INDIAN
PETROLEUM & PETRO-CHEMICALS
STATISTICS

1980-81

ECONOMICS & STATISTICS DIVISION
DEPARTMENT OF PETROLEUM
MINISTRY OF PETROLEUM, CHEMICALS & FERTILIZERS
GOVERNMENT OF INDIA
NEW DELHI

PREFACE

The present publication is the fifteenth of the annual series brought out by Economics & Statistics Division which attempts to present detailed up-to-date data and an over-view of developments in the field of national and international Oil Industry. Some basic national petroleum statistics have also been presented both on financial as well as on calendar year basis, the former to meet the requirements of national planning & administration and the latter to meet our various obligations to U.N. and other international bodies and for purposes of maintaining historical continuity.

2. Apart from updating usual tables, we have added several new tables in various Sections of the publication relating, inter alia, to (i) State-wise production of crude oil & natural gas in India on calendar/financial years; (ii) prices of indigenous onshore & offshore crude oils; (iii) rates of dealers commission for MS, HSDO and LPG; (iv) movement of POL traffic on railways; (v) rail freight rates on POL; (vi) Sixth Plan outlay and physical targets/material balances of crude oil & POL - 1980-85; (vii) trends in ex-factory prices of Caprolactum, DMT, etc. and (viii) rates of import duties(standard) on man-made fibres/raw materials effective 1.3.81, etc. In the Section dealing with financial statistics, the financial performance/structure of B.R.P.L. has been added. On international petroleum statistics, we have added tables relating to (i) Official development assistance from OECD/OPEC - 1978 to 1980; (ii) OPEC's weighted average official selling and spot prices of crude oil - June 1980 - Sept. 1981; (iii) retail prices of petroleum products in neighbouring and industrially advanced countries during May/June, 1981; and (iv) commercial energy production/consumption by country groups in perspective of 1980-90. We have also included some 'Late Additions & Highlights' on various aspects of petroleum industry. It is hoped that officers and executives in various Ministries of the Government of India, Planning Commission, Oil Coordination Committee and other Organizations associated with the development of Oil Industry would find this publication useful.

3. While we have taken all possible care to ensure accuracy in presentation of data contained in various tables, we would welcome suggestions of our readers for rectification of any error or omission noticed by them.

September, 1981.

Economics & Statistics Division,
Department of Petroleum.

Officers & Staff of Economics & Statistics Division

J.S. Sinha, Senior Research Officer

R.K. Kapoor, Research Officer

A.N. Tuteja, Asstt. Cost Accounts Officer

B.K. Verma, Senior Investigator

H.R. Chopra, Senior Investigator

D.C. Garg, Junior Investigator

A.K. Chopra, Senior Computor

.....

.....

....

..

.

CONTENTS

Sec.No.	Subject	Page No.
	PART - I	
	PETROLEUM STATISTICS	
I.	HIGH LIGHTS OF INDIAN PETROLEUM INDUSTRY - 1980-81.	1-3
II.	CHRONOLOGY OF SOME IMPORTANT EVENTS IN THE HISTORY OF PETROLEUM INDUSTRY IN INDIA.	4-42
III.	GROWTH OF PETROLEUM INDUSTRY IN INDIA : CALENDAR/FINANCIAL YEARS.	43-44
IV.	PETROLEUM ENERGY IN INDIA : 1976 TO 1980 AND 1976-77 TO 1980-81.	45-46
V.	EXPLORATION AND PRODUCTION	
	1. Reserves of Crude Oil and Natural Gas in India.	47
	2. Number of deep drilling rigs in the country.	48
	3. Number of wells and metreage drilled by ONGC and OIL - 1970-71 to 1980-81.	48
	4. Status of wells as on 1st April of each year.	49
	5. State-wise achievements of geological field parties since inception upto March, 1981.	50
	6. State-wise achievements of geophysical field parties since inception upto March, 1981.	51
	7. State-wise achievements of drilling since inception upto March, 1981.	52
	8. Company-wise production of Crude Oil on calendar years.	53
	9. Company-wise production of Crude Oil in financial years.	54
	10. State-wise production of Crude Oil in India on calendar/financial years.	55
	11. State-wise production of Natural Gas in India on Calendar/Financial Years.	56
	12. State-wise utilisation of Natural Gas in India on calendar/financial years.	57
VI.	REFINING	
	1. Petroleum Refining Capacity as on 1.3.1981.	58
	2. Refinery Crude Throughput and Production of Petroleum Products on financial/clanedar years.	59
	3. Refinery-wise crude charged and total production of Petroleum Products.	60-61
	4. Refinery production and pattern of refinery production in India on calendar/financial years.	62-63

.../-

Sec.No.	Subject	Page No.
VII.	CONSUMPTION/SALES	
1.	All-India total consumption of Petroleum Products from 1948/1948-49 to 1980/1980-81.	64
2.	Product-wise consumption of Petroleum Products during the years 1977-1980(calendar years) and 1977-78 to 1980-81(financial years).	65-66
3.	Seasonal indices of the sales/consumption of major Petroleum Products in India.	67
4.	Sales/consumption and market participation of oil companies from 1970-71 to 1980-81.	68
5.	Deliveries made to international/coastal bunkers from 1970-71 to 1980-81.	69
6.	State-wise sales of selected petroleum products during 1980-81(including international bunkers).	70
7.	Estimated State-wise per capita sales/consumption of major petroleum products (excluding International bunkers) - 1976-77 to 1980-81.	71
8.	Estimated per capita consumption of selected petroleum products - 1976-77 to 1980-81.	71
9.	Estimated sector-wise consumption of selected petroleum products - 1978-79 and 1979-80.	72-74
10.	Consumption of Diesel Oil in Indian Railways from 1960-61 to 1980-81.	75
11.	Industry-wise consumption of Naphtha from 1978 to 1980 and 1978-79 to 1980-81.	76
12.	Plant/customer-wise offtakes of LSHS/HHS from 1977-78 to 1980-81.	77
13.	Fuel consumption on Gas Turbine & Diesel Power Stations in India - 1978-79.	78
14.	Fuel consumption in Steam Power Stations - 1978-79.	79
VIII.	FOREIGN TRADE	
1.	Imports of Crude Oil and Petroleum Products from 1955 to 1980 and 1955-56 to 1980-81.	80
2.	Imports of Crude Oil and Petroleum Products (productwise) from 1978 to 1980 and 1978-79 to 1980-81.	81
3.	Total exports of petroleum products from 1955 to 1980 and 1955-56 to 1980-81.	82
4.	Exports/re-exports of petroleum products from 1977 to 1980 and 1977-78 to 1980-81.	83
5.	Exports earnings during 1978-79 to 1980-81.	84
6.	India's Revenues from HIL Crude.	84

..../-

Sec.No.	Subject	Page No.
	7. Trend in India's overall trade balance and trade balance with OPEC countries.	85
	8. India's foreign exchange reserves - 1970-71 to 1980-81.	86
	9. India's POL imports as a proportion of its total exports - 1970-71 to 1980-81.	86
IX.	MANPOWER EMPLOYED	
	1. Manpower employed in the Petroleum Industry in India.	87
	2. Category-wise manpower employed in the Petroleum Industry in India.	87
	3. Category-wise manpower employed in various sectors of Petroleum Industry in India.	88
X.	PRICES	
	1. Index number of Wholesale Prices of Petroleum Products, Petro-based industries and other energy items in India.	89
	2. Price of indigenous onshore and offshore crude oil in India.	90
	3. Basic ceiling selling prices (ex-storage) of petroleum products as on 13.1.1981.	90-91
	4. Retail prices of selected petroleum products in major cities as on 1.4.1981.	92-95
	5. Rates of dealers commission for MS, HSDO & LPG.	96
XI.	EXCISE/CUSTOM DUTIES AND SALES TAX	
	1. Realisation of excise and custom duties from crude oil and petroleum products.	97
	2. Percentage share of Central excise on POL to total Central excise and to Net National Products.	98
	3. Composite incidence of excise/custom duties on petroleum products.	99
	4. Royalty and Oil Development Cess realised from Oil Companies since 1969-70 1981-82.	99
	5. Central excise duty on Petroleum Products as on 1.3.1979, 17.8.1979, 11.9.1979, 8.6.1980 and 13.1.1981.	100
	6. Excise & custom duties in the basic ceiling selling prices(BCSP) ex-storage point effective 13.1.1981.	101
	7. Sales tax rates applicable on Crude Oil and petroleum products in different States as on 1.4.1981.	102-107

..../-

Sec.No.	Subject	Page No.
XII.	TANKER AND FREIGHT RATES	
	1. Tonnage of Indian tanker fleet - 1966 to 1980.	108
	2. Indian tanker fleet as on 1.1.1981.	109
	3. Share of traffic in petroleum products in the total traffic handled at major ports.	110-111
	4. Coastal movements of Petroleum Products - 1968 to 1980.	111
	5. Average freight rates from Ras Tanura to Indian ports.	112
XIII.	GENERAL	
	1. Retail outlets in India as on 1st January of each year - 1968 to 1981.	113
	2. State-wise distribution of retail outlets, multi-purpose/farm fuel centres, LDO/SKO, dealers and LPG distributors as on 1.1.1981.	114
	3. State-wise number of LPG Domestic consumers as on 1.4.1981.	115
	4. Crude oil and product pipelines in India.	116-117
	5. Gross production of energy by various sources in India.	118
	6. Movement of POL Traffic on Railways since 1970-71.	119
	7. Rail freight rates in respect of Petroleum Products (Dangerous & Non-dangerous) as on 1.4.80 and 1.4.81.	119
XIV.	INTERNATIONAL PETROLEUM STATISTICS	
	1. Estimated world crude oil and gas reserves as on 1.1.1981.	120
	2. World estimated crude oil production - 1977-1980.	121-122
	3. World net production of natural gas - 1973 to 1979.	123-124
	4. Crude oil production in OPEC member countries - 1970-1980.	125
	5. Crude oil exports by OPEC member countries - 1970-1979.	125
	6. Productivity of producing wells in selected fields in the world - 1980.	126
	7. World oil refining capacities at end 1980 and 1979.	127
	8. World natural gas consumption - 1970-1980.	128

..../-

Sec.No.	Subject	Page No.
9.	World oil consumption - 1970-1980.	129
10.	Main product consumption(including bunkers) - 1970-1980.	130
11.	World oil production, consumption and relative deficit/surplus in each region/country during 1980/1973.	131
12.	Country-wise imports and exports of crude oil & POL products - 1980.	132
13.	Country-wise exports of crude oil by main OPEC producers - 1979.	133
14.	Oil revenue of main OPEC members - 1972-1980.	134
15.	Official Development assessment from OECD and OPEC members - 1978/1980.	134(a)
16.	Key crude oil price postings around the world since 1970.	135-138
17.	Official selling prices of key OPEC Crudes since 1974.	139-141
18.	OPEC weighted average official selling and spot assessment prices of crude oil - June, 1980 to September, 1981.	141(a)
19.	Lowest posted prices of POL products at Bandar Mahshar - 1968 to 1981.	142
20.	Retail prices of petroleum products in Neighbouring and industrially advanced countries during May/June, 1981.	143
21.	Posted airfield prices of Jet A-1 fuel at major international airports.	144
22.	World development of average freight rate assessment (AFRA).	145
23.	World tanker fleet at end 1980 by flag ownership.	146
24.	Inter-area total oil movement - 1980.	147
25.	World primary energy consumption - 1980.	148
26.	Commercial primary energy production and consumption by country groups - 1970/1980/1990.	148(a)
27.	Composition of various forms of energy by country groups - 1980.	148(b)(i)
28.	Relative percentage share of different forms of energy according to country groups - 1980.	148(b)(ii)

..../-

Sec.No.	Subject	Page No.
	PART - II	
	PETROCHEMICALS STATISTICS	
I.	CHRONOLOGY OF IMPORTANT EVENTS IN PETRO-CHEMICALS INDUSTRY IN INDIA.	149-200
II.	**CAPACITY AND PRODUCTION**	
	1. Annual installed capacity and production of Petro-chemicals in India during the years 1970, 1975, 1979 and 1980.	201-202
	2. Production of Petro-chemicals in India from 1970-71 to 1980-81.	203
III.	**SALES/CONSUMPTION**	
	1. Estimated consumption of selected Petro-chemicals.	204
	2. Estimated end-use sales/consumption of U.F. & M.F.Moulding Powders in different industries.	205
	3. Eestimated end-use sales/consumption of C.A. Moulding Powder in different industries.	205
	4. Estimated end-use sales/consumption of Polyethylene L.D. in different industries.	206
	5. Estimated end-use sales/consumption of Polyethylene H.D. in different industries.	206
	6. Estimated end-use sales/consumption of Polystyrene in different industries.	207
	7. Estimated end-use sales/consumption of PVC Resins in different industries.	207
	8. Estimated end-use sales/consumption of selected organic chemicals.	208-209
	9. Sales/consumption of SBR by end-products.	210
IV.	**PRICES**	
	1. Trend in ex-factory prices of Caprolactum, DMT & Monoethylene Glycol.	211
	2. Ex-works prices (bulk, excluding excise duty) of selected petro-chemicals.	212-213
	3. Average Bombay market price quotation of Synthetic fibre/yarns.	214
V.	**EXCISE AND CUSTOM DUTIES**	
	1. Realisation of Excise and Custom duties on Petro-chemicals during the years 1977-78, 1978-79, 1979-80, 1980-81 and for 1981-82(BE).	215
	2. Rates of excise duties on Synthetic fibres/ yarn and raw materials effective 1.3.1981.	216

..../-

Sec.No.	Subject	Page No.
	3. Rates of import duties(standard) on man-made fibres/raw materials effective 1.3.1981.	216
VI.	IMPORTS / EXPORTS	
	1. Imports of selected Petro-chemicals from 1970-71 to 1979-80.	217
	2. Exports of selected Petro-chemicals from 1970-71 to 1979-80.	218
VII.	INTERNATIONAL STATISTICS	
	1. World Production of Textile Fibres.	219
	2. Production of plastics and resins in selected countries of the world - 1971 to 1977.	220-222
	3. Production of synthetic and re-claimed rubber in selected countries of the world - 1971 to 1977.	223
	4. Production of basic organic chemicals in selected countries of the world - 1971 to 1977.	224-226

PART - III

PLAN STATISTICS

1.	Sixth Plan Outlay for Petroleum, Petro-chemicals, Explosives and Engineering Units under the purview of Deptt. of Petroleum.	227-236
2.	Sector-wise Sixth Plan Outlay for Petroleum and Petro-chemical Industries.	236
3.	Undertaking-wise Sixth Five-Year Plan outlay for the Petroleum and Petro-chemical industries.	237
4.	Actual/anticipated plan expenditure of the undertakings under the purview of Department of Petroleum.	238
5.	Capacity and production estimates for Petroleum and selected Petro-chemicals for 1984-85.	239
6. i)	Plan targets of domestic crude production - 1980-81/1984-85.	240
ii)	Material Balance Crude Petroleum - 1979-80/1984-85.	240
iii)	Material Balance : Petroleum products - 1979-80/1984-85.	240

..../-

S.No.	Subject	Page No.

PART - IV

FINANCIAL PERFORMANCE / STRUCTURES

1.	Review of financial structures - 1979-80 and Quick Review - 1980-81.	241-249
2.	Consolidated financial structure - 1980-81 (Quick Review).	250
3.	Consolidated financial structure - 1979-80 (All Undertakings and Categories).	251
4.	Consolidated financial structure - 1978-79 (All Undertakings & Categories)	252
5.	Consolidated financial structure - 1977-78 (All Undertakings & Categories).	253
6.	Consolidated financial structure - 1977-78 to 1979-80 (Exploration & Production).	254
7.	Financial structure - Oil & Natural Gas Commission - 1977-78 to 1979-80.	255
8.	Financial structure - Hydrocarbons India Ltd. - 1977-78 to 1979-80.	256
9.	Financial structure - Oil India Ltd. - 1977 to 1979.	257
10.	Consolidated financial structure - 1977-78 to 1979-80 (Refining & Marketing).	258
11.	Financial structure - Indian Oil Corporation Ltd - 1977-78 to 1979-80.	259
12.	Financial structure - Bharat Petroleum Corporation Ltd. - 1977-78 to 1979-80.	260
13.	Financial structure - Hindustan Petroleum Corporation Ltd. - 1978 to 1979-80.	261
14.	Financial structure - Caltex Oil Refining (India) Ltd - 1977-78.	262
15.	Financial structure - Cochin Refineries Ltd. - 1977-78 to 1979-80.	263
16.	Financial structure - Madras Refineries Ltd - 1977-78 to 1979-80.	264
17.	Financial structure - Indo-Burma Petroleum Co.Ltd. - 1977-78 to 1979-80.	265
18.	Financial structure - Lubrizol India Ltd. - 1977-78 to 1979-80.	266
19.	Financial structure - Balmer Lawrie & Co. Ltd. - 1977-78 to 1979-80.	267
20.	Financial structure - Biecco Lawrie Ltd. - 1977-78 to 1979-80.	268

..../-

S.No.	Subject	Page No.
21.	Financial structure - Bridge & Roof Co.(India) Ltd. - 1977-78 to 1979-80.	269
22.	Financial structure - Indian Oil Blending Co.Ltd. - 1977-78 to 1979-80.	270
23.	Consolidated financial structure - 1977-78 to 1979-80 (Petro-chemicals and other Down Stream Units).	271
24.	Financial structure - Indian Petro-chemicals Corporation Ltd - 1977-78 to 1979-80.	272
25.	Financial structure - Petrofils Cooperative Ltd. - 1977-78 to 1979-80.	273
26.	Financial structure - Bongaigon Refinery & Petro-chemicals Ltd. - 1979-80.	274
27.	Financial structure - Engineers India Ltd. - 1977-78 to 1979-80.	275
28.	Petrochemical Financial Structure Tables - Private sector :	
i)	Combined financial structure - All categories - 1977-78 to 1979-80.	276
ii)	Consolidated financial structure - Synthetic Fibre - 1977-78 to 1979-80.	277
iii)	Consolidated financial structure - Plastics - 1977-78 to 1979-80.	278
iv)	Consolidated financial structure - Chemicals - 1977-78 to 1979-80.	279
v)	Consolidated financial structure - Synthetics & Chemicals Ltd. - 1977-78 to 1979-80.	280
29.i)	Capital investment in public/joint sector under-takings as on 1.4.81.	281
ii)	Capital investment in public joint sector under-takings as on 1st April of 1979, 1980 and 1981.	282
30.	Glossary of terms used for tables on Financial Statistics.	283

PART - V

LATE ADDITIONS & HIGHLIGHTS 284-286

APPENDIX I to XIII

PART - I

PETROLEUM STATISTICS

HIGH-LIGHTS OF INDIAN PETROLEUM INDUSTRY - 1980-81

1. A U.S.S.R. delegation headed by Deputy Minister in the Ministry of Oil Industry, USSR arrived in India on 7th April, 1980. The delegation discussed further cooperation in exploration and exploitation of oil in India and a protocol was signed on 17th April, 1980.

2. A Committee was set up under the Chairmanship of Shri Lovraj Kumar, the then Chairman, Bureau of Industrial Costs and Prices to inter alia report on the optimum size and alignment etc. of the pipeline required for the delivery of gas to (i) locations in Gujarat in accordance with the requirements of the Satish Chandran Committee; and (ii) locations in other States for the setting up of fertilizer and petro-chemical units as envisaged by the Satish Chandran Committee.

3. O.N.G.C. found a new offshore oil bearing structure in South-South West of Bombay.

4. The Government announced increase in the prices of almost all petroleum products, excluding Kerosene Oil and Cooking Gas (LPG) w.e.f. 8.6.1980. This decision was taken in the wake of successive increases in the prices of crude oil by OPEC since the last general price increases for petroleum products that took place on 17.8.79, similar increases in the prices of imported petroleum products and increases in the other incidental costs to the oil industry. Selling price of Block Control Lubes was also increased by Rs.1100/K.L.

5. The Government of Orissa granted permission to O.I.L. for undertaking exploration in 6800 sq.kms. of onshore area in the districts of Puri, Cuttack and Balasore in the Orissa State.

6. O.N.G.C. found some gas in a well offshore East of Portonovo town near Pondicherry.

7. A decision was taken by the Government, to invite outside parties to participate in the exploration and development of hydrocarbons in the onshore and offshore areas of India so as to step up the oil/gas exploration programme in the country.

8. O.N.G.C, for the first time, discovered hydrocarbons in two structures in the Bay of Bengal. Oil was discovered in the first well in the Krishna-Godavari Offshore Basin situated in the north-east of Machlipetnam Town. The other structure which also yielded hydrocarbons in the first well drilled was the Andaman offshore & Nicobar structure where gas was found.

9. In September, 1980, ONGC discovered gas in the Dahej structure in the Gujarat State.

.../-

10. The recommendation of locating a Gas Cracker and its downstream units at Usar in the State of Maharashtra, made by the "Site Selection Committee" in their Report (September 1980) was accepted by the Government. The recommendation made by another Committee, of setting up a similar plant at Kavas in Surat District of Gujarat, was also accepted by the Government.

11. In October 1980, a task force was constituted by the Government to make recommendations on the establishment downstream industries based on the products from BRPL.

12. A Mexican delegation headed by Mr. Chavarria, Head of the Exploration Department of PEMEX visited India in early December, 1980 and held discussions with the officials of the ONGC regarding cooperation in the field of oil.

13. A Soviet delegation headed by Mr. Takoev, Deputy Minister, Ministry of Oil Industry, USSR visited India and held discussions with the ONGC in connection with the 6th Session of the Indo-USSR Joint Commission on Economic Scientific & Technical Cooperation during the visits to India.

14. The Government announced increases in the prices of various petroleum products w.e.f. 13.1.81 which became inevitable due to increase in the price of imported crude oil and imported deficit petroleum products in the world market since June, 1980 when the last increase in the prices of POL products was announced by the Government, increased imports to make good shortage on account of Assam blockage, costlier purchases in the spot market in the last quarter of 1980 due to disruption in supplies from Iran and Iraq and increased rupee burden due to escalation in operational costs and cost of transportation of Bombay High Crude through new pipelines.

15. The Government announced upward revision in dealers commission on M.S. and H.S.D.O. effective from 15.7.1980 for different slabs of annual sales of MS and HSDO and again pending receipt of detailed report from the Working Group, as a purely interim measure again revised them w.e.f. 1.3.1981. The revised rates effective from 15.7.80 and 1.3.81 are as follows :-

(Rs./K.L.)

(i) Slabs (Sales in KL/Annum)	Rate of Commission 15.7.80	Rate of Commission 1.3.81
MOTOR SPIRIT		
0-480	100	107
481-1080	70	75
Above 1080	50	55
(There is no minimum rate for M.S.)		
HIGH SPEED DIESEL OIL		
0-600	55	58
601-1200	30	33
Above 1200	25	28

.../-

16. With effect from 1.3.1981 the rate of LPG distribution commission was increased from Rs.3.37 per cylinder of 15 K.G. to Rs.3.62 per cylinder of 15 K.G. on a uniform basis throughout the country. There was no increase in the selling price of LPG as a result of above increase.

17. On 6th March, 1981, ONGC signed an Agreement to take a loan of U.S.$ 200 million through the Manufacturers Hanovers Trust Limited as agents, for financing their operations.

18. Commissioning of the Viramgam-Mathura Section of the pipelines was completed on 25.3.1981.

19. On 31st March 1981, ONGC's LPG Plant at Uran went into commercial production.

II. CHRONOLOGY OF SOME IMPORTANT EVENTS IN THE HISTORY OF PETROLEUM INDUSTRY IN INDIA

(A) EXPLORATION AND PRODUCTION

(i) Assam Oil Company

1825: The earliest recorded reference of oil in India is found in the diaries of early explorers who penetrated into the thick jungles of upper Assam.

1866: Mr. Goodenough, a member of the Calcutta firm of Mckilliep Steward & Co., took notice of oil shows in Assam and in November secured rights over a large tract of land on both sides of the Buri Dihing river and came to upper Assam to begin systematic drilling.

1867: On 26th March, Mr. Goodenough struck oil at Makum near Margherita at a depth of 118 ft. (36 metres).

1889: In September, the Assam Railways and Trading Company began drilling for oil near their station at Borbhil and in 1890 discovered oil at a depth of 662 ft. (202 metres). This field came to be known as Digboi.

1899: Drilling for oil in Digboi proved to be successful and the A.R.&T., Company formed a new Company to look after their oil interest which was named as the Assam Oil Company Ltd. The Burmah Oil Company, who were exploring for oil in Burma and in Assam since 1915 acquired the oil interests of the Budarpore Oil Company. This Company produced small quantities of oil from Budarpur in the Surma Valley of Assam. Maximum production was one thousand barrels per day in 1920 which dropped to 170 barrels per day (23.6 tonnes per day) in 1931. The field was abandoned in 1933.

