





# Company at a Glance



39 Years of Legacy



Presence across  
100+ countries



1300+  
employees



90+ research  
scientists



4 manufacturing  
facilities



300+  
patents



40%+ business from  
repeat customers



~10%  
Global ethanol production  
market share\*



1000++  
References/plants  
worldwide



400+  
overseas references



Net Debt Free company



3-Year Revenue CAGR  
47%



3-Year EBITDA CAGR  
57%



3-Year PAT CAGR  
50%



FY23 ROCE  
29%

INTEGRITY

INNOVATION

RELIABILITY

PASSION

RESPONSIBILITY

AGILITY

# Company Overview

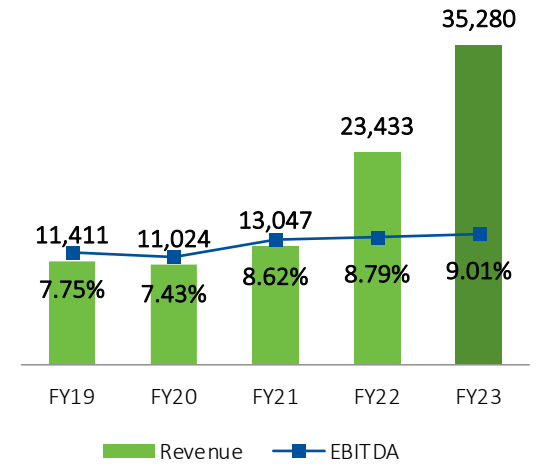




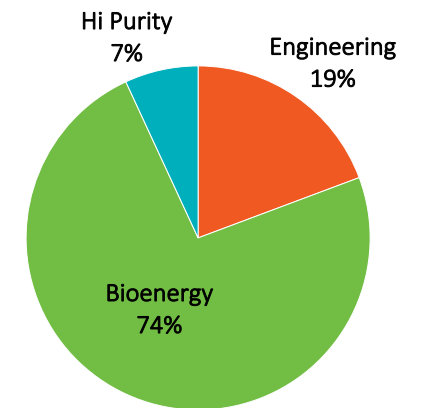


- Incorporated in 1983 under the visionary leadership of technocrat Dr. Pramod Chaudhuri.
- Praj Industries Ltd. (Praj) has grown to become one of the most reputed and technologically advanced biotechnology and engineering companies in the world.
- Offering a bouquet of sustainable solutions for bioenergy, high purity water, critical process equipment, breweries and industrial wastewater treatment
- Focused on the environment, energy and farm-to-fuel technology solutions, with 1000++ customer references in 100+ countries across 5 continents and still counting.
- Team of 90+ technologists, 300+ patents filings, and 24 Indian and 60 international patents being granted.
- Known for its TEMPO (Technology, Engineering, Manufacturing, Project management, and Operations & Maintenance) capabilities.
- The manufacturing capabilities are substantiated by four world class manufacturing facilities located in Maharashtra and Gujarat, which are near ports and supported by a multi-disciplinary engineering team.
- Global Offices located in Thailand and Philippines in South East Asia and in Houston, Texas, USA.

Operational Revenue (INR Mn)



FY23 Revenue Break Up (%)



Order book  
As on Q4-FY23



Order Intake in  
Q4-FY23





**Dr. Pramod Chaudhari** – Executive Chairman

As a first generation techno-entrepreneur, Dr. Chaudhari founded Praj in 1983. He dreamt and developed Praj into a world-class engineering company specialized in Agri-processing opportunities. Deeply passionate about Bio-economy and Environment, Dr. Chaudhari is committed to develop clean and green technologies. Dr. Chaudhari is a ‘Distinguished Alumnus of IIT Bombay (1971)’ and an alumnus of Harvard Business School (AMP 1995). He is the first Indian to receive the global honour of the prestigious ‘George Washington Carver Award 2020’ by BIO-Impact, Washington DC, USA and the first Asian recipient of the prestigious ‘William C. Holmberg Award 2022’ for Lifetime Achievement in Bioeconomy



**Mr. Shishir Joshipura** – CEO & Managing Director

Mr. Shishir is a Mechanical Engineer from the prestigious Birla Institute of Technology & Science (BITS) Pilani and an Advanced Management Graduate from Harvard Business School. He has over 35 years of rich experience in varied fields of engineering. He possesses a strong business and leadership record. He began his career with Thermax Ltd and held several key positions to rise through the ranks to become Executive Vice President and Global Head of Cooling & Heating business. Before joining Praj, he served as Managing Director of SKF India Ltd from 2009 to 2018. He chairs the sub-committee on Environmental Sustainability of CII Western Region.



**Mr. Sachin Raole** – CFO & Director (Resources)

Mr. Sachin is a Chartered Accountant and Cost Accountant with 27 years of experience in varied fields of finance and accounts. He has worked in the areas of divestment, mergers & acquisitions, financial restructuring, treasury, accounts and taxation. He has very rich experience in the wide spectrum of finance across industries; manufacturing, project, financial services and pharmaceuticals.



**Mr. Berjis Desai** – Non-Executive Director

Mr. Berjis is a law graduate from Mumbai University and a post-graduate in law from Cambridge University, UK. He specializes in mergers and acquisitions, derivatives, corporate and financial laws and international commercial arbitration. He has been on the Board of Praj since 1993. Mr. Desai is on the Board of many renowned listed Companies.



**Ms. Mrunalini Joshi** – Non-Executive Director

Ms. Mrunalini is the Executive Director of Nichrome India Limited. She is a Science graduate by education, with a rich business experience spanning over 15 years in the packaging machinery industry. In addition to market research for various industries, she has expertise in international marketing, branding and corporate communication. She is also actively involved in several social initiatives around Pune district.



**Mr. Sivaramakrishnan S Iyer** – Non-Executive Director

Mr. Sivaramakrishnan S Iyer is a qualified Chartered Accountant from Institute of Chartered Accountants of India. He specializes in corporate finance and advises companies on debt/equity fund raising, mergers/amalgamations, capital structuring for new/expansion projects etc.



**Dr. Shridhar Shukla** – Non-Executive Director

Dr. Shridhar Shukla holds B.Tech in Electrical Engineering from IIT Bombay, MS in Electrical Engineering from Virginia Tech, USA and Doctorate from North Carolina State University, USA. He brings with him over 23 years of versatile experience in the areas of building and running software companies, infrastructure software products, services and R&D. He was associated with Persistent Systems Ltd as Director and COO between 1995-2003. Presently, Dr. Shukla is the Managing Director of kPoint Technologies – a Pune headquartered organization with the motto Videofy Enterprises. He is also the Co-founder and Chairman of the Board at GS Lab.



**Ms. Parimal Chaudhari** – Non-Executive Director


Ms. Parimal is the Managing Trustee of Praj Foundation and steers the CSR wing of the company. She holds a Bachelor’s Degree in Arts with major in English, followed by a post graduate degree in Journalism and Communications. She has also been awarded the Rotary fellowship for group study exchange program to study media institutions in Austria, Germany and erstwhile Czechoslovakia. She has also completed core courses in creative writing at Cambridge University. As a recipient of Fulbright Fellowship, she has acquired MS at Syracuse University, New York, US. She is a communication consultant and a journalist by training and has taught at the Department of Communications and Journalism at the Pune University for six years.



**Mr. Suhas Baxi** – Non-Executive Director


Mr. Suhas Baxi is a Mechanical Engineer from VNIT Nagpur and obtained management training at IIM, Ahmedabad. He has worked with global and Indian companies in helping develop and implement market and organization development strategies and has been an active member of industry body CII where he was Chairman of Pune Zonal Council in 2010-11 and has been a member of National Council of CII for Higher Education. He is the co-founder of BiofuelCircle Private Limited.

## Mr. Atul Mulay (Head of Bio Energy)




Mr. Atul Mulay is working as President and Strategic Business Unit Head for Bio Energy Division and heads Global operations. He is Director on Praj Engineering and Infra Limited Board and a Trustee of Praj Foundation. He has been associated with Praj Group since inception of the group. He is a qualified Mechanical and Production Engineer and has also done his post graduation in Marketing Management from Pune. He has to his credit Fulbright Scholarship from United States of America and completed his Global Leadership Management Tepper School of Business, Carnegie Mellon University.

## Mr. Vasudeo Joshi (Head of Advanced Biofuels)




Mr. Vasudeo Joshi is working as Vice President and Business Unit Head for Advance Biofuels and he is a Chemical Engineer and has over 33 years of experience in the field of Biofuels, Dairy & Food Processing Industry. He has been working with Praj for over 24 years with Multidiscipline experience in the Business Development, Proposals & Cost estimations, Engineering and Execution of Biofuel Projects in Domestic and Overseas markets. He was leading the Praj team in successful demonstration of Praj's 2nd Generation Biomass to Ethanol Technology at its Integrated Demonstration Plant.

## Mr. Abhijit Dani (Head of CPES & Zero Liquid Discharge)




Mr. Abhijit Dani is a Vice President and Business Unit Head of Process Equipment and Modularisation, and Water Treatment. He is a Mechanical Engineer and MBA in Marketing and Finance. He was selected for prestigious Fulbright Scholarship from Carnegie Mellon University, USA. In 2009, he joined Praj and over last 12 years, under his leadership, this Business Unit has created many milestones in Process Equipment and Modularisation offerings in HydroCarbon, Industrial BioTech and Chemical Industry. He is also the Vice Chairman of Process Plant & Machinery Association of India (PPMAI) and he is also on the Central Advisory Board of Chemtech foundation.

