functional heads. The objective was to enable teams to work across businesses improving supplier co-ordination and customer service. An open forum⁸, established earlier, was used extensively to communicate these changes to employees and to answer their queries across the organization.

Re-structuring the Board

The existing board resigned on July 22, 2000 and the new board was constituted on Jan 15, 2001.¹⁶ In the new structure, the MD was the only person with "executive" responsibility on the board. New independent directors were inducted. Agreeing to professionalize the company, Meher and Pheroz Pudumjee joined the board as non-executive directors and Anu Aga as its non-executive chairperson. Nalwade, the incumbent MD was replaced by Prakash Kulkarni, who was then the joint managing director.¹⁷ Pheroz recalled, "We had a whole bunch of new independent board members, which was also difficult to take, because all of a sudden we started getting questions like why and why not?"

The re-structuring efforts paid off and by 2003, bolstered by an upturn in the economy, the company was well on its way to recovery with a 19% sales growth and a doubling of profits. Having succeeded in putting the company back on an even keel, Anu Aga announced her decision to retire as chair of the board at the age of 61. She explained, "We have 60 as retirement age for the management and 75 for independent directors. We had no retirement age for the family but I believe the same rules should apply to us."

The board and Anu had to decide on who they thought was best positioned to take her place.

⁸ A town hall conducted with employees and the CEO.

Meher, Pheroz Pudumjee and the Professionals (2004-2018): Professionalization & Growth

Meher, a chemical engineer, graduated from the Imperial College of Science & Technology in the UK. She returned to India to join Thermax as a trainee and married Pheroz, a postgraduate in business administration from India with a diploma in automobile technology from Stanford University. Pheroz ran his own automobiles venture in Pune. At Rohinton's request, the couple subsequently moved to the UK with the responsibility of turning around a Thermax subsidiary company compelling Pheroz to close down his venture and join Thermax.¹⁸ They had two children, Zahaan and Lea Pudumjee.

Rohinton's death propelled them to move back to India to support Anu. Meher joined the Thermax treasury understanding the nuances of working capital management and accounting and also oversaw the Air Pollution Control business. Pheroz joined the international division, eventually leading international operations. Post the re-structuring, both of them agreed to stay on the board as non-executive directors. Highlighting the emotional complexities of the period Meher elaborated:

Pheroz had a lot of respect for Anu but his views were quite different from hers. He found it difficult to deal with her tendency to consult many people for views and then take decisions. They went through a difficult relationship and often, I was in the middle of it.

It was eventually decided that Meher would take over the mantle of chairperson effective October 5, 2004. Reflecting on the decision, Pheroz explained:

Meher is better chairperson material. She is thoughtful and able to take people along. You need that kind of person to be sitting at the top. I am very action-oriented and in a hurry to get things done. In the bargain I can be a bit autocratic in my style if things start to drag."

As chairperson, Meher worked closely with Kulkarni and the board to spearhead the next phase of growth for Thermax.

Project Evergreen

Soon after taking over as MD, Kulkarni embarked on an ambitious phase of expansion launching Project Evergreen, a time-bound program to propel Thermax into the big league. Consulting firm McKinsey and Company was brought in to advise the management.

M.S. Unnikrishnan (Unny), executive vice president, was deputed to lead this effort. Unny had joined Thermax as a trainee engineer in 1982 and spent five years with its energy business before leaving to pursue external opportunities. Re-joining the company in 1997 he played a key role in implementing the changes recommended by McKinsey and was later inducted to the executive council. Leading the McKinsey project, he worked with people across divisions on strategies to selectively tap new international markets and revive traditional ones, to help crank up the innovation engine, grow the services business of Thermax and restart developing talent from within.

These efforts coupled with a buoyant economy yielded rich dividends. India's economy grew at an average rate of 8 percent per annum and gross fixed capital formation by over 28 percent between 2004-2007.¹⁹ With oil prices continuing to spiral, the demand for coal and biomass fueled boilers and heaters increased. Thermax's manufacturing and delivery capabilities were stretched, forcing it to de-

bottleneck existing plants and add capacity. Around the same time, the National Electricity Policy²⁰ was announced providing a fillip to captive power generation and Thermax's EPC business.

Consequently, the company's sales tripled between 2004 and 2007 and its market capitalization grew steadily touching nearly a billion dollars. The highest growth was in the projects business which accounted for 62% of total revenues driven by large contracts secured for power projects and air pollution control equipment. The company was successful in tapping new markets in Western Europe, South East Asia and the Middle East and exports constituted one fifth of total revenues.

Aligned to its growth strategy, Kulkarni re-organized the business in to three divisions: Projects & Environment (custom boilers, epc-power, air pollution control); Cooling and Heating (chillers & process heat) and Chemicals and Water under individual business heads. A service vertical, focusing on service and maintenance, was set up as a new business opportunity within each group. (See **Exhibit 7**, Thermax Organization Structure).

Reflecting on this phase Kulkarni said, "I had to use an iron fist to get things done during the turnaround but that is now in the past. The senior team is working well and have contributed significantly to our growth."²¹

After six years at the helm, as Kulkarni turned sixty, it was announced that Unny would take over as Managing Director from July 2007.

The Next Decade

Taking charge, Unny laid out his plans for the next decade. He outlined selective internationalization, innovation and expansion in manufacturing capacity as the three pillars that would drive growth.

Shortly after, a phase of capacity expansion was launched. Seven new manufacturing plants were started and commissioned in India between 2007 and 2019. The international footprint grew with a manufacturing plant started in China for chillers and in Indonesia for boilers. The company made acquisitions in Poland, Germany and Denmark which provided access to the European market. (See **Exhibit 9**, Thermax Manufacturing Footprint).

Simultaneously, technology tie ups with Babcock and Wilcox (B&W), USA, to manufacture supercritical utility boilers (660 and 800MW), and with Balcke-Dürr of Germany for design of pollution control equipment equipped them to bid for bigger projects in the power sector.

Re-introducing a thrust on innovation, a Research, Technology and Innovation Centre (RTIC) was established in 2009 to focus on technologies like solar, material science and biotechnology. The RTIC was successful in developing solutions that enabled Thermax to use waste heat, waste biomass and solar as a source of energy in addition to coal. As a result, by 2019, only 25 percent of their heating business was powered by coal. Unny explained, "We developed an electricity generating station fueled by chilly bran and another one by mustard stalk. There were more than 100 different kinds of agro-wastes that were being converted by us into usable energy." Unfortunately, a progressively deteriorating macroeconomic environment globally and in India impacted growth and investments in capital goods.

The first blow to growth was triggered by the Global Financial crisis of 2008²² which led to a liquidity squeeze and crisis of confidence. Commodity prices nose-dived, causing customers to roll back production, renegotiate contract prices and even cancel orders. The management, guided by the

Board, decided to concentrate on improving cash-flows, minimizing leverage and exercising caution on domestic and international orders.

Later, even as the global situation improved, growth rates in India continued to trail in the period 2009-2014 driven by monetary tightening, policy paralysis vis-a-vis structural reforms, bankrupt state electricity boards and a changing political regime.²³ The energy sector also witnessed changes with a switch to technologies and fuels that supported low carbon emissions. A revival in demand in 2015 was again stymied by a demonetization of currency by the political leadership in November 2016. This impacted both market sentiment and liquidity slowing down the execution of both green field and brown field projects.²⁴

Consequently, the growth in sales and profitability for the company from 2007 – 2018 was cyclical. This coupled with a conservative capital structure, as also investments in new capacities, impacted return on net worth which tapered from 30 percent in FY 2008-09 to 11 percent in FY 2019. The international focus however, yielded results, as the overseas business constituted over 40 percent of sales by FY 2018. Commenting on the performance over the last decade, an independent director stated, “The strength of the management team lies in being tactical. While they continue to innovate within existing businesses, they have been unable to establish new business lines for future diversification of risk.’

