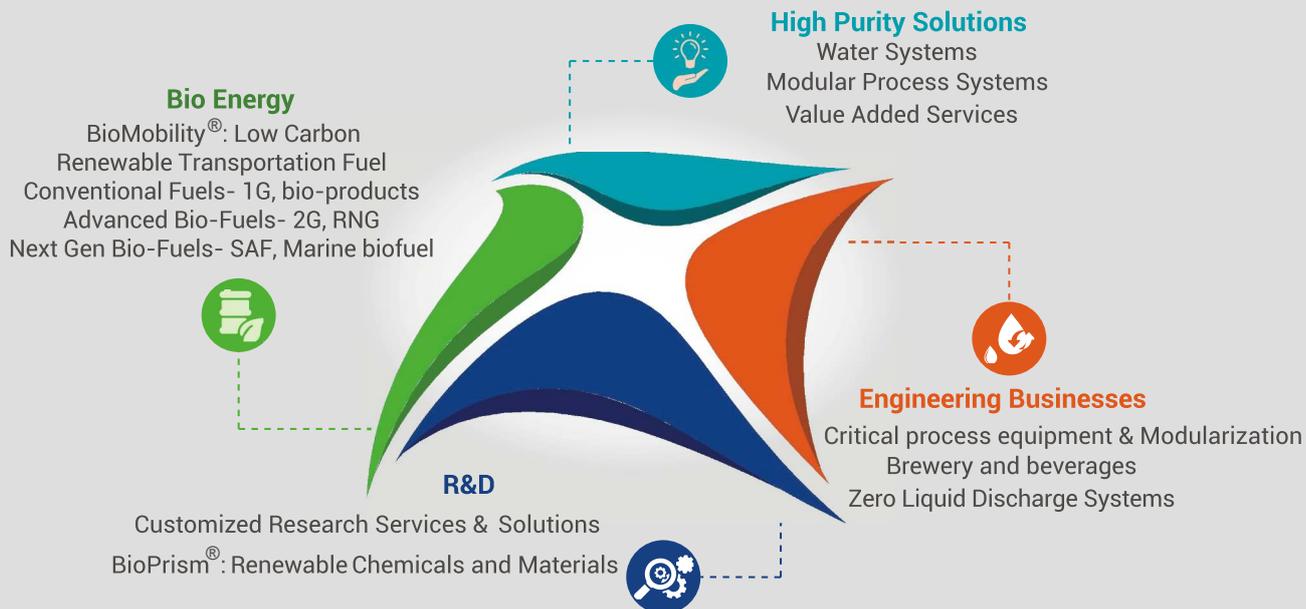




## Business Verticals

Praj's diverse portfolio comprises Bio-energy solutions, Critical process equipment & Modularization, Brewery & Beverages, Zero liquid discharge systems and High purity water systems.



Praj is a name to reckon with in the global biofuel technology solutions. We offer end to end solutions across the value chain.

### Conventional Bio-Fuels

#### ● First Generation Bioethanol Technology (1G)

- Pioneer in the Ethanol Technology solutions in India since the 80's
- Agri-feedstocks like sugary feedstock (sugarcane juice, molasses) and starchy feedstock into Bioethanol.
- Offering a complete suite of solutions like multi-feed multi-product plants and existing plant modernization.



## ● Bio-Based Performance Enhancers

- Praj's Bio-Based Performance Enhancing solutions add "economic value" to biochemical processes.
- These innovative formulation use bacteria, yeasts, fungi, enzymes, anti-microbials and nutrition biomolecules.
- These bio-products improve operational efficiency of the plant and facilitates high ethanol recovery.



## Advanced Bio-Fuels

### ● Lignocellulosic Ethanol Technology (2G)

- Praj offers end to end solutions to set-up integrated advanced Bio-fuels refineries based on its proprietary enfinity<sup>®</sup> - 2G lignocellulosic ethanol technology.
- Processes variety of Agri residue such as rice straw, wheat straw, bagasse, corn stover and corn cobs, soft wood, and empty fruit bunches for production of bioethanol and renewable chemicals.

### ● Renewable Natural Gas (RNG)

- Praj has developed advanced bio methanation technology based on proprietary microbiological pretreatment for production of renewable biogas (a.k.a compressed biogas) from Agri residues and press mud.
- Renewable Natural Gas produced using RenGas<sup>™</sup> technology provides highest yield with 30% lower operating costs.

## Next Generation Biofuels

### ● Sustainable Aviation Fuels (SAF)

- Praj's innovative processes use iso-butanol produced from bio-based sugary, starchy and lignocellulosic feedstock to produce Sustainable Aviation Fuel (SAF).