## Mr. Sanjay Sapru (Head of Brewery & beverages)




Mr. Sanjay Sapru is working as an Executive Vice President and Business unit head – Brewery. He has over 25 years of experience in business development and has completed his graduation from Birla Institute of Technology and Science, Pilani and Indian Institute of Management, Calcutta. Prior to joining Praj Industries 7 years ago, he has held roles in various capacities at SABMiller India.

## Mr. Mihir Mehta (Head of HiPurity Systems)



Mr. Mihir Mehta is BU Head & Vice President at PRAJ HiPurity Systems Ltd. and heads global business unit and operations of HiPurity systems. He is a qualified mechanical engineering graduate from Mumbai University has earned repute for himself in the Indian Pharmaceutical Industry. He has to his credit more than 550 water plants and more than 200 critical process plants installed in India and abroad. He is a Fulbright scholar from Carnegie Mellon University, USA.

## Mr. Ghanashyam Deshpande (President - Technology and Engineering)




Mr. Ghanashyam Deshpande presently heading Centre of Innovation and Applied Technology group in Praj has more than 30 years experience in developing affordable sustainable solutions for biofuel industry. He has expertise in process design engineering, scale-up, optimization and Integration engineering for advanced bio-fuels and chemicals, design and Deployment of sustainable solutions for low carbon and high energy density bio-fuels for all modes of transportation and providing value added low carbon intensity solutions to industry through Process Intensification and Innovation Technique. He holds a Masters in Chemical Engineering from ICT, Mumbai.

## Dr. Pramod Kumbhar (Chief Technology Officer, Praj Matrix)




Dr. Pramod Kumbhar works as President and Chief Technology Officer of Praj matrix - R&D Center. He is focused on driving innovations in industrial biotechnology to make biofuels and bio chemicals. He has a Ph.D. in Chemical Engineering from ICT, Mumbai and Post-doctoral stints at CNRS laboratories in Montpellier and Institute of Catalysis, Lyon in France. He is Fellow of Maharashtra Academy of Sciences. Prior, he has worked at General Electric R&D Centre in Bangalore and SI Group (formerly Schenectady chemicals, USA) in various positions including last assignment as R&D director for Asia Pacific. He has Received Bronze and silver medals from GE for patent filings and has more than 25+ publications in peer reviewed scientific journals.

## Mr. Shrikant Wale (Delivery Head)



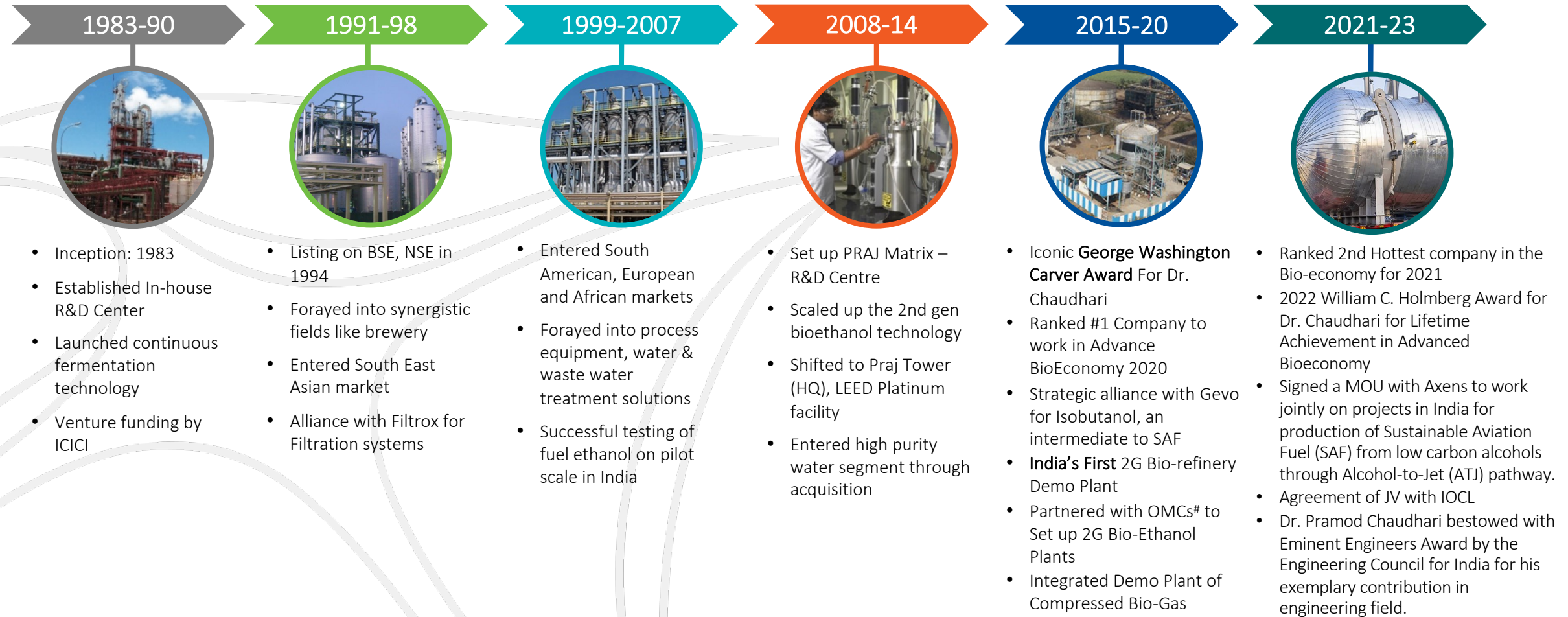
Mr. Shrikant completed his engineering graduation in mechanical in the year 1990 from Govt. Engineering college, Aurangabad. He has pursued Management Program for Technologists in the year 1996 from IIM Bangalore and Leadership Development Program from ISB Hyderabad in the year 2018. He holds 30 years of diversified and rich experience in Manufacturing. He has worked with companies like Thermax Ltd, Thermax (Zhejiang) Cooling & Heating Engg. Co. Ltd., Doka India Pvt Ltd. His last assignment was with Oswal Industries Ltd., as Director - Operations.

## Mrs. Nidhi Dhanju- Global Chief Human Resource Officer



Mrs. Nidhi is currently leading the Human Capital Practice. Her role includes all facets of human elements including Human Relations and Resources, Admin, Sustainability and CSR. Prior to Praj, Nidhi was the Vice President, Organizational Effectiveness at Thermax where her role included the entire gamut of Corporate HR including Talent development and Succession Planning, Compensation and Benefits, HR systems, Senior and entry level talent acquisition. She received her Bachelor's degree in Psychology and Economics from Lady Sri Ram College, Delhi in the year 2000 and a PhD in Human Resource Development from the University of Minnesota, USA in year 2006.





#Oil Marketing Company  
 BSE: Bombay Stock Exchange  
 NSE: National Stock Exchange of India



## Pune Unit

- Infrastructure for SS, Copper and LAS (Low Alloy Steel)
- Area: 28,800 sqm for fabrication unit



## Mumbai Unit

- Exclusively for HiPurity Systems
- Systems /equipment comply with WHO / US FDA / UK MHRA
- Area : 70,000 sqm



## Kandla SEZ

- Stainless steel, Alloy & carbon steel products and Modular skids
- Area: 30,700 sqm (Unit 1); 20,200 sqm (Unit 2)

### Certification



U, U2, S, R

3834-2, 1090-2

Praj Industries Limited

### 3rd Party Agencies





## 2017

### Individual: Dr. Pramod Chaudhari

- Ranked 35 in 'Globally Top 100 People List' in Bioenergy space by Biofuels Digest

### Corporate:

- 5th Procurement Excellence in Best Green Procurement
- Best Biotechnology R&D Specialists - Asia
- Best Supply Chain Management Practices by Indian Institute of Material Management (IIMM)
- National Safety Council (NSC) Award for Sanaswadi factory

### Sustainability:

- Rotary Industry Award for environmental initiatives
- Excellence in Sustainable Supply Chain by World Sustainability organization

## 2018

### Corporate:

- Information Technology Team has won IT Security-Now in Best Batsman of the year category
- Overall Excellence in Procurement & Sourcing to Supply Chain Management
- CPES business unit (Critical Process Equipment and Skids) honoured with Pune Best In Class Manufacturing Leadership
- Supply Chain Management Team was honoured with "Express Logistics & Supply chain Leadership Award 2018"

### Sustainability:

- Pune Corporate Social Responsibility Leadership

## 2019

### Individual: Dr. Pramod Chaudhari

- Asia's Greatest Leader of 2018 award by URS Media

### Corporate:

- Golden Peacock Eco-Innovation for 2G biomass to bioethanol technology
- Praj Industries jumped to 8th position from 34th in 2018 in the list of TOP 50 Hottest Companies in Advanced Bio-economy for Year 2019 by Biofuel Digest
- "CHEMTECH CEW Leadership and Excellence Award 2019"
- Asia's Greatest Brand of 2018 by URS Media

## 2020

### Individual: Dr. Pramod Chaudhari

- Prestigious George Washington Carver award announced for Dr. Pramod Chaudhari
- 'Dattopant Thengdi Rashtriya Svavalamban Sanmaan 2020' by Swadeshi Jagaran Manch
- Dr. Pramod Chaudhari conferred with the degree of D. Litt. by Tilak Maharashtra Vidyapeeth

### Corporate:

- Ranked No.1 among the "Best Places to Work in the advanced bioeconomy 2020"
- CII Innovation Award 2020 in Manufacturing Large Enterprise category for its SHIFT technology
- CII 3R Award 2020 for Excellence in Design, Innovation and Developing Product Generating Minimum / Zero Waste at User End

## 2021

### Individual: Dr. Pramod Chaudhari

- 'AsiaOne Global Indian of the Year 2020-21', by Asiaone Magazine and URS Media International

### Corporate:

- AsiaOne Magazine & URS Media International chosen Praj as "World's Greatest Brand of 2020-21".
- Ranked 2<sup>nd</sup> in a list of world's 50 Hottest companies in global bioeconomy for 2021 in Low Carbon Fuels and Renewable Chemicals category based on US Biofuels Digest
- Ranked 3<sup>rd</sup> in a list of world's 50 Hottest companies in global bioeconomy for 2021 Bidesign and Engineering Category based on US Biofuels Digest

## 2022

### Individual: Dr. Pramod Chaudhari

- Prestigious William C. Holmberg Award to Dr. Pramod Chaudhari for 'Lifetime Achievement in the Bioeconomy'

### Corporate:

- Conferred with the prestigious Fortune India THE NEXT 500 in the Engineering sector.
- Golden Peacock Award in the innovative Product and Service Category for ground-breaking product – BIOSYRUP.

