

# MRPL 2G ETHANOL PROJECT

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**3<sup>rd</sup> EU-India Conference on Advanced Biofuels**  
**New Delhi**  
**2<sup>nd</sup> – 4<sup>th</sup> March 2020**

# Brief on MRPL

- Group Company of ONGC.
- Standalone Petroleum Refinery with a nameplate capacity of 15MMTPA
- Located in coastal town of Mangalore, Karnataka State, Southern India.
- Schedule A, Miniratna, Central Public Sector Enterprise.
- Subsidiaries :
  - OMPL ( ONGC Mangalore Petrochemicals Ltd )
  - SMAFS ( Shell MRPL Aviation Fuels & Services Ltd)

## Brief on MRPL (Cont'd...)

- 6 % share in the overall refining capacity of India
- Meets nearly 70% to 75% of the Karnataka state demand of petrol and diesel
- Producing various international quality fuels :  
LPG, DIESEL, PETROL, NAPHTHA, AVIATION TURBINE FUEL, BITUMEN, FUEL OIL, ETC
- Petrochemicals :  
Polypropylene, Para-xylene and benzene from its subsidiary OMPL

# MRPL IN HARMONY WITH NATURE

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- First Refinery to produce unleaded petrol & BS-III/IV products.
- MRPL has started supplying BS-VI Products
- MRPL is using the Sewage Treated water from the City corporation in its process.
- Bio-gas is being generated from the Food Waste of Refinery and Township
- Now venturing in to the Bio fuel segment, based on Govt Mandate.

# MRPL's 2G Ethanol Project

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- MRPL to cater to demand of 2G Ethanol in South India.
- Biomass assessment study carried out through M/s PRESPL & IISc in Karnataka
- 4 Clusters identified with potential Biomass

# Four Clusters identified In Karnataka

**Cluster-1  
Ranibennur/Harihara**



**Cluster 2 Gokak**



**Cluster 3 Sindhanur**



**Cluster 4 HD Kote**



# Biomass Surplus within 25, 50, 70, 100 km of Selected Site

**Cluster 1**

Area with Radius of	Maize Cobs	Maize Stalks	Sugarcane Trash	Cotton Stalk	Coconut Fronds	Paddy Straw	Total
25 km	27731	14695	2648	58034	4266	11030	118404
25 - 50 km	81994	50631	12108	94086	15596	45256	299671
50 - 70 km	59797	42958	11843	71317	19415	53272	258601
70 - 100 km	52700	14197	39838	73589	49051	36049	238825
<b>Total</b>	<b>222222</b>	<b>122480</b>	<b>39838</b>	<b>297026</b>	<b>88328</b>	<b>145607</b>	<b>915501</b>

**Cluster 2**

25 km	17979	0	60579	5421	0	0	83980
25 - 50 km	32636	0	151569	15236	0	0	199442
50 - 70 km	29885	0	161892	13446	0	0	205223
70 - 100 km	34055	0	96402	42035	0	0	172492
<b>Total</b>	<b>114556</b>	<b>0</b>	<b>470442</b>	<b>76138</b>	<b>0</b>	<b>0</b>	<b>661136</b>