A ‘Conservative’ Professional Culture

Despite the turbulence, Unny was successful in building an empowered team. While business heads led their individual businesses, the executive council was involved in decisions related to overall growth, policy making and human resources. The family respected boundaries and encouraged the professionals to manage day to day operations independently. However, they continued to stay involved in all strategic decisions and ensured that the underlying values of Thermax were upheld and respected. Unny explained, “There is a very clear demarcation of responsibilities. Each year I submit a business plan to the board. As a practice, I keep Meher informed in advance as the family owns 62% of the company.” Commenting on the family’s influence on the culture of the organization, Hemant Mahgaonkar, Business Head, Cooling & Heating, stated:

The basic philosophy of the organization is conservative. They insist on building world class products and processes but in known domains. Sometimes when the risks are major, in new areas, decisions are pushed back or nudged. They prefer to build consensus within the board and management. Contrary to the father who was hands on and ran the business they are non-executive. When you run the business directly, you have a better understanding of the risks involved.

As members of the Board, Meher and PheroZ continued the focus on green energy and international operations. Actively involved with the Confederation of Indian Industries^h, PheroZ served as a member of their national committee on exports. He also led the family office. As Chairperson of the Thermax Foundation and its Corporate Social Responsibility (CSR) Committee Meher played an active role in leading the company’s commitment to creating social value.

^h The Confederation of Indian Industry(CII) was an industry led membership-based business association that worked with industry and government on policy issues and factors impacting competitiveness and business opportunities for industry in India.

The Thermax Foundation

Business cannot succeed in a society that fails.

– Anu Aga, erstwhile Chairperson, Thermax Ltd

A strong sense of values ingrained by the promoters in the fabric of the company influenced the formation of the Thermax Foundation (TF) (erstwhile Thermax Social Initiative Foundation) in March 2007. Over the years, the foundation focused on three key areas of intervention. Through Akanksha Foundation,²⁵ and the Pune Municipal Corporation, TF funded schools in Pune to bring quality education within the reach of underprivileged children benefitting over 3500 students. It also supported development projects in communities near Thermax factories and opportunistically sponsored deserving not for profits like Teach for India (TFI)²⁶. These initiatives provided opportunities for employees and their families to participate in driving social change. Highlighting the percolation of a social consciousness in the company, Sharad Gangal explained, “Our labor unions also contribute to TF through their members and that has only happened because of the credibility the company has built over the years.” Emphasizing the family’s involvement Sujata Deshpande, Senior Manager, CSR elaborated:

Meher and Anu breathe CSR. They are very thorough and make painstaking efforts to ensure the money is allocated correctly for the right causes and the right outcomes. Thermax allocated contributions to CSR well before it became a mandate under the Company's Act of 2013. It was based on their fundamental belief that a business cannot succeed in a society that is failing.

Succession and Future Strategy

With another leadership change imminent, Meher and Pheroz reflected on the next chapter of Thermax’s growth and the profile of the person best suited to lead this. They felt they were at an inflexion point and needed to re-think the company’s long-term business strategy. Meher explained:

I see Thermax as a conglomerate with eight unique businesses. What binds us together are common customers. The question we need to answer is whether we should focus on 2-3 businesses and move them to the next level or continue providing a range of utilities for each customer.

Although the company had developed a wide repertoire of core businesses, 70% of their topline and a large percentage of their bottom line accrued from its project businesses. De-risking the company from the lumpiness of EPC revenues and large projects was a priority. The width of business verticals absorbed management time, taking away from its core culture of innovation and application development. Pheroz elaborated:

The amount of mind share, time, and energy that goes into a large project business is huge. And you forget about the product business, the intelligent business, the services opportunity and the businesses for the future. The product business requires a different mindset. It is about experiencing the ‘brand’, the aesthetics, the ergonomics, the ease of use, reliability and finally the after sales service. But the real value add of Thermax could come from there in the future. So that’s the trade-off.

Meher felt it was imperative for the new CEO to understand these concerns. While historically the company had groomed people from within to take on leadership roles, she felt the next chapter of

growth for Thermax required a new perspective and different skills. Hence, a headhunting firm was employed to lead the search. (See **Exhibit 11**, Role Specifications for the new CEO). Justifying their decision, Phero said:

We would like to see someone who is not entirely from this domain. Somebody who is very different and can see the future. I think what we need is a good portfolio manager to review the entire business of Thermax, see where the future is and start to shift it in that direction rapidly and to be able to convince the board of the same.

However, the overarching question was whether an external candidate would be able to work with the existing management team and the family to drive change. Sharing his views, Unny stated:

The new CEO's role is not Unnikrishnan's role. He needs to accord each business head the freedom to run their businesses and should focus on capital allocation and future growth strategies. For this he would need to deal a lot more with the board and the family. However, it will be critical for him to build relationships with the management team. His success and efficacy will depend upon his ability to become a mentor to them.²⁷

The Next Generation

With both Zahaan and Lea Pudumjee in their twenties, there was also the possibility as to whether the next generation would want to take on an executive role in the company in the near future.

Zahaan, who was 24, had majored in economics and had worked as an intern with Thermax in India. Interested in the business, he subsequently spent a year working in Thermax's international subsidiaries in Denmark and South East Asia. Soon after, in 2018, he joined Bain and Company in their Mumbai office in order to get some external industry experience. Lea, 20, was studying music technology at New York University. While she didn't have any real interest in Thermax's business segments she too had interned with the company and had become more open towards understanding its operations.

Zahaan explained, "I think it's because she understands that it's our family business and come what may she's going to have a say in the matter at some point." Lea elaborated, "Luckily for me, my brother wants to get involved with the business at some point. So, I don't have that much pressure. I know that he is there, so it's not falling into some stranger's hands."

The Road Ahead

Meher felt a deep sense of pride as she evaluated Thermax's journey over the last 53 years. They had succeeded in creating a business built on the principles of trust, goodwill and an intrinsic social consciousness.

Reflecting on the way forward, she felt obligated to preserve the family legacy and help Thermax scale new heights. A lot depended upon finding the right candidate to lead the company. What qualities should they focus on as they move forward and interview potential candidates? How would this new incumbent integrate and extract loyalty as an outsider? Would the culture of the organization need to adapt in order to allow the new CEO to drive change? Finally, how would they balance this with their focus on "profit being a set of values". Only time would tell.