## 2023

### Individual: Dr. Pramod Chaudhari

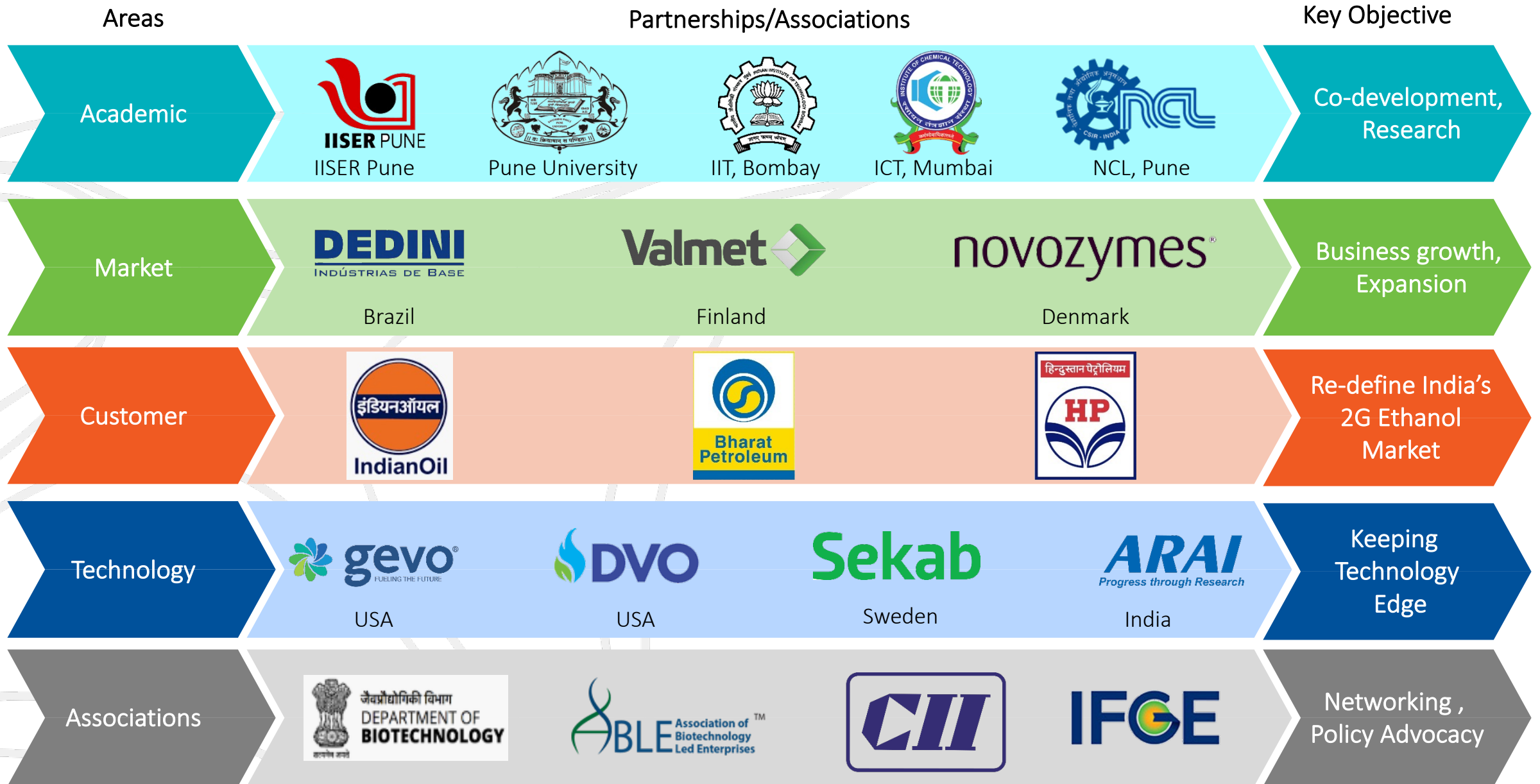
- Bestowed with Eminent Engineers Award by the Engineering Council for India for his exemplary contribution in engineering field.



George Washington Carver Award 2020 for Innovation in Industrial Biotechnology and Agriculture Presented to Dr. Pramod Chaudhari