### ● Marine Biofuels

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



## Engineering Businesses

Praj's engineering businesses comprises Critical Process Equipment & Modularization, Brewery & Beverages, and Zero Liquid Discharge systems.

### Critical Process Equipment & Modularization

- Critical Process Equipment & Modularization offers engineering and manufacturing solutions to world leaders in the Clean tech, Green tech, industrial gases, specialty chemicals as well as conventional energy.
- From extended basic engineering to commissioning assistance this vertical offers specialized services in conceptualizing, engineering and manufacturing of modular process packages along with Critical equipment such as reactors, High pressure vessels, heat exchangers, columns and customer specific proprietary equipment.



### Brewery & Beverages Solutions

- Praj offers tailor-made plants, equipment & technology solutions to customers in the brewing and beverages industry for producing the best quality products at the optimum cost.
- The technology offered to plants are environment friendly, utilizing minimum water, energy and help generate a low carbon footprint.

### Zero Liquid Discharge systems

- Praj offers integrated energy-efficient solutions for effluent recycling and zero liquid discharge for various process industries to minimize water footprint and optimize operating cost.
- ZLD solutions are based on sustainability principle of Reduce-Reuse-Recycle and thus help process industry comply with statutory norms and treat their effluent



## HiPurity Business

Praj HiPurity Systems provides end-to-end turnkey solutions for the Biopharma industry, Sterile formulations, topical & oral formulations, Personal care and the Nutraceutical industry.

### Praj HiPurity Systems offers

- Water System (WS): From treating raw water to delivering PW, WFI and TS to point of use.
- Modular Process Systems (MPS): Equipment for handling liquid / manufacturing and biotech systems.
- Value Added Services (VAS): Post sales support, operations & maintenance, CMC, upgradations and training.



## Capabilities across the Value Chain

Praj offers end to end solutions from Research and Development (R&D) to Design and Deployment (D&D) as well as Life Cycle Management.



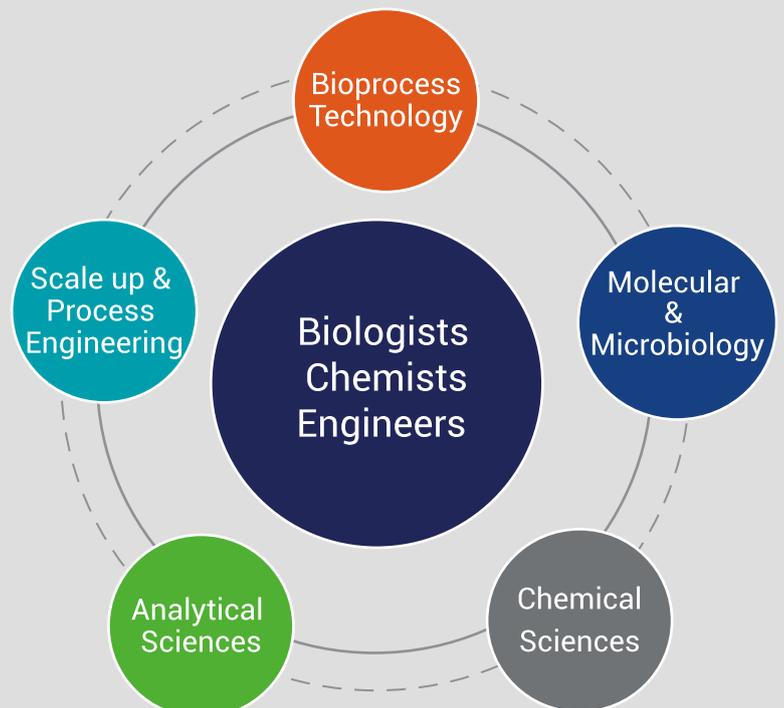
Concept – Realization - Life Cycle Management

## Matrix - Research & Development Center

Praj Matrix, the state-of-the-art R&D facility, forms the backbone for the company's initiatives towards a clean energy-based Bioeconomy.