1921: The Burmah Oil Company took over control of the Assam Oil Company which was then producing about 400 barrels per day (55 tonnes per day) of crude oil. It brought in much needed technical know-how, financial backing and up-to-date equipment. As a result, the production improved to 1000 barrels per day (138.9 tonnes per day) by 1925 and to 3000 barrels per day (416.7 tonnes per day) by 1930.

1938: The Burmah Oil Company carried out seismic surveys at Nahorkatiya in Upper Assam to locate the best suitable site for drilling.

1948: Oil was struck in the eastern sector at Digboi.

1952: A site for drilling was selected on the banks of the Buri Dihing river at Nahorkatiya in Upper Assam.

1953: First trial water injection was carried out in the Digboi field.

1956: A site for drilling was selected near Moranhat in Sibsagar District. The well was drilled to 4190 metres which struck oil.

1957: Gas Injection (Secondary Recovery Scheme) was started in Digboi Oilfield.

1966: Formation Fracturing was carried out, for the first time in India, in Digboi fields.

1969: In December, drilling of wells was again started in Digboi oilfield.

1970: Feasibility studies using Thermal Recovery Techniques were made for the Digboi oilfield.

1971: The drilling of wells started in 1969 was completed with 14 wells in Digboi oilfield.

1972: Water Injection (Secondary Recovery Scheme) was successfully used in the Digboi oilfield.

(ii) Oil India Limited

1959: In February, Oil India was incorporated as Oil India Private Ltd. with 66 2/3 per cent Burmah Oil Company and 33 1/3 per cent Government of India participation.

1961: On 27th July, the Second Supplemental Agreement was signed by which it became a joint venture in equal partnership between the Government of India and the Burmah Oil Company.

1962: On 1st January, a separate organisation with head-quarter at Duliajan was set up.

On 7th March, the 16 inch sector of pipeline system was commissioned.

On 26th April, pumping of regular supplies of crude oil to the Gauhati Refinery started.

On 13th October, a dual completion well first of its kind in India, was completed at Nahorkatiya.

1963: On 8th March, seismic surveys in the Dum Duma petroleum exploration licence area commenced.

In February, the 14 inch sector of pipeline from Gauhati to Barauni was operationally ready.

In April, crude oil conditioning plant, first of its kind in the world, was commissioned at Duliajan.

On 14th February, the first deviated well was drilled by the Company.

1963: The first two exploratory wells in the Dum Duma petroleum (Contd) exploration licence area were spudded in.

1964: On 30th June, crude oil deliveries to the Barauni Refinery were commenced.

1965: Gas supplies to the thermal plant of the Assam State Electricity Board were started.

Pressure maintenance operations commenced with crestal gas injection into the gascap of a major oil pool in Nahorkatiya.

1966: Water injection was started in Nahorkatiya for pressure maintenance.

Digital computers were pressed into service for solving problems connected with underground reservoirs.

1967: All arrangements for starting drilling operations in NEFA were finalised.

1968: Drilling started in Ningru Petroleum Exploration Licence areas in NEFA.

1969: Kusijan well No. 2 was completed as an oil producer in Dum Duma area.

1970: Kusijan Well No. 3 was completed as a gas producer in Dum Duma. Regular oil production commenced from Jusijan well No. 2.

Gas injection for pressure maintenance was started at Moran field.

One of the steam drilling outfits commissioned in 1953, crossed its million foot mark of drilling.

1971: Reservoir Engineering capability of the organisation was increased by the acquirement of a 3 Dimension 3 Phase reservoir simulation computer programme from Mc Cord Associates Inc. of U.S.A.

Installation of 29 gas compressors under the Integrated Gas scheme was completed at Nahorkatiya and Moran oilfields.

Oil was struck at Jorajan in the Dum Duma Mining Lease area.

The Memorandum of Association of the Company was amended to enable it to undertake extraction and scale of Liquified Petroleum Gas (LPG) from natural gas produced from its fields.

1972: Oil was discovered in a new structure at Tarajan and Jorajan well No. 1 was completed as a successful oil producer.

1973: Jorajan wells 2 and 3 were completed as successful oil producers.

Commercial gas accumulation was discovered in Eocene beds of Tengakhat area.

1973: (Contd.) Oil was discovered in a new area at the eastern edge of Hugrijan Mining Lease (NHK well 262 in Nagajan).

1974: Jorajan well Nos. 4 & 5 were completed as successful oil producers.

Exploratory drilling in Arunachal Pradesh was intensified through the commencement of drilling at Kharsang well No.2 and statisfactory progress of preparatory work for drilling at Manabum well No.1. A new deep drilling rig was acquired for intensification of drilling deep exploratory wells in Arunachal Pradesh.

Steps were taken in hand to expand, in stages, the capacity of Oil's pipeline to transport more of ONGC crude oil (upto 2.25 m.t.) to the Eastern sector refineries.

1975: First aerial rope-way across the Noa Dihing River in Arunachal Pradesh was commissioned.

Pilot polymer flood project was initiated.

Reservoir engineering (logninterpretation) consultancy service in Kuwait was successfully executed.

Pipeline consultancy agreement with Engineering Projects India Limited was entered into.

Work on Pipeline expansion Project Phase-III-A was commenced.

Construction work started on the new 30 MV power station at Duliajan to meet the power requirements of new projects undertaken/contemplated.

1976: "Kharsang 3, a shallow well drilled near Kharsang 2 was the first successful well in Arunachal Pradesh.

On 2nd April, Manabum-I was spudded in difficult hill country across the Noa Dihing River.

1977: A Project for recovery of higher hydrocarbons from Associated Natural Gas was successfully commissioned.

Digital Field System V, an advanced seismic equipment was purchased for carrying geophysical survey work.

The two 14.45 mega watt gas turbine Generating sets were erected and commissioned successfully at Duliajan.

The 212 Km. long main pipeline loops between Jorhat and Bongaigaon was completed.

1978: Oil India launched their first offshore exploration project in Mahanadi area.

1979-80: Started pumping crude oil to the Bongaigaon and Petro-Chemicals Ltd. (BRPL).

Bay Exploration Project (BEP) was set up in Bhubaneshwar, Orissa to coordinate all offshore and onshore exploration matters in Mahanadi Basin, and arrangements were made for the requisite contractual services including charter-hire of an offshore drilling rig.

1979-80: (Contd) Spudded in the first of the 3-wells in the Company's maiden (Rs.27 crores) offshore exploration programme in the Mahanadi Basin, Bay of Bengal, on January 30, 1980.

In June, the quantity of power offtake from OIL's captive gas turbines to Assam State Electricity Board (ASEB) was increased to 8000 kilowatts and met the entire power requirements of the area under ASEB's Bordubi, Digboi and Margherita sub-stations.

Kumchai well No.1 in Arunachal Pradesh in the Company's 551 sq.kms. of Petroleum Exploration Licence Area was drilled to a depth of 5459.6 metres (17,912 ft) and thus became Oil India's deepest well. At this depth, however, a multiplicity of downhole problems made further drilling impossible.

An agreement for setting up a liquefied petroleum gas(LPG) plant at Duliajan was signed in March 1980, with M/s Industrial Consulting Bureau Ltd. (ICBL).

Oil India (OIL) acquired a sophisticated Mega seismic Computer from a reputed American firm for the processing of its seismic data.

1980-81: Completed 2 offshore wells in the Mahanadi Basin of the Orissa Coast.

In January, civil work for the LPG plant at Duliajan was started.

(iii) Oil & Natural Gas Commission

1947-1953: Reconnaissance and detailed geological mapping were done in parts of Punjab, Himachal Pradesh, Kutch, Andaman and Nicobar Islands and Cambay by the Geological Survey of India.

1955: In September-October, a delegation visited the USSR and other European countries to study the Oil Industry.

In October, the Oil & Natural Gas Directorate was formed under the Ministry of Natural Resources and Scientific Research.

In December, Soviet Oil experts in exploration arrived in India.

1956: During April and May, airborne magnetic surveys of parts of Western Rajasthan and the Indo-Gangatic Plains were made by the Canadian experts under the Colombo Plan.

In August, the Oil & Natural Gas Commission was set up.

1957: In April, first well was spudded in.

1958: In May, gas was struck at Jwalamukhi.

In July, first well at Cambay was spudded in.

In September, Oil was struck in Cambay.

1959: In October, ONGC attained the status of a statutory body.

1960: In May, oil was struck at Ankleshwar and drilling was commenced in Assam.

In December, oil was discovered at Rudrasagar structure in Assam.

1961: In June, oil was struck in Kalol.

In September, trial production of crude oil from the Ankleshwar oilfield was started. An agreement was signed with the French Petroleum Institute for exploration in Rajasthan.

1962: The first special train of oil tank wagons left Ankleshwar for Bombay.

In December, a contract was concluded with SNAM of ENI group of Italy for drilling wells in Uttar Pradesh.

1963: In January, offshore seismic surveys started in the Gulf of Cambay.

Drilling commenced in two structures, in Gujarat and Assam.

A contract was concluded with the C.G.G. of France for carrying out seismic exploration in Jaisalmer, oil was struck in Sanand in Gujarat.

Oil was struck in 'Nawagam' in Gujarat.

The contract was concluded with RUDIS, a mining and industrial association of Yugoslavia for drilling wells in Assam. Another contract was signed with SNAM of ENI Group of Italy for drilling wells in Punjab area.

1964: In February, a contract was entered into with a French Company FORASOL for carrying out structural drilling operations in Jaisalmer.

By March, ONGC completed drilling of 200 wells.

In June, two contracts were signed for carrying out offshore seismic surveys with the help of the specially equipped Soviet Ship Akademic Arkhangolskiy in the Gulf of Cambay and off the Madras coasts and other areas.

In August, E.N.I. started drilling at Mohand in Uttar Pradesh and oil was discovered in 'Lakwa' structure in Assam.

In September, the Soviet ship started its operations.

In October, SNAM started drilling at Janauri in Punjab.

In December, production and supply of gas from Cambay to the Dhuwaran Thermal Power Station was commenced and drilling of a new structure, in Assam was started.

1965: By March, the ONGC completed drilling of 300 wells.

In September, supply of associated gas from Ankleshwar to Uttran Thermal Power Station was started.

1965: (Contd) In October, oil was struck at Kathana in Gujarat.

Drilling commenced on six structures in Gujarat during the year.

1966: Traces of oil and gas were found in Karaikal. Two structures in Gujarat and one in West Bengal were spudded in.

1967: In January, supplies of crude oil from Kalol oilfield in Gujarat were sent to Koyali Refinery in Gujarat.

In March, the first phase of trial production at Nawagam oilfield in Gujarat was inaugurated.

In May, the Water Injection Scheme for Ankleshwar oilfield in Gujarat started functioning.

By August, the ONGC completed drilling of 500 wells.

In November, the ONGC completed the drilling of one million metres.

One structure each in Tamil Nadu and Assam was spudded in.

1968: In January, trial production of crude from Kosamba field in Gujarat was started.

In March, the National Iranian Oil Company, declared the oil find in the Rostam structure in the Persian Gulf as a commercial discovery, ONGC's share was one-sixth of the crude produced.

In April, oil was discovered at Geleki, a new structure in Assam.

In June, oil was struck in Kadi and Bakrol structures in Gujarat.

In July, the 17.5 Kms. cross country crude oil pipeline connecting the Lakwa oil field of the Commission with the Oil India Pipeline at Moran was commissioned and regular production from the Lakwa oilfield was started. The first indigenous seismic unit was commissioned and the Commission also designed and fabricated a seismic amplifier, with about 98 per cent indigenous components.

Trial production from Kadi oil field in Gujarat was started.

In August, the rate of production from Kalol and Nawagam oil fields in Gujarat was stepped up.

By September, ONGC completed the drilling of 600 wells.

In October, rate of oil production from Ankleshwar and Nawagam oilfields of Gujarat was stepped up. Trial production from Dholka oilfield in Gujarat was started.

In November, trial production from Kathana oilfield in Gujarat was started.

Drilling at nine structrues in Gujarat, three in Assam and one in Tamil Nadu was started.

1969: In March, the 15 Kms. Kalol-Sabarmati pipeline was commissioned.

Six structures in Gujarat and one in Nagaland were spudded in.

By June, ONGC completed drilling of 700 wells.

In August, production from Ros[illegible] field in the Persian Gulf was commenced. (The first of the seven blocks of the fixed platform meant for drilling India's first offshore well was launched.

1970: Drilling on fourteen new structures in Gujarat four in Assam and one each in J&K, Cauvery Basin and Gulf of Cambay (Aliabet Island) was started.

In March, oil was struck at Borholla in Assam and in April ONGC completed drilling of 800 wells.

In October, gas was struck at Dabka, a new structure in Gujarat.

1971: An agreement to supply gas from Kalol to M/s Mahendra Mills and M/s Navjivan Mills was finalised.

Drilling of India's first offshore well on shallow-waters was also completed.

A contract for procurement of a mobile self-elevating self-propelled jack-up type platform was signed. The first offshore well drilled at Aliabet, showed the presence of oil. An agreement to supply gas to the IFFCO was signed.

In April/May, service contract with the OISA for the drilling in Bombay area was signed.

On 12th May, Nawagam-Koyali sector of the Kalol-Nawagam-Koyali Pipeline was commissioned. An agreement for supply of associated gas from Kalol to M/s Metro Woods and Engineering works was signed.

On 16th June, supply of gas to Naharhabi Tea Estate from Lakwa field was commenced.

By July, ONGC completed drilling of 900 deep wells. A high power committee headed by Shri K.D.Malaviya, former Minister of Mines & Fuel was set up by Govt. of India to look into the functions and organisation of ONGC and suggest the ways and means to improve its functioning.

In August, Kalol-Nawagam Sector of the Kalol-Nawagam Koyali pipeline was inaugurated. Oil was discovered in new structure "Amguri" in Assam.

In September, gas was discovered in Baola, a new structure in Gujarat.

In November, oil was discovered in Santhol, a new structure in Gujarat.

In December, oil was discovered in Indrora, a new structure in Gujarat.

Eight new structures in Gujarat and three in Tamil Nadu were taken up for drilling during the year.

1972: In February, gas was struck in North Kalol in North Gujarat and oil in Dabka structure in Baroch district in Gujarat.

In March, supply of associated gas from Kalol field to M/s Navjeevan Mills was commenced.

In July, petro-graphic and Geochemical Laboratories were commissioned at Madras. Oil was struck at Linch in Gujarat. Supply of associated gas to M/s Mahindra Mills Kalol from Kalol field and to Baroda Municipal Corporation from Anklesvar field was commenced. Water injection in Horizon-XII in Lakwa was commissioned. A brone Shield, an award of the Invention and Promotion Board was presented - by the President of India to ONGC for indigenously developing Air-Tube-Clutch assembly, in collaboration with M/s Banket and Brake lining and Engineering firm of Dehra Dun.

In September, supply of associated gas to three private firms, viz. M/s Metro Wood Works, M/s Melamine and Fibres and M/s Calico Printing Company from Kalol field was commenced.

Drilling at ten new structure in Gujarat and one in Tripura was started during the year.

1973: In January, ONGC completed drilling of 1000th deep well.

On 17th February, an agreement was signed by ONGC with M/s Geophysical Service International, S.A.Dallas, Taxas, USA for conducting about 2800 kms. of offshore seismic reflection work.

On 24th February, a protocol was signed by Mr. D.A.Takeov, Dy.Minister for Oil, USSR and Secretary to the Govt. of India, Ministry of P&C, on development of oil industries in the public sector in India for 1973-78 and forecast for the period 1978-83.

In March, the self-propelled, self-elevating Jacking type of mobile drilling platform "Sagar Samrat" got made to order in Japan was handed over to ONGC at Hiroshima, Japan.

On 8th April, a draft for service contract awarded by the Iraq National Oil Company(INOC) to the ONGC was signed by Dr.Abdullah Sayyas, Vice-President of INOC and Chairman, ONGC. Under the terms and conditions the ONGC will render technical and commercial services to the INOC as a general contractor.

In June, at Baramura well in Tripura, a good flow of gas was observed during an open hole drill stem testing. Supply of associated gas from Kalol field to M/s Bharat Vijay Mills was commenced.

In July, the presence of oil was observed in a well on the Charali structure in Assam during an open hole drill stem test.

In October, drilling was commenced on the first offshore deep well of Tarapur structure in the Arabian sea adjoining the Gulf of Cambay.

1973: (Contd) One of ONGC's Diesel Mechanic working in Central Workshop at Baroda, was awarded Rs.3000/- as a National Award declared by the Govt. of India for developing valve lapping machine for lapping the valve and of Internal Combustion engines. It was the second highest award given to any inventory on the occasion of Independence Day.

Drilling was started at five new structures in Gujarat, three in Assam and one in Tamil Nadu during the year.

1974: During March, 'Geoflex' was introduced as energy source for the first time by seismic crew in Iraq operations. On 24th March, the supply of gas to IFFCO was started for purging the line and test run.

During June, a new structure, viz. Asjol was declared as oil bearing and well head installation at Santhol-4 were commissioned.

In July, ONGC completed drilling of 1100th well.

In August, regular production from Geleki oilfield, Assam was commenced. The Sanand-GGS and gas line from Sanand GGS to Kalol CTF were also commissioned.

Sanand GGS, Kalol CTF oil pipeline was commissioned and well head installation at Linch was commissioned.

In October, precision gravity surveys were introduced for the first time.

Drilling operations were commenced at three new structures in Gujarat during the year.

1975: In January, North Kadi GGS-cum-CTF was commissioned.

During February, Kalol in Gujarat was put on sustained production. Oil was struck in a well drilled on Sanao Khurad structure in Gujarat.

During March, pipeline to carry oil from Sobhasan, North Kadi and South Kadi fields to Koyali Refinery was commissioned. Gas supplies to Bhabha Atomic Research Centre was commenced.

Central workshop, Baroda, completed manufacture of a prototype work over rig of 28-tonnes capacity, which was hitherto imported.

During June, gas was struck at Baramura in Tripura. New workover rig Azinamash was commissioned in Ahmedabad.

In July, gas supplies from Geleki oilfield to Geleki Tea estate was commenced.

During August, gas supplies from Geleki oilfield to Sibbari Tea estate was commenced.

During September, gas supplies from Geleki field to Barshilla Tea Estate was commenced. Two drilling ships spudded wells in Bombay High main offshore structure in the Arabian sea.

1975: (Contd) In October, gas supplies to Mehsana Dairy was commenced. Sobhasan GGS-cum-CTF and Lakwa CTF were commissioned.

In December, presence of oil was indicated in a well drilled on Nandasan structure in Gujarat. Drilling was commenced on one new structure in Meghalaya, four in Assam, three in Gujarat and one in J & K.

1976: In January, gas supplies to M/s Gujarat Glass Factory from Kosamba field were commenced.

In February, oil was struck in a well drilled on Bhandut structure in Gujarat.

Gas supplies were commenced to Gujarat Industrial Development Corporation from Mawagam fields.

'Shenandhoah' a jack up drilling unit commenced drilling operations in offshore areas in the Arabian Sea.

Production was started from two wells of Bombay-High(Main) offshore structure.

Rudrasagar-Lakwa oil pipeline was commissioned.

Drilling was started at Songo-Songo Islands in Tanzania by ONGC under a contract.

In July, oil was discovered in a well drilled at North Kathana structure in Gujarat.

In September, Geleki-Dikhu Junction oil pipeline was commissioned.

The approval of the Government for Rs.4.82 crores was received for setting up of an Institute of Reservoir Studies at Ahmedabad to perform general research and development work, to conduct necessary amount of basic research and reservoir studies, to design and supervise actual field pilot tests, and also to render advice to operations personnel in reservoir engineering and related studies.

Gettysburg, a new drilling unit chartered by ONGC spudded its first well in the Arabian sea.

Two new Group Gathering Stations were commissioned in Assam.

Presence of oil was indicated in a well drilled at Demulgaon structure in Assam.

Drilling was commenced on six new structures in Gujarat, one each in Assam, Rajasthan, J&K, Pondicherry, West Bengal and five structures in offshore area in the Arabian Sea.

1977: In January, a new Rumanian rig 3 DH-2 spudded its first well at Charali structure in Assam. Well platform 'D' in Bombay-High(Main) offshore field was commissioned.

In February, a new Rumanian rig 4DH-1 spudded the first well at Ramshahr structure in Himachal Pradesh.

Oil was struck at Padras in Gujarat in the month of March and gas supplies to Macheypore Tea Estate in Assam were commenced from Geleki field.

1977: (Contd) In April, a new Rumanian rig (third in the series) 3DH-3 spudded the first well at Lakhmani structure in Assam. Oil trunk pipeline between Sanand-15 to SIP-34 in Gujarat was commissioned.

In May, gas was discovered in Metwan structure in Gujarat.

In July, a new 4DH-2 Rumanian rig spudded its first well on Chargola structure of Cachar district of Assam.

In September, GGS-4 at Rudrasagar, GGS-2 and CTF at Geleki in Assam were commissioned.

New workover rig P-80-3 commissioned in Assam. Well-head installation at Jhalora in Gujarat was commissioned.

Oil Production from wells of platform 'C' in Bombay-High (Main) was started.

In October, a new American Armco-1320-M spudded its first well on a new structure known as Diamond Harbour in West Bengal.

Oil trunk pipeline between Geleki and Jorhat commissioned.

Oil discovered in Jotana structure in Gujarat.

A new Romanian rig 3DH-4 was commissioned by spudding a well at Geleki structure in Assam.

Drilling was commenced on nine structures in Gujarat, two in Assam, one each in Himachal Pradesh, West Bengal, and twelve in offshore area of Arabian Sea.

1978: In January, Platform 'E' wells in Bombay High (Main) started producing oil. Gas was discovered in Sisodra structure in Gujarat during the same month.

In February, gas was discovered in C-2 structure in Bombay Offshore.

In March, oil was discovered in 'Viraj' structure in Gujarat. GGS-V at Lakwa in Assam was commissioned.

In April, new rig E-2000 was commissioned at Narasapur in Andhra Pradesh. A trunk line from Lakwa GGS-V to junction point of Rudrasagar-Lakwa trunk line was commissioned.

In May, oil was discovered in West Sobhasan structure in Gujarat.

In June, gas was discovered in Walner structure in Gujarat.

Platform 'F' at Bombay High (Main) was commissioned. Gas trunk line of 26" dia between platform 'F' at Bombay High (Main) and Uran Shore terminal was commissioned. Oil trunk line of 30" dia between platform 'F' at Bombay (Main) field to Uran Shore terminal for a total length of 203 kms. was commissioned.

In July, gas supply was commenced from offshore Bombay to Tata Thermal Power Station (TEC) Trombay. Oil feeder line from Uran Terminal to Trombay was commissioned.

1978: (Contd) In August, gas was discovered on new structures Gajera and West Matwan both in Gujarat.

Gas supply from Bombay-High field was commenced to Rashtriya Chemicals and Fertilisers Ltd., Bombay.

In October, supplies of gas from Navagam field were commenced to M/s Calico Dyeing and Printing Company.

In November, an electrical new American rig 1320-UE-2 was deployed at Gejalia.

In December, Platform 'B' in Bombay High was commissioned. Oil production from Offshore Bombay touched a level of one lakh barrels per day on 31st December. Gas was struck in B-55 structure in offshore Bombay.

Drilling was commenced on eight structures in Gujarat, one each in Uttar Pradesh, Andhra Pradesh, Assam & Tripura, nine structures in offshore area of Arabian Sea, two in offshore Madras coast and one in offshore Kerala coast.

1979: Drilling at four new structures in Gujarat, four in Assam, one in West Bengal and nine in offshore was started.

In March, oil was discovered in a new structure in offshore at the first well drilled on this structure.

In April, oil was discovered at 'Pansar' in Gujarat and in a new structure in Offshore areas. Also oil production was commenced from Charali field in Assam.

In June, oil production was commenced from Amguri field in Assam.

In September, oil production was commenced from Matwan field in Gujarat.

In November, drillship 'Pelerin' chartered on hire commenced drilling operations in offshore areas.

In December, a new rig BU-80-4 was commissioned.

1980: In February, Diamond Harbour well in West Bengal was drilled down to a record depth of 5555 metres in this country and oil production from Siswa field of Gujarat was commenced.

In March, another drillship 'Fredrick Burg' chartered on hire commenced drilling operation in offshore.

In May, oil was discovered in the Ratnagiri offshore structure.

In June, gas was found in Shelf of Andaman Island. Oil was also discovered in the Godavari Offshore structure during the same month. A new offshore Platform was commissioned.

In July, Portonova offshore structure showed presence of oil. The production of oil was commenced from Jotana and Viraj structure.

In September, gas was found in Dahej structure in Gujarat.

1980: (Contd) In October, 2 new offshore platforms were commissioned.

In 1980, eight new offshore and eight new onshore structures were taken up for drilling.

1981: In February, ONGC's second old Jack-up rig 'Sagar Vikas' was commissioned. Oil was discovered in Lohar structure in Gujarat.