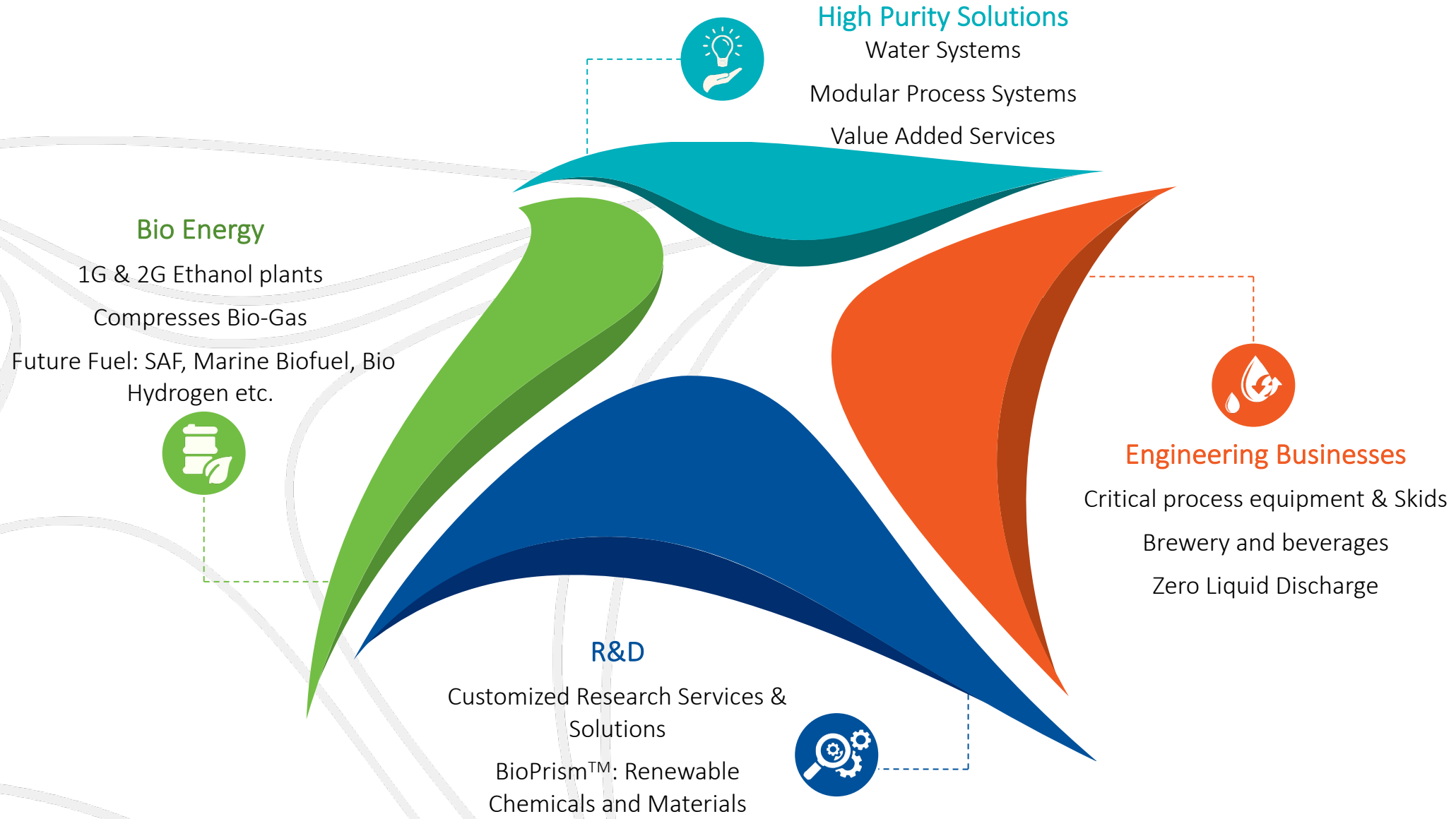




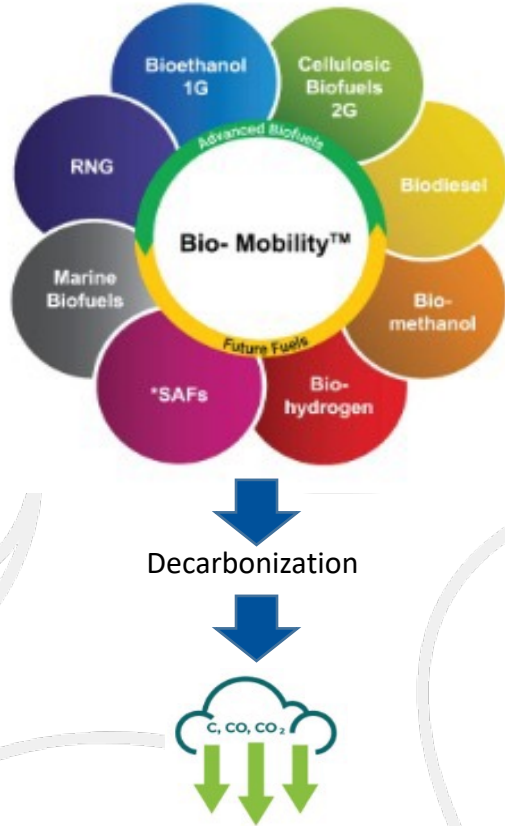
The image shows a large industrial facility, possibly a refinery or chemical plant, with complex piping, scaffolding, and storage tanks. The scene is overlaid with a semi-transparent graphic consisting of a central white circle with the text 'Business Overview' in blue. This circle is surrounded by several concentric rings of white lines and dots, creating a futuristic or data-driven aesthetic. The background is a slightly desaturated, blue-tinted photograph of the industrial site.

# Business Overview





▶▶▶ **4 decades of leadership in Industrial Bio-technology Space** ▶▶▶



- Bio-Mobility™ is the mainstay of the company’s contribution to the global Bioeconomy.
- The Bio-Mobility™ platform of technologies envisages the use of renewable resources to produce carbon neutral transportation fuel across all modes of mobility (surface, air and water).

### 1G Ethanol

- Pioneer in India since the 80’s in the Ethanol Technology solutions serving various applications in different parts of the world.
- Leveraging the R&D capabilities by transforming first-generation Agri feedstock (sugars found in sugarcane juice, molasses, starchy grains)

into bioethanol, and has registered several patents for this technology.

- Offering a complete suite of solutions for the global ethanol industry like multi-feed multi-product plants, modernization of existing plants, renewable fuels like BioCNG, iso-butanol etc.

### Bio Products

- Offers innovative formulations that add “economic value” to biochemical processes.
- These are formulated using useful bacteria, yeasts, fungi, enzymes, anti-microbials and nutrition biomolecules.
- These products not only increase process efficiency in the plant, but also result in a higher recovery of ethanol.

### 2G Ethanol



- Offering end to end solutions to set up bio-ethanol plant based on its proprietary Enfinity - 2G lignocellulosic ethanol technology.



- In partnership with Sekab, Sweden Praj is offering Celluniti™ technology for production of ethanol from forest residue in the form of softwood mainly in the European region.

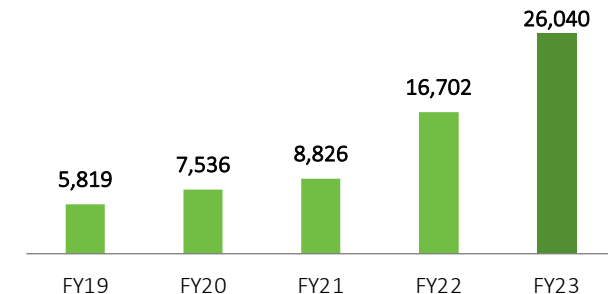
- Processing a wide range of Agri residue such as rice straw, wheat straw, bagasse, corn stover and corn cobs, soft wood and empty fruit bunches to produce bioethanol and renewable chemicals.

- Successfully set up an integrated demonstration facility (12 MT/day) in India In 2017.

- This technology is currently being deployed at three commercial scale bio-refineries in India.



Bio Energy – Revenues (INR Mn)







## Renewable Natural Gas

- Developed advanced bio methanation technology based on proprietary microbiological pre-treatment for production of compressed biogas (renewable methane gas) from Agri residues and press mud.
- Developed and commercialised a proprietary renewable gas technology – RenGas™, and has commissioned over 40 plants in India of the same.
- Highest yielding BioGas with 30% lower operating costs due to its unique microbial cultures.
- The process creates value-added manure with organic soil as a byproduct while advanced biogas cleaning techniques gives pure methane.

## Sustainable Aviation Fuel (SAF)

- The Praj - Gevo, Inc. innovative process uses iso-butanol produced from renewable sources (e.g. Sugars and Starch and Biomass) as feedstock to produce SAF.
- Technology is in its final leg of optimization and commercial offering and it is proven to significantly reduce carbon emissions when blended with Aviation fuel.
- Gevo, Inc. will license its technology and Praj will provide



technology, plant equipment and EPC services to refineries for converting renewable iso-butanol into Sustainable Aviation Fuel and premium gasoline through the ASTM-approved pathway of Alcohol-to-Jet (ATJ).

- Axens and Praj have signed a Memorandum of Understanding to work jointly on projects in India for production of Sustainable Aviation Fuel (SAF) from low carbon alcohols through Alcohol-to-Jet (ATJ) pathway.
- Praj brings to the table proven expertise in modularized solutions, integration services for complete project and technology for production of low carbon isobutanol and ethanol from conventional bio-sourced feedstock. Axens will provide its Jetanol™ Alcohol-To-Jet technologies, catalyst solution, equipment and services for conversion of alcohols to SAF.
- Iso-octane is another high value co-product used as fuel for F1 racing.

## Marine Biofuels

Marine biofuels produced from certified lignin-based feedstocks are rapidly gaining interest among international ocean shippers and carriers.







## Critical Process Equipment and Skids

- Offering a range of static equipment such as pressure vessels, reactors, shell & tube heat exchangers, columns, and other proprietary equipment as per the client design requirements.
- Provide modular process skids and packages. A modular process skid is a system within a frame that allows easy transportation.
- Undertakes end-to-end projects for modular process skids and packages and supports clients with Finite Element Analysis, Process & Thermal Design and Piping Design & Stress Analysis, and design skids using software like Plant 4D and PDMS.
- Products under this segment are used in sectors such as Oil & Gas, Refineries, Petrochemicals, and Fertilizer, among many others.

## Wastewater treatment (ZLD Business)

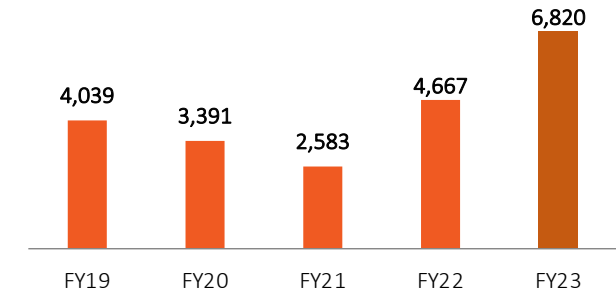
- Offering integrated energy-efficient solutions for effluent recycling and zero liquid discharge for various industrial applications.
- The strong experience of treating the most challenging wastewater enables it to offer highly optimized systems with lower footprints and optimized operating costs.

## Brewery and beverages

- Since its inception in 1994, the brewery division has been offering customized plants, equipment & technology solutions to customers in the brewing industry.
- Supplying world class brewery plants capable of producing the best quality beers at the most optimum cost.
- The breweries are environment friendly, utilizing minimum water, energy and generating a low carbon footprint.
- With over 70% of market share in India and experience of installing projects in Africa and South East Asia, it offers a complete range of solutions in conceptualization, technology, design, plant engineering, project installation and commissioning.



## Engineering – Revenues (INR Mn)







## Water Systems

- HiPurity Systems Limited (a wholly-owned subsidiary) provides value added and end-to-end integrated solutions to the Pharma, Biotech and Wellness industry.
- Pharmaceutical water is one of the core raw material/ingredient/solvent/cleaning agent, etc. It has to undergo a change in terms of end water quality using different technologies for treatment, design principles, inspection principles and quality processes.
- With more than 450+ installations globally, it has evolved to be one of the key solution providers in the Industry with many firsts, helping the industry wade through the various changes and challenges.
- Catering to industries like cosmetics, food & beverage, health supplements & nutraceutical which follow 'Compendial' water quality norms.

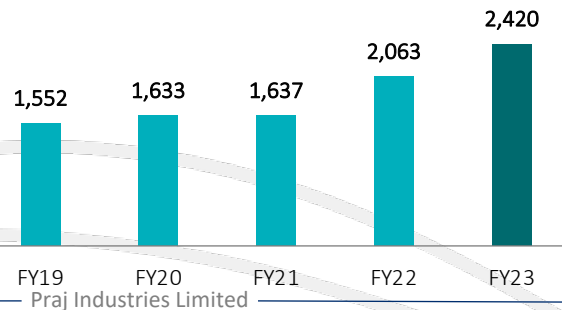
## Modular Process Systems

- The Modular Process Systems Business Line provides solutions to Pharma/Lifescience clients for a variety of applications in Biopharma, Sterile Formulations and Topicals & Orals.
- In-house vessel Manufacturing to orbital welding to system integration and Testing enables the company to help customers achieve faster time to market targets in this ever-challenging & dynamic business environment.