Exhibit 1 Thermax Financials

| PARTICULARS | Thermax Group(Consolidated) | | | | | | | | | | | | | | | | | Thermax Limited(Standalone) | | | | | | | |
|--|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------------------------|---------|---------|---------|---------|---------|---------|---------|
| | 2018-19 | 2017-18 | 2016-17 | 2015-16 | 2014-15 | 2013-14 | 2012-13 | 2011-12 | 2010-11 | 2009-10 | 2008-09 | 2007-08 | 2006-07 | 2005-06 | 2004-05 | 2003-04 | 2002-03 | 2001-02 | 2000-01 | 1999-00 | 1998-99 | 1997-98 | 1996-97 | 1995-96 | 1994-95 |
| Domestic Sales (INR Mn) | 32490 | 26680 | 28130 | 32100 | 36180 | 31990 | 38980 | 43330 | 38730 | 25560 | 24450 | 27180 | 18490 | 12140 | 8950 | 5700 | 5010 | 4360 | 3737 | 3309 | 3718 | 4041 | 4218 | 3801 | 2953 |
| Exports (INR Mn) | 26370 | 17030 | 15730 | 18530 | 16240 | 17580 | 14680 | 15740 | 12500 | 7200 | 9590 | 7150 | 4410 | 3930 | 3520 | 2070 | 1980 | 1510 | 1010 | 768 | 963 | 716 | 713 | 432 | |
| Exports % of Total Sales | 44.8% | 39.0% | 36.0% | 37.0% | 31.0% | 35.0% | 27.0% | 27.0% | 24.0% | 22.0% | 21.0% | 19.0% | 19.0% | 24.0% | 28.0% | 27.0% | 26.0% | 21.0% | 19.0% | 19.0% | 21.0% | 19.0% | 15.0% | 16.0% | 12.0% |
| Total Sales (INR Mn) | 58860 | 43710 | 43860 | 50690 | 52420 | 49570 | 53660 | 59070 | 51230 | 32760 | 34040 | 34330 | 22900 | 16070 | 12470 | 7770 | 6990 | 5870 | 4747 | 4077 | 4681 | 4994 | 4933 | 4514 | 3385 |
| Sales Growth (YOY) | 34.7% | -0.3% | -13.5% | -3.3% | 5.7% | -7.6% | -9.2% | 15.3% | 56.4% | -3.8% | -0.8% | 49.9% | 42.5% | 28.9% | 60.5% | 11.2% | 19.1% | 23.0% | 16.4% | -12.9% | -6.3% | 1.2% | 9.3% | 33.4% | NA |
| PBITD (INR Mn) | 6070 | 5170 | 5480 | 5510 | 5840 | 5080 | 5750 | 6740 | 6310 | 4470 | 4630 | 4710 | 3250 | 1900 | 1170 | 1080 | 1000 | 660 | 79 | 647 | 649 | 721 | 718 | 701 | 422 |
| Profit before Tax (INR Mn) | 4110 | 4220 | 4380 | 4670 | 3100 | 3890 | 4810 | 5960 | 5730 | 2860 | 4250 | 4480 | 2980 | 1730 | 1040 | 890 | 790 | 360 | -100 | 420 | 507 | 560 | 540 | 570 | 420 |
| PAT (INR Mn) | 3250 | 2310 | 2160 | 2820 | 2100 | 2460 | 3200 | 4040 | 3820 | 1440 | 2890 | 2910 | 1940 | 1030 | 680 | 620 | 560 | 280 | -133 | 325 | 385 | 455 | 438 | 454 | 261 |
| R&D Expenses (INR Mn) | 320 | 227 | 200 | 228 | 200 | 255 | 228 | 193 | 166 | 145 | 90 | 55 | 55 | 41 | 28 | 35 | 23 | 16 | 46 | 46 | 56 | 34 | 50 | 74 | 34 |
| CSR Expenses (INR Mn) | 88.79 | 91.80 | 85.57 | 90.39 | 84.47 | 83.56 | 69.40 | 28.22 | 8.94 | 6.83 | 5.12 | 4.42 | NA | NA | NA | 0.60 | 1.30 | 0.80 | 7.00 | 3.80 | 0.10 | 0.20 | 33.00 | 3.50 | 1.70 |
| Gross Block (INR Mn) | 22360 | 17410 | 15150 | 14380 | 20510 | 20440 | 12960 | 11930 | 10680 | 7420 | 6610 | 4330 | 2920 | 2530 | 2320 | 2070 | 2150 | 2160 | 1688 | 1678 | 1616 | 1535 | 1369 | 1142 | 844 |
| Net Block (INR Mn) | 13520 | 10767 | 9520 | 8870 | 14740 | 15800 | 13900 | 10910 | 8210 | 5480 | 5090 | 3490 | 1790 | 1440 | 1340 | 1020 | 1020 | 1100 | 990 | 1090 | 1120 | 1140 | 1050 | 930 | NA |
| Investments (INR INR) | 8290 | 14720 | 10830 | 10500 | 8220 | 7080 | 4430 | 2400 | 2300 | 3700 | 1430 | 5600 | 5740 | 3970 | 3180 | 2870 | 2420 | 1700 | 1587 | 1610 | 1130 | 800 | 830 | 629 | NA |
| Current Assets (INR Mn) | 47370 | 41020 | 32970 | 36100 | 41850 | 41250 | 32870 | 34060 | 30650 | 18320 | 14020 | 11900 | 10240 | 5900 | 5360 | 3790 | 2700 | 3090 | 2553 | 2588 | 2460 | 2941 | 2924 | 2803 | 2591 |
| Current Liabilities (INR Mn) | 36540 | 30790 | 23650 | 26150 | 32740 | 29990 | 25090 | 27580 | 25630 | 22390 | 13720 | 12590 | 11780 | 6550 | 5190 | 3210 | 2100 | 2010 | 1188 | 1340 | 1158 | 1416 | 1621 | 1318 | 1075 |
| Capital Employed (INR Mn) | 30500 | 27680 | 25850 | 24500 | 27190 | 26950 | 23620 | 18290 | 14520 | 10950 | 9950 | 7560 | 5920 | 4620 | 4550 | 4340 | 3880 | 3670 | 3930 | 3940 | 3550 | 3450 | 3180 | 3040 | NA |
| Networth (INR Mn) | 30150 | 27150 | 25380 | 24160 | 21470 | 20380 | 18690 | 16290 | 13150 | 10780 | 9910 | 7560 | 5900 | 4550 | 4010 | 3770 | 3860 | 3520 | 3520 | 3570 | 3401 | 3095 | 2779 | 2452 | 1808 |
| EPS (in INR) | 28.90 | 20.61 | 19.80 | 25.07 | 17.61 | 20.64 | 26.87 | 33.86 | 32.03 | 12.11 | 24.25 | 24.40 | 16.26 | 7.96 | 5.46 | 5.07 | 4.67 | 2.32 | -5.63 | 13.77 | 16.31 | 19.30 | 18.55 | 19.23 | 15.39 |
| Loan Funds-Long term (INR Mn) | 350 | 530 | 460 | 340 | 4940 | 5170 | 3830 | 880 | 850 | 80 | 40 | 0 | 20 | 70 | 70 | 90 | 20 | 160 | 427 | 388 | 167 | 373 | 416 | 598 | 512 |
| Fixed Asset Turnover Ratio | 4.35 | 4.06 | 4.61 | 5.71 | 3.56 | 3.14 | 3.86 | 5.42 | 6.24 | 5.98 | 6.69 | 9.85 | 12.80 | 11.16 | 9.32 | 7.60 | 6.87 | 5.33 | 4.78 | 3.72 | 4.15 | 4.36 | 4.66 | 4.85 | 5.03 |
| D/E Ratio | 0.01 | 0.02 | 0.02 | 0.01 | 0.23 | 0.25 | 0.21 | 0.05 | 0.06 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 | 0.00 | 0.04 | 0.12 | 0.11 | 0.05 | 0.12 | 0.15 | 0.24 | 0.28 |
| Working Capital Turnover Ratio | 5.43 | 4.28 | 4.71 | 5.10 | 5.75 | 4.40 | 6.90 | 9.11 | 10.21 | NA | 113.89 | 0.00 | 0.00 | 0.00 | 74.19 | 13.34 | 11.81 | 5.43 | 3.48 | 3.27 | 3.59 | 3.27 | 3.78 | 3.04 | NA |
| Current Ratio | 1.30 | 1.33 | 1.39 | 1.38 | 1.28 | 1.38 | 1.31 | 1.24 | 1.20 | 0.82 | 1.02 | 0.89 | 0.87 | 0.90 | 1.03 | 1.18 | 1.28 | 1.54 | 2.15 | 1.93 | 2.12 | 2.08 | 1.80 | 2.13 | 2.41 |
| Dividend(%) | 3.50 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.50 | 3.50 | 4.50 | 2.50 | 2.50 | 4.00 | 3.00 | 1.70 | 1.20 | 1.20 | 0.50 | 0.10 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.38 |
| Return on Net Worth(%) | 10.78 | 8.51 | 8.51 | 11.67 | 9.78 | 12.07 | 17.12 | 24.80 | 29.05 | 13.36 | 29.16 | 38.49 | 32.88 | 22.64 | 16.96 | 16.45 | 14.51 | 7.95 | -3.77 | 9.10 | 11.31 | 14.71 | 15.75 | 18.50 | 14.44 |
| Market Capitalization (INR Mn) | 117679 | 117679 | 101321 | 79994 | 126514 | 112641 | 71298 | 59426 | 76267 | 79028 | 47279 | 50937 | 58253 | 36236 | 15460 | 8766 | 4500 | 3341 | NA | NA | NA | NA | NA | NA | NA |
| Female Graduate Engg. Trainees/GET (%) | 0.22 | 0.33 | 0.26 | 0.28 | 0.20 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

Source: Company Audited Financials and Capital IQ for Market Capitalization.