In March, LPG unit at Uran and gas system of BHN platform were commissioned.

During January-March, drilling at one new offshore structure and six new onshore structures were taken up.

(iv) Hydrocarbons India Limited

1964: ONGC obtained a concession from the Govt. of Iran for prospecting and producing oil in Persian Gulf.

1965: An agreement dated 17th January 1965 was entered into between National Iranian Oil Company, ONGC (India), PPCC (USA) and AGIP of Italy. Incorporated as a Private Limited Company, wholly owned subsidiary of ONGC. ONGC assigned its right and liabilities under this agreement.

1969: Oil struck in 'R' structure and commerciality of field declared in that structure called Rostam field.

In September, first Rostam crude oil tanker containing India's share was loaded and sold to Spain.

1970: Another field called Rakhsh field was discovered and commercial production commenced.

1975: Became a Public Company by virtue of Section 43A(1A) of the Companies Act, 1956, and name changed to Hydrocarbons India Limited. Assigned ONGC's rights, interests and liabilities in the contract dated 22nd August, 1973 entered into with Iraq National Oil Company.

1976: The assignment of the contract with Iraq National Oil Company for exploratory drilling in Iraq in favour of HIL was annulled ab-initio by ONGC.

1977: An agreement on Tax, Additional Payment and royalty, stipulating payment of income tax and additional payment at the rate of 55% and 30% respectively on net profit arrived at after allowing a discount of 7% on posted price and payment of Royalty @ 20% on the posted price of crude oil exported, was signed.

A $ 40 million project for water injection of Rakhsh field to step up production from secondary recovery was cleared by the parties of Joint Venture.

1978: Work on Rakhsh Water Injection Scheme was started. Decision regarding Water Injection in Rostam field was also taken.

During October-December, there was some dislocation in production/despatches due to strikes and political situation in Iran.

1979: The Company along with other Secondary Party partners was not permitted to lift its share of oil during the year. The Second Party decided to initiate discussions with the First Party, i.e. National Iranian Oil Company regarding terms for cancellation of the Joint Structure Agreement.

1980: The Government of Iran declared the Joint Structure Agreement null and void. Negotiation regarding the terms of cancellation of Agreement were yet to commence.

(v) Indo-Stanvac Oil Exploration Project

1954: In April, the Indo-Stanvac Oil Exploration Project started exploration activities in partnership with the Government of India on a 75 : 25 basis covering a concession area of 10,000 sq. miles in West Bengal.

1959: The exploration project was abandoned after drilling 10 wells in the West Bengal basin all of which proved dry.

(B) REFINERIES

(i) The Digboi Refinery, Digboi

1893: The Assam Railways and Trading Company erected a small refinery at Margherita to refine the crude oil found at Makum and Digboi. This refinery was the first of its kind in the Indian sub-continent and operated for a few years. It has since changed its venue from Margherita to Digboi in its subsequent expansion and growth.

1900: The construction of a new refinery at Digboi was started by the Assam Oil Company Ltd.

1901: The Digboi Refinery went on stream.

1923: The entire refinery was rebuilt, and the refinery capacity was also enlarged.

1926: Two product pipelines were laid between Digboi and Tinsukia.

1932: An Edeleanu plant for giving Sulphur Dioxide treatment to Kerosene was installed and brought into commissioned.

A Dubbs plant for "Cracking" process was installed.

1934: Foster Wheeler Crude Oil distillation unit was installed.

1938: Bitumen plant was installed.

1940: Lummus-Crude oil distillation unit was installed.

1950: A plant for fabrication of steel barrels was installed.

1953: Gasoline extraction plant was commissioned.

1954: Foster Wheeler, Lube Oil Distillation unit was installed, which was the first of its kind to be installed in India.

Refinery was linked up with two pipelines for the receipt of crude oil and gas from Nahorkatiya oilfield.

1956: A new pipeline for the pumping of white oils to Tinsukia installed; one of the oil lines was replaced by a new one.

1970: Improvements in process techniques were introduced for the out turn of better quality lubricating oils.

1971: First phase of the project for the improvement in refrigeration capacity of wax treating plant and the rejuvenation of Edeleanu plant for increasing production of Superior Kerosene were completed.

1972: To supplement the cooling water demand of the refinery a three cell induced draught RCC cooling tower was commissioned.

The Red oil line No.1 for pumping furnace oil from Digboi to Tinsukia was replaced by a new 6" line.

1973: For increasing the production of Superior Kerosene, an additional electric power driven SO2 Compressor was installed in the Edeleanu plant.

1975: To supplement the cooling water demand of the refinery an additional three cell induced draught RCC cooling tower was commissioned.

1976: Two new J.T. Boilers were commissioned for improving stream generation.

1977: A new product-carbon black feed-stock was introduced.

(ii) <u>Burmah-Shell Refineries Ltd. / Bharat Petroleum Corporation Limited, Bombay.</u>

1903: The Asiatic Petroleum Company entered the Indian market.

1921: The Burmah Oil Company entered the Indian market.

1928: On 6th January, Burmah-Shell came into existence.

1951: Refinery agreement was signed towards the end of this year.

1953: In February, site development was commenced.

1955: On 30th January, Refinery came on stream and processed 1.8 million tonnes of crude in the year.

In June, Bitumen production was commenced.

1956: Commenced production of LPG and Motor Spirit MT-80.

Duty protection on Motor Gasoline was surrendered with effect from 1st October.

1957: In February, Aviation Turbine Fuel production was started.

In September, platforming unit was commissioned.

1959: Duty protection on High Speed Diesel, Light Diesel Oil, Furnace Oil and Bitumen was surrendered from 1st July.

1961: Regular production of Jute Batching oil commenced from February.

1962: Processing of Ankleshwar crude together with Iranian Light crude was started.

1963: MT-80 Sub-zero and Inferior Kerosene were also added to the range of products.

1965: In March, SBP Unit was commissioned to produce SBP 55/115.

In August, gas supply by pipeline to FCI was commenced.

In September, 93 Octane Motor Spirit was manufactured for the first time.

1966: Commenced production of CBFS, Mineral Turpentine and Hexane.

1967: In March, production of Avgas 100/130 was started.

1968: In March, 6 pipeline for delivery of naphtha to NOCIL was commissioned.

In May, Ankleshwar crude receipts were stopped.

1969: Achieved a refinery capability of 5.25 million tonnes per annum.

1970: Pioneered the formation of the "Technical Development Committee for Indigenous Materials" for the Petroleum, Petro-Chemicals and fertilizer industries in the country.

1973: Processing of Government crude was commenced.

1974: In May, "Export House", status was accorded.

Established a Fuel Advisery Cell for promoting fuel economy by users.

1976: On 24th January, the refinery company was taken over by the Govt. of India and the assets of Burmah-Shell in India were merged with those of the nationalised company to form Bharat Refineries Limited.

Set up centre for technology (centech) to serve the development needs/BRL and HPCL refineries initially. /of

1977: Commenced production of Low Sulphur Heavy Stock (LSHS).

In August, the company was given its permanent name, Bharat Petroleum Corporation Ltd. (BPCL).

1978: In July, the refinery started receiving Bombay High crude by pipelines.

1979-80: Processed eleven different crudes, the highest in any year.

1980-81: Processed thirteen different crudes, the highest in any year so far.

Packed production of brandless 80/100 bitumen was started.

(iii) Esso Standard Eastern Inc./Hindustan Petroleum Corporation Ltd.(Fuel Refinery)

1951: In November, an agreement was signed between Govt. of India and the Standard Vacuum Oil Company to set up an oil refinery at Trombay, Bombay.

1952: In July, the Standard-Vacuum Refining Company of India Ltd. was incorporated.

1954: On 29th July, the Stanvac refinery went on stream.

1956: Stanvac exported Motor Gasoline.

1957: The duty protection on Motor Gasoline was given up by the Company. Stanvac started HHS fuel supplies to the adjoining Tata Trombay Thermal Power Station.

1958: The duty protection on Motor Gasoline was given up by the Company. Stanvac started HHS fuel supplies to the adjoining Tata Trombay Thermal Power Station.

1958: Stanvac started manufacturing LPG and JBO.

1959: Stanvac started manufacturing asphalt and cooperated in setting up the Standard Barrels manufacturing factory which started supplying asphalt drums to refinery.

1960: In September, Stanvac started exporting Indian expertise and 4 employees were sent to Philippines as set-up Advisers to new refinery.

In November, duty protection on other petroleum products was also surrendered.

1961: Stanvac exported Asphalt.

1962: In April, Corporate name was changed to Esso Standard Refining Company of India Ltd.

On 16th November, processing of indigenous Ankleshwar crude was commenced. Esso Standard manufactured for the first time in India SBP Spirit and Hexane.

1964: Started export of Naphtha.

1965: Started manufacturing for the first time in India-FDA grade JBO Mineral Turpentine.

Started supplying raw material naphtha to enable starting of new Trombay Fertilizer plant of FCI.

1966: Started raw material naphtha feedstock supplies to the new petrochemicals plant of Carbide Chemicals Company.

1967: Started manufacturing Industrial Asphalts.

1968: Started manufacturing for the first time in India, speciality products (CS-330) and petroleum Ether to substitute imports.

1969: Started supplying feedstocks to the new Lube India Ltd. Refinery.

1970: Started manufacturing, for the first time in India, of Propane.

Staff was completely Indianized in October after departure of the last expatriate.

Manufactured Carbon Black Feedstock.

1973: Pontone & Rubber processing oil were manufactured and IOC crude was processed on refinery processing fee basis.

1974: On 15th March, the Govt. of India acquired the entire Marketing assets of Esso Eastern Inc. in India and 74% interest in Esso Standard Refining Company of India Ltd. and Lube India Ltd. On 15th July, the market assets were vested in Esso Standard Refining Company and the two companies were merged to form Hindustan Petroleum Corporation Ltd.

1975: In August, lightering operations were commissioned for the first time in India for better utilisation of 87,000 DWT tankers.

Successfully handled LPG spiked crude to maximise LPG production.

Commenced reprocessing of LSHS for Koyali Bottoms increasing middle distillates production.

Completed a record 2.6 million manhours without a disabling injury.

1976: On 1st October, Govt. of India acquired the balance 26% equity shares held by Esso and thus HPCL became a fully owned Government Company.

Produced a trial batch of Heptance for IPCL.

Produced for the first time 'Insectol' which is a Carrier for insecticides. Earlier, this was being brought in Bombay region from Assam Oil Refineries.

Set up a centre for technology (CENTECH) in collaboration with Bharat Refineries Ltd. to serve the interests of refineries in the allied fields. Research & Development, design and operations.

Facilities for VPS/Cat debottlenecking project being installed.

In view of Bombay High crude processing at Bharat Refineries Ltd. installation of number of facilities for integration of operation at HPCL and BRL were commenced.

1977: Number of facilities installed for integration of operations with BPCL were commissioned.

1978: On 18th January, Secondary Processing facilities to match fractionating capacity of 3.5 million tonnes per annum were commissioned.

1979: In August, commercial processing of Waxy distillates from Bharat Petroleum Corporation's refinery was started.

1980: In February, for the first time a consignment of 1000 tonnes of imported LPG was received in the refinery.

Lube refinery expansion envisaging additional production of .74,000 t.p.a. of HVI Lube base stock was in progress.

Civil survey work and process design of MEA section of the Sulphur Recovery Project was completed.

(iv) Caltex Oil Refining (India) Ltd./Hindustan Petroleum Corporation Ltd., Visakhapatnam

1953: In March, an agreement was reached between the Govt. of India and Caltex (India) Ltd. to establish a refinery on the East Coast of Vizag.

1955: In February, the Caltex Oil Refining (India) Ltd. was incorporated.

1957: In April, the refinery went on stream at Visakhpatnam. Exports of Mogas and Fuel oil were undertaken in the same year.

1959: In October, the duty protection on Motor Gasoline was surrendered.

1963: In April, duty protection on other products was surrendered.

In May, manufacturing of LPG commenced.

1964: Started export of Naphtha.

1969: Exported Asphalt.

1973: During November-December, processing of IOC crude on processing fee basis was commenced.

1975: In June, purchase of crude oil from IOC was commenced. The crude oil was transported by World Bank Tankers and transhipped into smaller vessels for discharge into Refinery storage tanks.

1976: In November, the first trial cargo of Bombay High crude was processed.

On 30th December, the Govt. of India acquired 100% shares of Caltex Oil Refining (India) Ltd.

1977: The modification of the refinery to permit processing of 0.5 MTPA of Bombay High crude was started.

1978: On 9th May, Caltex Oil Refining Company was amalgamated with Hindustan Petroleum Corporation Ltd.

1979: Refinery expansion project for increasing crude processing capacity to 4.5 million tonnes per annum was submitted to the Government.

1980: In December, Government approval for expansion of refinery capacity from 1.5 MTPA to 4.5 MTPA was received.

(v) Indian Oil Corporation (Refinery Division)

(a) Barauni Refinery, Barauni, Bihar

1961: In June, a contract was signed with M/s Tiajpromexport, Moscow for the design and supply of equipment and the supervision of erection and oporation of the Barauni Refinery.

1964: In July, the first unit of the Barauni Refinery went on stream.

1966: In February, the second stage was commissioned.

1967: In November, the third stage comprising of Lube Oil complex was completed.

1969: On 21st January, the expansion of refinery was completed. Construction of the coke calcination plants started.

1971: In June, Government approval for revamping of Barauni Refinery for processing of imported crude and expansion of refinery capacity was obtained.

In November, the erection of coke calcination plant was completed and test review was conducted.

Sale of Phenol extract and slack wax was started.

1972: In December, processing of imported crude was started.

1974: In July, trial production of rubber extender Oil(hitherto imported) was started and two wagon load of the same were despatched for the first time to M/s Synthetics & Chemicals Ltd., Bareilly, for evaluation and plant trials at their end.

In September, Naphtha pipeline to FCI was commenced.

1975: In view of expected idling of dewaxing unit due to decrease in sale of 800 pale lube oil ex-Barauni, an important scheme of producing middle distillates components in dewaxing unit was introduced.

1977: In February, the movement of LSHS for consumption of Haldia Refinery was started.

1979: From 27th December, crude supplies were stopped due to agitations in Assam.

1980-81: Regular supplies of crude oil from Assam, which were suspended from 27th Dec. 1979, due to Assam agitationswere commenced from 28th January, 1981.

On 29th Jan. 1981 the process units of the refinery were restarted, after a lapse of 13 months.

In February'81, new Cooling Towers were commissioned.

In March'81, new white oil tank truck loading gandry was commissioned.

(b) Gauhati Refinery, Gauhati, Assam

1962: On 1st January,the Gauhati Refinery went on stream.

1964: In October, Gauhati-Siliguri pipeline was commissioned.

1969: In November, production of ATF was commenced.

1971: In March, production of LPG was started.

1976: Naphtha production and offtake were started during April.

1977: In March, regular despatches of LSHS to Chandrapura Thermal Power Station of Assam State Electricity Board was started.

In May-June, major modifications repair jobs to the main fractionating column of the coking unit were taken up after 15 years of operation.

1979-80: Refinery suffered frequent interruptions in its operations towards the end of the year due to disturbed conditions in the Eastern Region.

1980-81: Refinery operations were affected adversely due to agitations in Assam.

(c) Gujarat Refinery, Jawahar Nagar, Gujarat

1963: The technical report on setting up of the Gujarat Refinery was accepted and an agreement for supply of equipment from USSR was signed.

1965: In October, the first one million tonne unit was commissioned.

1966: In May, the second million tonne unit was commissioned.

1967: On 28th September, the third million tonne unit for the expansion of refinery capacity from 2 to 3 million tonne was commissioned.

1968: On the 17th December, the Udex Plant was commissioned at the Gujarat Refinery for the extraction of Benzene and Toluene from reformed Naphtha.

1969: In July, a pilot plant was set up and commissioned at the Gujarat Refinery by the IIP to conduct investigations for the extraction of protein from petroleum.

1974: In October, two new 10,000 crude oil tanks were commissioned.

1975: LSHS despatches to HPCL were started on 8th June and are continuing on regular basis.

Facility for loading of LSHS in trucks was commissioned during July.

Horton sphere for LPG was commissioned on 18th August, this has helped in increasing the storage capacity for this product.

1977: In January, the despatches of LSHS to Bassain - a newly set-up installations were started.

In July, the first supply of Naphtha to IPCL's cracker plant was made.

In October-November, Atmospheric Distillation Unit(AU-IV), Visbreaker, Naphtha and Kero Merox Units put up under the project.

"Gujarat Refinery expansion facilities", were started.

1978: In March, supplies of special cut kerosene, i.e. LARFS as a feedstock to IPCL, Baroda were started.

1979: In February, Vacuum distillation Unit and Bitumen Unit were started under the expansion scheme.

In September, processing of Bombay High crude was started.

1980: In order to optimise the processing capacity of old distillation units, processing of imported crude was undertaken in February for a short period.

(d) Haldia Refinery, Haldia, West Bengal

1967: In September, the decision to set up a refinery with French and Rumanian collaboration under the charge of Indian Oil Corporation was taken up by the Govt. of India.

1969: Contracts for design supplies and rendering of technical assistance were executed separately with M/s Technip/Ensa of France and M/s Industrial expert of Rumania.

1970: Contract for fabrication and erection of all welded storage tanks awarded and work commenced in June.

In November, construction work on first phase of Refinery Township was commenced.

1971: During January, the construction of Process Unit foundation and other civil works were started.

During November, work of erection of equipment, machinery, piping and structures for the fuel part of the refinery was commenced.

1972: In February, construction of Refinery Township - second phase was started.

In March, work of erection of equipment, machinery, piping and steel structures for the lube was taken up.

In May, electrical works in power plant process unit and off-sites was commenced.

During October, instrumentation work for fuel part of the refinery was started.

In December, LPG, SK and ATF upliftments were started.

1974: In August, crude distillation unit went on trial runs.

In December, naphtha pretreater Catalytic reforming and kero hydrodesulpharisation units were commissioned.

In October, HSD and FO despatches were started.

1975: The refinery went into commercial production on 1st January. Visbreaking unit was commissioned on 8th October. Production of JBO and MTO products was started.

1st Naphtha export parcel of 17 thousand tonnes was loaded in the tanker on 22nd May.

1976: Vacuum distillation and Bitumen units were put on stream during June.

Furfural Extraction Unit was commissioned in July.

Propane Deasphalting Unit was commissioned in August.

Bitumen drum filling station was commissioned and drum filling was commissioned during October.

1977: In January, solvent dewaxing and Hydrofinishing Units were started.

In March, despatches of Lube Base Stocks including bright stocks premium grade lube oil hitherto imported were commenced.

In July, FDASBO production was started.

1979: In October, pipelines for supply of feedstock to Haldia Fertilizers and F.O. to bunkering installations at Haldia were commissioned.

1980: In June, despatches of Carbon Black Feedstock by rail were started for the first time.

(e) Mathura Refinery, Mathura

1973: In July, a Protocol on economic and technical cooperation between India and USSR in the construction of Mathura Refinery was signed.

In September, a contract for deputation of Soviet speialists for preparing Memorandum of Instructions was signed between Indian Oil Corporation and NEFTECHIMPROMEXPORT, Moscow.

In December, a contract for preparation of Detailed Project Report Analysis of crude oil, supply of equipment/material deputation of Soviet Specialists for rendering technical assistance in setting up the refinery was signed.

On 2nd October, the foundation stone was laid.

1974: In January, process design engineering agreement was signed with UOP for fluid catalytic cracker and five Merox Units.

In May, process design engineering agreement signed with IIP/IFP for Diesel, HSD and catalytic reformer with pretreater units.

In March, a letter of intent was issued to M/s BHEL for design, supply and erection of the power plant on a turn key basis.

In November, an agreement was signed for pollution control studies with M/s Techmeco of Italy.

1975: On 19th April, a team of Soviet Specialists arrived for review/scrutiny of the detailed project report.

On completion of DPR discussions, a MOU Acceptance Protocol was signed between IOC and Neftechimpromexport.

1975: (Contd.) Government decision regarding the revised schedule for Mathura Refinery, i.e. Mechanical Completion by December, 1979 and commissioning by April, 1980 received.

A contract for supply of equipment and materials and technical assistance was signed in Moscow with M/s NEFTECHIMPROMEXPORT.

1976: The first shipment of USSR equipment was received in June.

Contracts for stage A of the first phase of Township awarded in January.

Contract awarded in respect of construction of Radial well in Yamuna river for water supply in April.

In July, contract awarded for site grading, roads and storage tank foundations.

In November, contracts awarded for civil and Structural works for power plant building.

1977: A number of contracts for different jobs were awarded during the year.

In December, a detailed project report and the revised cost estimates were submitted to the Government for approval, Government's approval for selection of the Sulphur Recovery Unit was also received during that month. The Expert Committee constituted by Government to advise IOC on environmental (impact) of Mathura Refinery submitted its report to the Government in the month of December.

1978: In May, the detailed Project Report and Revised Cost estimates were approved by the Government.

1979-80: Upto the end of March, the project achieved overall progress of 81%.

1980-81: Overall cumulative progress of 92% was achieved upto 28th February, 1981.

(vi) Cochin Refineries Ltd., Cochin

1963: On 27th April, the formation agreement was entered into between the Govt. of India, Phillips Petroleum Co. of U.S.A. and Duncan Brothers & Company Limited, Calcutta for setting up a Refinery in the South.

On 6th September, Cochin Refineries Ltd. was registered.

1966: On 23rd September, the Refinery was inaugurated.

1968: The Formation Agreement of 27th April, 1963 was modified and expansion of the Refinery capacity was agreed to.

1969: In February, the modification of Formation Agreement was executed.

1973: In August, expansion programme of the Refinery was completed.

1979: On 5th December, Govt. of India approved the Secondary Processing Scheme for CRL

1981: On 3rd January, the Refinery completed fourth, one million man-hours without a loss time accident.

(vii) Madras Refineries Ltd., Manali, Madras

1965: In December, the Madras Refineries Ltd. was incorporated as a joint venture of the Govt. of India, the National Iranian Oil Company and AMOCO.

1966: In November, a contract for construction of the refinery was awarded to M/s Snam Progetti.

1967: In January, the ground breaking ceremony took place.

In April, the construction and erection of the refinery was started.

1969: First crude oil tanker was arrived.

In June, the first batch of products were delivered to IOC.

In September, the refinery was formally inaugurated.

1972: In September, New Oil Jetty for bearthing tankers in fair weather was available.

1973: The Refinery received the first prize under Shram Vir National Safety Awards for highest reduction in accident frequency ratio among Petroleum Refineries.

New products like Rubber Processing Oils, Ink Oil and Axle Oil were developed.

Asphalt was exported to Indonesia for the first time.

Exported lubricating oil base stock to Bangladesh for the first time.

All the three prizes under Shram Vir National Awards in Accident Prevention among Refineries were awarded.

Achieved ninth position in All India ranking amongs public sector undertakings on the basis of value of sales.

1975: Fuel consumption was reduced by 10% which resulted in annual saving of about one crore rupees.

1977: MRL was declared the Runner up for National Shram Vir Award Scheme for the longest Accident for record for 1976 amongst Petroleum Refineries in India.

1978: In November, licence and engineering services agreements for paraffin wax plant were executed with M/s Union Oil Company of California, U.S.A.

1980: On 20th March, Union Cabinet decided to double Madras Refinery capacity from its present 2.8 million tonnes per annum to 5.6 million tonnes per annum with matching facilities for secondary processing.

1981: On 26th February, an agreement with M/s Engineers India Ltd., Management Contractors was signed.

The expansion work for the 2.8 million tonnes per annum additional refining capacity was in progress.

(viii) Bongaigaon Refinery & Petro-chemicals Ltd., Assam

1974: On 20th February, the Company was registered under Companies Act, 1956 in the State of Assam, with an authorised capital of Rs.50 crores.

The work on various aspect of the refinery was entrusted to M/s Engineers India Limited and process design completed indigenously for the first time.

Feasibility Report of K.T.U. was prepared and submitted to the Ministry.

1975: Clearance for K.T.U. was obtained. Clearance of Public Investment Board was obtained for coker unit.

1976: Preliminary work was in progress.

1977: KTU Civil work started in June and DCU/CCU Civil work in October.

In November, the share capital of the company was increased to Rs.100 crores.

1978: In April, mechanical completion of crude distillation unit was over.

1979: In January, first Module of Power Plant was commissioned.

In February, Crude Distillation Unit went on stream.

On 2nd March, first Rake Carrying Petroleum Products rolled out of the refinery.

1979-80: The commercial production of Crude Distillation Unit(CDU) was commenced from 1st April, 1979.

In December, Mechanical Completion of Kerosene Treating Unit (KTU) was over.

The process engineering for all the Refinery Units under construction was also completed and fabrication and erection of coke chambers for delayed coker unit was completed in December.

The first module of Captive Power Plant was inaugurated.

