Chapter 1 Introduction

Mangalore Refinery and Petrochemicals Limited (the Company) is a Miniratna Company under the administrative control of Ministry of Petroleum and Natural Gas (MoPNG), Government of India (GoI). The Company is a subsidiary of Oil and Natural Gas Corporation (ONGC). It produces Liquefied Petroleum Gas, Motor Spirit, Naphtha, Mixed Xylene, Aviation Turbine Fuel, Kerosene, High Speed Diesel, Furnace Oil, Bitumen, Polypropylene, Petroleum Coke and Sulphur.

Till 2011-12, the Company had a refining capacity of 11.82 MMTPA[1] which was expanded to 15 MMTPA under Phase III expansion project.

1.1 Organisation set up

The Company is headed by a Non-Executive Chairman. Managing Director is the executive head of the Company. The Board of Directors (Board) comprise of Chairman, three functional directors including the Managing Director, one nominee director of Hindustan Petroleum Corporation Limited and two government nominee directors. There were no independent directors in the Board since 14 September 2014.

Managing Director, Director (Finance) and Director (Refinery) are the full time functional directors in the Board. Various departments of the Company are headed by Group General Managers who report to Director (Finance) or Director (Refinery) based on the functions performed. The Company has a branch at Bangalore to assist in marketing activities and

[1] ***MMTPA -Million Metric Tonne per Annum.***

another at Delhi to assist in financial activities, including international transactions and to facilitate crude import and product export.

1.2 Financial Performance

The financial position of the Company for the five years ending 31 March 2016 is reflected in the following table:

Table 1.1: Balance Sheet (₹ in crore)

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
Share Capital	1,757.26	1,752.66[2]	1,752.66	1,752.66	1,752.66
Reserves	5,471.94	4,715.03	5,316.21	3,552.29	4,667.78
Borrowings	6,183.11	7,557.65	9,792.72	9,032.47	8,102.84
Deferred Tax Liability	453.14	734.33	470.27	0.00	80.63
Total Liabilities	**13,865.45**	**14,759.67**	**17,331.86**	**14,337.42**	**14,603.91**
Fixed Assets (Net)	11,149.02	13,335.11	14,542.97	15,486.76	15,104.54
Investments	42.28	15.00	15.00	1,349.67	1,349.67
Net Current Assets	2,674.15	1,409.56	2,773.89	-2,499.01	-1,850.30
Total Assets	**13,865.45**	**14,759.67**	**17,331.86**	**14,337.42**	**14,603.91**

The increase in borrowings during the period from 2011-12 to 2013-14 was to meet the capital expenditure up to 2013-14. The same started decreasing thereafter as the Company started repaying the borrowings. Further, investments also increased in the year 2014-15 on account of subscription (February 2015) to share capital of ONGC Mangalore Petrochemical Limited, which became a subsidiary of the Company.

Operating performance of the Company for the five years ending 31 March 2016 was as given below:

Table 1.2: Statement of Profit and Loss (₹ in crore)

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
Income					
Sales (Net of Excise Duty)	53,763.34	65,691.52	71,810.50	57,438.15	39,632.04
Other Income	354.31	116.04	324.47	810.16	872.52
Increase/ (Decrease) in Stocks	150.21	1,116.15	674.07	-1,886.13	-683.17
Total – A	**54,267.86**	**66,923.71**	**72,809.04**	**56,362.18**	**39,821.39**
Expenditure					
Raw Materials	51,236.75	65,400.18	70,740.63	55,886.06	34,650.43
Sales Tax & Excise Duty on Stocks (net)	-60.62	21.8	19.96	91.69	158.89
Salaries & Other Expenses	160.64	184.56	215.47	240.74	306.14
Exchange Fluctuation Net Loss	648.22	536.49	1.91	683.5	1,190.27
Other Expenses	322.11	324.56	393.51	710.38	1,051.92
Interest	206.68	328.55	321.44	407.09	577.83

[2] *Reduction in capital due to redemption of 91.86 lakh Preference Shares of ₹ 5.00 each*

Depreciation	433.87	604.41	706.42	498.61	712.41
Total – B	**52,947.65**	**67,400.55**	**72,399.34**	**58,518.07**	**38,647.89**
Profit/Loss Before Tax **C=(A-B)**	1,320.21	-476.84	409.70	-2,155.89	1,173.50
Provision for Taxation - **D**	411.63	280.07	-191.49	-443.66	25.35
Profit/Loss After Tax C-D	**908.58**	**-756.91**	**601.19**	**-1,712.23**	**1,148.15**

