EM
EFFICIENT MANUFACTURING
13th ANNIVERSARY
www.industr.com/en
publish industry India
VOL 13 – Issue 01 | OCTOBER 2022 (Monthly) | ₹ 100

Azadi Ka Amrit Mahotsav

STALWARTS OF THE INDUSTRY & THEIR EXEMPLARY LEADERSHIP

Also available in China, Taiwan, Singapore, Malaysia, Thailand & Hong Kong

Stalwarts of the Industry & their Exemplary Leadership

A discursive path of leading the industry always invites great minds and the ability to make a buzz in situ scenarios. The dynamic market canvas speaks how competitive the industry has become and to keep the wheels moving requires efficacy to direct the development which comes along the ever-evolving scenarios. Here comes the importance of pragmatic leader within an organisation. We are gratified to interview some of the top business leaders of the industry as EM turns 13 with this issue. This anniversary edition Cover Story acknowledges the massive technological boom of the Indian industry and how the leaders are taking efforts to make the nation an exemplary hub & inspire young leaders to take unwavering steps in making India proud.

Sagar Tamhane
Business Head – INDIA
sagar.tamhane@pi-india.in

Neha Basudkar Ghate
Assistant Editor
neha.basudkar@pi-india.in

Sanjay Jadhav
Sub Editor
sanjay.jadhav@pi-india.in

Dr Pramod Chaudhari,

Founder and Executive Chairman, Praj Industries

To begin, congratulations on receiving the George Washington Carver and William C Holmberg Awards, which are regarded as the top global honours in bioeconomy. For benefit of our readers, can you please tell us more about these achievements?

Thank you. Yes, it is very fulfilling experience to bring these awards to India for the first time. In an industry dominated by developed economies, these awards are a testament to India's growing prowess in the bioeconomy globally. I dedicate these awards to all my fellow colleagues at Praj who have been working relentlessly to realise our vision of making the world a better place by deploying technology-embedded sustainable solutions.

George Washington Carver's pathbreaking work in technology innovation in the 20th century has revolutionised agriculture and the environment. Institutionalised in his memory, this award recognises exemplary contributions by individuals in industrial biotechnology. Lt Col William C Holmberg, on the other hand, did pioneering work in bioeconomy and is widely regarded as the architect of the United States' renewable fuels programme. This award is presented to distinguished individuals around the world for their trailblazing contribution to the bioeconomy.

Looking at the future, in the midst of VUCA environment, growth needs to be balanced with sustainability. What would be your advice to new-age industry leaders who want to be globally successful?

VUCA environment is the new normal. The global economy is on a weak wicket, thanks to geopolitical upheavals and calamities attributable to climate change. Surviving and growing in this unprecedented environment is challenging, as there is no playbook to refer to. However, as an eternal optimist, I do believe that every challenge brings an opportunity. I think leveraging digital technology by integrating it in every possible way into products and solutions to create customer value, is the way forward. At IEEE global annual conference, I put forth the concept of an Industry 5.0 enhanced version with a due focus on the environment and people, that was positively received by stakeholders. This concept harnesses cobots and the bioeconomy to strike a fine balance between people, the planet, and profit, which were compromised in the earlier industrial revolutions. I also strongly believe in the power of collaboration; forging a win-win alliance in complementary areas is critical to global success. Although newer business models and delivery models are evolving, deep-rooted customer relationships continue to be the bedrock of business sustainability. I am convinced that organisations with an unwavering focus on ESG matters will have a distinct advantage in being long-term winner. Notwithstanding massive disruptions in the technology space, people will continue to be the most prized assets of any organisation.

"Bigger the challenge, larger the opportunity"

We understand, unlike established sectors, Bioeconomy is sun rise industry. What then are major market-related challenges? Would you like to share a case study about your technology leaving a positive impact on your customers' business performance?

Yes, that's correct. Unlike 100-year-old automobile or aviation industry, bioeconomy is still ushering in many ways. While there continues to be growing awareness about how bioeconomy positively impacts people's planet and profit, a lot of work still needs to be done for the mainstreaming of the bioeconomy. This involves creating mass awareness about sustainable aspects of the solutions, resilient ecosystem development, the availability of qualified talent, and conducive policies that create long-term opportunities to attract investments.