Note:

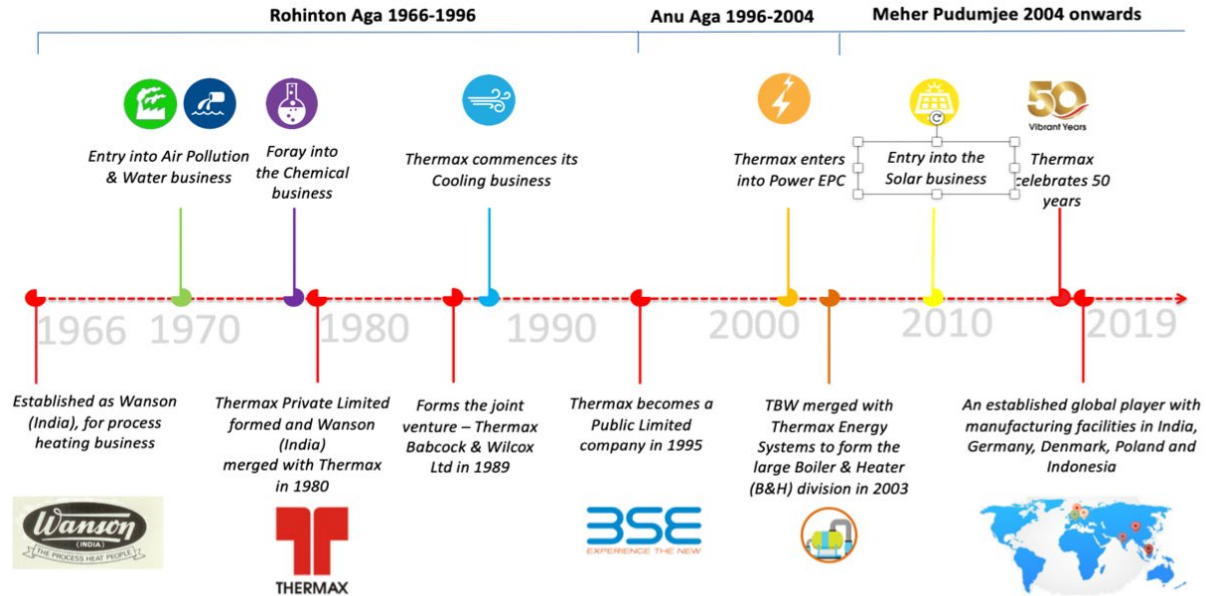
- From 2001/2 onwards the numbers constitute consolidated financials including subsidiaries. The company started sharing consolidated numbers after 2001. The numbers prior to 2002 are standalone numbers for Thermax Ltd.
- PAT of '98-99, '99-00 and '00-01 includes treasury income of INR 269.18 million, INR 766.12 million and INR 117.33 million respectively.
- Currency Conversion Rate Assumed USD = Rs.69.02.