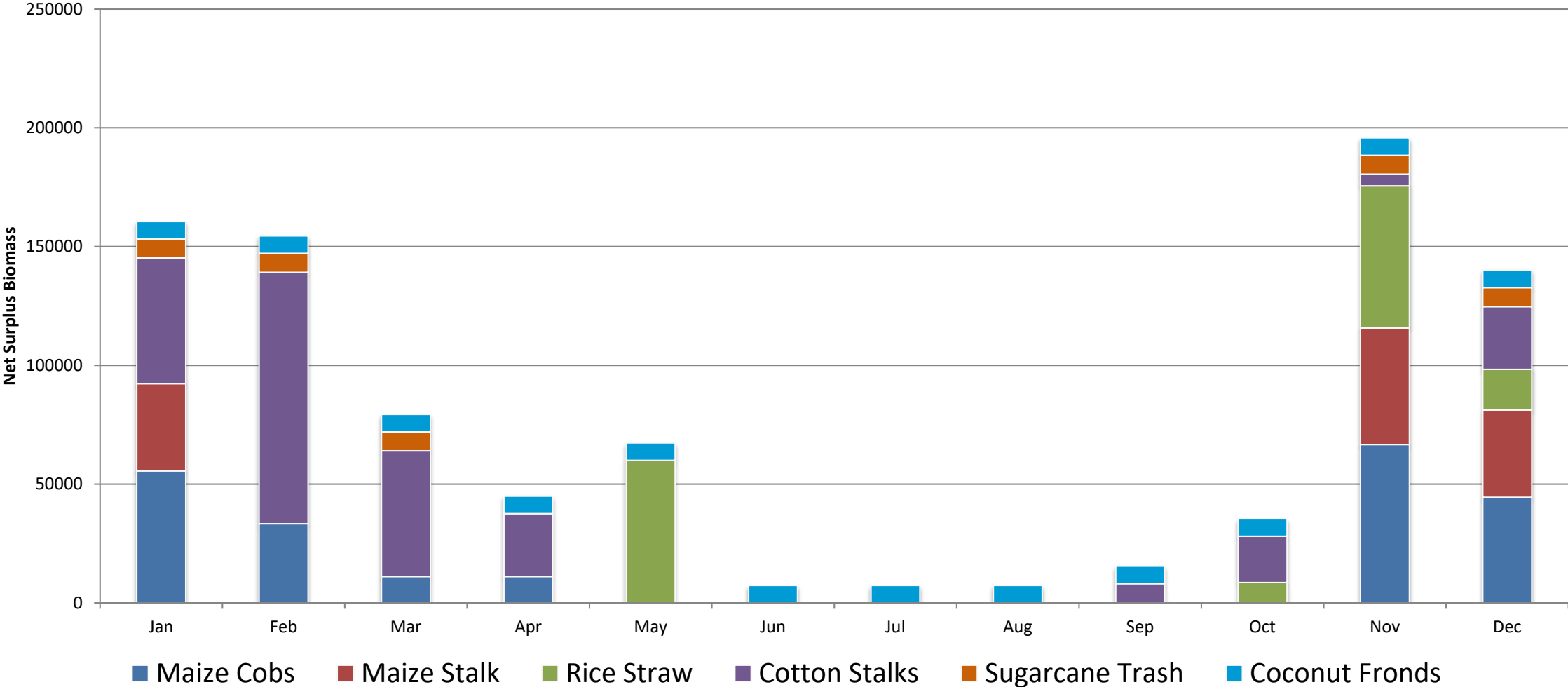
**Cluster 3**

25 km	294	2296	682	5471	0	123450	132193
25 - 50 km	5471	13342	3803	24521	0	192388	239525
50 - 70 km	8015	13391	2688	20789	0	67232	112114
70 - 100 km	10189	14296	6860	54111	0	49408	134864
<b>Total</b>	<b>23968</b>	<b>43326</b>	<b>14033</b>	<b>104892</b>	<b>0</b>	<b>432478</b>	<b>618696</b>

**Cluster 4**

25 km	5149	0	11885	5473	29227	14876	66611
25 - 50 km	10401	0	42093	31328	82800	11674	178296
50 - 70 km	8251	99	35159	38438	94507	26740	203194
70 - 100 km	8833	4088	23318	5783	244218	28460	314701
<b>Total</b>	<b>32635</b>	<b>4188</b>	<b>112454</b>	<b>81022</b>	<b>450752</b>	<b>81751</b>	<b>762801</b>

# Biomass Calendar





# Final Biomass Cost @ Plant gate (Rs/MT)-Maize Stalk

	Particulars	Cluster 1	Cluster 2	Cluster 3	Cluster 4
	Area (Ha)	485833	260513	82707	73954
	Biomass Production ('000MT)	1381244	867506	248539	251662
	Yield (MT/Ha)	2.84	3.33	3.01	3.40
	Farm Gate Price	500	500	500	500
	Harvesting/Shredding	1196	1021	1131	999
	Cutter				
	Raking/Windrowing	211	180	200	176
	Baling	1460	1246	1381	1220
	loading (Mechanized)	100	100	100	100
	Transportation	300	300	300	300
	VLE margin				
<25km	Total Cost at CC or factory gate direct	3767	3347	3612	3295
	Qty	14695	0	2296	0
<50km	Cost	4785		4452	
	Qty	50631	0	13342	0
<70km	Cost	4905		4572	
	Qty	42958	0	13391	0
<100km	Cost			4812	
	Qty		0	14296	0
Total	Cost	4694		4563	
	Qty	108283	0	43326	0
	FMC Margin@15%	704		685	
	Final Biomass Cost	5398		5248	

# MRPL's 2G Ethanol Project

- Harihara, Davangere District identified as suitable location.
- Requirement of Bio Mass for 60 KLPD Plant = 90 KT/Year
- Net Surplus Biomass of major crops available in Harihara Cluster, Davangere district

KT/A

Corn Cob	Corn stalk	Cotton Stalk	Rice Straw
222	122	297	145

## FEED STOCKS CONSIDERED FOR 2G Project



Maize Cobs



Maize Stalk



Cotton Stalk

**MRPL FEED  
REQUIREMENT IS  
AROUND 250 to 300T per day**

# Project Status

- Land : Procured from KIADB (Karnataka Industrial Area Development Board)
- Water & Power : Available
- Environmental Clearance (EC) :
  - Public Hearing completed
  - Presentation made to State Apex Expert Committee. EC expected in April'20 and Consent for Establishment (CFE) by June 2020
- MRPL is considering Gas Fermentation technology
  - Syn gas production from Biomass Gasifier
  - Syn Gas Treatment
  - Fermentation of Syn gas using microbes to 2G Ethanol

## Project Status (Cont'd)

- Tender for Detailed Feasibility Report(DFR) consultant in process.
- Application for VGF submitted to CHT.
  - Under review by Scientific Advisory Committee.
- Approached State Govt for VGF & other support from the State.
- Targeted for commissioning in March 2023.

THANK YOU

# Tentative schedule for Project

<b>Ground Breaking</b>	15 <sup>th</sup> Dec 2020
<b>Mechanical Completion</b>	30 <sup>th</sup> Dec 2022
<b>Commissioning Date</b>	31 <sup>st</sup> Mar 2023