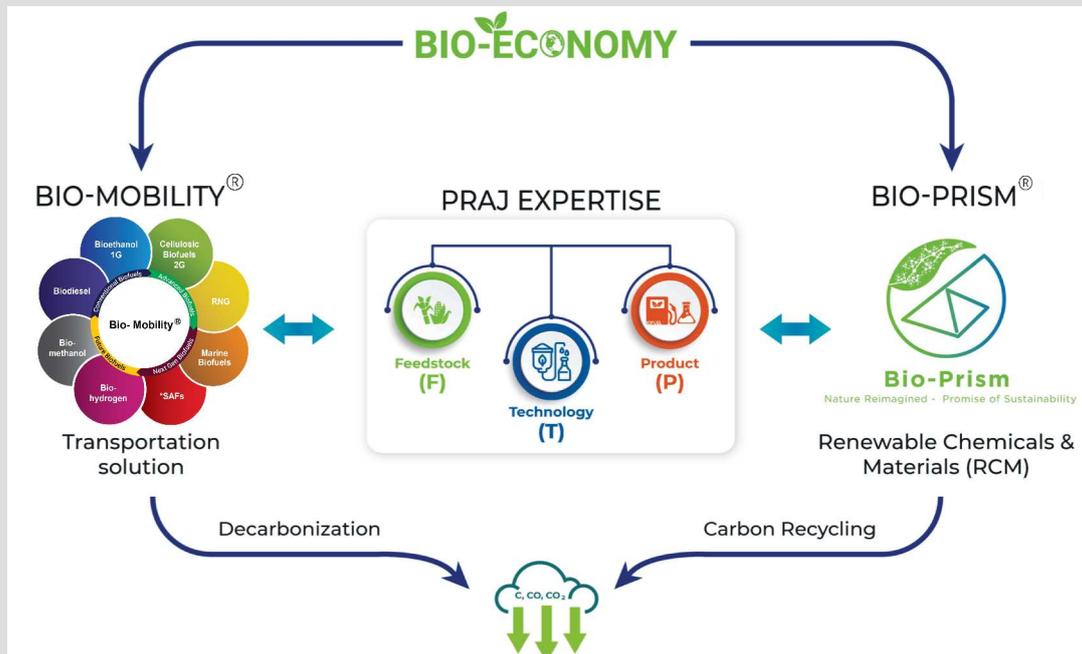
- Praj Matrix is certified from DSIR, GOI.
- It is first of its kind R&D center that facilitates scientific validation and rapid commercialization.
- It is equipped with 16 laboratories, 90+ technologists & scientists and 400+ national and international patents

## CENTRE OF EXCELLENCE



## Bioeconomy

- Praj's endeavors in bioeconomy rest on two pillars- Bio-Mobility® & Bio-Prism®.
- Praj's expertise is in Feedstock-Technology-Product (FTP) which is a bedrock on which Bio-Mobility® & Bio-Prism® are built.



### Bio-Mobility®

- Bio-Mobility® platform of technologies envisages utilization of Agri residues and organic waste to produce low carbon transportation fuels across all modes of mobility i.e. Surface, Air and Marine.
- Bio-Mobility® is the mainstay of the company's contribution to the global bioeconomy by decarbonizing the transportation sector.

### Bio-Prism®

- Bio-Prism® portfolio comprises of technologies for production of Renewable Chemicals and Materials (RCM).
- RCM produced from bio-based feed stocks, are sustainable alternatives to products made from fossil resources that facilitates carbon recycling

## Manufacturing Facilities

### Sanaswadi, Pune Unit:

- Fabrication Capacity 8600 MT/Year
- Infrastructure for SS, Copper, and LAS (Low Alloy Steel)
- Area: 28,800 sqm for fabrication unit



### Wada, Mumbai Unit:

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



### Kandla, Gujarat Unit:

- Unit 1: Stainless Steel fabrication
- Unit 2: Alloys & Carbon Steel fabrication
- Unit 3: Module Pre-Fabrication shop
- Piping Fabrication Shop
- Modular Assembly Yard
- Total Area: 30,700 sqm (Unit 1); 20,200 sqm (Unit 2)



## Strategic Global Partnerships

Praj has forged strategic alliances with renowned organizations, institutions around the world so as to leverage complementary strengths.



## CSR

At Praj, we are aligned with the company's vision of making the world a better place by impacting lives through our sustainable initiatives.

	Environment	Health	Education
	 <p>Sustainable water resources development</p>	 <p>Preventive Healthcare for rural women</p>	 <p>Hands on life skills education through Rural schools</p>
<b>Key Initiatives</b>	Widening and deepening of Streams in 37 drought prone Villages 18.99 lakh cu metres of Silt removed from streams	Preventive healthcare program implemented in 33 Villages in Pune Promoting "Food as Medicine" concept through nutrition garden	Infrastructure upgraded in 16 schools from 8 districts of Maharashtra Rural entrepreneurship programs
<b>Positive Impact</b>	1253 open wells and 660 bore wells Recharged 12,360 acres hectares Agricultural land brought under irrigation	Enhanced health status of 7000 beneficiaries Improved Hb level and reduction in nutritional deficiencies	life skills education covering 6500 students and more than 50 instructors 22 entrepreneurs are being mentored

## Marquee Customers (Partial List)

We serve our customers worldwide!

Bioenergy								
High Purity Systems								
Engineering								

## Global Presence

Praj has been a trusted partner to customers around the world



1000++ references in 100+ countries across 6 continents and still counting...



Innovate • Integrate • Deliver

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