Exhibit 2 India Economic and Social Indicators

| ECONOMIC | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----|
| GDP in trillion US \$ (constant 2010) | 0.65 | 0.70 | 0.73 | 0.77 | 0.84 | 0.87 | 0.92 | 0.95 | 1.03 | 1.11 | 1.19 | 1.29 | 1.39 | 1.43 | 1.54 | 1.68 | 1.76 | 1.86 | 1.98 | 2.13 | 2.30 | 2.48 | 2.66 | 2.85 | |
| GDP Growth Rate (%) | 7.57 | 7.54 | 4.01 | 6.19 | 8.94 | 3.80 | 4.81 | 3.83 | 7.89 | 7.90 | 7.96 | 8.04 | 7.67 | 3.10 | 7.82 | 8.55 | 5.19 | 5.50 | 6.34 | 7.43 | 8.00 | 8.15 | 7.17 | 6.99 | |
| Exports (As % of GDP) | 10.84 | 10.38 | 10.69 | 11.01 | 11.45 | 12.99 | 12.55 | 14.26 | 14.94 | 17.85 | 9.6 | 21.26 | 20.8 | 24.09 | 20.4 | 22.4 | 24.54 | 24.53 | 25.43 | 22.96 | 19.81 | 19.19 | 18.78 | 19.69 | |
| Gross Fixed Capital Formation (GFCF) (in bn \$) | 92.60 | 97.11 | 105.32 | 106.70 | 117.54 | 113.91 | 130.06 | 130.51 | 159.51 | 217.76 | 268.71 | 315.78 | 435.74 | 416.23 | 455.59 | 556.80 | 625.55 | 611.10 | 581.07 | 613.37 | 604.42 | 646.32 | 759.81 | 787.2 | |
| % Growth in GFCF | ~ | 4.87 | 8.45 | 1.31 | 10.16 | -3.09 | 14.18 | 0.35 | 22.22 | 36.52 | 23.40 | 17.52 | 37.99 | -4.48 | 9.46 | 22.22 | 12.35 | -2.31 | -4.91 | 5.56 | -1.46 | 6.93 | 17.56 | 3.60 | |
| Total reserves (includes gold, current US\$) (in bn \$) | 22.9 | 24.9 | 28.4 | 30.6 | 36.0 | 41.1 | 49.1 | 71.6 | 103.7 | 131.6 | 137.8 | 178.1 | 276.6 | 257.4 | 284.7 | 300.5 | 298.7 | 300.4 | 298.1 | 325.1 | 353.3 | 361.7 | 412.6 | 399.2 | |
| Total reserves in months of imports | 5.1 | 5.0 | 5.4 | 5.7 | 6.3 | 6.1 | 7.5 | 10.4 | 12.3 | 11.3 | 8.5 | 8.9 | 11.1 | 7.7 | 9.8 | 7.8 | 6.2 | 5.9 | 6.0 | 6.6 | 8.0 | 8.4 | 8.2 | ~ | |
| Patent applications filed | NA | NA | NA | 10155 | 8954 | 4824 | 8503 | 10592 | 11466 | 12613 | 17466 | 24505 | 28940 | 35218 | 36812 | 34287 | 39400 | 43197 | 43674 | 42951 | 42763 | 46904 | 45444 | 47854 | |
| Energy Produced in India (in MW) | NA | NA | 85,795 | NA | NA | NA | 1,05,046 | 1,07,877 | 1,12,684 | 1,18,426 | 1,24,287 | 1,32,329 | 1,43,061 | 1,47,965 | 1,59,398 | 1,73,626 | 1,99,877 | 2,23,344 | 2,48,554 | 2,74,904 | 3,05,163 | 3,26,833 | 3,44,002 | | |
| Population (in Bn) | 0.96 | 0.98 | 1.001 | 1.019 | 1.038 | 1.057 | 1.075 | 1.093 | 1.112 | 1.113 | 1.148 | 1.165 | 1.183 | 1.201 | 1.218 | 1.234 | 1.25 | 1.266 | 1.281 | 1.296 | 1.31 | 1.325 | 1.339 | 1.353 | |
| Female Labor Force Participation Rate (in %) | 30.75 | 30.67 | 30.59 | 30.52 | 30.44 | 30.38 | 30.72 | 31.07 | 31.43 | 31.79 | 32.16 | 30.81 | 29.49 | 28.23 | 27.01 | 25.82 | 24.38 | 23.01 | 23.18 | 23.35 | 23.5 | 23.65 | 23.79 | 23.6 | |
| Unemployment Rate (%) | 3.70% | NA | NA | NA | NA | 4.10% | 4.30% | 4.40% | 4.30% | 4.40% | 4.40% | 4.20% | 4.10% | 4.10% | 3.75% | 3.54% | 3.53% | 3.80% | 4.70% | 4.90% | 3.50% | 5% | 3.50% | 6% | |
| EODB (Rank) | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | 133 | 139 | 132 | 131 | 134 | 134 | 131 | 130 | 100 | 77 |
| Corruption Perception Index(Rank) | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | 84 | 87 | 95 | 94 | 94 | 85 | 76 | 79 | 81 | 78 |
| Global Competitive Index (Rank out of 142 countries) | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | 42 | 48 | 50 | 49 | 51 | 56 | 59 | 60 | 71 | 55 | 63 | 58 | |
| SOCIAL | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| HDI | 0.46 | 0.467 | 0.473 | 0.48 | 0.488 | 0.493 | 0.498 | 0.504 | 0.517 | 0.526 | 0.535 | 0.545 | 0.556 | 0.564 | 0.57 | 0.581 | 0.591 | 0.6 | 0.607 | 0.618 | 0.627 | 0.636 | 0.64 | 0.64 | |
| Adult Literacy Rate (% of total population) | ~ | ~ | ~ | ~ | ~ | ~ | 64.04 | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | 74.04 | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Below Poverty Line Population | NA | NA | NA | NA | NA | NA | NA | NA | NA | 37.20% | NA | NA | NA | NA | 29.80% | NA | 21.90% | NA | NA | NA | NA | NA | NA | NA | |
| Total Fertility Rates (No of births per woman) | 3.65 | 3.58 | 3.51 | 3.44 | 3.37 | 3.31 | 3.24 | 3.17 | 3.1 | 3.03 | 2.96 | 2.89 | 2.82 | 2.74 | 2.67 | 2.6 | 2.53 | 2.47 | 2.42 | 2.38 | 2.35 | 2.32 | 2.3 | 2.3 | |
| Infant Mortality Rates (Per 1000 live births) | 77.9 | 75.8 | 73.5 | 71.2 | 69 | 66.7 | 64.4 | 62.2 | 60 | 57.8 | 55.7 | 53.7 | 51.6 | 49.5 | 47.4 | 45.3 | 43.2 | 41.1 | 39.1 | 37.2 | 35.3 | 33.6 | 32 | 32 | |
| Life Expectancy at birth(years) | 60.4 | 60.87 | 61.32 | 61.76 | 62.17 | 62.58 | 62.97 | 63.36 | 63.75 | 64.15 | 64.55 | 64.96 | 65.38 | 65.8 | 66.21 | 66.62 | 67.01 | 67.37 | 67.71 | 68.02 | 68.3 | 68.56 | 68.8 | 68.8 | |
| Gender Gap Index (WEF) | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | 0.601 | 0.593 | 0.606 | 0.615 | 0.615 | 0.619 | 0.644 | 0.655 | 0.645 | 0.664 | 0.683 | 0.669 | 0.665 | |

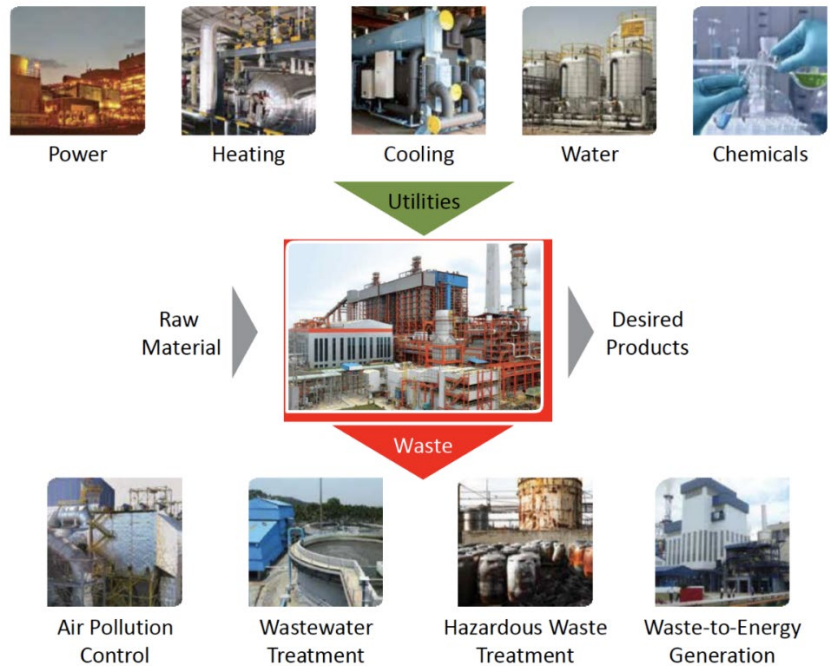
Source: Compiled by casewriter from World Bank , Trading Economics, UNDP, Statista.²⁸

Exhibit 3 Thermax Timeline



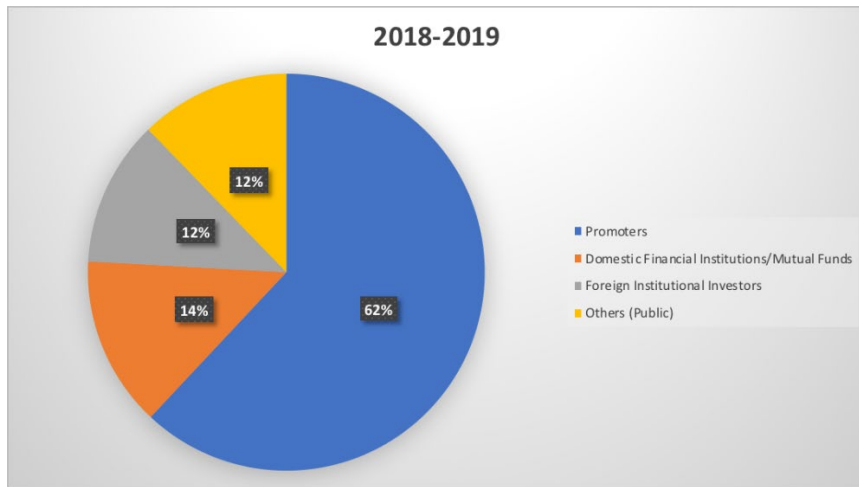
Source: Compiled by casewriter from Company documents and Case Interviews.