Before I get to the case study part of it, let me give you a context for the biofuel landscape in India. India's biofuels movement has now picked up momentum and has crossed the milestone of 10% ethanol blending in petrol five months ahead of schedule. With a favourable policy environment, India's EBP20 programme is on course, and in fact, the era of flex-fuel vehicles is on the horizon. Flex fuel vehicles are capable of operating on petrol and any blend of ethanol up to 83%. So there exists an unprecedented opportunity for ethanol producers.

However, there are constraints on the production of ethanol using sugary feedstock due to the seasonality of the sugar crop. Sugarcane crop is available for 7-8 months in India. Sugarcane juice, being perishable by nature, cannot be stored for more than 24 hours. Hence, ethanol plants cannot function beyond the sugar season, posing a limitation on year-round ethanol production and supply.

At Praj we always endeavour to devise a solution that addresses the customer's problems. A deeper understanding of customer's stated and unstated needs has helped Praj maintain its edge and market leadership position.

Scientists at Praj Matrix formulated a technology solution to address the problem statement to help ethanol plants function throughout the year. Praj has developed BIOSYRUP® using the Eco-Invert technology to convert sugar into syrup, which can be stored for a period of 12 months. This allows round the year ethanol production and increases overall productivity. By diverting excess sugar to produce biosyrup, sugar mills can operate beyond sugar season that will result in revenue maximization. Pune-based Vasantdada Sugar Institute (VSI), one of the premier R&D organisations in the sugar and allied industry has approved Praj's BIOSYRUP® for showcasing promising results in terms of no sugar loss and no contamination with an increased shelf life. Praj's revolutionary BIOSYRUP® feedstock is truly proving to be a game changer by outwitting the challenges of perishability and year-round availability of sugarcane. This technology was successfully implemented at one of our key customers' plants in Maharashtra. Now the customer can sweat his assets more and reap the dividends of better financial performance.

As a first-generation techno entrepreneur, you are a strong proponent of innovation as a business growth driver. For the benefit of other industry leaders, can you share insights on leveraging technology for business sustainability?

I have a strong conviction that technology has the prowess to change the world for the better and it is vital for business growth. We set up Praj Matrix – an R&D centre way back in 1989, in the early stages of Praj's journey. It is a state-of-the-art facility certified by the Government of India's Department of Scientific and Industrial Research (DSIR). It has five centres of excellence housed in 16 laboratories with over 90+ research scientists. The centre has more than 300 national and international patents to its credit.

Praj Matrix supports Praj's existing businesses to improve their offerings by maximising yields while minimising carbon and energy footprints. It also conducts research in the emerging areas of industrial biotechnology, including biofuels for air and marine transport, advanced biochemicals, and renewable materials. Praj has developed several innovative technologies that have won accolades globally. Praj is now a trusted global partner for customers, with over 1000 references in over 100 countries across five continents.

As for the insights, I urge business leaders to harness technological advancements so as to ensure long-term business sustainability. I believe all future innovations will be the culmination of cross-functional research across disciplines. So leaders must commit resources and investments in building infrastructure and subject matter expertise.

I believe all research work should be application oriented with customers at the core. It is critical to identify the stated as well as unstated needs of the customers while developing new technologies. While developing new technologies, it is important to ring-fence your intellectual property. It helps companies protect technology innovations & gain a competitive advantage. Commercialisation of technology innovations is another aspect of business sustainability. Companies need to map their technology development process through Technology Readiness Level (TRL) and Commercial Readiness Level (CRL).

To conserve the environment, government has banned single-use plastic in a bid to control its menace. We understand Praj is developing sustainable solutions by way of alternatives. Please share with us the opportunities in this space.

That is right, the uncontrolled use of plastic is severely damaging the environment and biodiversity. All of us are aware of the ill effects of plastic on marine life and how it is disturbing the ecology. According to the UN Environment Programme (UNEP) report presented at the COP 26 Glasgow summit, plastic accounts for 85% of all marine litter and will triple by 2040. India produces around 3.5 million tonnes of plastic waste annually, and the per capita plastic waste generation has almost doubled over the last five years. It's high time that non-degradable plastic, which is the source of toxic waste, is eliminated. The Indian government has taken a positive step by imposing a ban on single-use plastics beginning July 1, 2022.