Completion of Steam Blowing of boiler 2, Hydrolic testing of boiler No. 3 and Acid cleaning of lube oil and governing oil pipe for the captive power plant was carried out.

1980-81: The refinery operations were affected during the period December 1980 to March 1981 due to agitations in Assam.

(C) MARKETING

(i) Burmah-Shell/Bharat Petroleum Corporation Ltd., Bombay

1901: The Asiatic Petroleum Company entered in Indian market.

1921: The Burmah Oil Company entered the Indian market.

1928: On 6th January, Burmah-Shell came into existence.

1956: Burmah-Shell started the use of special tank-wagons for transportation of Bitumen. In May, Indian flag vessel Desh Sewak was chartered.

1965: Burmah Shell started use of special tank wagons for transportation of LPG.

1968: Burmah Shell introduced locally developed HDPE containers for packing lubricants.

1972: Burmah Shell commissioned a prototype aluminium alloy tank lorry for MS/HSD delivery to retail outlets.

1974: Burmah Shell established a Fuel Advisory Cell for promoting fuel economy through expert advice to fuel users.

1976: On 24th January, the Burmah Shell Refineries Ltd. was taken over by the Govt. of India and the Indian assets and liabilities of Burmah-Shell were merged with those of the nationalised Company to form Bharat Refineries Ltd.

1977: In August, the nationalised Company was given its permanent name/*

1980: In February, LPG was imported for the first time in tankers.

Wax/also imported for the first time at Bombay. /was

1980-81: On 15th August, a new LPG filling plant, the largest in India, alongwith storage/pumping/loading facilities was commissioned.

(ii) Essto Standard Eastern Inc./Hindustan Petroleum Corporation Limited (Marketing Operations)

1882: Esso's predecessor Company in India, Standard Oil Company of New York, commenced supply of Kerosene.

1931: Standard Vacuum Oil Company was formed with the merger of Standard Oil Company of New York and Vacuum Oil Company.

1933: On 7th September, Standard Vacuum Oil Company started operations in India.

1958: Marketing of LPG for domestic use was started in Bombay.

/* Bharat Petroleum Corporation Ltd.

1962: On April 1, Esso came to India. Standard Vaccum Oil Company was reorganised and named as Esso Standard Eastern Inc. which is solely owned by the Standard Oil Company, New Jersey.

1965: On 15th September, an agreement was signed between the Government of India and Esso Standard Eastern on a 50:50 partnership for the construction of a jointly owned lubricating base oil refinery at Bombay.

1970: On 11th February, Lube India Limited was formally commenced for producing lubricating oil base stocks from feedstock supplied by ESR&C.

1971: On 1st January, corporate name was changed to Esso Eastern Inc.

1974: On 15th March, the Government of India acquired the entire market assets of Esso Eastern Inc. in India and 74% interest in Esso Standard Refining Company of India Ltd. and the Lube India Ltd.

On 15th July, the market assets were vested in Esso Standard Refining Company and the two companies were merged to form Hindustan Petroleum Corporation Ltd.

The Fuel Refinery completed 20 years in July. Foreign exchange saved since 1954 has been more than Rs.175 crores.

1975: For the first time in India, in August lightering operations were commissioned to better utilise the 87,000 DWT tankers owned by the Shipping Corporation of India.

Started sale of Vijai De-lume scooters manufactured by Scooters India Ltd. through company-owned service stations at Bombay, Madras and New Delhi.

Axle oil handling facilities installed at Mahul Terminal began supplies of Axle oil medium and heavy to railways in bulk and 205 litre drums.

1976: On 1st October, Government of India acquired the balance 26% equity shares held by Esso and thus HPCL became a fully owned Government Company with effect from 1st October.

Marketing of turbine oil blends and rubber processing oil (heavy) commenced.

1977: Under the rural marketing programme, the total number of Multi-purpose distribution centres moved upto 89 and those of Farm Fuel Centres to 20.

1978: On 9th May, an order for amalgamating Caltex Oil Refining (India) Ltd. with Hindustan Petroleum Corporation Ltd. was issued by the Company Law Board.

1969: On 30th April, LPG was introduced in Assam.

On 25th August, LPG was introduced in Southern India.

LPG to an industrial consumer at Ernakulam was supplied.

In August, first LDO barrel outlet was commissioned at an interior location namely Mehmedabad, for ensuring adequate and timely supplies of fuel at controlled prices for diesel engines for agricultural operation. As at the end of 1971, IOC increased this facility to 280 barrel outlets and 2 pump outlets spread all over the country.

Two new products, viz. Benzene and Toluene were added to the marketing list of POL products of IOC.

On 24th October, a Subsidiary Company of IOC under the name of India Oil International Ltd. was incorporated at New Delhi which will be trading in Nepal also.

Handled more than 50% of the total petroleum trade of the country.

In July, marketing of products from Madras Refinery were commenced.

1970: On 12th January, majority interest in IBP was acquired by purchasing 60% equity.

On 4th April, Indian Oil's new blending plant at Madras was commissioned with all modern facilities to produce quality lubricants for the entire industry demand in the Southern Region. This is the largest plant in the country (140,000 tonnes/year capacity) and is entirely owned by IOC.

On 5th July, the first retail outlet was commissioned at Coimbatore under the scheme of employment to unemployed graduates.

In October, first Indane dealership was offered at Chingelpet, Tamil Nadu under the scheme of offering employment to unemployed graduates.

1971: During April, a gaint 45 Kl. Avnrefueller, which was designed and developed by IOC and fabricated indigenously was commissioned.

Lube Oil imports on an industry basis were channelised exclusively through IOC.

In December, first export shipment of petroleum products to Bangla Desh was made.

1972: In January, scheme for the award of dealerships to rehabilitate-war affected defence personnel was introduced.

During March, supplies of crude oil to the Chittagong Refinery of Bangla Desh were arranged and offloading of the crude tanker in mid stream by lighters at Chittagong was done.

In April, drum plant at Madras started production of barrels for lubes and drums for bitumen.

1972: (Contd.) In August, majority interest in IBP was sold to the President of India in accordance with the Presidential directive. As such, IBP ceased to be a subsidiary Company of IOC.

During September, premium grade lube with indigenous formulations under the brand name 'SERVO' were introduced.

1973: In July, marketing of LPG produced at Cochin Refinery commenced bulk bitumen sales from Madras Refineries were commenced by deliveries to Tamil Nadu Highways Department.

In August, Petroleum business of Indian Oil International was taken over by the Nepal Oil Corporation as percorders of the Government of India.

1974: In July, agreement with MOBIL in blending/marketing of premium lubricants of MOBIL brands terminated and was replaced by range of premium servo brands of lubricants.

During August, a liquidator of India Oil International Ltd. a wholly owned subsidiary was appointed and the Company is under shareholders voluntary liquidation.

A programme for educating the consumers towards improving fuel efficiency in their respective plant was launched. A group of IOC officers were trained in collaboration with the National Productivity Council and the Energy Conservation Division of DGTD.

During December, two new products were added in products range by marketing Jute Batching Oil and Rubber Extender Oil.

1975: In August, LPG Bottling Plant at Kanpur was commissioned.

In November, eighty retail outlets were developed as Multi-purpose distribution centres.

Besides, petroleum products essential commodities for farmers are made available in these centres.

The entire requirements of Axle oils was met by indigenous production. Till 1974, this was being imported.

1976: Laid stress in fulfilling social objectives such as fuel conservation studies to save foreign exchange, developing multipurpose distribution centres in the rural areas. Concentrated in the development of customer services and exports. Exported bitumen to new markets such as Vietnam, Burma and Dubai.

Commissioned a retail outlet at Leh at an altitude of 125,000 feet, perhaps the highest located retail outlet in the world.

In February, IOC and Castrol,U.K. entered into a technical assistance and collaboration agreement.

Refuelling systems for Jumbo Jets in Calcutta commissioned.

During January-June, IOC introduced LPG in the States of Manipur, Tripura, Orissa, Mizoram and Nagaland.

In November, Indian Oil International was dissolved.

1976: (Contd.) Launched a unique one month crash programme at Jamkhed, Ahmednagar district for the training of twenty Gram Savikas in First Aid Family Planning, Immunisation, Safe Drinking Water Projects, Village Health Centre, Cattle Breading Safety, precautions at homes (proper use of lanterns, stoves, deeyas) basic hygiene and sanitation, child care & nutrition & prohibition as a part of services to the rural population.

In December, pipeline facilities at Goa Port commissioned.

1977: On 14th February, IOC's paid up capital was increased from Rs.71.18 crores to Rs.82.18 crores. Further, on 22nd February, the authorised capital of the company increased from Rs.85 crores to Rs.150 crores.

With the export of 16,000 MT of HVI base stock to Sri Lanka in May 1977 and 45 MT to Sharjah IOC successfully penetrated the international lube oil market which was the monopoly of major international oil companies.

Several new multi-purpose distribution centres were opened by IOC for the benefit of the rural sector. A rural market survey was also undertaken to identify and meet the needs of the farmers in rural areas.

LPG Bottling Plant at Kanpur was completed.

An improved kerosene wick stove 'Nutan' developed by Indian Oil's Research & Development Centre, was put out for sale.

1978: A lube godown, the first of its kind in the country, was opened at Pimpri to ensure easy availability of products to the growing number of industries in the industrial belt near Pune.

In March, a new depot at Kapri near Nagpur was commissioned. Future growth of retail outlets companywise was also rationalised and the New Sales Plan came to be adopted.

In April, Centralised use of HPC's computer for processing of Industry's Consumption Zone studies was introduced.

In May, one more Divisional Office at Raipur was opened.

In September, Government's approval was received for Hydrant Refuelling system at the new international airport in Bombay and the work on the project was commenced.

Resitement of Bangalore depot was taken on hand, and construction of the new depot was nearing completion.

LSHS supply to Koradi power house near Nagpur was commenced.

For the first time, a study was undertaken on HSD consumption by the Railways and several conservation measures were suggested, which would result in a huge saving.

IOC signed an agreement with Cheoran International Oil Co., USA for reciprocal arrangements for the supply of Marine Lubricants meeting international specifications to Indian and foreign flag vessels at Indian and foreign ports.

1978: (Contd.) Containerised service for major consumers was introduced to avoid pilferage and contemination of products.

1979: In February, feasibility report for marketing of LPG during 1978-79 to 1982-83 was approved by the Government. According to this proposal 17.54 lakh customers will be enrolled during the same period, and the sale of LPG is expected to increase from 201,000 M.T. to 462,000 M.T. Further, in order to ensure availability of Kerosene at fair price in remote and far flung hilly areas, IOC launched a scheme of opening Taluka Kerosene Depots. The first such depot was opened at Rishikesh in U.P. Marketing of products from Bongaigaon Refinery and Bitumen ex-Cochin Refinery (after a lapse of almost 4 years) was also commenced during the month of February.

In March, the dealership policy was oriented to rehabilitate physically handicapped persons, by offering dealerships to such persons. The first retail outlet under this scheme was commissioned. Marketing of Bitumen, produced for the first time by Gujarat Refinery, was also commenced during the same month.

In November, as part of import substitution efforts, arrangements for manufacture of certain proprietory brands of greases for cement plants were made.

1980: In February, the project report for pipeline installations at Delhi, Ambala and Jullundar, a part of Mathura-Jullundar Pipeline Project, was approved by the Government.

A mini-bottling plant for LPG marketing was commissioned at Bangalore.

1981: Chartering of crude vessels was undertaken for lifting crude oil from Venezuela.

A bottling plant at Jullundar was commissioned to enable additional availability of cylinders planned by the Industry in the N.W.Area.

(D) LUBE PLANTS

(i) Lube India Limited/Hindustan Petroleum Corporation Limited (Lube Refinery).

1965: On 15th September, lube refinery agreement was signed by the President of India and Esso Eastern Inc. on a 50:50 partnership for construction of a jointly owned lubricating base oil refinery at Bombay.

1966: On 4th April, the Company was incorporated.

1969: Refinery went on stream and the first shipment of lubricating oil base stocks was made on 31st December to Esso and Indian Oil Corporation Ltd.

1973: Company obtained an industrial licence for manufacture of carbon black feed-stock.

CBFS licence was enhanced to 110 thousand tonnes.

Company made experimental batches of 150 turbine oil base stock.

1974: Axle oil to substitute imports was manufactured for the first time.

In March, Govt. of India acquired 74% interest in this Company.

On 15th July, the Company was merged to form Hindustan Petroleum Corporation Ltd.

1975: The Lube Refinery commenced commercial production of Rubber Process Oil.

Turbine oil base stocks (10,000 MT/p.a.) produced on a commercial scale.

1977: During October-November, crude pre-heat optmization project was completed during turn around. This project improved the crude pre-heat recovery, resulting in fuel saving.

Completed four years of safe operations without a lost time injury - a record in the history of lube refinery.

1979: Expansion project envisaging additional production of 74,000 M.T. of high viscosity index lube base stock was under way.

(ii) Lubrizol India Limited

1965: On 2nd December, the Formation Agreement was signed between the Govt. of India and the Lubrizol Corporation of U.S.A.

1966: On 20th July, Lubrizol India Ltd. was registered in the state of Maharashtra.

1967: In early 1967 land was acquired and in the month of October construction work was started.

1968: On 20th November, the plant was mechanically commissioned and production was commenced.

1969: On 16th January, the plant was formally inaugurated.

1971: On 26th March, entire management including the Managing Director was Indianised.

1972: In February, the ground breaking for construction of the new plant (Phase II Stage I) was started.

1973: On 31st October, the plant (Stage I of Phase II) was commissioned.

1974: In December, work on execution of new plants (Stages II and III of Phase II) was started.

1976: In September, Industrial licence for increasing licenced capacity for Chemical Additives from 6000 tonnes to 10,000 tonnes per annum was granted by the Government.

1977: In March, Stage II of Phase II was commissioned.

In May, Stage III of Phase II was commissioned.

On 21st May, the plants were formally inaugurated.

1978: In March, industrial licences for enhancement of the licenced capacities for chemical additives from 10,000 tonnes to 15,000 tonnes and Engine Oil Dispersant Intermediate Components from 4000 tonnes to 6000 tonnes per annum were issued by the Government.

1979: On August 25, a new Technology Transfer Agreement and Trade Marks Agreement were signed between the Lubrizol Corporation, USA and Lubrizol India Limited, replacing the earlier Technical Service Agreement and Trade Marks Agreement which formed a part of the Formation Agreement of December 1965. Under the new Technology Transfer Agreement, which is for an initial term of 8 years, Lubrizol Corporation will provide formulation technology as also R&D assistance for the manufacture of Chemical Additives. As a consequence the Formation Agreement has also been suitably modified.

1980: On January 25, the foreign equity participation was brought down from 49 to 40% and Government of India's holding was raised from 51 to 60%.

On 16th May, bonus shares amounting to Rs.420/- lakhs were allotted to existing shareholders in the ratio of 7 equity of Rs.100/- each fully paid for every one equity share held by capitalisation of reserves, thus the paid-up capital of the company was raised to Rs.480/- lakhs.

(iii) Indian Oil Blending Limited

1962: On 16th November, distributorship agreement was signed between Indian Oil Corporation Ltd., Bombay and Mobil Petroleum Co.Inc., New York, as a result of which Indian Oil Blending Ltd. was established for manufacturing lubricating oils of Mobil and other Brands, with financial participation in the new company by Mobil Petroleum Co.Inc.

1963: On 25th March, Indian Oil Blending Ltd. was incorporated as a Public Limited Company under the Companies Act, 1956 at Bombay, with an authorised capital of Rs.20 lakhs, out of which 10 lakhs were contributed by Indian Oil Corporation Ltd. and Rs.10 lakhs by Mobil Petroleum Co.Inc. in dollars.

1964: In May, two plants at Bombay and Calcutta were commissioned and trial runs were started with the installed capacities of 64,000 KLS for Bombay and 32,000 KLS for Calcutta plants per annum of Lubricating oils.

1966: On 1st November, a supplementary agreement was signed between Indian Oil Corporation Ltd. and Mobil Petroleum Co.Inc. for the construction of Grease Manufacturing Plant attached to the lube plant at Bombay. The authorised capital was increased to Rs.40 lakhs from Rs.20 lakhs and the increase of Rs.20 lakhs was also contributed equally by Indian Oil Corporation Ltd. and Mobil Petroleum Co.Inc. the capital contributed by Mobil Petroleum Co.Inc. being in U.S. Dollars.

1967: On 7th May, the Grease Plant was commissioned with an installed capacity of 5 million Pounds per annum.

1968: On 19th July, a Supplemental and Amendatory Agreement was signed between Indian Oil Corporation Ltd. and Mobil Petroleum Co.Inc. for technical assistance by Indian Oil Blending Ltd. for operating a Lube Blending Plant at Madras to be set up by Indian Oil Corporation Ltd.

(44)

III. GROWTH OF PETROLEUM INDUSTRY IN INDIA

('000' Tonnes)

Year	Crude Oil		Petroleum Products	
	Production	Refineries Crude Charged	Production	Consumption*
1960	451	6091	5747	7964
1961	513	6440	6090	8570
1962	1078	7003	6584	9536
1963	1652	8183	7650	10387
1964	2212	8932	8428	11478
1965	3022	9754	9113	12356
1966	4647	12030	11283	12990
1967	5667	14430	13452	14133
1968	5853	16096	14923	15871
1969	6723	17495	16239	17371
1970	6809	18459	17172	18816
1971	7185	19588	18225	20706
1972	7373	19672	18198	22675
1973	7198	20518	19089	23726
1974	7490	20783	19241	23023
1975	8283	21835	20368	23541
1976	8659	22762	21188	24997
1977	10185	24430	22795	26570
1978	11271	25626	23877	28894
1979	12841	28453	26360	31306
1980	9397	25075	23597	31509(P)

Contd.....

Rs./Crores

Year	IMPORTS			EXPORTS/ Re-Exports
	Crude Oil	Products	Total	
1960	40.6	41.0	81.6	4.61
1961	39.3	47.6	86.9	3.76
1962	38.7	51.5	90.2	3.85
1963	41.8	54.8	96.6	5.50
1964	42.6	53.8	96.4	4.84
1965	40.4	44.7	85.1	3.92
1966	56.1	52.0	108.1	8.76
1967	79.6	39.0	118.6	14.23
1968	93.9	40.7	134.6	8.25
1969	94.0	38.2	132.2	10.77
1970	102.4	30.5	132.9	5.72
1971	139.9	43.5	183.4	2.55
1972	144.2	56.7	200.9	8.94
1973	244.6	88.0	332.6	5.77
1974	899.4	209.9	1109.3(R)	19.37
1975	992.0	199.5	1191.5(R)	13.83
1976	1145.6	219.7	1365.3(R)	7.60
1977	1258.9	273.0	1531.9(R)	6.50
1978	1243.9	414.1	1658.0(R)	4.20
1979	1787.4	727.5	2514.9(R)	14.94
1980(P)	3037.7	1779.7	4817.4(R)	17.98

*Including Refinery Fuel
P. = Provisional.
(R) = Revised figures but still subject to firming up by the Oil companies.

GROWTH OF PETROLEUM INDUSTRY IN INDIA

('000'Tonnes)

Financial Year	Crude Oil		Petroleum Products	
	Production	Refineries crude charged	Production	Consumption
1960-61	448(e)	6130	5777	8285
1965-66	3473	10233	9561	12437
1970-71	6022	18379	17110	19135
1971-72	7299	20042	18639	21299
1972-73	7321	19328	17830	22978
1973-74	7189	20958	19495	23574
1974-75	7684	21094	19603	23302
1975-76	8448	22283	20829	23673
1976-77	8898	22995	21432	25396
1977-78	10763	24898	23219	26990
1978-79	11633	25974	24193	29719
1979-80	11768	27474	25794	31323
1980-81	10505	25837	24123	32[illegible](p)

Contd.....

(Rs.Crores)

Financial Year	IMPORTS			EXPORTS/ RE-EXPORTS.
	Crude Oil	Products	Total	
1960-61	39.2	39.8	79.0	4.40(e)
1965-66	39.6	40.7	80.3	4.39
1970-71	106.7	29.9	136.6	4.67
1971-72	147.0	46.9	193.9	3.91
1972-73	146.4	60.6	207.0	8.16
1973-74	416.4	124.5	540.9	8.09
1974-75	917.0	195.0	1112.0(R)	17.46
1975-76	1051.8	204.3	1256.1(R)	13.96
1976-77	1175.9	248.2	1424.1(R)	6.89
1977-78	1246.2	305.3	1551.5(R)	5.69
1978-79	1251.2	430.0	1681.2(R)	4.11
1979-80	2187.5	1082.4	3269.9(R)	24.02
1980-81	3348.0	1906.7	5254.7(R)	8.41

* = Including Refinery Fuel.
(P) = Provisional
(e) = Estimated
(R) = Revised figures but still subject to firming up by the Oil Companies.

IV. PETROLEUM ENERGY IN INDIA - 1976 - 1980
(Calendar Years)

PRODUCTS	1976	1977	1978	1979	1980(P)
AVAILABILITY					
IN ORIGINAL UNITS (MILLION TONNES)					
Kerosene	3.26	3.50	4.03	4.04	4.28
ATF	0.97	1.02	1.17	1.19	1.07
HSD	6.87	7.61	8.36	9.72	10.15
LDO	1.09	1.19	1.24	1.28	1.24
Fuel Oils	5.55	5.99	6.31	7.19	7.19
Others*	2.99	3.17	3.44	3.49	3.23
Total	20.73	22.48	24.55	26.91	27.16
IN MILLION TONNES OF COAL EQUIVALENT UNITS					
Kerosene	6.52	7.00	8.06	8.08	8.56
ATF	1.94	2.04	2.34	2.38	2.14
HSD	13.74	15.22	16.72	19.44	20.30
LDO	2.18	2.38	2.48	2.56	2.48
Fuel Oils	11.10	11.98	12.62	14.38	14.38
Others*	5.98	6.34	6.88	6.98	6.46
Total	41.46	44.96	49.10	53.82	54.32
IN MILLION TONNES OF COAL REPLACEMENT UNITS					
Kerosene	26.08	28.00	32.24	32.32	34.24
ATF	7.29	7.65	8.74	8.93	8.03
HSD	61.79	68.52	75.23	87.48	91.35
LDO	9.81	10.69	11.18	11.52	11.16
Fuel Oils	11.10	11.97	12.62	14.38	14.38
Others*	15.46	16.26	17.85	18.18	17.42
Total	131.53	143.09	157.86	172.81	176.16
CONSUMPTION					
IN ORIGINAL UNITS (MILLION TONNES)					
Kerosene	3.28	3.52	3.92	3.88	4.08
ATF	0.94	1.02	1.13	1.15	1.14
HSD	6.96	7.58	8.32	9.61	10.14
LDO	1.03	1.15	1.22	1.27	1.19
Fuel Oils	5.66	5.84	6.37	7.08	7.27
Others*	3.00	3.19	3.39	3.42	3.27
Total	20.87	22.30	24.35	26.41	27.09
IN MILLION TONNES OF COAL EQUIVALENT UNITS					
Kerosene	6.56	7.04	7.84	7.76	8.16
ATF	1.88	2.04	2.26	2.30	2.28
HSD	13.92	15.16	16.64	19.22	20.28
LDO	2.06	2.30	2.44	2.54	2.38
Fuel Oils	11.32	11.68	12.74	14.16	14.54
Others*	6.00	6.38	6.78	6.84	6.54
Total	41.74	44.60	48.70	52.82	54.18
IN MILLION TONNES OF COAL REPLACEMENT UNITS					
Kerosene	26.24	28.16	31.36	31.04	32.64
ATF	7.05	7.65	8.48	8.62	8.55
HSD	62.64	68.22	74.88	86.49	91.26
LDO	9.27	10.35	10.98	11.43	10.71
Fuel Oils	11.32	11.68	12.74	14.16	14.54
Others*	15.52	16.36	17.45	17.72	17.33
Total	132.04	142.42	155.89	169.46	175.03

P = Provisional. * Includes LPG, Gasolines, Refinery Gas and Refinery Fuel. @ Based on conversion factors adopted by FPC, 1974.