Exhibit 4 Thermax Business Segments



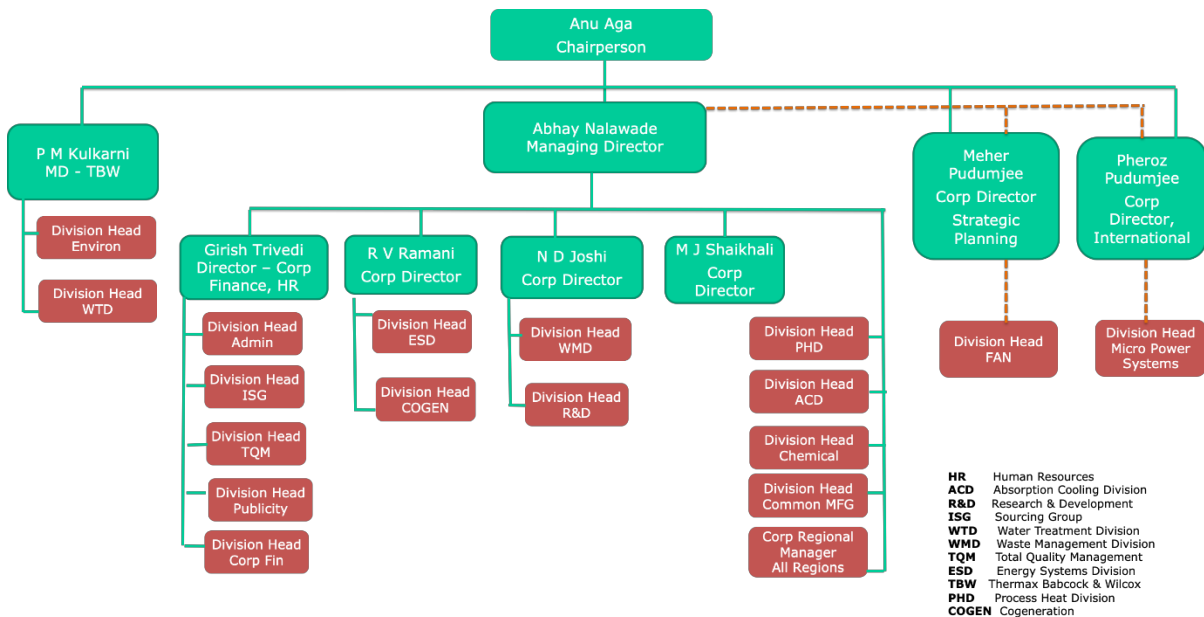
Source: Company documents.

Exhibit 5 Thermax Shareholding Structure



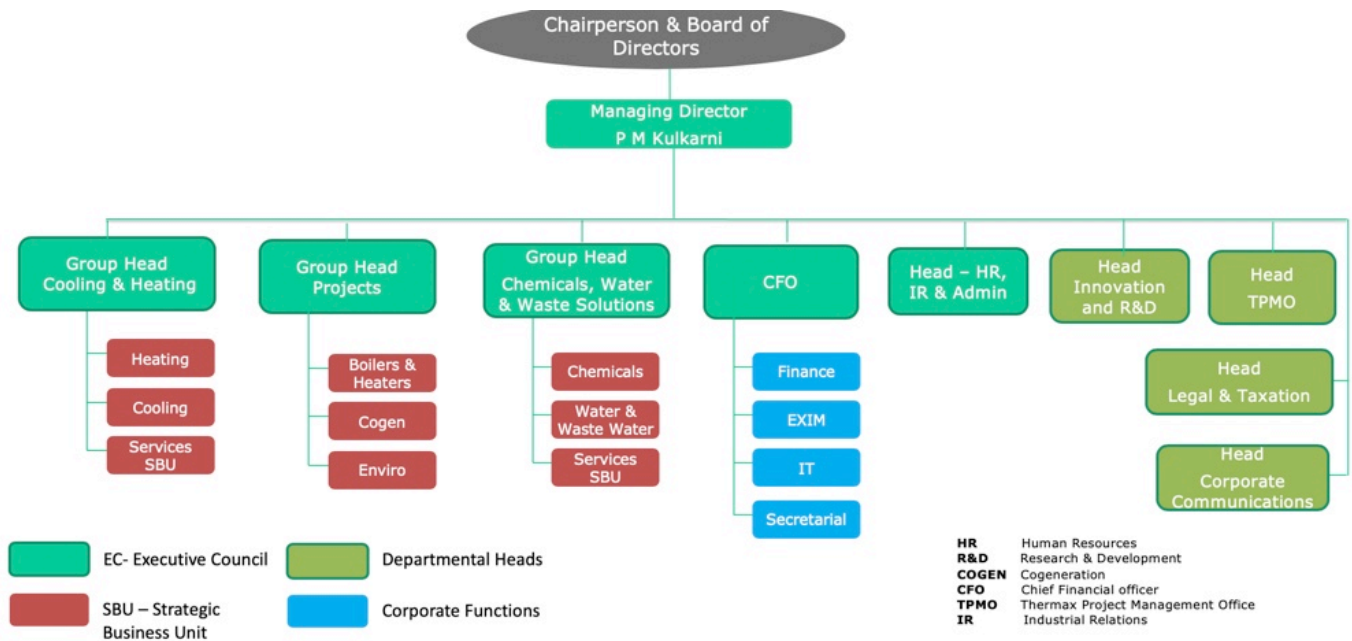
Source: Compiled by casewriter from Company Audited financials.

Exhibit 6 Thermax Organization Chart: 1998



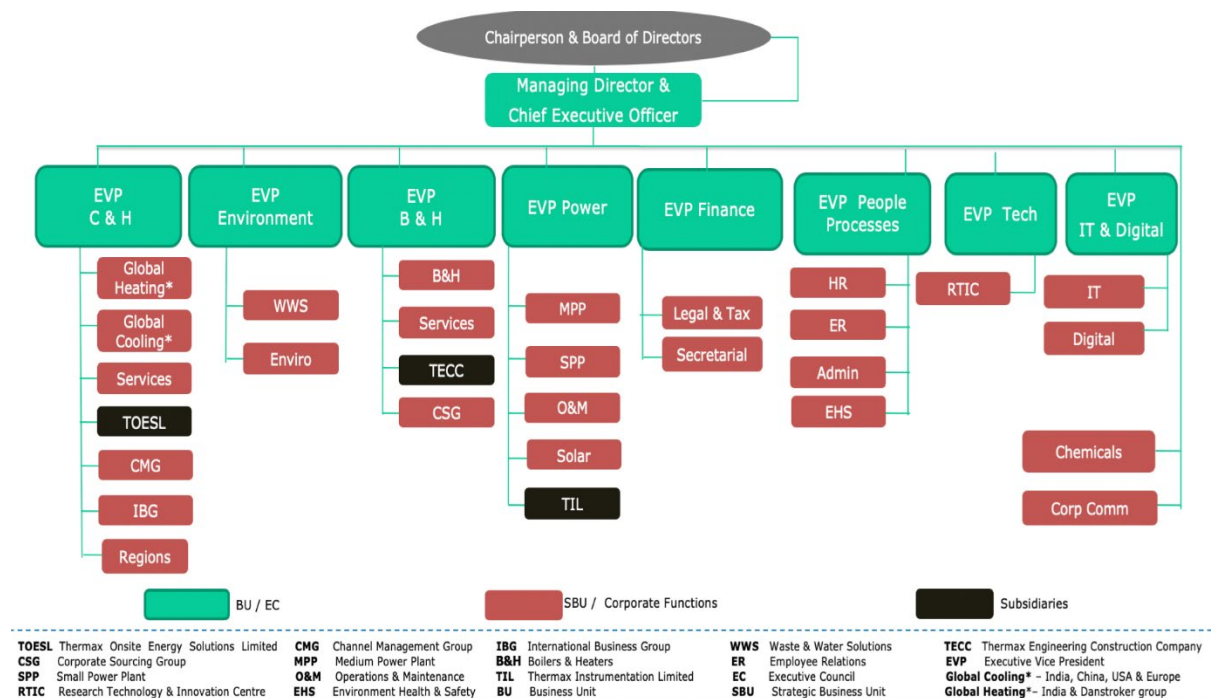
Source: Company documents.

