25 Glorious Years of Technology-led Leadership in Asia Pacific





are produced from Praj plants in South East Asia

Praj Industries offers innovative technology and integration solutions to ethanol facilities, brewery plants, water and wastewater treatment systems, critical process equipment and skids, compressed biogas plants, high purity solutions and bioproducts. With over 750 references across 75 countries, it is backed by a state-of-the-art R&D Centre called Matrix.

Praj ventured into the SEA market in 1994 offering multi pressure distillation plants and bagging orders for large beverage producers in Indonesia and the Philippines. Since then it has expanded its territory and provides end-to-end solutions across the APAC region including Myanmar, Malaysia, Thailand, Australia and Japan.





## Growing from strength to strength

Ventured into Thailand market for fuel ethanol.

1st largest beverage grade alcohol plant in Thailand.

5 Mil lit/month

**Fuel Ethanol** 0.5 mil lit/week 10 mil lit/ month

Established 'Praj Far East' JV in Singapore.

1st multi-pressure distillation plant in Indonesia.

4 orders from Philippines's largest beverage producer. 004 - 2000

5 mil lit/week 15 mil lit/month Biogas 5 mil Nm3

/month

Established 'Praj Far East' subsidiary & supplied 10 ethanol plants in Thailand.

1st fuel ethanol plant in Philippines.

Skid based dehydration plants in Australia and Japan.

4 cassava based fuel ethanol plants in Thailand.

Established Praj Far East Philippines subsidiary.

APAC's largest superfine beverage grade plant, 5 more fuel ethanol plants.

1st ZLD and biodigestor in Philippines.

**Fuel Ethano** 15 mil lit/week

20 mil lit/month Biogas 10 mil Nm3

/month 2009 - 201 Offering 2G Bio-ethanol technologies.

Alternative feedstock like cassava puff & EFB developed for APAC.

O&M services available on demand.

Advanced effluent treatment with ZLD.

2019 Ahead

Introduced advanced technology to revamp old plants.

1st order in Myanmar & Malaysia.

**Fuel Ethano** 

25 mil lit/week

Beverage

25 mil lit/month

Biogas

25 mil Nm3

/month

Upgraded 6 plants with higher capacity/lower

Commissioned 1st bio-methanated spent wash evaporation plant in APAC.

Supplied 4 biodigester projects to Thailand, Indonesia & Philippines.

1st food-grade CO2 plant in Philippines.

### ETHANOL WORKSHOP AND ALCOHOL MASTERCLASS

A Praj initiative for Industry Interaction





An Alcohol MasterClass was held in Bangkok in 2015 & 2018, and ethanol workshop was held in Indonesia in 2018 for over 200 delegates.

Praj conducts conferences and technical programs for the industry to build a prosperous and level playing field, while building awareness about fuel ethanol, biorefineries, etc.

New technologies for enhancing performance of existing facilities: Yield Maximization; Co-Product Generation; Product Flexibility; Water & Energy



**ECOFÍNE**® **Distillation Plants** 



EcoSmart™ **Smart Distillation** 



### Comprehensive solutions for the global ethanol industry

Comprehensive solutions | for ethanol industry... globally.

Reduction and Equipment Retrofit.

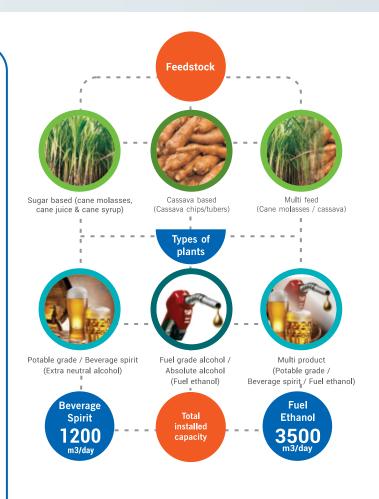


EcoClean™ Biogas Cleaning









# References in Asia Pacific



<ul> <li>KSL Green Innovation Public Co., Ltd.</li> <li>Thai Sugar Ethanol Co., Ltd.</li> <li>Sapthip Co., Ltd.</li> <li>Bangchak Bioethanol (Chachoengsao) Co., Ltd.</li> <li>E85 Co., Ltd.</li> <li>KI Ethanol Co., Ltd.</li> <li>P.S.C. Starch Products Public Co., Ltd.</li> <li>Thai Roong Ruang Energy Co., Ltd.</li> <li>Thai San Miguel Co., Ltd.</li> </ul>	1 project 7 projects 2 projects 1 project 1 project 3 projects 1 project 2 projects 1 project 2 projects		JAPAN  TSK  TFB projects (Marubeni)  PHILIPPINES  Ginebra San Miguel Inc. Emperador Distillers, Inc. Leyte Agri Corporation  Absolut Distillers Inc. Green Future Innovation Inc. Universal Robina Corporation  Kooll Company, Inc. Victorias Milling Company Inc. San Carlos Bioenergy Inc.  AUSTRALIA  Wilmar Ethanol Australia	1 project 1 projects 5 projects 1 project 3 projects 1 project 1 project 2 projects 1 project 2 projects 2 projects
Supervision commissioning After sales  Civil & structural  The world's one stop shop for ethanol plants  Project management  EPC  Equipment manufacture	s iquid rge & 9y	*	MYANMAR  Red Canal Trading  Asia Beverage Co Ltd.,  Kyar Min Gyi Co. Ltd.,  VIETNAM  Hanoi Liquor Joint Stock Co Ltd., (Halico)  Orient Biofules Co. Ltd.,  INDONESIA  PT Molindo Raya Industrial  PT Medco Energi  PT Indo Lampung Distillery  PT Energi Agro Nusantara	1 project 2 projects 3 projects

Ethanol Plants Brewery Plants High Purity Water Systems Bio-Nutrients
Process Equipment & Skids Water & Wastewater Systems

### Praj Worldwide

### India I Philippines I Thailand I USA

• MH Bio/ KOLON Engineering

1 project

1 project

 Kamdhenu Ventures (Cambodia) Ltd.,



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