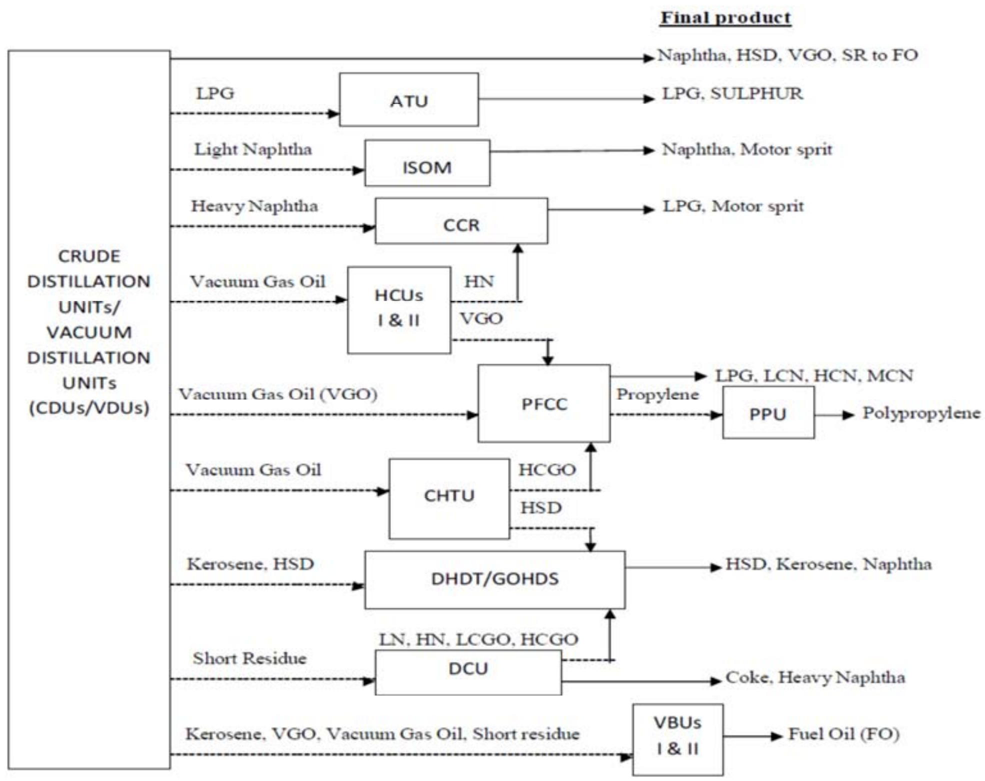
The Company earned profits during 2011-12, 2013-14 and 2015-16 and incurred losses during 2012-13 and 2014-15. One of the reasons for this fluctuating result was delay in stabilisation of the newly commissioned units of Phase III expansion project and their non-synchronisation with Phase I & II units. Further, other factors like currency rate variations and fluctuations in crude oil prices, also contributed to the fluctuations in results.

1.3 Production process

The Company plans refinery operations on the basis of demand for petroleum products, availability of required grade of crude oil as per designed parameters of processing units and refinery configuration. Yield pattern of the refinery depends upon the crude mix, refinery configuration, technology, finished product demand, production process optimisation and operating performance of primary and secondary processing units.

A simplified flow diagram of MRPL refinery is shown below:

Refinery Process Flow



1.4 Production Performance

The production performance of the Company was reviewed keeping in mind the commissioning of various facilities projected under Capital Projects including Phase III Expansion Project, setting up of Poly Propylene Unit[3] (PPU) and Single Point Mooring[4] (SPM) facility and their synchronisation with the existing facilities created under Phase I and II. Following table summarises the production performance of the Company for five years ending March 2016.

Table 1.3: Production performance

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
Capacity (MMTPA)	11.820	13.620	15.000	15.000	15.000
Crude Oil receipt (MMT)	13.025	14.156	14.971	14.354	15.871
Throughput (MMT)	12.818	14.403	14.547	14.648	15.692
Production (MMT)	11.953	13.394	13.397	13.169	14.166
Capacity utilisation (Throughput/Capacity) (in *per cent*)	108.44	105.75	96.98	97.65	104.61
Gross Refining Margin (USD/BBL[5])	5.60	2.45	2.67	(-)0.64	5.20
Fuel & Loss [6] (*per cent* to throughput)	6.75	7.00	7.90	10.09	10.06

Though the Crude Distillation Unit (CDU)[7] III under Phase III Expansion Project was commissioned in March 2012, the Company considered addition of 60 *per cent* capacity for the year 2012-13 on trial run basis and full capacity thereafter i.e. from 2013-14. Though design capacity was estimated at 15 MMTPA, the Company could not achieve the designed capacity during 2013-14 and 2014-15 due to delay in commissioning of Phase III units which was actually achieved in 2015-16. Delay in commissioning of Phase III units also impacted the Gross Refinery Margin (GRM), which turned negative during 2014-15. Fuel & Loss, which affects efficiency and GRM, showed an increasing trend for four years up to 2014-15 while during 2015-16, it showed a marginal decline compared to previous year. Thus, GRM and Fuel & Loss which affect the operating efficiency showed an adverse trend during the period. These aspects have been discussed in ensuing Chapters.