Exhibit 7 Thermax Organization Chart: 2004



Source: Company documents.

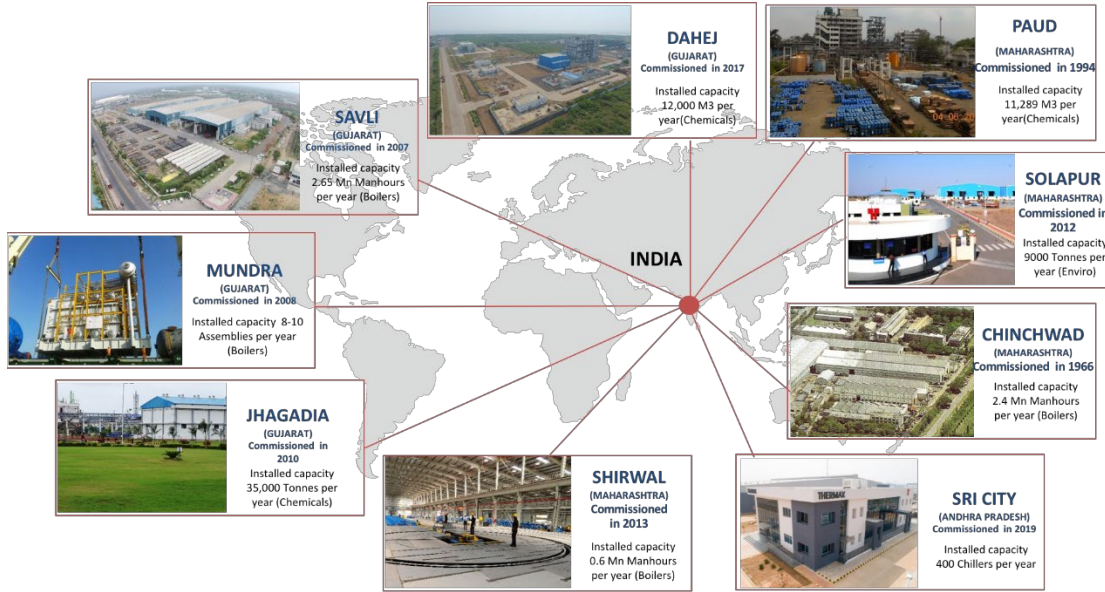
Exhibit 8 Thermax Organization Chart: 2018



Source: Company documents.

Exhibit 9 Thermax Manufacturing Footprint

Manufacturing Footprint - INDIA









Manufacturing Footprint - INTERNATIONAL





Source: Company documents.

Exhibit 10 Thermax Board of Directors, 2019

| | | |
|--|---|--|
| <p>Meher Pudumjee</p> <p>Chairperson</p> |  | <p><i>A postgraduate in Chemical Engineering from the Imperial College of Science & Technology, London, Meher joined Thermax as a trainee engineer in August 1990. A year later, together with her husband Pheroze Pudumjee, she took over the responsibility of turning around a Thermax subsidiary company in the UK. After her return to India in September 1996, she was appointed on the Board of Directors. She worked closely with the treasury and working capital management functions of Thermax and was also involved with overseeing a Joint Venture Company in the area of drinking water as well as the Air Pollution Control business. In January 2001 she became a non-executive director and was appointed Vice Chairperson in 2002. She eventually took over as Chairperson on October 5, 2004, after the retirement of her mother Mrs. Anu Aga. The World Economic Forum in 2008 selected her as a Young Global Leader for her professional accomplishment, commitment to society and potential to contribute to shaping the future of the world.</i></p> |
| <p>M.S. Unnikrishnan</p> <p>Managing Director & CEO</p> |  | <p><i>A graduate in mechanical engineering, Mr. Unnikrishnan (Unny) began his career with Thermax and subsequently moved on to work for the EID-Parry group for five years as the Head of its Engineering business and with Terrazzo Inc, U.A.E from 1992 to 1997 as its Assistant General Manager. In 1997, he re-joined Thermax as General Manager and headed the Waste Management and Absorption Cooling divisions and in 2000, he became a member of Thermax's Executive Council. During this period, he led the human resources function and spearheaded the transformation initiative of the company. He was appointed CEO in July 2007. Under his leadership, Thermax became a billion-dollar company in 2010-11. It expanded its global footprint through acquisitions in Europe, established a greenfield manufacturing facility in Indonesia and sales & service networks across countries. Unny completed his Advanced Management Program from the Harvard Business School, USA in 2006.</i></p> |

| | | |
|--|---|--|
| <p><i>Pheroza Pudumjee</i></p> <p>Non-Executive Director</p> |  | <p><i>A non-executive director of the company since January 15, 2001, he managed Thermax's overseas venture in UK and facilitated the company's international initiatives including the incubation and development of new business and relevant organizational changes. He had a master's in business administration and a diploma in Automobile Technology from Stanford University.</i></p> |
| <p>Harsh Mariwala</p> <p>Independent director</p> |  | <p><i>Chairman of Marico Limited, Mr. Mariwala had transformed Marico, a commodity driven business into a leading consumer products and services company in the beauty and wellness space. The company had won several awards and recognition under his leadership. In 2003, he established the Marico Innovation Foundation in 2003 to fuel innovation in India. Mr. Mariwala served as President of the Federation of Indian Chambers of Commerce and Industry (FICCI) in 2011.</i></p> |
| <p>Dr. Valentin von Massow</p> <p>Independent Director</p> |  | <p><i>A PhD in Agricultural Economics from Georgia Augusta University, Göttingen (Germany) Dr. Massow had worked for over 20 years as a Management Consultant with The Boston Consulting Group (BCG) in Europe, US and India. as Managing Director for BCG, India he led BCG's operations in India. Since 2006, Dr. Massow had worked as an Independent Non-Executive Director on numerous boards including companies and organizations in the (renewable) energy, environment and agriculture sectors in India, Germany and UK.</i></p> |
| <p>Nawshir Mirza</p> <p>Independent director</p> |  | <p><i>A Fellow of the Institute of Chartered Accountants of India Nawshir had spent most of his career with Ernst & Young and its Indian member firms S. R. Batliboi & Co and Arthur Young. He served as a partner from 1974 to 2003. As speaker and chairperson of professional conferences in India and abroad he had contributed significantly to the accounting profession and had spearheaded the movement for improved governance in the corporate sector.</i></p> |

| | | |
|---|---|--|
| <p>Ravi Pandit</p> <p>Independent Director</p> |  | <p><i>Co-founder, Chairman and group CEO of KPIT Technologies Ltd. Ravi had steered the company from product engineering, IT consulting and services, to three industries namely automotive & transportation, manufacturing and energy & utilities. A gold medalist and member of the Institute of Chartered Accountants of India, Ravi also held a master's from the Sloan School of Management, MIT, USA.</i></p> |
| <p>Ms. Rajani Kesari</p> <p>Independent Director</p> |  | <p><i>CFO of ACC Limited, one of the largest cement manufacturers in India and a part of the LafargeHolcim group, Rajani joined the group in January 2018 as its Regional Finance Head - Asia. With a professional career including stints in companies like Schneider Electric and Dr. Reddy's Rajani had diverse experiences across internal audit, compliance, global taxation, treasury, M & A and in driving transformation. She had trained as a Chartered Accountant, Cost Accountant and Certified Public Accountant from the USA.</i></p> |

Source: Compiled by casewriter from Company documents.