PETROLEUM ENERGY IN INDIA : 1976-77 TO 1980-81
(Financial Year)

PRODUCTS	AVAILABILITY				
	1976-77	1977-78	1978-79	1979-80	1980-81(P)
	IN ORIGINAL UNITS (MILLION TONNES)				
Kerosene	3.28	3.73	3.96	4.09	4.46
ATF	0.98	1.08	1.18	1.15	1.03
HSD	7.04	7.91	8.46	9.98	10.59
LDO	1.09	1.22	1.25	1.31	1.18
Fuel Oils	5.74	5.84	6.56	7.14	7.46
Others*	3.05	3.29	3.42	3.39	3.30
Total	21.19	23.07	24.83	27.06	28.02
	IN MILLION TONNES OF COAL EQUIVALENT UNITS				
Kerosene	6.56	7.46	7.92	8.18	8.92
ATF	1.96	2.16	2.36	2.30	2.06
HSD	14.08	15.82	16.92	19.96	21.18
LDO	2.18	2.44	2.50	2.62	2.36
Fuel Oils	11.42	11.68	13.12	14.28	14.92
Others *	6.10	6.58	6.84	6.78	6.60
Total	42.30	46.14	49.66	54.12	56.04
	IN MILLION TONNES OF COAL REPLACEMENT UNITS				
Kerosene	26.24	29.84	31.68	32.72	35.68
ATF	7.35	8.10	8.85	8.63	7.73
HSD	63.36	71.19	76.14	89.82	95.31
LDO	9.81	10.98	11.25	11.79	10.62
Fuel Oils	11.42	11.68	13.12	14.28	14.92
Others *	15.83	16.78	17.72	17.70	17.42
Total	134.01	148.57	158.76	174.94	181.68

PRODUCTS	CONSUMPTION				
	1976-77	1977-78	1978-79	1979-80	1980-81(P)
	IN ORIGINAL UNITS (MILLION TONNES)				
Kerosene	3.32	3.63	3.95	3.87	4.21
ATF	0.96	1.04	1.15	1.14	1.13
HSD	7.11	7.74	8.64	9.80	10.33
LDO	1.08	1.16	1.22	1.27	1.13
Fuel Oils	5.73	5.84	6.67	7.08	7.42
Others*	3.03	3.27	3.42	3.36	3.31
Total	21.23	22.68	25.05	26.52	27.53
	IN MILLION TONNES OF COAL EQUIVALENT UNITS				
Kerosene	6.64	7.26	7.90	7.74	8.42
ATF	1.92	2.08	2.30	2.28	2.26
HSD	14.22	15.48	17.28	19.60	20.66
LDO	2.16	2.32	2.44	2.54	2.26
Fuel Oils	11.46	11.68	13.34	14.16	14.84
Others*	6.06	6.54	6.84	6.72	6.62
Total	42.46	45.36	50.10	53.04	55.06
	IN MILLION TONNES OF COAL REPLACEMENT UNITS				
Kerosene	26.56	29.04	31.60	30.96	33.68
ATF	7.20	7.80	8.63	8.55	8.48
HSD	63.99	69.66	77.76	88.20	92.97
LDC	9.72	10.44	10.98	11.43	10.17
Fuel Oils	11.46	11.68	13.34	14.16	14.84
Others *	15.68	16.70	17.70	17.49	17.35
Total	134.61	145.32	160.01	170.79	177.49

P = Provisional. * Includes LPG, Gasolines, Refinery Gas and Refinery Fuel. @ Based on conversion factors adopted by FPC - 1974.

V. EXPLORATION AND PRODUCTION

Reserves of Crude Oil and Natural Gas In India*

Crude Oil- Million Tonnes. Natural Gas - Billion Cubic Metres.

Year.	ON - SHORE								OFF-SHORE		GRAND TOTAL	
	Gujarat		Assam		Rajasthan		Total		Bombay-High			
	Crude Oil.	Natural Gas.	Crude Oil.	Natural Gas.	Crude Oil.	Natural Gas.	Crude Oil.	Natural Gas.	Crude Oil.	Natural Gas.	Crude Oil.	Natural Gas.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1966	62.73	23.09	90.27	40.06	-	-	153.00	63.15	-	-	153.00	63.15
1967	65.88	24.65	88.96	42.60	-	-	154.84	67.25	-	-	154.84	67.25
1968	64.92	21.80	76.08	41.54	-	-	141.00	63.34	-	-	141.00	63.34
1969	59.80	22.90	72.51	42.70	-	-	132.31	65.60	-	-	132.31	65.60
1970	56.38	19.66	71.46	42.82	-	-	127.84	62.48	-	-	127.84	62.48
1971	51.08	18.84	62.70	43.45	-	-	113.78	62.29	-	-	113.78	62.29
1972	52.28	16.88	72.90	45,25	-	0.38	125.18	62.51	-	-	125.18	62.51
1973	49.45	16.35	77.87	49.71	-	0.38	127.32	66.44	-	-	127.32	66.44
1974	48.45	16.18	76.05	51.30	-	0.38	124.50	67.86	-	-	124.50	67.86
1975	45.72	15.72	84.41	65.24	-	0.43	130.13	81.39	13.77	6.28	143.90	87.67
1976	45.79	16.41	81.99	61.41	-	0.44	127.78	78.26	147.68	106.62	275.46	184.88
1977	45.62	16.20	82.28	63.75	-	0.44	127.90	80.39	175.28	148.08	303.18	228.47
1978	47.49	15.66	78.50	63.62	-	0.43	125.99	79.71	221.04	186.15	347.03	265.86
1979	45.34	15.80	82.81	63.65	-	0.43	128.15	79.58	226.29	264.64	354.44	344.22
1980	52.73	16.39	82.65	64.09	-	0.47	135.38	80.95	230.95	270.96	366.33	351.91

* - Proved and Indicated balance recoverable reserves.

Note :- For AOC and OIL the figures relate to 1st January of each year but in the case of ONGC the data pertains to 1st October upto the year 1973 and there after to 1st January of each year.

Oil 366.33

NUMBER OF DEEP DRILLING RIGS IN THE COUNTRY

YEAR	O. N. G. C. ONSHORE	O. N. G. C. OFFSHORE	O.I.L.	A.O.C.	TOTAL
1.	2.	3.	4.	5.	6.
1960-61	10	-	4	-	14
1961-62	23	-	4	-	27
1962-63	31	-	4	-	35
1963-64	43	-	4	-	47
1964-65	43	-	4	-	47
1965-66	46	-	4	-	50
1966-67	50	-	4	-	54
1967-68	50	-	4	-	54
1968-69	50	-	4	1	55
1969-70	50	-	4	1	55
1970-71	56	-	4	1	61
1971-72	55	-	4	-	59
1972-73	55	-	4	-	59
1973-74	55	1	4	-	60
1974-75	55	1	4	-	60
1975-76	56	3	3	-	62
1976-77	59	5	4	-	68
1977-78	65	8	4	-	77
1978-79	65	4	4	-	73
1979-80	69	5	4	-	78
1980-81	74	7	4	-	85

NUMBER OF WELLS AND METREAGE DRILLED BY O.N.G.C. AND O.I.L. FROM 1970 - 71 TO 1980 - 81.

YEAR	O. N. G. C. ONSHORE Wells (Nos)	O. N. G. C. ONSHORE Metres drilled '000'	O. N. G. C. OFFSHORE Wells (Nos.)	O. N. G. C. OFFSHORE Metres drilled '000'	O. I. L. Wells (nos)	O. I. L. Metres drilled '000'	TOTAL ONGC & OIL Wells (Nos.)	TOTAL ONGC & OIL Metres drilled '000'
1.	2.	3.	4.	5.	6.	7.	8.	9.
1970-71	89	168	-	1	14	48	103	2[illegible]
1971-72	61	131	1	-	12	46	74	[illegible]
1972-73	61	115	-	-	13	41	74	[illegible]
1973-74	64	140	1	4	12	43	77	[illegible]
1974-75	96	191	3	4	10	31	109	[illegible]
1975-76	106	229	15	28	13	36	134	[illegible]
1976-77	100	206	24	59	8	32	132	[illegible]
1977-78	87	175	35	67	19	73	141	315
1978-79	67	159	16	43	17	62	100	264
1979-80	69	138	28	59	15	48	112	245
1980-81	72	134	33	78	14*	39*	119	251

* Includes 2 wells/6000 metreage drilled by OIL in offshore areas.

STATUS OF WELLS (AS ON 1ST APRIL OF EACH YEAR)

(Numbers)

COMPANY / YEAR	OIL	GAS	DRY	UNDER TEST	INJEC-TION	OTHERS	TOTAL
1.	2.	3.	4.	5.	6.	7.	8.
A. Assam Oil Company.							
1970	380	19	-	-	10	588	997
1971	377	7	-	-	8	606	998
1972	381	7	-	-	4	609	1001
1973	367	7	-	-	5	622	1001
1974	370	7	-	-	5	619	1001
1975	377	7	-	-	5	612	1001
1976	380	6	-	-	5	610	1001
1977	404	8	-	-	6	583	1001
1978	415	10	-	-	6	570	1001
1979	416	10	-	-	6	569	1001
1980	417	10	-	-	6	568	1001
1981	418	9	-	-	6	568	1001
B. Oil India Ltd.							
1970	216	12	29	24	7	-	288
1971	229	14	29	21	9	-	302
1972	233	15	31	22	13	-	314
1973	239	17	32	24	15	-	327
1974	247	18	33	23	18	-	339
1975	250	18	34	27	20	-	349
1976	251	20	34	32	25	-	362
1977	250	21	36	37	26	-	370
1978	264	21	37	40	27	-	389
1979	266	23	39	47	31	-	406
1980	273	26	40	48	34	-	421
1981	283	27	42	48	35	-	435
C. Oil & Natural Gas Commission.							
1970	442	63	191	76	20	-	792
1971	488	63	225	84	22	-	882
1972	516	72	255	83	22	-	948
1973	528	74	275	104	28	-	1009
1974	555	78	298	115	28	-	1074
1975	605	79	320	141	28	-	1173
1976	695	85	334	152	29	-	1295
1977	763	91	378	158	29	-	1419
1978	844	101	422	140	29	-	1536
1979	886	111	461	135	30	-	1623
1980	951	123	487	125	32	-	1718
1981	1008	133	508	137	38	-	1824
Total (A+B+C)							
1970	1038	94	220	100	37	588	2077
1971	1094	84	254	105	39	606	2182
1972	1130	94	286	105	39	609	2263
1973	1134	98	307	128	48	622	2337
1974	1172	103	331	138	51	619	2414
1975	1232	104	354	168	53	612	2523
1976	1326	111	368	184	59	610	2658
1977	1417	120	414	195	61	583	2790
1978	1523	132	459	180	62	570	2926
1979	1568	144	500	182	67	569	3030
1980	1641	159	527	173	72	568	3140
1981	1709	169	550	185	79	568	3260

State-wise achievement of Geological field parties since inception upto March, 1981.

State	Geological Surveys						
	Detailed (Sq. Kms.)	Semi-detailed (Sq. Kms.)	Traversing (Line Kms.)	Reconnaissance mapping (Sq. Kms.)	Special studies (Sq. Kms.)	Geo-Neo-tectonic Surve (Sq.Km)	Reconnaitory traversing (Line Kms.)
1	2	3	4	5	6	7	8
Andhra Pradesh (including Tamil Nadu & Kerala)	3879	20089 CH =13300	1104	26904	-	396035	3300
Andaman & Nicobar	608	2947	607	2281			
Assam(including Tripura,Mizoram)	7748	20501					
Arunachal Pradesh & Meghalaya	CW	- 640	9034	4657			650
Gujarat(including Kutch/Maharashtra & Madhya Pradesh)	140						
Bihar	8258	41955	2952	13048	2926	-	-
Himachal Pradesh	-	1259	64	-	-	-	-
Jammu & Kashmir		1320+ RM 200	-	-	-	-	-
Orissa	1764	8165 +CH=372	1774	6548	70	-	-
Punjab(including H.P.)	9710	9224	4863	4568	1489	-	382
Uttar Pradesh	4658	10738	2089	1213	4170	-	-
West Bengal	912	4302	477	2397	-	5400	-
Rajasthan	3584	25110	1734	12090	-	-	-
Nepal	194	8446	1087	-	-	-	-
Pondicherry							
Kerala							
Nagaland	25	345	706	-	-	-	167
Bhutan	-	1821	95	290	-	-	-
TOTAL ONGC	41480	156222 +CH=13672 RM= 200 CW= 640	26586	73996	8655	401435	4499

Note : 1. The number of shallow drilling parties at the end of March'81 was 40, wells drilled 236 and metreage drilled 44830.

2. CW = Stands for compilation work, RM = stands for Road Mapping and CH = stands for checking.

3. Achievements of Arunachal Pradesh and Tripura has been included in Assam.

4. In case of GIL, no geological surveys were undertaken.

Geophysical

State-wise achievement of geophysical field parties since inception upto March, 1981.

(Provisional)

State	Departmental Reflection surveys refraction (conventional & CDP) surveys			Contract Line KMs
	Line KMs	SLK	Line KMs	
1.	2.	3.	4.	5.
A. ON-LAND				
1. Andhra Pradesh	6941	1352	74	-
2. Assam(including Tripura,Mizoram, Arunachal Pradesh & Meghalaya)	14420 (726.26)	404	8	(2708)
3. Gujarat	43197	2420 + 99(v)	-	-
4. Bihar	2249	239	-	-
5. Himachal Pradesh	622	-	133	-
6. Jammu & Kashmir	1937	-	-	-
7. Tamil Nadu	9617	516	78	-
8. Orissa	1631	-	-	-
9. Punjab & Himachal Pradesh	4451	-	274	-
10. Uttar Pradesh	12084	216	-	-
11. West Bengal	14292	1664	-	-
12. Rajasthan	3433	112	-	2106
TOTAL ON-LAND	114874 (726.26)	6923 +99(v)	567	2106 (2708)
B. OFF-SHORE	84460 +214 Repeatition	-	-	68415 +9 Refraction
Orissa(BEP)	-	-	-	(3178)
GRAND TOTAL (A+B)	199334 +214 RP (726.26)	6923 +99(v)	567	70521 +9 Refraction (5886)

(v) = Vibroseis party.

SLK = Standard Line KMs.

Figures in parenthesis relate to OIL.

State-wise achievement of drilling since nception upto March, 1981.

State	Drilling ('000 Metres) Departmental Wells	Departmental Metreage	Contract Wells	Contract Metreage
1.	2.	3.	4.	5.
A. ON-LAND				
1. Andhra Pradesh (including Kerala)	1	8	-	-
2. Assam, Andaman & Nicobar(including Tripura, Mizoram, Andhra Pradesh, Meghalaya & W.Bengal	362 (433 +2P)	1219 (1425)	-	-
3. Gujarat(including Kutch/Maharashtra & Madhya Pradesh	1252	2086	-	-
4. Bihar	1	3	1	5
5. Himachal Pradesh (including Punjab)	8	23	2	10
6. Tamil Nadu & Pondicherry	18	41	-	-
7. Jammu & Kashmir	3	7	-	-
8. Orissa	-	-	-	-
9. Uttar Pradesh	3	9	1	5
10. Rajasthan	10	13	6	11
B. OFF-SHORE				
1. Bombay High	69	47	-	-
2. Aliabet west	1	1.49	-	-
C. OTHERS				
OFF the Coromandal Coast, Gulf of Cambay, Kutch Off/Strait, Arabian sea, mouth of gauges and Mahanadi, Gulf of Mannar/Off the Kerala Coast/Bay of Bengal	85	296	(2)	(6.4)
GRAND TOTAL (A+B+C)	1813+ (433+2P)	3753+ (1425)	10 +(2)	31 +(6.4)

Figures in parenthesis relates to OIL.

COMPANY WISE PRODUCTION OF CRUDE OIL IN INDIA

(CALENDAR YEARS)

('000' tonnes)

Year	ON - SHORE				OFFSHORE	Grand	Cummulative
	AOC	OIL	ONGC	Total	ONGC	Total	Production.
1	2	3	4	5	6	7	8
Upto 1947	5826	-	-	5826	-	5826	5826
1948	255	-	-	255	-	255	6081
1949	258	-	-	258	-	258	6339
1950	259	-	-	259	-	259	6598
1951	269	-	-	269	-	269	6867
1952	263	-	-	263	-	263	7130
1953	269	3	-	272	-	272	7402
1954	278	30	-	308	-	308	7710
1955	272	75	-	347	-	347	8057
1956	307	89	-	396	-	396	8453
1957	277	163	-	440	-	440	8893
1958	214	226	-	440	-	440	9333
1959	202	248	-	450	-	450	9783
1960	179	272	-	451	-	451	10234
1961	184	319	10	513	-	513	10747
1962	188	556	334	1078	-	1078	11825
1963	184	805	663	1652	-	1652	13477
1964	170	1274	768	2212	-	2212	15689
1965	158	1742	1122	3022	-	3022	18711
1966	149	2143	2355	4647	-	4647	23358
1967	134	2752	2781	5667	-	5667	29025
1968	117	2771	2965	5853	-	5853	34878
1969	112	3074	3537	6723	-	6723	41601
1970	107	3070	3632	6809	-	6809	48410
1971	98	3146	3941	7185	-	7185	55595
1972	93	3183	4097	7373	-	7373	62968
1973	84	3102	4012	7198	-	7198	70166
1974	72	3080	4338	7490	-	7490	77656
1975	68	3087	5128	8283	-	8283	85939
1976	63	3092	5276	8431	228	8659	94598
1977	58	3120	5569	8747	1438	10185	104783
1978	55	2697	5551	8303	2968	11271	116054
1979	47	2848	5537	8432	4407	12839	128893
1980	41	794	4033	4868	4529	9397	138290

Calendar year
Crude
13.82.9000
or 138 Lakhs
13.8 Million Tonns

COMPANYWISE PRODUCTION OF CRUDE OIL IN INDIA
(FIANCIAL YEARS)

('000' Tonnes)

YEAR	ONSHORE			Total	OFFSHORE	Grand Total	Cummulative. - Prodn. Since Inception.
	AOC	OIL	ONGC		ONGC		
1.	2.	3.	4.	5.	6.	7.	8.
1965-66	151	1895	1427	3473	-	3473	19915
1966-67	148	2217	2538	4903	-	4903	24818
1967-68	128	2836	2821	5785	-	5785	30603
1968-69	117	2848	3084	6059	-	6059	36662
1969-70	112	3079	3627	6819	-	6819	43481
1970-71	104	3084	3634	6822	-	6822	50303
1971-72	97	3159	4003	7299	-	7299	57602
1972-73	90	3131	4100	7321	-	7321	64923
1973-74	82	3079	4028	7189	-	7189	72112
1974-75	71	3079	4534	7684	-	7684	79796
1975-76	66	3103	5279	8448	-	8448	88244
1976-77	62	3085	5345	8492	406	8898	97142
1977-78	57	3113	5519	8689	2074	10763	107905
1978-79	53	2671	5599	8323	3310	11633	119538
1979-80	40	2215	5091	7346	4422	11768	131306
1980-81	48	1241	4231	5520	4985	10505	141811

what 1980-81 figure — 14.18 million Tonnes

STATEWISE PRODUCTION OF CRUDE OIL IN INDIA.

('000' Tonnes)

YEAR	ON SHORE			OFF SHORE	GRAND TOTAL
	Assam	Gujarat	Total		
1.	2.	3.	4.	5.	6.
		CALENDAR YEARS.			
1960	451	-	451	-	451
1965	2900	1122	3022	-	3022
1970	3359	3450	6809	-	6809
1971	3542	3643	7185	-	7185
1972	3653	3720	7373	-	7373
1973	3594	3604	7198	-	7198
1974	3735	3755	7490	-	7490
1975	4189	4094	8283	-	8283
1976	4267	4164	8431	228	8659
1977	4510	4237	8747	1438	10185
1978	4076	4227	8303	2968	11271
1979	4563	3869	8432	4407	12839
1980	1056	3812	4868	4529	9397
		FINANCIAL YEARS.			
1960-61	448	-	448	-	448
1965-66	2049	1427	3476	-	3476
1970-71	3367	3455	6822	-	6822
1971-72	3630	3669	7299	-	7299
1972-73	3609	3712	7321	-	7321
1973-74	3589	3600	7189	-	7189
1974-75	3814	3870	7684	-	7684
1975-76	4300	4148	8448	-	8448
1976-77	4305	4187	8492	406	8898
1977-78	4534	4155	8689	2074	10763
1978-79	4085	4238	8323	3310	11633
1979-80	3578	3768	7346	4422	11768
1980-81	1712	3808	5520	4985	10505

PRODUCTION OF NATURAL GAS IN INDIA

(Million Cubic Metres)

YEAR	ON SHORE			OFF SHORE	Grand Total
	Assam	Gujarat	Total		
1.	2.	3.	4.	5.	6.
		CALENDAR YEARS			
1970	966	458	1424	-	1424
1971	993	516	1509	-	1509
1972	1031	533	1564	-	1564
1973	1155	519	1674	-	1674
1974	1328	590	1918	-	1918
1975	1550	760	2310	-	2310
1976	1595	815	2410	28	2438
1977	1677	888	2565	161	2726
1978	1527	903	2430	340	2770
1979	1709	843	2552	532	3084
1980	620	868	1488	589	2077
		FINANCIAL YEARS			
1970-71	980	465	1445	-	1445
1971-72	1012	523	1535	-	1535
1972-73	1034	531	1565	-	1565
1973-74	1195	518	1713	-	1713
1974-75	1388	553	2041	-	2041
1975-76	1595	773	2368	-	2368
1976-77	1558	822	2380	48	2428
1977-78	1717	893	2610	229	2839
1978-79	1518	908	2425	386	2811
1979-80	1385	840	2225	542	2767
1980-81	842	843	1685	673	2358

STATE-WISE UTILISATION OF NATURAL GAS IN INDIA (Million Cubic Metres)

Year	Assam			Gujarat			Total Onshore	Offshore			Grand Total
	Internal use*	AGC	Total Assam	UPH/DPH JPM	GSFC & BI	Total Gujarat		TEC	RCFL	Total Offshore	
1	2	3	4	5	6	7	8	9	10	11	12
				CALENDAR YEARS							
1970	188	157	359	143	174	316	675	-	-	-	675
1971	192	171	381	181	184	383	764	-	-	-	764
1972	290	189	496	214	190	430	926	-	-	-	926
1973	297	199	515	188	180	397	912	-	-	-	912
1974	286	221	532	198	178	471	1003	-	-	-	1003
1975	329	254	611	202	193	632	1243	-	-	-	1243
1976	362	444	836	171	222	667	1503	-	-	-	1503
1977	388	470	893	188	240	729	1622	-	-	-	1622
1978	353	493	879	180	233	720	1599	109	14	123	1722
1979	389	510	933	166	221	645	1578	197	140	337	1915
1980	210	202	455	153	226	695	1150	158	154	312	1462
				FINANCIAL YEARS							
1970-71	195	163	368	147	178	331	699	-	-	-	699
1971-72	204	176	396	192	186	395	791	-	-	-	791
1972-73	308	189	514	210	190	430	944	-	-	-	944
1973-74	283	199	502	184	167	383	885	-	-	-	885
1974-75	303	227	555	203	188	538	1093	-	-	-	1093
1975-76	332	290	651	217	192	635	1286	-	-	-	1286
1976-77	369	422	864	173	236	679	1544	-	-	-	1544
1977-78	387	467	889	186	238	723	1612	-	-	-	1612
1978-79	359	508	899	177	234	726	1625	168	29	197	1822
1979-80	317	407	758	163	218	643	1401	190	173	363	1764
1980-81	269	275	585	148	224	677	1262	135	158	293	1555

* Including the gas returned to Natural Reservoirs and gas used by OIL & AOC for field operations, etc.

AGC = Assam Gas Company. UPH = Uttaran Power House. DPH = Dhuwaran Power House

GSFC = Gujarat State Fertilizer Co. JPM = Jayant Paper Mills. BI = Baroda Industries.

TEC = Tata Electric Company. RCFL = Rashtriya Chemicals & Fertilizers Ltd.

Figures rounded off to nearest Million Cubic Metres.

VI. REFINING

PETROLEUM REFINING CAPACITY IN INDIA

(Million Tonnes per Annum)

REFINERY	Year of Commissioning	Capacity as on 1.4.1981	Capacity after Expansion under Implementation.	Likely date of completion.
1	2	3	4	5
A. Refineries in Operation				
i) Public Sector				
1. B.P.C.L., Bombay	1955	5.25	-	
2. C.R.L. Cochin	1966	3.30	-	
3. H.P.C.L. Vizag	1957	1.50	-	
4. H.P.C.L. Bombay	1954	3.50	-	
5. I.O.C. Barauni	1964	3.30	-	
6. I.O.C. Gauhati	1962	0.85	-	
7. I.O.C. Haldia	1974	2.50	-	
8. I.O.C. Koyali	1965	7.30	-	
9. M.R.L. Madras	1969	2.80	-	
10. B.R.P.L. Assam	1979	1.00	-	
Total		31.30		
ii) Private Sector				
11. A.O.C. Digboi	1901	0.50	-	
Grand Total (I+II)		31.80	-	
B. Refineries under expansion				
1. B.P.C.L. Bombay		5.25	6.00	Oct. 1984
2. H.P.C.L. Vizag		1.50	4.50	Oct. 1984
3. M.R.L. Madras		2.80	5.60	End. 1984
4. C.R.L. Cochin		3.30	4.50	March 1984
C. Refinery Under Construction.				
Mathura Refinery		-	6.00	Oct./Nov. 1981

REFINERY CRUDE THROUGHPUT AND PRODUCTION OF PETROLEUM PRODUCTS.