## Value added services

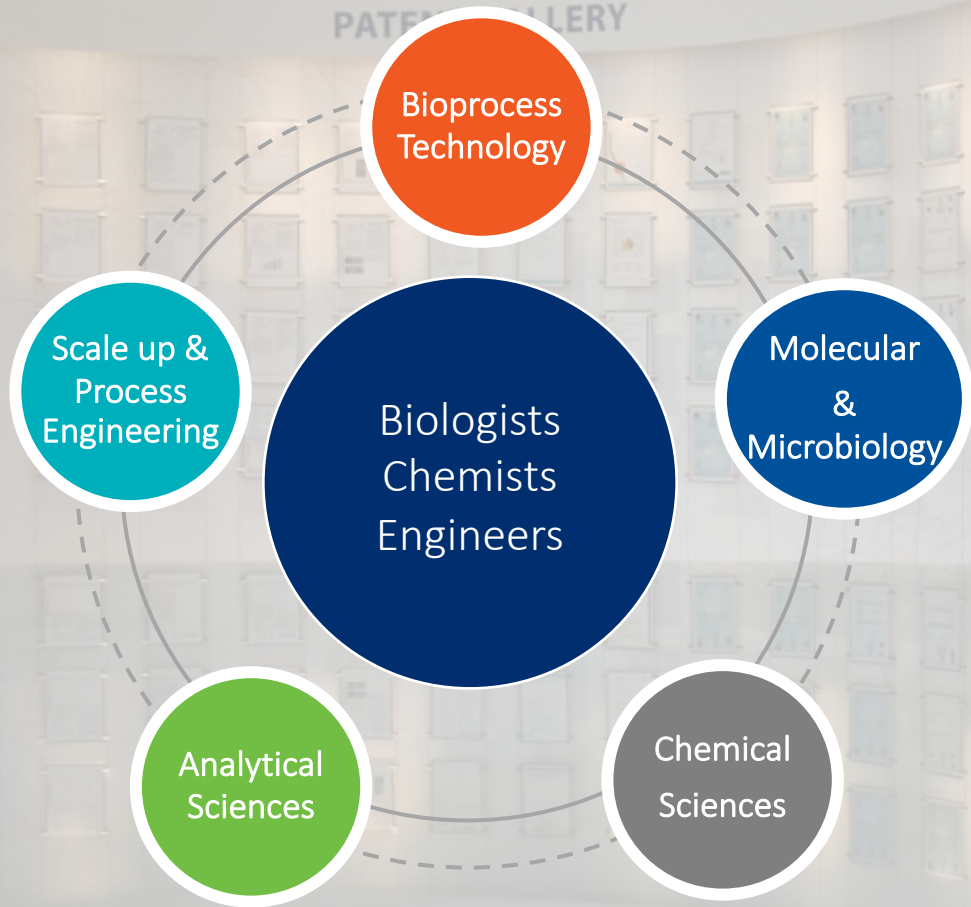
- Providing special products like ozone systems and combi test kits and special services like electro polishing, on-site training and Riboflavin test at site.
- Also providing spares and consumables like membranes, chemicals, tubes & fittings and valves, instruments & pumps.

High Purity Solutions – Revenues (INR Mn)





## CENTRE OF EXCELLENCE

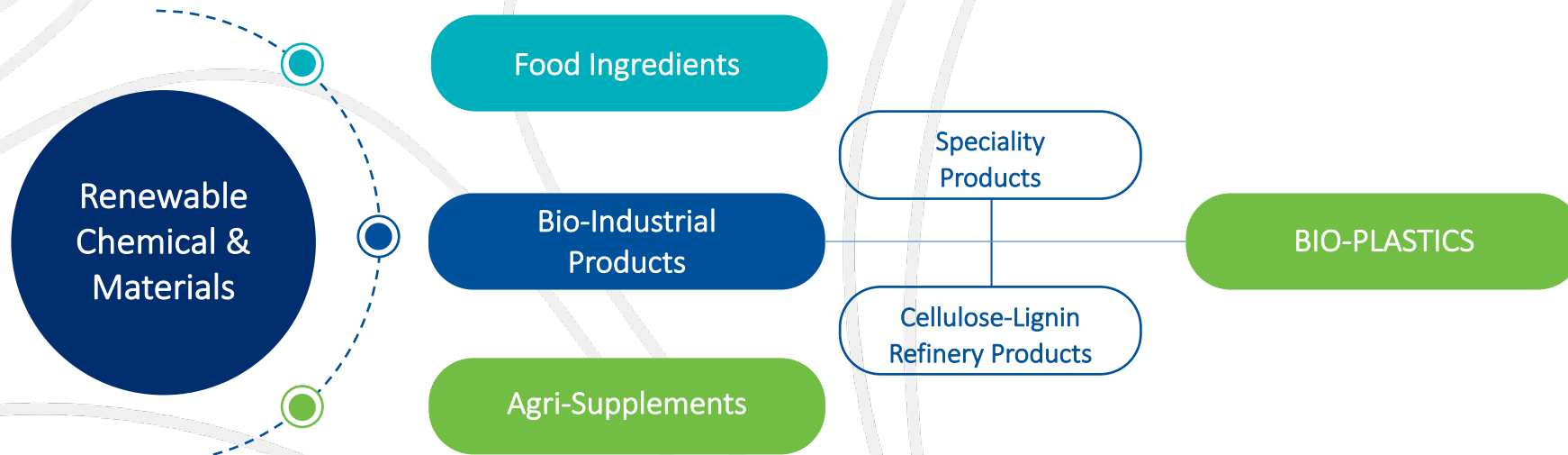


- The backbone of the company's technology development is Praj Matrix, the Innovation Centre.
- It is a state-of-the-art facility certified by the Govt of India's Dept of Scientific and Industrial Research, equipped with 16 laboratories for molecular biology, microbiology and bioprocess technology, process engineering & scale-up, and chemical sciences.
- First of its kind R&D facility with Bench & Pilot scale facilities that enable validation of scientific assumptions as well as rapid commercialization.
- Matrix's main area of focus is renewable chemicals & materials, enzyme production and biofuels.
- 90+ technologists who are engaged in research in areas such as protein engineering, protein production, strain development, and the development of fermentation processes using bacterial, yeast and fungal platforms.





- Developing technologies for production of bio-based Renewable Chemicals and Materials (RCM).
- RCM produced from bio based feedstock are sustainable alternatives to products made from fossil resources.
- Sugary, starchy and cellulosic agri-based feedstocks along with gases like biogas, methane and various non-edible oils are the starting materials for RCM.
- For conversion of these feedstocks to the final molecule of interest, it is exploring Bio-catalytic, Chemo-catalytic & Thermo-chemical routes.
- Within the bio-industrial ambit, a spectrum of bio plastics remain a priority, along with cellulose-lignin refinery products and specialty products.
- These products have applications in industry sectors such as automotive, packaging, furnishing, construction, agriculture and food sectors.



BIO-PRISM™



**Bio-Prism**

Nature Reimagined – Promise of Sustainability

Renewable Chemicals & Materials (RCM)



Carbon Recycling



## Water Footprint reduction

### SHIFT

- High Brix fermentation technology for reduction of effluent quantity to reduce water requirement in fermentation and energy requirement in Evaporation (ZLD) section.
- Technology has been commercially implemented on multiple feed stocks viz. cane juice syrup, B-heavy and Molasses-C. This helps to upgrade capacity of existing facility ensuring round the year operation.

### ACHE

- Optimized design of Air Cooled Heat Exchanger (ACHE) being offered for water stressed projects.

## Energy Footprint reduction

### Alcohol MVR

- Reduction of thermal energy (Greenhouse gas emissions) by integration of MVR with distillation section.

### Process Integrated Boiler (PIB), HBCS (High Brix Concentration using Agitated Thin Film Dryer)

- Technology developed to concentrate Spent wash (process effluent) generated from molasses based distillery to self-combustible level. 70% concentration of solids on weight basis, thereby reducing supplementary fuel requirement in incineration boiler by more than 30 %

## Plant Capacity optimization

### Maximol

- Ethanol dehydration plant capacity was upgraded by 30% in more than ten plants helping to enhance plant capacity.

### BIOSYRUP®

- This technology helps in increasing ethanol yield as well as flexibility to store sugar rich stream for extended number of days of operation.

## Co-product maximization

### Human Grade Proteins

- Developing technology for production of human grade protein as a valuable co-product from grain-based distillery.

### Pharma Grade Ethanol

- Introduced Pharma Grade Ethanol with unique capex and opex optimized solution for global clients meeting their local statutory norms for production process.

### Lignosulphonate

- Developed technology from Lignin generated from 2G Enfinity™ plant which can be bolted to improve the overall viability.

## Carbon-Intensity Footprint reduction

### Bio Bitumen

- Based on lignin, developed an eco-friendly renewable material for road construction. A proprietary process (under patenting) to convert the crude lignin into Bio-bitumen which has potential to replace this fossil based bitumen.
- The Netherlands-based Circular Biobased Delta (CBBDD), one of Europe's premier consortia to promote bioeconomy, has approved Bio-bitumen samples that will now be tested for scale up in Asphalt on a Dutch test strip on the road.

## Digitalisation initiative

### RemoteBridge™

A unique Remote Plant Monitoring System which provides solutions to improve the performance of plant through data collection, analytics, diagnostics and remedial measures.



A stack of newspapers is shown in a shallow depth of field, with the top newspaper's masthead visible. Overlaid on the center of the stack is a futuristic circular graphic consisting of concentric rings of light blue and white lines, with a central white circle containing the text 'Industry Overview' in a dark blue, sans-serif font. The background is a blurred outdoor setting with wooden pillars.