1.5 Capital Projects

Based on a Detailed Feasibility Report (DFR) prepared by Engineers India Limited (EIL) in December 2005, the Company decided (February 2006) to undertake a refinery upgradation

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3 ***Petrochemical unit for production of Poly Propylene from Propylene.***
4 ***An offshore facility for discharge of crude***
5 ***The Gross Refinery Margin (GRM) is the difference between the total value of petroleum products coming out of an oil refinery (output) and the price of the raw material (input) which is crude oil. GRM is typically expressed in US dollars per barrel (USD/bbl).***
6 ***'Fuel & Loss' is the oil used in running the various units of refinery or is lost during processing.***
7 ***Distils and separate valuable distillates and bottom products from crude.***

project (Phase III Expansion Project) with an estimated cost of ₹ 7,943 crore. This cost was revised to ₹ 12,412 crore in August 2008 due to change in capacity/deletion of units and addition of CDU and Heavy Coker Gas Oil Hydrotreating Unit (CHTU)[8]. In May 2009, it was revised to ₹ 13,964 crore due to inclusion of PPU at an estimated cost of ₹1,804 crore and reduction of ₹ 252 crore due to deletion of handling facility of Propylene. Again in June 2010, the cost was revised to ₹ 15,008 crore due to inclusion of SPM at a cost of ₹ 1,044 crore. The detailed reasons for the revisions are included in **Annexure I**. Details of estimated cost in 2006 and its revision in 2008, 2009 and 2010 are given in **Annexure II**.

In October 2015, the Company obtained approval of its Board for adjustment in Project Cost of Phase III expansion to ₹13,475 crore. Thus, the total adjusted cost of the Capital Projects including Phase III Expansion Project, setting up of PPU and SPM worked out to ₹ 16,323 crore. As of March 2016, the Company had incurred an expenditure of ₹14,832 crore.

Initially, the project was scheduled to be commissioned within 48 months from June 2006 i.e. by June 2010 which was later extended (August 2008) to October 2011 due to change in capacity/deletion of units and addition of CDU and CHTU. The project, however, got commissioned in September 2014. PPU and SPM, which were envisaged in 2009 and 2010, had a commissioning target of September 2012 and May 2012, respectively. PPU was commissioned in June 2015 and SPM was commissioned in August 2013.

1.6 Audit Objectives

The Performance Audit was conducted with a view to ascertain whether:

- The Capital Projects were designed, prepared, awarded, implemented and synchronised efficiently within the estimated cost and as per schedule with proper planning for crude oil in order to ensure smooth operation of refinery.
- Refinery operation was carried out economically and efficiently and maintenance was taken up as scheduled.
- Fuel & Loss and consumption of utilities (Power, Steam, Fuel and Water) and consumption of chemicals and catalyst were within norms, and
- Environmental aspects were taken care of and statutory norms relating to the same were complied with.

[8] ***Produces feed stock of low sulfur, low nitrogen feed hydro treated Heavy Coker Gas Oil Feed stock for another downstream unit.***

1.7 Scope of Audit

Audit covered the planning and execution of Capital Projects including Phase III expansion, setting up of PPU and SPM, synchronisation and operational performance of the processing units, auxiliary units and utilities for the period 2011-12 to 2015-16. Compliance with relevant statutory regulations relating to environmental issues were also covered.

1.8 Audit methodology

Performance Audit commenced with an Entry Conference (20 May 2016) with the Management to discuss the Audit objectives, criteria, scope, methodology etc. Audit methodology included examination and analysis of records, discussion with the Management, issue of audit queries and review of Management's reply. Audit examination also included review of Board Minutes, Production Plans, MoUs signed with the Holding Company, Annual Maintenance Programmes, Reports of Management Information System and records relating to refinery operation and technical services. Audit findings were shared with the Management by issue of Draft Performance Audit Report (October 2016) and in an Exit Conference (November 2016). The Draft Report was issued to the Ministry of Petroleum and Natural Gas in February 2017. Despite reminders issued on 15 March 2017, 29 March 2017, 27 April 2017, 22 May 2017 and 1 June 2017, the Ministry did not furnish a written reply. An Exit Conference with Ministry was, thereafter, held on 21 June 2017. Replies furnished by the Management and views of the Management/Ministry in the Exit Conferences have been considered while finalising the Performance Audit Report.

1.9 Audit Criteria

Audit criteria adopted for the Performance Audit included Detailed Project Report/ Detailed Feasibility Report, MoUs, Process Licensors Agreement, Agreement with Consultants, Contractors and other agencies, Auto Fuel Policy of Government of India, agreement with Oil Marketing Companies (OMCs) and foreign customers, prevalent Industrial Standards / Norms and Environmental laws, Government policy and guidelines, Working Group Report - XII Five Year Plan by Ministry of Petroleum and Natural Gas etc.

1.10 Acknowledgement

Audit acknowledges the co-operation and assistance extended by the Management at various stages during the conduct of the Performance audit.