('000' Tonnes)

YEAR	CRUDE THROUGHPUT			PRODUCTION		
	Public Sector	Private Sector	Total (2+3)	Public Sector	Private Sector	Total (5+6)
1.	2.	3.	4.	5.	6.	7.
			CALENDAR YEARS.			
1960	-	6091	6091	-	5747	5747
1961	-	6440	6440	-	6090	6090
1962	241	6762	7003	193	6391	6584
1963	470	7668	8138	407	7243	7650
1964	911	8021	8932	778	7650	8428
1965	1549	8205	9754	1328	7785	9113
1966	3476	8554	12030	3186	8097	11283
1967	6359	8071	14430	5814	7638	13452
1968	7707	8389	16096	7085	7838	14923
1969	9514	7981	17495	8736	7503	16239
1970	10994	7465	18459	10132	7040	17172
1971	11198	8390	19588	10293	7932	18225
1972	11938	7734	19672	10835	7363	18198
1973	11484	9034	20518	10522	8567	19089
1974	15107	5676	20783	13935	5306	19241
1975	16723	5112	21835	15602	4766	20368
1976	21163	1599	22762	19669	1519	21188
1977	23903	527	24430	22297	498	22795
1978	25096	530	25626	23372	505	23877
1979	27649	504	28153	25874	486	26360
1980	24668	407	25075	23213	384	23597
			FINANCIAL YEARS.			
1960-61	-	6130	6130	-	5777	5777
1961-62	60	6524	6584	11	6184	6195
1962-63	300	6964	7264	274	6627	6901
1963-64	554	7920	8474	493	7492	7985
1964-65	1005	8005	9010	842	7636	8478
1965-66	1966	8267	10233	1733	7828	9561
1966-67	4166	8547	12713	3741	8141	11882
1967-68	6783	8022	14805	6257	7512	13769
1968-69	8088	8459	16547	7457	7932	15389
1969-70	10087	7825	17912	9250	7342	16592
1970-71	10820	7559	18379	9965	7145	17110
1971-72	11575	8467	20042	10623	8016	18639
1972-73	11565	7763	19328	10575	7255	17830
1973-74	11616	9342	20958	10647	8848	19495
1974-75	15572	5522	21094	11572	8031	19603
1975-76	17045	5238	22283	15095	4934	20029
1976-77	21694	1301	22995	20203	1229	21432
1977-78	24364	534	24898	22712	507	23219
1978-79	25450	524	25974	23692	501	24193
1979-80	27068	408	27474	25403	391	25794
1980-81	25334	503	25837	23646	477	24123

Refinery-wise Crude Run And Total Production (NET) Of Pol Products.

('000' Tonnes)

Year	AOC	BSR/ BPCL	ESSO/ HPCL	CORIL/ HPC(VMU)	GAUHATI	BARAUNI
	1.	2.	3.	4.	5.	6.
1960-61						
Total Production	416	2731	1772	858	-	-
Crude Run	446	2879	1904	901	-	-
1965-66						
Total Production	479	3743	2552	1053	721	613
Crude Run	488	3989	2672	1118	804	753
1970-71						
Total Production	452	3333	2275	1085	631	1996
Crude Run	476	3541	2367	1175	686	2191
1975-76						
Total Production	489	3438	2635	1007	762	2722
Crude Run	527	3630	2830	1081	827	2949
1976-77						
Total Production	509	3566	2622	944	764	2692
Crude Run	535	3778	2791	1011	841	2882
1977-78						
Total Production	507	4285	2702	1208	748	2857
Crude Run	534	4512	2897	1304	817	3060
1978-79						
Total Production	501	4472	2624	1221	745	2474
Crude Run	524	4693	2800	1329	825	2661
1979-80						
Total Production	391	4615	2926	1000	606	2144
Crude Run	408	4821	3130	1100	646	2285
1980-81						
Total Production	477	4629	2907	1208	575	438
Crude Run	503	4901	3113	1319	639	505

Refinery-wise Crude Run And Total Production(NET) Of Pol Products.

('000' Tonnes)

Year	GUJARAT	HALDIA	CRL	MRL	BR&P	TOTAL
	7.	8.	9.	10.	11.	12.
1960-61						
Total Production	-	-	-	-	-	5777
Crude Run	-	-	-	-	-	6130
1965-66						
Total Production	400	-	-	-	-	9561
Crude Run	409	-	-	-	-	10233
1970-71						
Total Production	3208	-	2346	1784	-	17110
Crude Run	3463	-	2398	1982	-	18379
1975-76						
Total Production	3859	1295	2187	2435	-	20829
Crude Run	4145	1348	2294	2690	-	22283
1976-77						
Total Production	3898	1633	2541	2263	-	21432
Crude Run	4145	1862	2646	2504	-	22995
1977-78						
Total Production	3896	1853	2804	2359	-	23219
Crude Run	4129	2096	2933	2616	-	24898
1978-79						
Total Production	4937	1967	2719	2496	37	24193
Crude Run	5251	2213	2862	2759	57	25974
1979-80						
Total Production	6350	2313	2731	2564	154	25794
Crude Run	6714	2492	2866	2822	190	27474
1980-81						
Total Production	6526	2056	2795	2376	37	24123
Crude Run	6974	2308	2912	1611	52	25837

Refinery Production - 1977 to 1980

('000' Tonnes)

Product	Production				%Variation	
	1977	1978	1979	1980	1979/1978	1980/1979
1. Light Distillates	3966	4210	4645	3953	+10.3	-14.9
of which						
L.P.Gas	377	401	416	367	+ 3.7	-11.8
Naphtha	2093	2162	2533	2017	+17.2	-20.4
Mogas	1370	1526	1569	1459	+ 2.8	- 7.0
SBP Spirits/Hexane	48	47	55	46	+17.0	-16.4
2. Middle Distillates	11875	12316	13564	11722	+10.1	-13.6
of which						
ATF/Jet A-1	1020	1166	1176	1010	+ 0.9	-14.1
Kerosene	2488	2414	2651	2343	+ 9.8	-11.6
M.T.O.	84	99	101	109	+ 2.0	+ 7.9
H.S.D.	5989	7283	8261	6991	+13.4	-15.4
L.D.O.	1187	1242	1258	1141	+ 1.3	- 9.3
J.B.O.	82	77	75	92	- 2.6	+22.7
3. Heavy Ends	6954	7351	8151	7922	+10.9	- 2.8
of which						
F.O.	3421	3359	3922	4184	+16.8	+ 6.7
LSHS	1658	2050	2354	1927	+14.8	-18.1
H.H.S.	163	87	10	2	-88.5	-80.0
Total Fuel Oils	5242	5496	6286	6113	+14.4	- 2.7
Lubes Oils	404	488	481	439	- 1.4	- 8.7
Bitumen	959	1025	1027	1102	+ 0.2	+ 7.3
Pet. Coke*	162	128	128	94	-	-26.6
Wax	49	55	69	32	+25.5	-53.6
4. Total Production	22795	23877	26360	23597	+10.4	-10.5
5. Crude Run	24430	25626	28153	25075	+ 9.9	-10.9

* Includes production of Calcined Pet. Coke.

Pattern of Refinery Production

(Percentages)

Products	1960	1965	1970	1975	1979	1980
Light Distillates@	17.2	17.0	16.4	16.1	16.5	15.8
Middle Distillates	42.4	42.2	46.2	48.2	48.2	46.7
Heavy Fuel Oils	27.0	26.8	23.0	22.8	22.3	24.4
Bitumens	6.6	5.6	4.1	3.2	3.7	4.4
Lubes	0.4	0.4	1.3	1.6	1.7	1.8
Others	0.8	1.4	2.1	1.4	1.2	1.0
Total Production	94.4	93.4	93.1	93.3	93.6	94.1
RBF & Losses/ Inventories	5.6	6.6	6.9	6.7	6.4	5.9
Crude Throughput	100	100	100	100	100	100
@ Includes Gases	0.1	1.1	1.0	1.5	1.5	1.5

Refinery Production During 1977-78 to 1980-81.

('000' Tonnes)

Products	Production				% Variation	
	1977-78	1978-79	1979-80	1980-81	1979-80 / 1978-79	1980-81 / 1979-80
1. LIGHT DISTILLATES	4051	4295	4459	4101	+ 3.8	- 8.0
of which						
L.P.Gas	383	403	406	366	+ 0.7	- 9.8
Naphtha	2120	2262	2415	2115	+ 6.8	-12.4
Mogas	1423	1515	1512	1519	- 0.2	+ 0.5
SBP Spirits/ Hexane	49	43	56	45	+30.2	-19.6
2. MIDDLE DISTILLATES	12079	12476	13080	12115	+ 4.8	- 7.4
of which						
ATF/Jet A-1	1077	1177	1104	1000	- 6.2	- 9.4
Kerosene	2450	2514	2539	2396	+ 1.0	- 5.6
M.T.O.	89	97	112	106	+15.5	- 5.4
H.S.D.	7129	7350	7975	7371	+ 8.5	- 7.6
L.D.O.	1224	1227	1230	1110	+ 0.2	- 9.8
J.B.O.	79	75	80	91	+ 6.7	+13.8
3. HEAVY ENDS	7089	7422	8255	7907	+11.2	- 4.2
of which						
F.O.	3454	3425	4086	4041	+19.3	- 1.1
LSHS	1770	2131	2252	2081	+ 5.7	- 7.6
H.H.S	108	88	13	2	-85.2	-84.6
Total Fuel Oils	5332	5644	6351	6124	+12.5	- 3.6
Lube Oils	413	490	487	426	- 0.6	-12.5
Bitumen	992	962	1103	1081	+14.7	- 2.0
Pet. Coke*	155	122	99	85	-18.8	-14.1
Wax	55	57	54	43	- 5.3	-20.4
4. Total Production	23219	24193	25794	24123	+ 6.6	- 6.5
5. Crude Run	24898	25974	27474	25837	+ 5.8	- 6.0

* Includes Calcined Petroleum Coke.

Pattern of Refinery Production

(Percentages)

Products	1960-61	1965-66	1970-71	1975-76	1979-80	1980-81
Light Distillates@	17.1	17.3	16.4	16.3	16.2	15.9
Middle Distillates	42.3	42.4	46.6	48.3	47.6	46.9
Heavy Fuel Oils	26.8	26.5	22.3	22.8	23.1	23.7
Bitumens	6.9	5.5	4.4	3.1	4.0	4.2
Lubes	0.4	0.4	1.3	1.6	1.8	1.7
Others	0.7	1.3	2.1	1.4	1.3	1.0
Total Production	94.2	93.4	93.1	93.5	94.0	93.4
RBF/Losses/ Inventories	5.8	6.6	6.9	6.5	6.0	6.6
Crude Throughput	100	100	100	100	100	100
@ Includes Gases	0.1	1.1	1.0	1.6	1.5	1.4

VII. CONSUMPTION/SALES.

TOTAL CONSUMPTION OF PETROLEUM PRODUCTS

(Incl. Sales to Nepal*, Sikkim, Bhutan and Bunkers/ International Air Lines)

Qty. '000' Tonnes.

Year	Total Consumption.	% age Growth	Year	Total consumption.	% age Growth
	CALENDAR YEARS			FINANCIAL YEARS	
1948	2657	- 2.9	1948-49	2774e	+ 2.1
1949	3125	+17.6	1949-50	3174e	+14.4
1950	3319	+ 6.2	1950-51	3485e	+ 9.8
1951	3888	+17.1	1951-52	3851e	+10.5
1952	3741	- 3.8	1952-53	3785e	- 1.7
1953	3916	+ 4.7	1953-54	3948e	+ 4.3
1954	4089	+ 4.4	1954-55	4270e	+ 8.2
1955	4817	+17.8	1955-56	4920e	+15.2
1956	5229	+ 8.6	1956-57	5376e	+ 9.3
1957	5819	+11.3	1957-58	5894e	+ 9.6
1958	6117	+ 5.1	1958-59	6291e	+ 6.7
1959	6812	+11.4	1959-60	7100e	+12.9
1960	7964	+16.9	1960-61	8285	+16.7
1961	8570	+ 7.6	1961-62	8724	+ 5.3
1962	9536	+11.3	1962-63	9832	+12.7
1963	10387	+ 8.9	1963-64	10671	+18.5
1964	11478	+10.5	1964-65	11700	+ 9.7
1965	12356	+ 7.6	1965-66	12437	+ 6.3
1966	12990	+ 5.1	1966-67	13348	+ 7.3
1967	14133	+ 8.8	1967-68	14397	+ 7.9
1968	15871	+12.3	1968-69	16305	+13.3
1969	17371	+ 9.5	1969-70	17797	+ 9.2
1970	18816	+ 8.3	1970-71	19135	+ 7.5
1971	20706	+10.0	1971-72	21299	+11.3
1972	22675	+ 9.5	1972-73	22978	+11.3
1973	23726	+ 4.6	1973-74	23574	+ 2.6
1974	23028	+ 3.0	1974-75	23302	+ 1.2
1975	23541	+ 2.2	1975-76	23673	+ 1.6
1976	24897	+ 5.8	1976-77	25396	+ 7.3
1977	26570	+ 6.7	1977-78	26990	+ 6.3
1978	28894	+ 8.7	1978-79	29719	+10.1
1979	31306	+ 8.3	1979-80	31323	+ 5.4
1980(P)	31509	+ 0.6	1980-81(P)	32159	+ 2.7

Note:- Includes Refinery fuel from 1960/1960-61 onwards. Prior to that Refinery fuel consumption is not available.

* - Excludes Sales to Nepal from 1975/1975-76 onwards.

P - Provisional. e - Estimated.

Calendar Year

PRODUCT -WISE CONSUMPTION/SALES OF PETROLEUM PRODUCTS DURING THE YEARS 1977, 1978, 1979 & 1980.

Qty '000' Tonnes.

Product	1977	1978	1979	1980 P	% Variation Col.4 / Col.3	% Variation Col.5 / Col.4
1	2	3	4	5	6	7
1. Light Distillate	4229	4419	4596	4236	+ 4.0	- 7.8
L.P. Gas	385	402	419	394	+ 4.2	- 6.0
Naphtha	2319	2388	2529	2178	+ 5.9	-13.9
Mogas	1370	1472	1495	1521	+ 1.6	+ 1.7
SBP/Hexane	50	47	52	50	+10.6	- 3.8
Others	105	110	101	93	- 8.2	- 7.9
2. Middle Distillates	13458	14791	16141	16784	+ 9.1	+ 4.0
Kerosene	3525	3912	3880	4081	- 0.8	+ 5.2
ATF/Jet A-1	1016	1129	1151	1144	+ 1.9	- 0.6
HSD	7580	8316	9613	10145	+15.6	+ 5.5
LDO/MDO	1146	1219	1267	1191	+ 3.9	- 6.0
JBO	75	78	77	81	- 1.3	+ 5.2
MTO	82	94	100	102	+ 6.4	+ 2.0
Others	34	43	53	40	+23.3	-24.5
3. Heavy Ends	7492	8202	9085	9152	+10.8	+ 0.7
a) Fuel Oils (Total)	5845	6372	7080	7265	+11.1	+ 2.6
FO/TDO	4034	4202	4693	5307	+ 11.7	+13.1
LSHS	1784	2079	2368	1957	+13.9	-17.4
HHS	27	89	19	1	-78.7	-94.7
b) Lubes & Greases	462	518	569	565	+ 9.8	- 0.7
c) Bitumen/Asphalt	878	986	1030	1043	+ 4.5	+ 1.3
d) Petroleum Coke	149	145	193	102	+33.1	-47.2
e) Wax	48	54	75	46	+38.9	-38.7
f) Others	110	127	138	131	+ 8.7	- 5.1
Total (1 + 2 + 3)	25179	27412	29822	30172	+ 8.8	+ 1.2
Refinery Fuel*	1391	1482	1484	1337	+ 0.1	- 9.9
Grand Total	26570	28894	31306	31509	+ 8.3	+ 0.6

* - RBF, Lube Refinery Fuel & TPS Fuel.

P - Provisional.

PRODUCT-WISE CONSUMPTION/SALES OF PETROLEUM PRODUCTS DURING THE YEARS 1977-78, 1978-79 1979-80 & 1980-81

Qty. '000' Tonnes

PRODUCTS	1977-78	1978-79	1979-80	1980-81(P)	%Variation Col.4 / Col.3	%Variation Col.5 / Col.4
1.	2.	3.	4.	5.	6.	7.
1. LIGHT DISTILLATES	4228	4583	4460	4378	- 2.7	- 1.8
L. P. Gas	391	408	410	398	+ 0.5	- 2.9
Naphtha	2290	2515	2413	2324	- 4.0	- 3.7
Mogas	1391	1499	1490	1521	- 0.6	+ 2.1
SBP/Hexane	47	48	53	52	+10.4	- 1.9
Others	109	113	94	83	-16.8	-11.7
2. MIDDLE DISTILLATES	13771	15172	16321	17012	+ 7.6	+ 4.2
Kerosene	3634	3952	3872	4210	- 2.0	+ 8.7
A.T.F./Jet-1	1041	1154	1144	1128	- 0.9	- 1.4
H. S. D.	7736	8638	9801	10326	+13.5	+ 5.4
L.D.O./M.D.O.	1164	1216	1266	1125	+ 4.1	-11.1
J. B. O.	75	70	85	82	+21.4	- 3.6
M. T. O.	85	94	105	100	+11.7	- 4.8
Others	36	48	48	41	-	-14.6
3. HEAVY ENDS.	7540	8486	9102	9401	+ 7.3	+ 3.3
Fuel Oils (Total)	5839	6668	7081	7415	+ 6.2	+ 4.7
F.O./ T.D.O.	3958	4395	4796	5337	+ 9.1	+11.3
L. S. H. S.	1847	2189	2268	2076	+ 3.6	- 8.5
H. H. S.	34	84	17	2	-79.8	-88.2
b) Lubes & Greases	478	544	566	586	+ 4.0	+ 3.5
c) Bitumen/Asphalt	908	943	1069	1081	+13.4	+ 1.1
d) Petroleum Coke	146	155	185	100	+19.4	-45.9
e) Wax	55	56	68	45	+21.4	-33.8
f) Others	114	120	133	174	+10.8	+30.8
TOTAL (1+2+3)	25539	28241	29883	30791	+ 5.8	+ 3.0
Refinery Fuel@	1451	1478	1440	1368	- 2.6	- 5.0
GRAND TOTAL	26990	29719	31323	32159	+ 5.4	+ 2.7

P= Provisional.

@= R.B.F. Lube Refinery Fuel & T.P.S. Fuel.

Upto 1978-79

Seasonal Indices of the Sales/Consumption of Major Petroleum Products in India.

M O N T H	M. S.	A.T.F.	KEROSENE	H. S. D.	L. D. O.	F. O.	FO/LSHS	BITUMEN
1.	2.	3.	4.	5.	6.	7.	8.	9.
April	8.14	8.22	7.61	8.43	7.90	8.06	7.96	8.33
May	9.06	7.99	7.63	8.91	7.96	8.12	8.14	8.33
June	8.48	7.65	7.61	8.10	6.98	8.08	8.03	8.34
Qrt. Total :-	25.68	23.86	22.85	25.44	22.84	24.26	24.13	25.00
July	8.11	7.80	7.82	7.46	6.12	8.37	8.15	8.33
August	7.72	7.93	8.04	6.95	6.97	8.45	8.19	8.33
September	7.88	8.13	8.27	7.38	7.63	8.31	8.27	8.34
Qrt. Total :-	23.71	23.86	24.13	21.79	20.72	25.13	24.61	25.00
October	8.05	8.76	8.57	8.02	9.00	8.36	8.32	8.33
November	8.17	8.54	8.86	8.61	9.98	8.41	8.42	8.33
December	8.77	8.75	9.39	9.25	10.00	8.68	8.82	8.34
Qrt. Total :-	24.99	26.05	26.82	25,88	28.98	25.45	25.56	25.00
January	8.43	8.74	9.20	9.08	9.82	8.45	8.74	8.33
February	8.59	8.37	8.35	8.43	8.40	7.99	8.10	8.33
March	8.60	9.12	8.59	9.33	9 24	8.72	8.86	8.34
Qrt. Total :-	25.62	26.23	26.20	26.89	27.46	25.16	25.70	25.00
T O T A L :-	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Note :- *Based on data from 1972-73 to 1978-79 excluding 1973-74.

SALES/CONSUMPTION AND MARKET PARTICIPATION OF OIL COMPANIES IN INDIA

Qty.'000' Tonnes

YEAR		I.O.C.	B-Shell/ BPCL	Esso/ HPCL	Caltex/ HPCL(VMU)	others	Total
1		2	3	4	5	6	7
1960-61 (E)	S/C	38	3722	2302	1270	653	7985
	%	0.5	46.6	28.8	15.9	8.2	100
1965-66 (E)	S/C	2812	4270	2816	1390	629	11917
	%	23.6	35.8	23.6	11.7	5.3	100
1970-71	S/C	9212	4219	2538	1279	664	17912
	%	51.4	23.6	14.2	7.1	3.7	100
1971-72	S/C	10959	4153	2717	1316	926	20071
	%	54.6	20-7	13.5	6.6	4.6	100
1972-73	S/C	12788	4085	2620	1185	1038	21716
	%	58.9	18.8	12.1	5.4	4.8	100
1973-74	S/C	13745	3985	2392	1095	1129	22346
	%	61.5	17.8	10.7	4.9	5.1	100
1974-75	S/C	14363	3184	2510	972	1076	22105
	%	65.0	14.4	11.4	4.4	4.8	100
1975-76	S/C	14525	3151	2647	932	1192	22447
	%	64.7	14.0	11.8	4.2	5.3	100
1976-77	S/C	15321	3775	2809	974	1222	24101
	%	63.6	15.7	11.6	4.0	5.1	100
1977-78	S/C	15721	4217	3083	1146	1372	25539
	%	61.5	16.5	12.1	4.5	5.4	100
1978-79	S/C	17223	4601	3488	1348	1581	28241
	%	61.?	16.3	12.3	4.8	5.6	100
1979-80	S/C	18136	4968	3768	1393	1618	29883
	%	60.7	16.6	12.6	4.7	5.4	100
1980-81 (P)	S/C	19133	5297	5596	-	1710	30791
	%	59.1	17.2	18.2	-	5.5	100

P = PROVISIONAL E= ESTIMATED

DELIVERIES* MADE TO INTERNATIONAL/COASTAL BUNKERS FROM 1970-71 AND 1975-76 TO 1980-81.

(Qty. '000' Tonnes)

PRODUCTS	1970-71	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Shipping International Bunkers							
F.O.	207.9	137.2	166.9	171.3	110.1	135.8	128.1
H.S.D.	6.4	11.4	19.9	27.2	26.5	17.7	11.7
L.D.O.	20.0	39.5	50.4	45.8	53.8	63.1	40.7
Total:	234.3	188.1	237.2	244.3	190.4	216.6	180.5
Coastal Bunkers							
F.O.	196.9	178.3	153.1	135.2	128.2	126.4	95.9
H.S.D.	22.4	25.9	32.2	34.1	43.7	41.9	30.2
L.B.O.	21.6	28.1.	26.0	27.2	26.2	28.4	23.3
Total:	240.9	232.3	211.3	196.5	198.1	196.7	149.4
Total Bunkers							
F.O.	404.8	315.5	320.0	306.5	238.3	262.2	224.0
H.S.D.	28.8	37.3	52.1	61.3	70.2	59.6	41.9
L.D.O.	41.6	67.6	76.4	73.0	80.0	91.5	64.0
Total:	475.2	420.4	448.5	440.8	388.5	413.3	329.9

* = Excluding Sales to foreign bunkers on KNPC account by IOC.