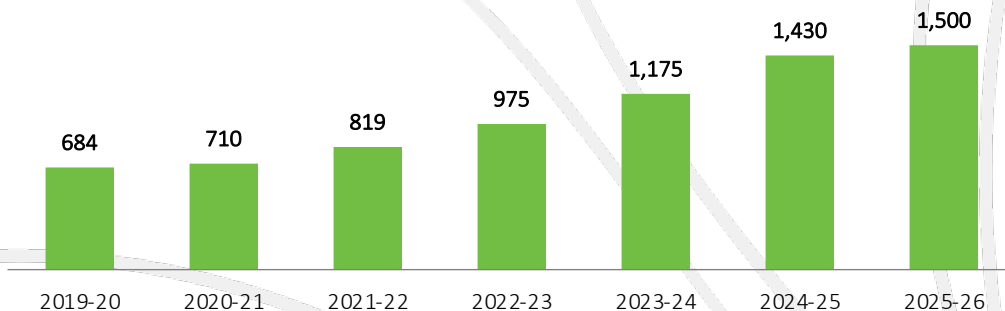
# Industry Overview

- Most of the petroleum products are used in transportation. Hence, a successful E20 program can save the country USD 4 billion per annum.
- Achieving energy security and the transitioning to a thriving low carbon economy is critical for a growing nation like India. Blending locally produced ethanol with petrol will help India strengthen its energy security, enable local enterprises and farmers to participate in the energy economy and reduce vehicular emissions.

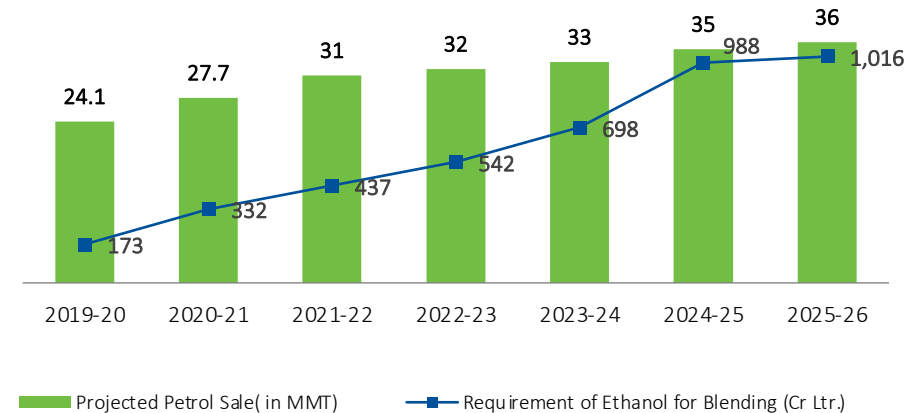
Capacity Augmentation			
Ethanol Capacity (in Cr. Lt.)	Molasses based	Grain based	Total
Existing ethanol/alcohol capacity	426 (231 distilleries)	258 (113 distilleries)	684
Capacity addition from sanctioned projects	93 (will be added by March,2022)	0	93
New capacity to be added	241	482	723
Total Capacity required by Nov 2026 to reach 1350 Cr litres supply	760	740	1500

Ethanol Production Projections										
ESY	For Blending			Blending (in %)	For other uses			Total		
	Grain	Sugar	Total		Grain	Sugar	Total	Grain	Sugar	Total
2019-20	16	157	173	5	150	100	250	166	257	423
2020-21	42	290	332	8.5	150	110	260	192	400	592
2021-22	107	330	437	10	160	110	270	267	440	707
2022-23	123	425	542	12	170	110	280	293	535	828
2023-24	208	490	698	15	180	110	290	388	600	988
2024-25	438	550	988	20	190	110	300	628	660	1288
2025-26	466	550	1016	20	200	134	334	666	684	1350

Capacity Augmentation (In Cr. Lt)



Ethanol Demand Projection



Source: NITI Aayog on roadmap for Ethanol blending in India



## Government initiatives

- The government of India has advanced the target for 20 per cent ethanol blending in petrol (also called E20) to 2025 from 2030 to reduce the country's oil import bill and carbon dioxide pollution.
- The government is also taking efforts to develop an ethanol economy by introducing flex fuel engines so they can run on ethanol blends

## 1G

- The target of E20 blending would demand production of ~1000 Cr Litres of Ethanol for blending purposes, this translates to INR 12,000-14,000 Cr. of Capex requirements.

## 2G

Opening up of alternate route i.e. Second Generation (2G) route for ethanol production. Oil Marketing Companies are in the process of setting up 12, 2G bio-refineries with an investment of INR 14,000 Cr.

## CBG

- The government plans to set up 5,000 CBG plants across India with a production target of 15 MMT, under SATAT initiative. An approximate investment of INR 2,00,000 Cr. is envisaged in the next 5 years.
- As per budget, 200 compressed biogas (CBG) plants, including 75 plants in urban area to be established.

## ZLD

India's wastewater treatment plants market stood at USD 2.6 billion in 2020 and is projected to reach USD 5.3 billion by 2027 growing at CAGR of 10.8% owing to increasing demand for municipal water as well as sewage water treatment plants across the country.

## Critical Process Equipment and Skids

- The global static and rotating equipment market was USD 24.00 billion in 2022 and it is projected to grow from USD 26.23 billion in 2023 to USD 32.42 billion in 2027 at a CAGR of 5.4%.
- Energy Transition & Climate Actions (ETCA) has emerged as promising solution to combat evils of climate change creating a significant opportunity for the Critical Process Equipment and Skids business.

A 3D rendering of a complex gear mechanism. The gears are metallic and arranged in a circular pattern, with a central glowing circle containing the text "Strategic Overview". The scene is lit with dramatic, low-key lighting, highlighting the metallic surfaces and the central glow. The background is dark, making the gears and the central text stand out.

Strategic  
Overview



Leverage innovative and technology solutions in “Clean-Energy based Bioeconomy” utilizing our expertise in Fermentation

Modularisation as an offering for leaders in Energy Transition to complement growth in the existing CPES business

Focus on opportunities in complex injectable, high capacity fermenters and Bio-pharma space for PHS

Enhancing Technology and water treatment solutions to minimize consumption of energy and harmful water discharge in the environment

Making inroads into new frontier of bioeconomy namely, Bio-Prism™ portfolio of technologies for production of renewable chemicals and materials (RCM)



Leverage partnerships with renowned organization’s and institutions around the world

Digitalization initiatives for better productivity and customer experience

Increased solution based deliveries to drive sustainability, plant efficiency, yields and productivity while generating co-products

Propagate concept of Bio-Mobility™ by introducing lower carbon fuels to minimize carbon footprint & continue to be at the forefront of the transition to Net Zero emissions

## Environment



### Sustainable water resources development

Key Initiatives

- Widening and deepening of Streams in 37 drought prone Villages
- 18.99 lakh cu metres of Silt removed from streams

Positive Impact

- 1,253 open wells and 660 bore wells Recharged
- 12,360 acres hectares Agricultural land brought under irrigation

## Health



### Preventive Healthcare for rural women

- Preventive healthcare program implemented in 33 Villages in Pune
- Promoting “Food as Medicine” concept through nutrition garden

- Enhanced health status of 7,000 beneficiaries
- Improved Hb level and reduction in nutritional deficiencies

## Education



### Hands on life skills education through Rural schools

- Infrastructure upgraded in 16 schools from 8 districts of Maharashtra
- Rural entrepreneurship programs

- life skills education covering 6,500 students and more than 50 instructors
- 22 entrepreneurs are being mentored



A man in a dark suit and glasses is looking at a tablet. The background is a grid of windows with a blue tint. Overlaid on the image is a glowing white line graph that starts low on the left, rises to a peak, falls to a trough, and then rises sharply to a higher peak on the right. A circular graphic with a dashed border and a central dot is positioned over the man's face. The text "Financial Overview" is centered within this circle.

**Financial  
Overview**

# Historical Consolidated Financial Performance



Particulars (INR Mn)	FY19	FY20	FY21	FY22	FY23
Operational Income	11,411	11,024	13,047	23,433	35,280
Total Expenses	10,527	10,205	11,923	21,374	32,101
EBITDA	884	819	1,124	2,059	3,179
<i>EBITDA Margins (%)</i>	<i>7.75%</i>	<i>7.43%</i>	<i>8.62%</i>	<i>8.79%</i>	<i>9.01%</i>
Other Income	233	261	257	241	356
Depreciation	230	218	221	226	302
Interest	8	31	29	25	46
PBT	879	831	1,131	2,049	3,187
Tax	197	127	320	547	789
Profit After tax	682	704	811	1,502	2,398
<i>PAT Margins (%)</i>	<i>5.98%</i>	<i>6.39%</i>	<i>6.22%</i>	<i>6.41%</i>	<i>6.80%</i>
Other Comprehensive Income	6	(3)	11	(22)	(16)
Total Comprehensive Income	688	701	822	1,480	2,382
Diluted EPS (INR)	3.74	3.85	4.42	8.18	13.05