Exhibit 11 Role Specifications for the new CEO

1. Authentic, Humble, Honest, Trustworthy
2. Ability to deal with ambiguity and complexity. Tenacious.
3. Democratic and participative leadership style
4. Appreciates the heritage of the company, and cares for its Brand, has a strong sense of personal ownership
5. Co-creates the vision for the business with the Family and the Board
6. Places Governance as the highest priority and capable of holding firm when required. Peer to the board, not subservient
7. Strong Techno-Commercial judgement
8. Has managed/overseen large customers
9. Not afraid to take difficult people or business decisions, bias for action and performance
10. Ability to strike a good balance between (a) delegating, and where he needs to take ownership (b) go into detail, and take a 30,000 feet view
11. Does not shy away from taking calculated risks, ability to also own up to mistakes
12. Has the Stature to manage external and internal stakeholders
13. Manages today's business, while constantly thinking about and investing in the future of Thermax
14. Appreciates the role of technology, engineering, and innovation
15. Has a good eye for talent and approaches people development in a structured way, making them future ready - with a specific focus on developing a strong second line
16. Does not have the need to be on the forefront all the time, and allows his people to shine and gives them visibility to the Board
17. Cares for the Environment, and believes that a profitable business can be built around Sustainability/Green and caring for all stakeholders not only shareholders
18. Good sense of humor

Source: Company documents.

Exhibit 12 News Reports on Thermax**I. Financial Express, 9th August 2018****Anu Aga hangs up her boots, leaves behind a stronger Thermax**

Anu Aga retired from the Thermax board on Wednesday, not seeking re-election. Six years ago, Thermax decided not to get into projects that involve third-party commissions and any kind of payments or inducements to acquire a business even if it meant letting go that business, and Thermax has lost out on some of such kind of projects. In Thermax, it is an article of faith and the top management has to adhere to this code of conduct. In such a difficult business environment, it took courage to say no to business and retain integrity instead. That is the legacy Anu Aga leaves behind in the company. Growth with profitability but not at any cost. Thermax continues to be a profitable business and revenues are still growing.

For instance, the company recently decided to get out of the municipal water business, in which it is considered difficult to do business without compromising on the company's values. At its peak, the water business was a Rs 180-crore business with potential to multiply, but navigating the murky municipal waters was not acceptable to the company. Thermax has chosen to be an ethical company even if it means avoiding some of this kind of business. They are happy working with industry that values their technology and values in the water business. Aga hangs her boot at Thermax, a company she so famously pulled out of

troubled waters and anchored to safety and laid the foundation for the Thermax 2.0 journey. Since then, Thermax has grown by more than 10x to a peak of Rs 5,250 crore and is hovering around this number despite a challenging business environment.

Aga has retired from the Thermax board after crossing the age of 76 and has not sought to linger on in the company as patriarchs of many business families do, pointed out Meher Pudumjee, chairperson, Thermax. Pudumjee said it was difficult to see her go but she is a stickler for governance and said the same rules should apply to professionals as well as promoters on the board, to retire at 75.

Pudumjee paid a tribute to her mother at the Thermax AGM in Pune on Wednesday.

Pudumjee said her mother took over in 1996 after she lost her husband Rohinton Aga in 1996. "Mum kept all the anguish, anxiety and pain of loss of a partner to keep the company together and be responsible to every employee, shareholder and stakeholders to become the CMD in 24 hours," Pudumjee said. Again during 1999-2000, when an anonymous worried shareholder wrote to her about Thermax shares falling from Rs 420 to Rs 36, hurting small shareholders and asking her what she was going to do about it, it hit her hard and she then took many tough decisions that helped turnaround the company, she said.

That year, Thermax had for the first time ever posted losses. Aga felt it was time to get external help to save Thermax. She dissolved the Thermax board in 2000-01 and their MD resigned. Aga got in the Boston Consultancy Group to restructure business. As per BCG suggestions, Thermax exited from all non-core non-essential businesses and JVs ranging from bottled water to electronics to software, painfully let go of hundreds of people and sharpened focus on the energy, environment and chemicals segments of their business. Thermax turned around in 2001-02.

II. Zee Business, 14 June 2019

Thermax will be expanding its energy and environment business: MS Unnikrishnan, MD & CEO

The government in Budget 2019-20 should announce projects that start a cycle of capacity and private capital investment, says MS Unnikrishnan, MD & CEO, Thermax Ltd. Unnikrishnan during an interview with Dimpy Kalra, Zee Business, said that "Our company is majorly functional in energy and environment segment and these two segments will be used for expansion in markets like India, Middle East, China, South East Asia, Africa, South America and Eastern Europe". Edited Excerpts:

Q: What are your budget expectations for your sector?

A: The industry, in the last 5-6 months, has witnessed a slowdown in capacity building and investment. So, I expect the government in this budget should announce projects that encourage and starts a cycle of capacity building and private capital investment. For that purpose, it should announce and allocate big projects like road, infrastructure, ports, airports and dams. The announcement cannot be of any use if the projects are not allocated as the process of finalization of the orders takes a long time of about six months to a year. This is the first area where we are expecting. The second thing is the creation of Jobs as job creation is a necessity because the jobs creation has not been in proportionate to the growth that has happened in the last three years. So, private investment is very important for job creation. I think the government should private investment support in some selected areas like manufacturing, process, healthcare and wellness areas.

Q: What are your hopes related to the natural and renewable business, as the government has a positive bent towards the section?

A: Our European subsidiary, which went into losses last year, will turn profitable this year, maybe not in the first quarter but it will move from the negative zone to positive by the end of the year. In fact, it will remain positive across the year. In addition, last year, we have started production at our Indonesian subsidiary and its top line will grow by at least 100 per cent in this fiscal. Although, we have predicted that it will reach its breakeven point in five years but will try to neutralize the EBITDA in the second or third year of its operation. As far as, the Chinese subsidiary is concerned then I have already informed that its operations will be shut down because it is a bit difficult to take the company forward. So, we have to make a decision on it but there is no hope to keep it floating.

Q: For FY20, in which segments do you expect max order inflow growth?

A: Surprisingly, big projects are not visible in FY20, but we have some medium size projects - valued between \$ 10 million - 38 million - which are at a discussion level at present and few have reached to finalization level. The enquiries for our normal standard products - like standard boiler, absorption chiller, standard water treatment plants, and normal air pollution control equipment - is stable. And, I think that we will receive more orders for these normal standard products from the international market as it happened last year.

Q: What are your Capex plans for FY20 and FY21?

A: We don't have any major capital expenditure in FY20, however, Rs50 crore has been sanctioned for phase II of the chemical factory and it is the only thing that will happen. Apart from this, we will be spending a little for digitization. So, we don't have anything big in our kitty in FY20, but we will have something in FY21 and we are working on the plans.

Q: Are you planning to introduce new products across different segments?

A: New products will be launched within the verticals, but we are not entering into any new area. For instance, in the energy area, we have started an electric boiler in Polish and Danish factory in Danstoker. In the case of India, we use coal, oil or gas to generate steam, but we have launched electrical products to generate steam in these countries. So, we have introduced such products and they will be acting as a variable product within our existing family. So, we are not entering any area this year. But, next year, our R&D will allow us to launch a few new products in the market.

Q: Your business has its presence in around 20 different countries including Bangladesh, the Netherland, the UK, Mauritius, Russia, US, Germany among others. Name the geography from where maximum growth is coming from?

A: Our company is majorly functional in just two areas, energy and the environment. Chemical is a small segment. So, energy development in the developed world is fairly ok, but it should develop in markets like India, the Middle East, South East Asia, Africa, South America and Eastern Europe. So, our future market expansion will be limited to these territories only. Incidentally, energy production can threaten the environment of all the places where they are being produced. So, as a follow-up procedure, our environment business will be moving to these countries wherever the energy business will reach. So, in future - in the immediate and medium term of 5-6 years - we will expand ourselves in these markets only.

Source: Company documents.

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