STATE-WISE CONSUMPTION OF BULK PETROLEUM PRODUCTS - 1980-81 ©

('000 Tonnes)

State/Union Territory	ATF	MS	SKO	HSD	LDO (Reg.)	F.O. (Reg.)	LSHS/ HHS	NAPH-THA	LPG	BITU-MEN	OTH-ERS	TOTAL*
A. STATES												
Andhra	34	75	313	892	35	236	Neg.	69	29	59	17	1759
Assam	36	30	103	159	22	64	27	–	2	20	49	512
Bihar	6	61	226	525	68	314	39	88	12	54	14	1407
Gujarat	26	122	394	692	294	553	1027	455	33	104	96	3796
Haryana	20	33	71	311	35	260	30	–	8	39	4	811
H.P.	–	5	16	44	1	4	Neg.	–	1	12	Neg.	83
J & K	9	13	27	82	5	2	–	–	2	20	1	161
Karnataka	20	102	234	536	15	172	Neg.	102	16	34	7	1238
Kerala	17	88	130	352	11	217	64	191	7	34	6	1117
Madhya Pradesh	4	54	190	572	8	167	Neg.	13	12	69	13	1102
Maharashtra	461	274	822	1374	239	1075	657	377	135	155	125	5694
Manipur	–	5	9	16	4	–	–	–	Neg.	6	Neg.	40
Meghalaya	–	6	6	13	Neg.	Neg.	–	–	Neg.	1	Neg.	26
Nagaland	–	5	5	9	–	Neg.	–	–	Neg.	2	Neg.	21
Orissa	5	22	74	180	4	148	7	61	3	20	5	529
Punjab	44	83	154	597	34	207	191	–	7	48	8	1373
Rajasthan	24	47	128	553	46	64	Neg.	115	5	63	5	1050
Sikkim	–	3	4	3	Neg.	Neg.	–	–	Neg.	1	Neg.	11
Tamil Nadu	38	117	360	1029	52	1018	1	460	32	67	24	3198
Tripura	1	3	10	11	Neg.	Neg.	–	–	–	1	Neg.	26
Uttar Pradesh	45	114	394	1111	101	290	Neg.	283	29	86	51	2504
West Bengal	82	102	401	751	112	373	24	88	19	79	147	2178
TOTAL(A)	872	1364	4071	9812	1086	5164	2067	2302	352	974	572	28636
Adjustment	+4	-6	-28	-20	+3	-69	+11	-39	-7	+29	+66	-49
B.UNION TERRITORIES												
A&N Islands	2	1	1	12	1	2	–	–	–	1	Neg.	20
Arunachal	Neg.	2	3	6	–	Neg.	–	–	–	2	Neg.	13
Chandigarh	18	9	9	20	3	5	–	–	4	21	1	90
Delhi	228	133	122	377	28	116	–	Neg.	47	46	19	1116
Dadra & Nagar,Haveli	–	Neg.	Neg.	3	–	Neg.	–	–	–	–	–	3
Goa,Daman & Diu	4	9	14	75	3	117	Neg.	61	1	5	19	308
Pondicherry	–	3	3	6	–	–	–	–	Neg.	1	Neg.	13
Lakshadeep	–	4	7	24	1	8	–	–	-1	2	Neg.	41
TOTAL(B)	252	161	15	524	36	242	Neg.	61	53	78	39	1605
C.OTHER TERRITORIES												
Bhutan	Neg.	2	1	10	Neg.	Neg.	Neg.	–	–	–	Neg.	13
GRAND TOTAL (A+B+C)	1128	1521	4210	10326	1125	5337	2078	2324	398	1081	677	30205

Note : Figures represent despatches from depots situated in various States.

© Provisional, including international bunkers.

* Excluding Lubes & Greases.

Estimated State-wise per capita Sales/Consumption of POL Products (excluding International Bunkers)

(Kgs.)

States/ Territories	1976-77	1977-78	1978-79	1979-80	1980-81
1.	2.	3.	4.	5.	6.
A. S T A T E S.					
Andhra Pradesh	26.00	30.2	31.0	33.7	34.4
Assam	26.3	26.6	27.2	23.9	25.8
Bihar	16.6	18.7	19.0	19.3	20.9
Gujarat	83.6	86.9	107.2	116.1	116.8
Haryana	48.4	50.2	52.8	59.1	60.3
Himachal Pradesh	16.4	16.8	18.2	19.1	19.9
Jammu & Kashmir	21.2	24.3	24.8	28.6	27.5
Karnataka	31.6	29.8	36.4	36.4	35.4
Madhya Pradesh	18.9	19.5	19.9	20.5	21.0
Kerala	46.4	51.3	40.3	43.0	43.5
Maharashtra	84.4	85.7	89.6	88.7	94.3
Manipur	21.0	24.0	26.0	22.5	28.1
Meghalaya	20.6	21.1	23.3	21.5	20.2
Nagaland	32.5	35.6	36.8	30.0	30.2
Orissa	16.5	16.2	17.8	20.1	20.0
Punjab	48.7	67.2	73.6	79.5	87.1
Rajasthan	26.9	29.6	32.5	31.7	32.1
Sikkim	30.0	42.4	37.5	32.4	43.7
Tamil Nadu	47.7	45.7	56.7	63.3	68.5
Tripura	14.5	15.4	14.6	11.1	12.7
Uttar Pradesh	21.2	21.9	23.3	23.1	24.1
West Bengal	32.1	32.3	33.4	36.2	38.5
B. O T H E R A R E A S.					
Chandigarh	243.8	260.4	218.4	177.6	183.7
Delhi	154.4	162.2	178.9	184.4	187.2
Goa (incl. Daman & Diu), Dadra & Nagar Haveli)	353.4	378.8	377.1	416.7	272.3
Others	77.4	83.2	119.7	82.1	68.9
TOTAL ALL INDIA@	41.3	43.1	46.7	48.4	48.6

Estimated per capita consumption of selected Petroleum products - 1976-77 to 1980 - 81.

P R O D U C T	1976-77	1977-78	1978-79	1979-80	1980-81
Naphtha	3.6	3.7	4.0	3.7	3.5
M. S.	2.2	2.2	2.4	2.3	2.3
S. K. O.	5.5	5.9	6.2	6.0	6.4
H. S. D.	11.6	12.4	13.6	15.1	15.6
L. D. O.	1.7	1.8	1.9	2.0	1.7
F.O. (Regular)	6.7	6.1	6.9	7.4	8.1
L.S.H.S./ H.H.S.	2.5	3.0	3.6	3.5	3.2
TOTAL ALL INDIA@ Sales Consumption	41.3	43.1	46.0	48.4	48.6

NOTES:- Based on Expert Committee's population projections as on 1st July each year and projection on 1971 census basis. ** Includes Mogas, Kerosene, ATF, HSD, LDO, Fuel Oils, LPG, Naphtha and Bitumen for 1976-77 to 1979-80 and all products except (lubricants) for 1980-81.

ESTIMATED SECTOR-WISE CONSUMPTION OF SELECTED PETROLEUM PRODUCT

SECTOR	1978-79 consumption ('000 Tonnes)	1978-79 % to total	1979-80 Consumption ('000 Tonnes)	1979-80 % to total
1	2	3	4	5
		NAPHTHA		
1. Fertilizers	1923	76.5	1914	79.3
2. PetroChemicals	582	23.1	494	20.5
3. Others	11	0.4	5	0.2
TOTAL	2515	100	2413	100
		LPG		
1. Domestic	330	80.9	332	81.0
2. Commercial	18	4.4	21	5.1
3. Industry	59	14.5	56	13.7
4. Others	1	0.2	1	0.2
TOTAL	408	100	410	100
		REFINERY GAS		
1. Industry	4	100	-	-
2. Power Generation	-	-	-	-
3. Others	-	-	-	-
TOTAL	4	100	-	-
		LSHS/HHS		
1. Iron & Steel	428	18.8	243	10.6
2. Power Generation (Utilities)	1842	81.8	1708	74.8
3. Others	3	0.1	333	14.6
TOTAL	2273	100	2284	100
		H.S.D.O.		
1. State Transport (Incl. Municipal-Transport)	940	10.9	1037	10.6
2. Other Road Transport (Incl. Agr. Retail Trade)	5837	68.2	6726	68.6
3. Railways	797	9.2	879	9.0
4. Bunkers	70	0.8	60	0.6
5. Miscellaneous	944	10.9	1097	11.2
TOTAL	8638	100	9801	100
		L.D.O.		
1. Power	62	5.1	71	5.6
2. Bunkers	80	6.6	92	7.3
3. Rest Incl. Agr. & Small Scale Industries	1074	88.3	1103	87.1
TOTAL	1216	100	1266	100

ESTIMATED SECTOR-WISE CONSUMPTION OF SELECTED PETROLEUM PRODUCTS (Contd)

(Qty. '000'Tonnes)

SECTOR	1978-79 Qty.	1978-79 % to Total	1979-80 Qty.	1979-80 % to Total
1	2	3	4	5
FURNACE OIL(REGULAR)				
1.TRANSPORT				
(i) Railways	41	0.9	40	0.8
(ii) Waterway	238	5.4	262	5.5
(a)Coastal & Inland Bunkars	128	2.9	126	2.6
(b)International Bunkars	110	2.5	136	2.9
(iii) Others	27	0.6	29	0.6
TOTAL TRANSPORT	306	7.0	331	6.9
2.Agricultural/ Plantation	143	3.3	144	3.0
3.Power Generation(Utilities)	311	7.1	426	8.9
4.Iron & Steel	190	4.3	183	3.9
5.Textile & Fibre	483	11.0	430	9.0
6.Cement	52	1.2	154	3.2
7.Ceramics & Glass	134	3.0	185	3.8
8.Chemicals & Allied Industries	703	16.0	811	16.9
9.Fertilizers	770	17.5	755	15.7
10.Aluminium	121	2.8	122	2.6
11.Sugar	42	0.9	41	0.9
12.Mining & Quarrying	226	5.1	268	5.6
13.Engineering	179	4.1	250	5.2
14.Others(Incl. DGS &D)	735	16.7	691	14.4
TOTAL	4395	100	4796	100

R = Revised.

ESTIMATED SECTOR-WISE CONSUMPTION OF SELECTED PETROLEUM PRODUCTS (CONTD.)

SECTOR	1978-79 Consumption ('000 Tonnes)	1978-79 % to total	1979-80 Consumption ('000 Tonnes)	1979-80 % to total
		WAX		
1. Candle Manufacturing	18.3	32.9	19.8	29.1
2. Water Proofing	5.8	10.4	7.1	10.4
3. Match Industry	5.9	10.6	5.0	7.4
4. Paper Waxing	4.1	7.4	4.6	6.8
5. Hand Board	0.1	0.2	0.3	0.4
6. Miscellaneous	21.4	38.5	31.2	45.9
TOTAL	55.6	100	67.9	100

GRADE-WISE CONSUMPTION /SALES OF LUBES

SECTOR	1978-79 Consumption ('000 Tonnes)	1978-79 % to total	1979-80 Consumption ('000 Tonnes)	1979-80 % to total
(a)				
TOTAL LUBE OILS				
Automotive Oils	288.1	54.7	308.4	56.5
HVI	286.9	54.5	307.4	56.3
MVI	1.2	0.2	1.0	0.2
LVI	neg.	-	-	-
2. Industrial Oils	238.3	45.3	237.2	43.5
TOTAL	526.4	100	545.6	100
(b) Industrial Oil				
1. Spindle Oil	3.7	1.5	3.8	1.6
2. Transformer oil	0.3	0.1	0.3	0.1
3. Ply/other Axle oil	11.6	4.9	10.2	4.3
4. Cylinder Oil	13.1	5.5	11.4	4.8
5. Turbine/Hydraulic	45.1	18.9	38.3	16.2
6. Other Spl. oil	77.1	32.4	91.2	38.4
7. Misc. Grades.	87.4	36.7	82.0	34.6
TOTAL	238.3	100	237.2	100

R = Revised.

CONSUMPTION OF DIESEL OIL IN INDIAN RAILWAYS DURING 1960-61 TO 1980-81

YEAR	No. of Diesel Locomotives Nos.	Consumption of Diesel Oil (In Kls.)	Consumption per Diesel Locomotive (In Kls.)
1	2	3	4
1960-61	181	62771	346.8
1961-62	228	59444	260.7
1962-63	349	98481	282.2
1963.64	486	182328	375.2
1964-65	621	245633	395.5
1965-66	727	310813	427.5
1966-67	776	365582	471.1
1967-68	892	427126	478.8
1968-69	996	486084	488.0
1969-70	1091	536301	491.6
1970-71	1169	569025	486.8
1971-72	1288	626983	486.8
1972-73	1431	667414	466.4
1973-74	1610	683140	424.3
1974-75	1702	720047	423.1
1975-76	1731	797610	460.8
1976-77	1903	867330	455.8
1977-78	2025	949077	468.7
1978-79	2126	960545	451.8
1979-80	2238	992060	443.3
1980-81	3395*	1048343*	308.8

* Provisional.

Source: For Col. 2 & 3 Indian Railways Annual Statistical Statements - 1979-80

308-8
3395 1048343
1018
29843
2760
2630

INDUSTRY /PLANT-WISE OFFTAKES OF NAPHTHA

(Qty. '000' Tonnes)

Category and Plant	Calendar year			Financial Year		
	1978	1979	1980	1978-79	1979-80	1980 81(P)
I. Fertilizer Plants						
Madras Ferts. Ltd.	210.3	217.2	210.3	223.2	189.5	235.9
FCI-Durgapur	71.3	110.8	99.0	84.8	114.5	86.4
FCI -Gorakhpur	103.9	91.7	61.6	104.0	74.7	76.4
FCI -Sindri	13.0	3.4	-	10.1	2.8	-
FCI - Barauni	92.7	94.9	58.1	101.3	78.4	86.6
FCI - Nangal	neg.	-	-	neg.	-	-
FCI - Patna	-	-	-	1.0	4.2	-
SFC - Kota	125.0	130.6	118.0	134.6	127.9	115.6
IEL - Kanpur	175.3	202.5	115.0	203.9	169.3	133.5
HSL - Rourkela	62.7	57.7	56.9	54.9	65.9	58.9
GSFC- Baroda	84.4	97.5	106.9	87.1	95.4	106.7
FACT- Cochin	96.9	127.4	124.0	108.8	119.5	126.7
ZAC- Goa	182.6	192.6	107.1	193.6	195.5	62.1
IFFCO- Phulpur	-	6.4	37.3	-	16.6	55.8
IFFCO- Kalol	63.7	58.0	65.2	70.6	55.2	59.0
MCFL- Mangalore	134.4	155.4	98.9	151.5	139.3	103.6
SPIC - Tuticorin	189.1	201.1	207.8	164.5	232.0	217.2
EID Parry Ltd. Madras.	9.1	8.1	7.1	9.2	7.4	6.9
FACT - Alwaye	77.1	73.3	65.4	72.8	74.7	64.4
FCI - Bombay	76.9	30.7	35.7	70.1	23.1	37.4
Coromandal Ferts. Vizag	73.1	70.1	62.3	76.7	62.5	69.2
Sub-Total(Fertilizers)	1841.5	1930.0	1636.6	1922.7	1848.4	1702.3
II. Petro-chemical Plants						
PRC - Sahupuram	0.9	-	-	-	1.9	-
HOC - Rasayani	3.4	3.0	3.1	3.3	1.3	3.1
IPCL - Baroda	173.0	279.0	265.4	221.3	250.3	305.8
NOCIL- Bombay	265.8	232.1	189.3	256.3	228.1	208.2
FCI - Bombay(Methanol)	40.5	13.8	13.9	34.3	12.2	16.1
UCIL - Bombay	52.8	61.8	71.7	66.9	62.7	76.4
Sub-Total(Petro-chem)	536.4	589.7	543.4	582.0	556.5	609.6
III. Others						
HSL - Bhilai	10.3	9.0	11.0	10.7	7.7	11.6
Wynen Gardens - Bombay	-	-	-	neg.	-	-
Sub-Total Others	10.3	9.0	11.0	10.7	7.7	11.6
IV. Adjustment	-	-	-13	neg.	-	-
GRAND TOTAL (I+II+III)	1388.2	2528.7	2178.0	2515.4	2412.6	2323.5

P = Provisional

Source = IOC's Industry Performance Review.

PLANTS/CUSTOMER-WISE OFFTAKES OF LSHS/HHS.

('000' Tonnes)

Plants/Customer	1977-78	1978-79	1979-80	1980-81P
1.	2.	3.	4.	5.
1. POWER				
ASEB, Chandrapura	34.4	39.5	26.3	27.3
BTPS, Barauni	43.8	34.5	32.1	3.5
DG.E.B., Gandhinagar	56.3	96.2	49.6	25.7
GEB, Ukai	38.4	70.4	86.9	81.4
GED, Dhuwaran	661.0	661.0	633.6	617.5
GEB, Kalol	-	1.3	1.3	-
MSEB, Koradi	-	1.0	-	-
Tata Thermal Bombay	455.0	448.2	601.3	397.6
AEC, Ahmedabad	2.6	45.3	57.3	29.2
Sub. Total	1291.5	1397.4	1488.4	1182.2
2. FERTILIZERS/PETROCHEMICALS.				
FCI, Nangal	19.0	82.4	113.2	127.1
NCL, Bhatinda	1.0	9.9	8.7	76.4
FCI, Sindri	-	-	31.1	15.1
HFC, Barauni	2.0	7.6	7.6	0.7
IFFCO, Kalol	36.0	39.6	31.5	41.7
IPCL, Baroda (GA&GO)	27.4	64.4	87.6	99.4
GSFC, Baroda	13.8	17.9	20.0	36.0
RCF, Bombay	22.3	20.7	4.8	-
NFL, Panipat	-	1.1	-	32.6
FACT, Cochin Divn.	-	8.8	51.9	68.3
Sub. Total	121.5	252.4	356.4	497.4
3. STEEL PLANTS.				
TISCO, Jamshedpur	79.8	99.9	62.1	17.4
HSL, Rourkela	99.4	107.2	83.0	6.1
DSP, Durgapur	84.6	105.4	96.1	23.9
Sub.- Total	263.8	312.5	241.2	47.4
4. OTHERS.				
Gujarat	45.5	65.2	66.1	93.1
Bombay	158.7	245.7	132.3	258.9
Sub- Total	204.2	310.9	198.4	352.0
GRAND TOTAL (1+2+3+4)	1881.0	2273.2	2284.4	2078.9

P = Provisional.

STATEWISE FUEL CONSUMPTION IN GAS TURBINE AND DIESEL POWER STATIONS IN INDIA - 1978/79.

State/Union Territory	Gas Turbine & Diesel Power Stations		
	Oil Consumption (KL)	Generation (GWH)	Av. oil consumed Litres/KWH
1	2	3	4
1. Assam	760 (178.42)	2.0 (385.81)	0.38 -
2. Bihar	296	0.85	0.35
3. Gujarat	33 (48.24)	0.09 123.39	0.37 -
4. Haryana	30	0.10	0.30
5. Himachal Pradesh	20	0.06	0.33
6. Jammu & Kashmir	185	0.70	0.26
7. Madhya Pradesh	10	0.03	0.33
8. Manipur	5766	19.22	0.30
9. Meghalaya	480	1.00	0.48
10. Nagaland	270	0.57	0.47
11. Punjab	66	0.20	0.33
12. Rajasthan	218	0.64	0.34
13. Sikkim	600	1.92	0.31
14. Tripura	298	0.95	0.31
15. Uttar Pradesh	1450	5.74	0.25
16. West Bengal	5300	15.40	0.34
Union Territories			
17. A & N Islands	1026	3.90	0.26
18. Arunachal Pradesh	750	1.80	0.42
19. Chandigarh	26	0.08	0.33
20. Delhi	920	3.06	0.30
21. Lakshadweep	433	0.88	0.49
22. Mizoram	800	1.85	0.43
ALL INDIA TOTAL	19737 (226.66)	61.04 (509.20)	0.32

Figures in brackets relate to Natural Gas consumed by gas turbine in Million cubic metres.

STATEWISE FUEL CONSUMPTION IN STEAM POWER STATIONS IN INDIA - 1978-79.

State/Union Territory	Coal (Tonnes)	Furnace OIL(KL)	Natural Gas(Mn Cubic Metre	Heat in put (K.cal x 10⁹)	Gross Generation (GWH)	Av.heat input (K.cal/Kwh)
1	2	3	4	5	6	7
1.Andhra Pradesh	2024778	60927 4252(a)	-	8955.10	2875.30	3114
2.Assam	-	18101 38861(b)	34.97	887.84	270.72	3280
3.Bihar	1624968	20390 2065(a) 35050(b)	-	8112.87	2355.24	3445
4.Gujarat	1945970	813145 4964(a) 94597(b) 3234(c)	125.07	21197.65	6706.20	3161
5.Haryana	248460	4692 1748(a)	-	1468.32	348.99	4207
6.Jammu & Kashmir	5852	1582(a)	-	41.28	6.87	6009
7.Madhya Pradesh	3948406	47650 575(a)	-	16033.63	5015.75	3197
8.Maharashtra	4094996	26612 9036(a) +167(d) 411402(b)	163202 MT(e)	24187.36	8451.26	2862
9.Meghalaya	2369	-	-	17.17	1.10	16155
10.Orissa	538572	1443(a)	-	2426.87	726.27	3342
11.Punjab	556367	27837 3423(a)	-	2776.19	870.38	3190
12.Rajasthan	29212	57(a)	-	141.48	19.49	7259
13.Tamil Nadu	1429752	84513 315(a)	-	7352.43	2081.77	3532
14.Uttar Pradesh	5148584	86900 58606(a)	-	25309.60	6441.67	3929
15.West Bengal	3233169	8236 46362(a)	-	18276.05	5072.94	3603
16.D.V.C.	3196379	28434 23583(a)	-	16396.93	5218.89	3142
17.Central Govt. Projects	294488	244857 2418893(c) (f)	-	12766.84	3782.60	11876
Union Territories						
18.A&N Islands	-	12068(c) 538(a)	-	39.58	2.06	19214
19.Delhi	1178165	17041	-	6128.98	1776.24	3451
All India	30065437	1489335 159349(a) 579910(b) 2422127(c) +167(d) 12068(f)	160.04 163202 MT(e)	172516.77	52023.74	3316

Note:-(a)Relates to LDO; (b) LSHS/HHS in MT; (c)Lignite Coal in MT (d)Kerosene Oil, Lignition Oil; (e)Refinery Gas in MT and (f)Wood fuel in MT consumed by steam power stations.

VIII. F O R E I G N T R A D E

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS

(Qty. '000 Tonnes)
(Value : Rs. Crores)

Year	Products		Crude Oil		TOTAL	
	Qty.	Value	Qty.	Value	Qty.	Value
Calendar Years						
1955	2071	N.A.	3052	24.3	5123	N.A.
1960	2032	41.0	5723	40.6	7755	81.6
1965	2880	44.7	6811	40.4	9691	85.1
1970	970	30.5	11565	102.4	12635	132.9
1971	1932	43.5	12688	139.9	14620	183.4
1972	3257	56.7	12310	144.2	15567	200.9
1973	3735	88.0	13443	244.6	17178	332.6
1974	2949	209.9	13973	899.4	16922	1109.3
1975(R)	2291	199.5	13600	992.0	15891	1191.5
1976(R)	2293	219.7	13883	1145.6	16176	1365.3
1977(R)	2664	273.0	14548	1258.9	17212	1531.9
1978(R)	3916	414.1	14892	1243.9	18808	1658.0
1979(R)	4019	727.5	15382	1787.4	19401	2514.9
1980(R)	6770	1779.7	15976	3037.7	22746	4817.4
Financial Years						
1955.56(E)	2005	N.A.	3231	25.7	5236	N.A.
1960-61	2217	39.8	5709	39.2	7926	79.0
1965-66	2537	40.7	6844	39.6	9381	80.3
1970-71	1084	29.9	11683	106.7	12767	136.6
1971-72	2147	46.9	12951	147.0	15098	193.9
1972-73	3525	60.6	12084	146.4	15609	207.0
1973-74	3548	124.5	13873	416.4	17421	540.9
1974-75	2648	195.0	14016	917.0	16664	1112.0
1975-76	2218	204.3	13624	1051.8	15842	1256.1
1976-77(R)	2624	248.2	14048	1175.9	16672	1424.1
1977-78(R)	2879	305.3	14507	1246.2	17386	1551.5
1978-79(R)	3878	430.0	14657	1251.2	18535	1681.2
1979-80(R)	4724	1082.4	16121	2187.5	20845	3269.9
1980-81(R)	7253	1906.7	16248	3348.0	23501	5254.7

N.A. = Not Available. (E)=Estimated. (R) = Revised figures but still subject to firming up by the oil companies.

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS DURING 1978/1978-79 to 1980/1980-81.