In line with the government's plan to promote the use of sustainable materials, Praj's R&D team is developing the technology for the production of biodegradable plastic. These are derived by processing biobased resources, unlike the plastic that comes from the petrochemical route, which has a carbon cycle that runs for centuries.

As part of our sustainable solutions, Praj has developed the Bio-Prism™ portfolio of technology for the production of renewable chemicals and materials (RCM). RCMs are environment-friendly, less toxic, and poisonous in nature, unlike traditional chemicals and materials derived from fossil resources. RCMs have a shorter carbon cycle as they are based on the circular bioeconomy concept. The bioeconomy, in simple terms, is a knowledge economy that uses renewable natural bio-based resources to produce food, energy, products, and services. We believe, biodegradable plastics as part of our Bio-Prism™ portfolio have great potential and are emerging as a sustainable solution to eliminate the plastic hazard. We are collaborating with partners around the world to commercialise this solution, which will positively impact the environment in near future. It may be noted that in addition to having a sustainable substitute for plastic, it is very important to create awareness among the masses about adopting a sustainable lifestyle, besides the stringent enforcement of the legislation.

You are a biofuels technology pioneer and market leader in India. Please tell us how biofuels contribute towards sustainable climate actions? On this front, what are the current developments and future plans at Praj?

Energy is the driving force for the industrial and economic growth of any nation. Fossil resources continue to dominate the global energy landscape. The transportation sector is the second largest consumer of fossil fuels after industry. It is also the second largest emitter of GHG that contribute to climate change. Global warming owing to CO_2 emissions is causing temperatures to rise, resulting in an increase in sea level, extreme weather, loss of biodiversity, species extinctions, food scarcity, and worsening health for millions of people worldwide. The decarbonisation of the transportation sector is not a matter of choice but an imperative as part of climate action. During the COP26 Glasgow summit, India announced carbon neutrality by 2070, as well as the Panchamrit Agenda—a Race to Zero road map. Biofuels are low-carbon renewable transportation fuels derived by processing biobased feedstock, and are poised to play a bigger part in this.

Praj's Bio-Mobility™ platform offers innovative technology solutions to produce low-carbon transportation fuels across all modes of transportation, viz, for surface, air, and marine. Bio-Mobility™ platform facilitates sustainable decarbonisation in the transportation sector. For over a decade now, Praj's market share in overall ethanol production capacity in India is in excess of 60%, which has played a big role to help India achieve the ethanol blending target of 10%. Praj has developed and successfully deployed technology capable of processing multi-feedstock to produce biofuels both in liquid and gaseous form, as well as value-added co-products. We are also commissioning the first of its kind, Asia's first 2G Ethanol Bio-Refinery that can produce ethanol using agricultural waste as feedstock.

To help decarbonise the aviation sector, regarded as one of the largest contributors to GHG emissions, Praj is commercialising technology for the production of sustainable aviation fuels. Work is also underway on next-generation low-carbon biofuels, namely bio marine fuel, and green hydrogen among others.

We are aware that you also specialise in providing zero liquid discharge systems for the process industry. Can you throw some light on what ZLD is and why it is important?

Water is a precious resource that we tend to take for granted. However, research-backed reality is that groundwater tables worldwide are depleting. Heavy industrialisation, burst in housing, and infrastructure creation at the expense of forests are resulting in water scarcity. Climate change-induced droughts and heat waves are further hurting water reservoirs. On the other hand, there is mindless and uncontrolled consumption of water by the largest stakeholder—industries. Unless we harness technologies to judiciously use water, the situation will get from worse to worst.

Among the UN's 17 Sustainable Development Goals (SDG), SDG #7 specifically addresses access to clean water and sanitation. To help fulfill this, regulations are being introduced around the world for water usage and, importantly, the treatment of industrial effluents. The Indian government has now enacted very stringent regulations that make it mandatory to treat effluent and process waste for the recycling and reuse of water.

We offer a comprehensive range of solutions for industrial effluent treatment, recycling, and zero liquid discharge (ZLD) systems to customers across several sectors, namely metals, power, specialty chemicals, fertilisers, refinery & petrochemicals, F&B, etc. These solutions are based on the principle of the 3Rs – Reduce, Recycle, and Reuse, to practise zero waste and zero discharge. These not only help industries to comply with regulations but also minimise their freshwater requirements. Our ZLD solutions help our customers minimise their overall water footprint and comply with ESG objectives.