# Historical Consolidated Balance Sheet



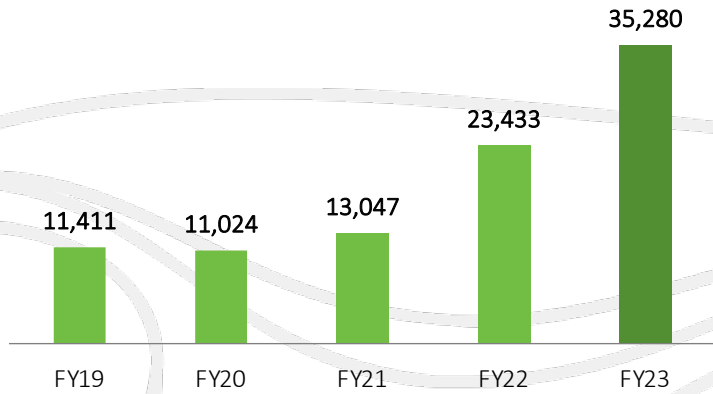
Particulars (INR Mn)	FY21	FY22	FY23
<b>ASSETS</b>			
<b>Non-Current Assets</b>			
Property, Plant & Equipment	2,064	2,085	2,366
Capital Work in progress	4	14	69
Investment Property	137	137	137
Goodwill	626	626	626
Intangible assets	11	19	40
<b>Financial Assets</b>			
(i)Investments	398	652	845
(ii)Other	151	139	123
Deferred tax assets (net)	104	19	111
Other Assets	90	31	50
<b>Sub-Total Non-Current Assets</b>	<b>3,585</b>	<b>3,722</b>	<b>4,367</b>
<b>Current Assets</b>			
Inventories	1,289	3,450	3,336
<b>Financial Assets</b>			
(i)Investments	2,950	3,979	4,584
(ii)Trade Receivables	4,534	5,118	7,949
(iii)Cash and Cash Equivalents	1,011	1,075	986
(iv)Other Bank Balances	313	476	462
(v) Others	46	294	187
Current tax assets (net)	-	50	54
Other Assets	2,210	4,013	4,262
<b>Sub-Total Current Assets</b>	<b>12,353</b>	<b>18,455</b>	<b>21,820</b>
<b>TOTAL ASSETS</b>	<b>15,938</b>	<b>22,177</b>	<b>26,187</b>

Particulars (INR Mn)	FY21	FY22	FY23
<b>EQUITY AND LIABILITIES</b>			
<b>Equity</b>			
Share Capital	366	367	367
Other Equity	7,652	8,790	10,413
Non Controlling Interest	7	-	1
<b>Total Equity</b>	<b>8,025</b>	<b>9,157</b>	<b>10,781</b>
<b>Non-Current Liabilities</b>			
(i)Lease Liability	113	148	263
(ii)Other Financial Liabilities	-	6	6
Provisions	157	171	132
Deferred Tax Liabilities (Net)	-	-	-
<b>Sub-Total Non-Current Liabilities</b>	<b>270</b>	<b>325</b>	<b>401</b>
<b>Current Liabilities</b>			
(i)Trade Payables	3,416	4,248	5,050
(ii)Other Financial Liabilities	134	323	388
(iii)Lease Liabilities	63	63	159
Other current Liabilities	3,763	7,761	8,641
Provisions	251	226	440
Current Tax Liabilities (Net)	16	74	327
<b>Sub-Total Current Liabilities</b>	<b>7,643</b>	<b>12,695</b>	<b>15,005</b>
<b>Sub-Total Liabilities</b>	<b>7,913</b>	<b>13,020</b>	<b>15,406</b>
<b>TOTAL EQUITY AND LIABILITIES</b>	<b>15,938</b>	<b>22,177</b>	<b>26,187</b>

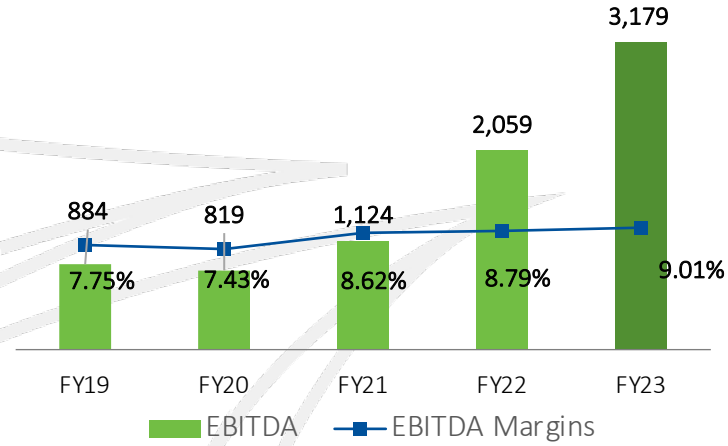
# Consolidated Historical Financial Trend



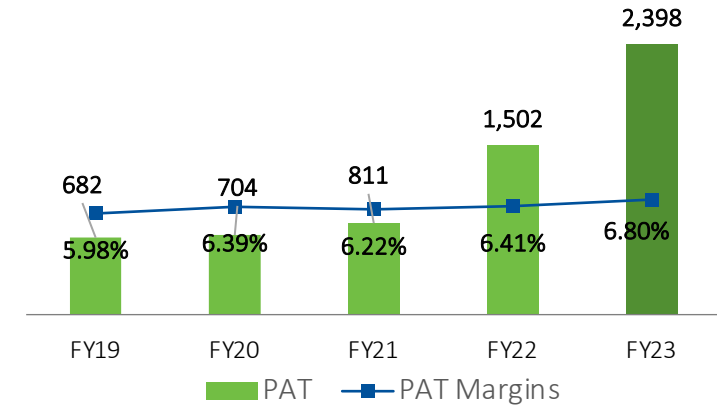
Revenue (INR Mn)



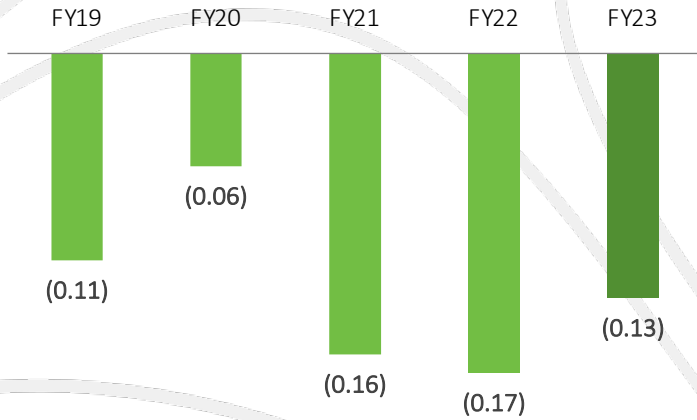
OPERATING EBITDA (INR Mn)



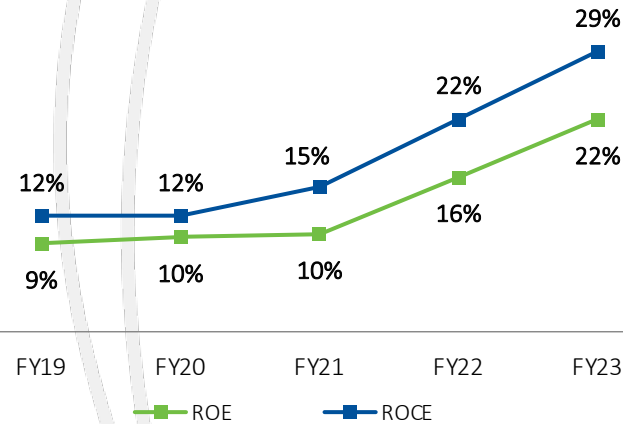
PAT (INR Mn)



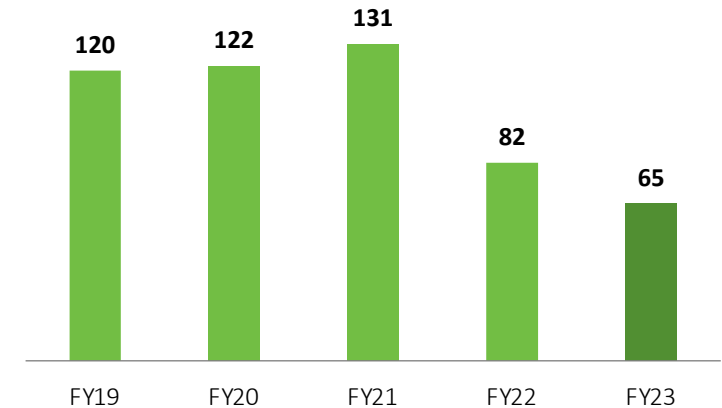
Net Debt to Equity (x)



ROE and ROCE (%)



Working Capital Days

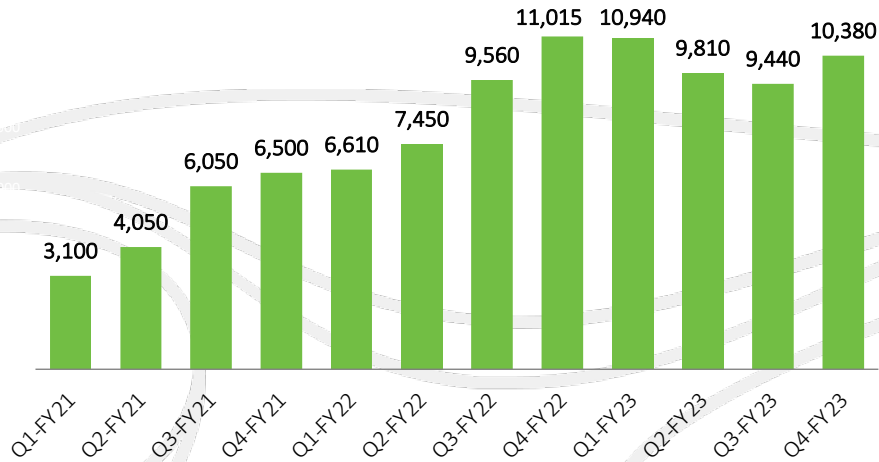


ROE = Net Profit/Net worth, ROCE = EBIT/Capital Employed

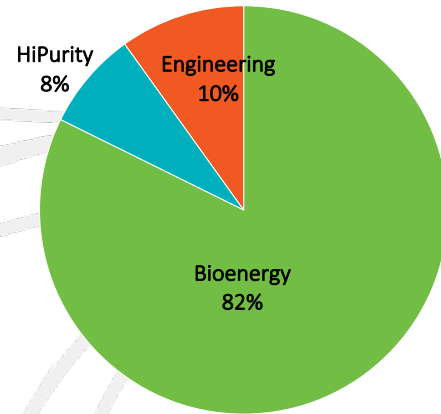


# Order Intake & Order Backlog

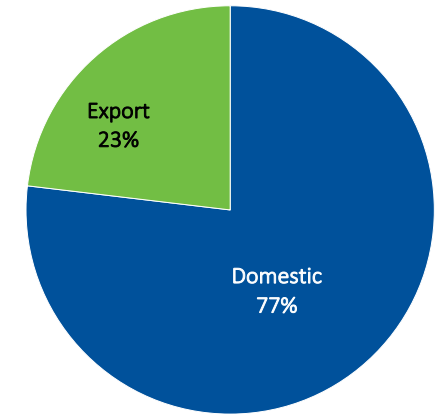
Order Intake (At the end of each quarter, Values in INR. Mn)



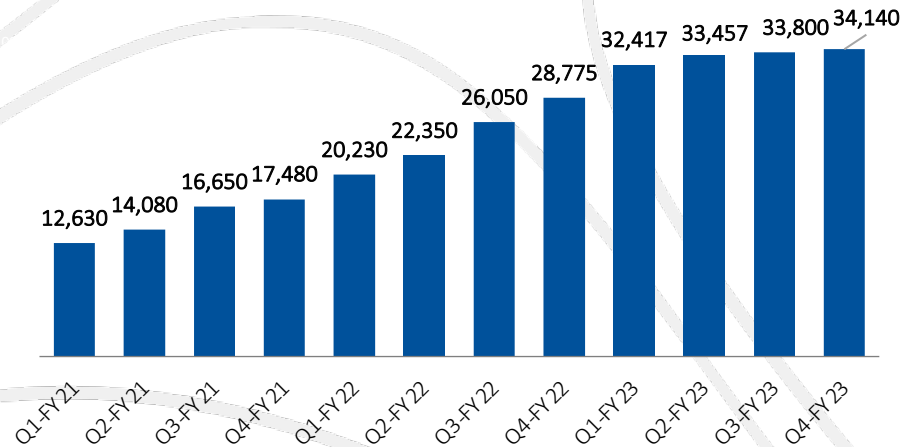
Q4-FY23 Segmental Order Intake – INR 10,380 Mn



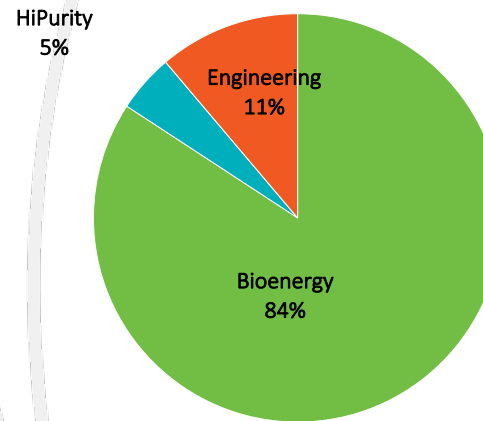
Q4-FY23 Geographical Order Intake



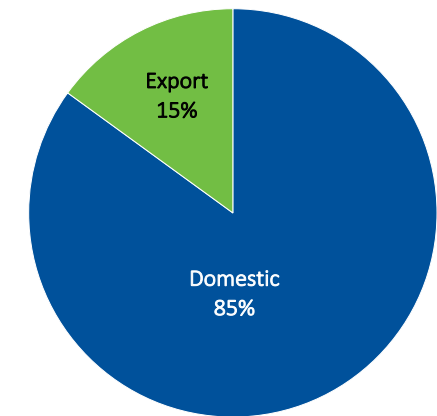
Order backlog (At the end of each quarter, Values in INR. Mn)



Q4-FY23 Segmental Order backlog – INR 34,140 Mn

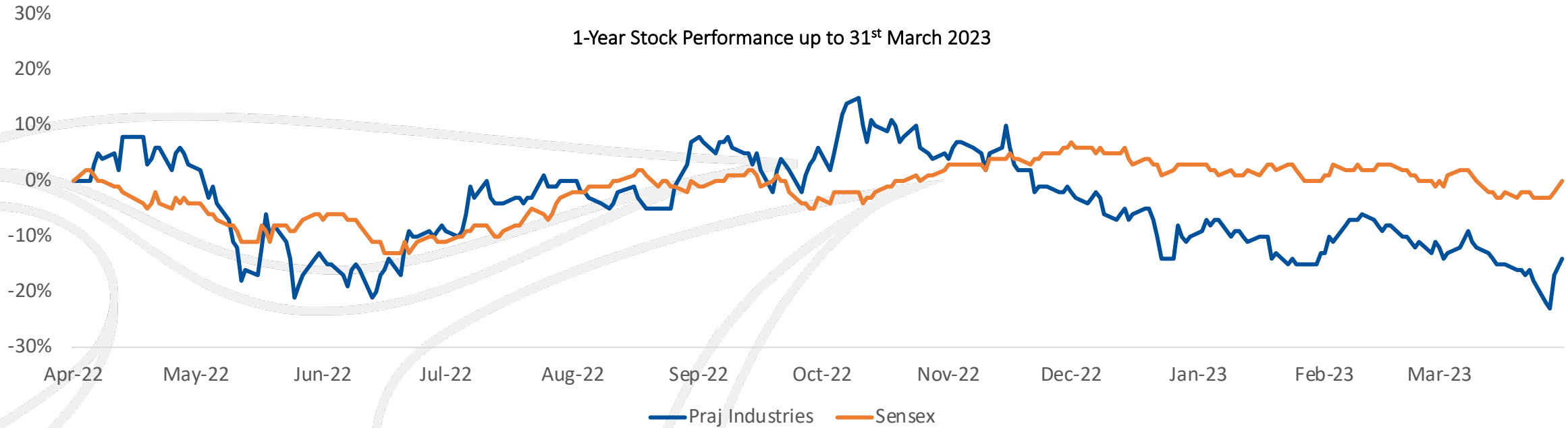


Q4-FY23 Geographical Order backlog



Note: Engineering businesses include critical process equipment & skids, brewery and ZLD segments.

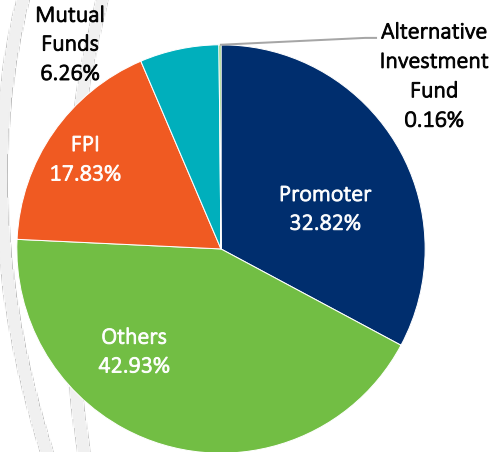
1-Year Stock Performance up to 31<sup>st</sup> March 2023



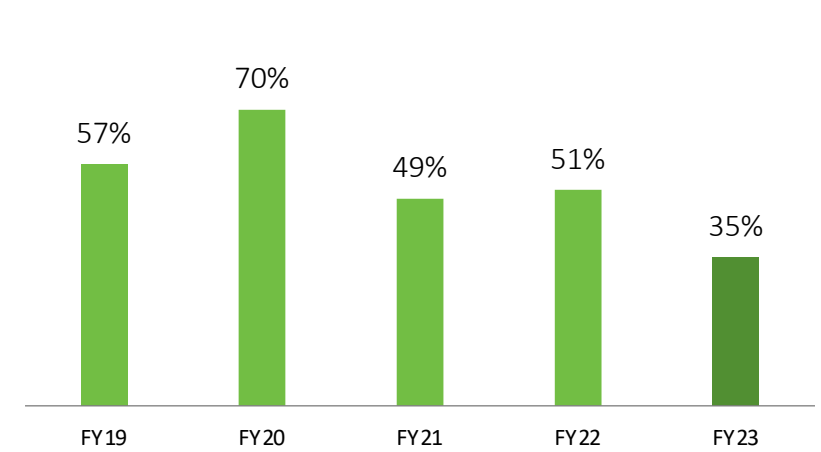
**PRICE DATA (As on 31<sup>st</sup> March 2023)**

Face Value (INR)	2
Market Price	340.95
52 Week H/L (INR)	461.5/289.1
Market Cap. (INR Mn)	62,637.1
Equity Shares Outstanding (Mn)	183.7
1 Year Avg. trading volume ('000)	992.4

Shareholding Pattern (As on 31<sup>st</sup> March 2023)



Dividend Pay out ratio (%)





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