Qty. '000' Tonnes: Value: Rs. Crores

Item	1978		1979		1980*	
	Qty.	Value	Qty.	Value	Qty.	Value
A.Crude Oil	14892	1243.9	15382	1787.4	15976	3037.7
B.Petroleum Products						
I.Light Distillates	369	41.0	171	37.5	239	74.3
1.Naphtha	340	35.2	149	28.8	169	44.2
2.Others	29	5.8	22	8.7	70	30.1
II.Middle Distillates	2693	309.2	2885	570.5	5261	1467.6
1.ATF	-	-	14	4.0	60	15.3
2.SKO	1617	193.3	1392	272.5	1934	549.7
3.HSD	1076	115.9	1456	291.5	3163	874.3
4.L.D.O.	-	-	23	2.5	104	28.3.
III.Heavy Ends.	854	63.9	963	119.5	1270	237.8
1.Furnace oil	813	50.7	900	95.9	1081	165.7
2.Lubes	33	9.1	52	17.4	139	58.7
3.Waxes	8	4.1	11	6.2	10	7.5
4.Others	-	-	-	-	40	5.9
Total(B)	3916	414.1	4019	727.5	6770	1779.7
Grand total(A+B)	18808	1658.0	19401	2514.9	22746	4817.4

	1978-79		1979-80		1980-81*	
	Qty.	Value	Qty.	Value	Qty.	Value
A.Crude Oil	14657	1251.2	16121	2187.5	16248	3348.0
B.Petroleum Products						
I.Light Distillates	319	37.3	191	51.2	292	89.3
1.Naphtha	301	33.6	154	35.2	231	63.5
2.Others	18	3.7	37	16.0	61	25.8
II.Middle Distillates	2593	317.2	3675	909.3	5384	1503.6
1.ATF	-	-	42	11.5	32	7.8
2.SKO	1449	181.3	1546	379.7	2065.	591.7
3.HSD	1120	133.4	2010	496.7	3219	885.7
4.LDO	24	2.5	77	21.4	68	18.4
III.Heavy Ends.	966	75.5	858	121.9	1577	313.8
1.Furnace oil	912	57.9	793	93.7	1336	219.5
2.Lubes	44	12.5	52	20.0	175	76.2
3.Waxes	10	5.1	13	8.2	13	10.0
4.Others	-	-	-	-	53	8.1
Total(B)	3878	430.0	4724	1082.4	7253	1906.7
Grand Total(A+B)	18535	1681.2	20845	3269.9	23501	5254.7

* Provisional

** Revised figures but still subject to firming up by the oil companies.

TOTAL EXPORTS OF PETROLEUM PRODUCTS SINCE 1955 / 1955 - 56.

Qty. - Tonnes.
Value (f.o.b) - Rs./Crores.

YEAR	QUANTITY	VALUE	YEAR	QUANTITY	VALUE
	CALENDAR YEAR			FINANCIAL YEAR	
1.	2.	3.	4.	5.	6.
1955	215967	3.55	1955-56	255898	3.94
1960	225061	4.61	1960-61	221790	4.40
1965	344680	3.92	1965-66	403274	4.39
1966	729704	8.76	1966-67	759585	9.42
1967	1057000	14.23	1967-68	1050030	14.59
1968	558166	8.25	1968-69	633941	8.95
1969	738867	10.77	1969-70	625769	9.26
1970	412209	5.72	1970-71	322425	4.67
1971	151631	2.55	1971-72	135799	3.91
1972	109313	8.94	1972-73	125773	8.16
1973	154090	5.35	1973-74	161210	8.05
1974	202409	19.37	1974-75	174850	17.46
1975	165669	13.83	1975-76	169815	13.96
1976	81764	7.60	1976-77	73582	6.89
1977	59223	6.50	1977-78	47440	5.69
1978	42949	4.20	1978-79	44300	4.11
1979	58694	14.94	1979-80	88290	24.02
1980	70375	17.98	1980-81	36071	8.41

Exports/Re-exports of Petroleum Product from 1977 to 1980 & [illegible] to 1980-81.

Qty. '000' Tonnes.
Value - f.o.b. Rs./Crores.

PRODUCT	1977		1978		1979		1980	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
1.	2.	3.	4.	5.	6.	7.	8.	9.
Light Ends.								
Naphtha	-	-	36.2	3.30	54.0	14.42	70.3	17.91
Others	-	-	-	-	Neg.	0.02	0.1	0.07
TOTAL (I)	-	-	36.2	3.30	54.0	14.44	70.4	17.98
Others.								
F. O.	-	-	-	-	-	-	-	-
Base Oil	9.7	1.67	3.4	0.50	-	-	-	-
Asphalt/ Bitumen	40.5	4.83	3.4	0.31	4.7	0.50	-	-
Wax	-	-	-	-	-	-	-	-
TOTAL (II)	50.2	6.50	6.8	0.90	4.7	0.50	-	-
Total POL Products (I+II)	50.2	6.50	43.0	4.20	58.7	14.94	70.4	17.98

PRODUCT	1977-78		1978-79		1979-80		1980-81	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
1.	2.	3.	4.	5.	6.	7.	8.	9.
Light Ends								
Naphtha	-	-	36.2	3.30	88.3	24.0	36.0	8.34
Others	-	-	-	-	Neg.	0.02	0.1	0.07
Total (I)	-	-	36.2	3.30	88.3	24.02	36.1	8.41
Others.								
F. O.	-	-	-	-	-	-	-	-
Base Oil	13.1	2.27	-	-	-	-	-	-
Asphalt/ Bitumen	34.3	3.42	8.1	0.81	-	-	-	-
Wax	-	-	-	-	-	-	-	-
Total (II)	47.4	5.69	8.1	0.81	-	-	-	-
Total POL Products(I+II)	47.4	5.69	44.3	4.11	88.3	24.02	36.1	8.41

EXPORT EARNINGS DURING THE YEARS 1978-79 TO 1980-81

(Qty. '000'Tonnes)
(Value -Rs./Crores)

Category/Product	1978-79 Qty.	1978-79 Value	1979-80 Qty.	1979-80 Value	1980-81 Qty.	1980-81 Value
1. SALES TO BUNKERS						
(a) Shipping Bunkers						
International-Foreign Flag.	75	6.58	71	13.74	53	11.06
International Indian Flag	115	10.87	146	26.06	127	24.39
Coastal-Foreign Flag	6	0.65	26	3.10	25	5.09
TOTAL(a)*	196	18.10	243	42.90	205	40.54
(b)International Air-lines O(excluding Air India)	510	82.62	467	181.06	438	182.18
TOTAL(1)	706	103.72	710	233.96	643	222.72
2.EXPORTS OF POL PRODUCTS						
Export of Naphtha	36	3.30	88	24.00	36	8.34
Export of Asphalt	8	0.81	-	-	-	-
Export of other Product	-	-	neg.	0.02	neg.	0.07
TOTAL(2)	44	4.11	88	24.02	36	8.41
GRAND TOTAL(1 + 2)	750	107.83	798	247.98	679	231.13

* Excluding Sales of Marine Lubricants.
** Excluding Supplies to Nepal and POL products exported directly from Aden Refinery.
O Estimated.

INDIA'S REVENUE FROM ALL CRUDE

YEAR	QTY. ('000'Tonnes)	VALUE (Rs./Crores)
1974	654	38.59
1975	567	41.96
1976	410	32.14
1977	465	38.26
1978	371	29.36

Note:- No liftings since October/November' 1978.

Rs Crores

TREND IN INDIA'S OVERALL TRADE BALANCE AND TRADE BALANCE WITH OPEC COUNTRIES

(Rs. Crores)

Year	India's Overall Trade					India's Trade with OPEC Countries					% of India's trade with OPEC to India's Total Trade	
	Exports	Imports	Balance of Trade	% variation over preceding year		Exports	Imports	Balance of Trade	% Variation over preceding year			
				Exports	Imports				Exports	Imports	Exports	Imports
1	2	3	4	5	6	7	8	9	10	11	12	13
1970-71	1535	1634	- 99	8.6	3.3	99	126	- 27	-	-	6.4	7.7
1971-72	1608	1825	-217	4.8	11.3	76	182	-106	-23.2	44.4	4.7	10.0
1972-73	1971	1867	+104	22.6	2.3	94	200	-106	23.7	9.9	4.8	10.7
1973-74	2523	2955	-432	28.0	58.3	187	532	-345	98.9	166.0	7.4	18.0
1974-75	3329	4519	-1188	32.0	52.9	507	1100	-593	171.1	106.8	15.2	24.3
1975-76	4043	5265	-1222	21.4	16.5	629	1165	-536	24.1	5.9	15.6	22.1
1976-77	5146	5074	+ 72	27.3	-3.6	709	1197	-488	12.7	2.7	13.8	23.6
1977-78	5404	6025	-621	5.0	18.7	703	1321	-618	-0.8	10.4	13.0	21.9
1978-79	5726	6814	-1088	6.0	13.1	743	1364	-621	5.7	3.3	13.0	20.0
1979-80	6459	9022	-2563	12.8	32.4	731	2364	-1633	-1.6	73.3	11.3	26.2
1980-81* (April-June)	1652	2815	-1163	6.6	65.8	169	769	-600	-9.6	68.6	10.2	27.3

* Provisional.

% = Of variation over the corresponding period in the preceding year.

Source : Ministry of Commerce.

INDIA'S FOREIGN EXCHANGE RESERVES.
(1970-71 to 1980-81)

Year	S.D.R.s MILLION	GOLD (Rs.Crores)	Foreign Exchange (Rs. Crores)
1	2	3	4
1970-71	148.9	182.53	438.12
1971-72	247.7	182.53	480.38
1972-73	246.5	182.53	478.90
1973-74	244.9	182.53	580.78
1974-75	234.9	182.53	610.50
1975-76	202.8	182.53	1491.70
1976-77	187.4	187.80	2862.99
1977-78	161.6	193.09	4499.75
1978-79	364.9	219.50	5219.86
1979-80	529.1	224.71	5163.66
1980-81*	590.5	225.60	4022.12

Source : R.B.I. Bulletin.

INDIA'S POL IMPORTS AS A PROPORTION OF ITS TOTAL EXPORTS

(Rs./Crores)

Year	P.O.L. Imports	INDIA'S Total Exports	% Of P.O.L.Imports to total Exports
1	2	3	4
1970-71	137	1535	8.9%
1971-72	194	1608	12.1%
1972-73	207	1971	10.5%
1973-74	541	2523	21.4%
1974-75	1112	3329	33.4%
1975-76	1256	4043	31.1%
1976-77	1424	5146	27.7%
1977-78	1552	5404	28.7%
1978-79	1681	5726	29.4%
1979-80	3270(R)	6459	50.7%
1980-81	5255(R)	7100*	74.0%

* - Provisional,

(R) - Revised but still subject to firming up.

Source for Exports data : Bulletin of Industrial Statistics, brought out by the Ministry of Industry.

IX. MAN-POWER EMPLOYED

MANPOWER EMPLOYED IN THE PETROLEUM INDUSTRY IN INDIA

(Number)

CATEGORY	1970	1975	1979	1980	1981
1	2	3	4	5	6
1. Exploration and Production	26051	27067	30390	31413	33278
2. Refining*	10715	12327	14417	15334	16213
3. Marketing	20362	19072	19255	19920	20943
4. Others:-					
1. IOC(Pipeline)	487	724	1196	1312	1376
2. ONGC(Pipeline)	346	233	216	411	425
3. OIL(Pipeline)	443	431	490	492	476
4. I.I.P.	588	676	714	754	743
5. E.I.L.	N.A.	1940	2613	2661	2922
TOTAL	1864	4004	5229	5630	5942
GRAND TOTAL	58992	62470	69291	72297	76376

CATEGORY-WISE MANPOWER EMPLOYED IN THE PETROLEUM INDUSTRY IN INDIA

(Numbers)

CATEGORY	1970	1975	1979	1980	1981
1	2	3	4	5	6
1. Executive/ Managerial	4793	6461	7823	9311	11844
2. Supervisory	6205	6659	7001	6512	6639
3. Clerical	11457	11723	12688	12403	16109
4. Workmen	36437	37611	41774	44057	41723
5. TOTAL	58892	62454	69286	72283	76315
6. Expatriates/ Foreign Experts	100	16	5	14	61
GRAND TOTAL	58992	62470	69291	72297	76376

Note :- 1. Staff Employed as on 1st April of each year.
2. Total does not include staff Employed on contract basis.
3. *Including IOC Head Office, Regional Office and R&D Centre.

CATEGORY WISE MANPOWER EMPLOYED@ IN VARIOUS SECTOR OF PETROLEUM INDUSTRY IN INDIA

(Number)

CATEGORY	1970	1975	1979	1980	1981
1	2	3	4	5	6
EXPLORATION AND PRODUCTION					
1.Executive/ Managerial	1765	1957	2899	3394	4193
2.Supervisory	2774	3538	1991	1994	2957
3.Clerical	3764	3538	3783	3795	7267
4.Workmen	17704	18013	21712	22216	18815
5.TOTAL	26007	27056	30385	31399	33232
6.Expatriates/ ForeignExperts	44	11	5	14	46
GRAND TOTAL	26051	27067	30390	31413	33278
PETROLEUM REFINING *					
1.Excutive/ Managerical	5258	818	1184	2055	2690
2.Supervisory	1076	1313	1640	1050	696
3. Clerical	1219	1568	1778	1791	1803
4. Workmen	7857	8626	9815	10438	11013
5.Total	10677	12325	14417	15334	16202
6.Expatriates/ Foreign Experts	38	2	-	-	11
GRAND TOTAL	10715	12327	14417	15334	16213
M A R K E T I N G					
1.Executive/ Managerial	2367	3519	3210	3318	4330
2.Supervisory	2081	910	1558	1591	860
3.Clerical	6220	5870	5820	5820	6003
4.Workmen	9680	8770	8667	9191	9750
5. Total	20348	19069	19255	19920	20943
6.Expatriates/ Foreign Experts	14	3	-	-	-
GRAND TOTAL	20362	19072	19255	19920	20943

© = Data relates to the number of persons directly employed by various oil companies as on 1st April of each year, Staff Employed on contract basis is not covered.

* = Includes IOC's Head Office, Regional Office and R&D Centre.

X. PRICES

WHOLESALE PRICE INDICES OF Petroleum Products, Petro-based Industries and other Energy Items (1970-71 = 100)

Items	1972-73	1973-74	1974-75	1976-77	1977-78	1978-79	1979-80	1980-81(P)
1	2	3	4	5	6	7	8	9
I. Petroleum Products.								
1.Petrol	121.6	178.6	272.1	285.0	286.4	299.1	361.3	430.7
2.Diesel Oil	105.9	119.5	194.3	213.9	214.0	HSD164.0	186.5	279.6
						LDO269.1	329.8	548.1
3.Kerosene	114.9	113.1	187.7	229.6	229.9	235.0	266.1	277.3
4.F.O.	113.3	150.7	308.4	429.7	429.9	432.6	529.9	680.1
5.Aviation spirit	125.4	173.9	288.4	297.1	297.8	309.6	431.7	481.8
6.Pet.Crude & Natural Gas.	142.0	317.1	686.5	744.3	787.6	802.9	1384.0	2041.8
II. Petro based Industries								
1.Lubricating Oil	99.0	135.8	311.7	314.2	314.2	309.6	319.6	373.6
2.Nylon&Terene Mixed cloth	98.9	104.7	125.1	120.6	116.3	110.4	131.6	139.7
3.Benzene	106.1	125.7	440.7	384.9	385.2	388.2	480.3	709.0
4.Nitrogenous Fertilizers	104.7	109.5	191.4	186.2	181.1	178.6	171.7	254.7
5.Insecticides	111.6	131.6	200.3	232.4	232.2	236.9	272.2	328.6
6.Syn.Detergents	105.2	105.7	161.0	172.2	170.0	177.2	230.4	274.1
7.Polystyrene	101.0	121.8	262.1	260.5	244.8	252.4	252.1	423.8
8.Polyethelne Moulding Powder	105.4	122.8	184.2	187.7	189.1	192.6	228.9	291.9
9.PVC Compounds	104.3	132.2	136.4	178.1	177.3	184.1	222.6	309.1
10.PVC sheets	98.2	129.8	187.7	153.2	160.3	163.6	196.0	224.9
11.Syn.Resins*	99.8	121.3	177.2	141.6	178.8	179.0	198.8	219.0
12.Syn.Fibre	101.4	106.2	154.1	154.5	126.5	132.5	150.2	157.4
13.SynRubber	100.0	100.0	100.0	100.8	106.6	109.6	138.3	174.4
14.Polythene films	108.8	131.2	216.7	201.6	203.1	203.1	248.6	296.7
15.Carbon black	99.6	99.6	242.8	246.6	248.0	268.2	347.4	532.7
16.Plasticizers	104.6	103.1	240.1	190.3	193.4	200.1	269.5	314.9
III. Other Energy Items								
1.Electricity	105.7	111.3	137.2	171.6	182.5	209.1	225.6	239.0
2.Coke	134.7	136.4	182.1	213.1	214.0	224.3	262.8	291.7
3.Coal	110.8	121.7	143.8	197.6	198.8	212.2	299.5	347.6
IV. All Commodity Index								
All commodities	116.2	139.7	174.9	176.6	185.8	185.8	217.6	257.1

Source: Monthly Bulletins of Index Numbers of Wholesale Price Indices brought out by the Office of the Economic Adviser, Min. of Industry.

(P) Provisional

* Nos.

Price of Indigenous Onshore and Offshore Crude Oil of 34° API Gravity

Item	Unit	Price effective from 14.7.75	8.9.76	16.12.77	1.4.81	11.7.81 @@
(i) Onshore Crude Oil						
1. Base Price as fixed by the Govt.	Rs/Bbl	36.64*	33.30**	27.60	27.60	138.54
2. Conversion factor	Bbl/MT	7.37	7.37	7.37	7.37	7.37
3. Base price	Rs/MT	270.04*	245.42**	203.41	203.41	1021.00
4. Oil Development Cess	Rs/MT	@	60.00	60.00	60.00	100.00
5. Royalty	Rs/MT	@	@	42.00	61.00	61.00
6. Total price including cess & royalty	Rs/MT	270.04	305.42	305.41	324.41	1182.00
(ii) Offshore Crude Oil						
1. Base price as fixed by the Govt.	Rs/Bbl.			45.00	45.00	138.54
2. Conversion factor	Bbl/MT			7.37	7.37	7.37
3. Base price	Rs/MT			331.65	331.65	1021.00
4. Oil Development Cess	Rs/MT			60.00	60.00	100.00
5. Royalty	Rs/MT			42.00	61.00	61.00
6. Total price including cess & royalty	Rs/MT			433.65	452.65	1182.00

* Inclusive of royalty @ Rs.15/MT and Oil Development Cess @ Rs.60/MT.

**Inclusive of royalty @Rs.42/M.T.

@ Already included in the base price of the crude oil.

@@ The Govt. revised the price of onshore and off-shore Crude Oil to Rs.1182/M.T. inclusive of royalty @Rs.61/M.T. and Oil Development Cess @Rs.100/M.T.

Notes: 1. The above prices are for 34° API gravity crude oil ex-central tank farm of the producer and are subject to gravity escalation @Rs.0.16 per degree API upto 45° API, no limit for downward escalation has been laid down.

2. The prices are inclusive of sales tax which is the liability of the producer.

Basic ceiling selling prices (ex-storage point) of Petroleum Products
w.e.f. 13.1.1981 (Rs./Selling Unit)

PRODUCTS	Selling Unit	Bombay/ Koyali	Cochin	Madras	Vizag.	Barauni/ Digboi Gauhati	Calcutta	Goa	Kandla	Okha
1. ATF	KL	3535.85	-	3556.21	3549.64	3555.04	3555.04	3536.71	3534.45	3539.48
2. MS 83	KL	4908.07	4905.09	4916.90	4909.47	4931.11	4931.11	4903.12	4907.37	-
3. MS 93	KL	5063.48	5060.36	5072.27	5064.84	5086.94	5086.94	5058.45	5062.63	-
4. HSDO	KL	2329.55	2328.93	2340.98	2334.69	2341.75	2363.68	2362.58	2368.41	2378.84
5. SKO	KL	1394.93	1397.45	1405.35	1402.73	1409.51	1430.32	1425.49	1429.31	1441.73
6. LDO	KL	2226.97	2226.33	2241.46	2232.19	2239.57	2239.57	2225.54	2228.24	-
7. FO for non-ferts.	KL	2189.06	2188.33	2203.78	2195.39	2202.81	2227.12	2226.37	2231.16	2243.87
8. FO for fertilizers	KL	1039.06	1038.33	1053.78	1045.39	1052.81	1077.12	1076.37	1081.16	1093.87
9. Bitumen St.Gd.Bulk	MT	2060.85	2060.85	2060.85	2060.85	2060.85	2085.85	-	-	-
10. Bitumen St.Gd.Packed	MT	2345.91	2345.91	2345.91	2345.91	2345.91	2373.41	2432.36	2409.23	2414.11
11. Naphtha for non-ferts*	MT	2792.00	2792.00	2792.00	2792.00	2792.00	2834.22	2852.47	2845.87	2854.13
12. Naphtha for ferts.*	MT	1371.31	1370.11	1387.48	1370.63	1386.36	1428.58	1429.57	1425.92	1433.83
13. JBO*	MT	1999.42	1999.42	1999.42	1999.42	1999.42	2025.68	-	-	-
14. SBP Spirit 64/69*	KL	3331.36	3331.36	3331.36	3331.36	3331.36	3359.40	3362.08	3366.76	3372.62
15. Hexane*	KL	3331.36	3331.36	3331.36	3331.36	3331.36	3359.40	3362.08	3366.76	3372.62
16. MTO 140/205*	KL	2044.26	2044.26	2044.26	2044.26	2044.26	2064.42	2074.40	2078.17	2090.42
17. MTO Laws *	KL	2125.96	2125.96	2125.96	2125.96	2125.96	2146.13	2156.12	2159.89	2172.15
18. LPG - domestic use	MT	2300.98	2304.48	2315.16	2316.80	2320.00	-	-	-	-
19. LPG - Indl. use	MT	2777.81	2777.81	2777.81	2777.81	2777.81	-	-	-	-
20. MLO	KL	2418.09	2417.40	2433.74	2423.73	2431.70	2431.70	2416.54	2419.46	-

* Exclusive of excise/custom duties which will be charged extra at applicable rates.

PRICE BUILDUP OF SELECTED PETROLEUM PRODUCTS AS ON 1 - 4 - 1981.

(Rs./KL)

	BOMBAY	CALCUTTA	DELHI	MADRAS	KANPUR
1.	2.	3.	4.	5.	6.
	M O T O R S P I R I T - 83 O N.				
Ex. MI Rate/ BCSP	4908.07	4931.11	5064.17	4916.90	5121.98
State Surcharge	-	10.00	-	35.00	-
RPO Charges	11.36	11.36	11.36	11.36	-
Delivery Charges beyond FDZ.	-	2.88	-	-	-
R.P.O. Surcharge	15.00	15.00	15.00	15.00	-
Bombay Oction/Surcharge	28.50	-	-	-	30.00
Entry Tax etc.	-	20.00	-	-	-
Total	4962.93	4990.04	5090.53	4978.26	5151.98
Sales Tax	545.92	499.04	356.34	547.61	412.16
Dealars Commission	50.00	50.00	50.00	50.00	50.00
Gross Retail - Selling Price	5558.85	5539.39	5496.87	5575.87	5614,14
Retail Selling Price (Rs./Litre)	5.56	5.54	5.50	5.58	5.62
	H I G H S P E E D D I E S E L O I L.				
Ex. MI Rate/ BCSP	2329.55	2363.68	2448.02	2340.98	2418.61
State Surcharge	-	10. 00	-	10.00	-
R.P.O. Charges/ FDZ Charge	7.27	7.27	7.27	7.27	-
Delivery Charges b beyond FDZ	-	2.88	-	-	-
R.P.O. Surcharge	20.00	20.00	20.00	20.00	-
Bombay Oction/Surchar	18.50	-	-	-	20.00
Entry tax	-	20.00	-	-	-
Total	2375.32	2414.83	2475.29	2403.25	2438.61
Sales Tax	213.78	217.33	173.27	264.36	292.63
Dealers Commission	20.00	20.00	20.00	20.00	20.00
Gross Retail Selling Prices	2609.10	2652.16	2668.56	2687.61	2751.24
Retail Selling Price Rs./Litre	2.61	2.65	2.67	2.69	2.76

Price Build-up of Selected Petroleum Products
As on 1.4.1981

(Rs/KL)

	Bombay	Calcutta	Delhi	Madras	Kanpur
SUPERIOR KEROSENE OIL					
Ex Storage Point Price	1394.93	1430.32	1517.89	1405.35	1466.22
State Surcharge	-	-	-	35.00	-
Sales Tax	(Exempted)	71.52	45.54	115.23	117.30
Dealers Commission	19.00	8.00	7.70	8.00	8.00
Transportation Charges	24.33	11.23	23.92	16.50	30.00
Leakage @ 1%	-	-	-	15.56	-
Handling Charges	-	13.50	-	2.00	15.00
Godown Rent/ Bank Commission	-	-	-	2.00	-
Barrel Depreciation	-	-	-	2.00	-
B.D.A/ Octroi	13.50	2.50	-	-	-
Total	1451.76	1537.07	1595.05	1601.64	
Retailers Commission	31.00	19.26	54.95	13.67	50.00
Retailers Transportation	-	34.67	-	-	10.00
Retailers Selling Price Rs/Kl	1482.76	1591.00	1650.00	-	1696.52
Retail Selling Price Rs/Kl	1.49	1.60	1.65	1.67	1.70
FURNACE OIL					
Ex MI Rate	2189.06	2227.12	2338.83	2203.78	NO RETAIL SALE
Entry tax	-	20.00	-		
Sales tax	110.38	134.83	163.72	179.10	
Transportation Charges	-	20.00	-	-	
Leakage/Handling/ Commission etc.	-	6.60	-	-	
State Surcharge	-	-	-	35.00	
Octroi Surcharge	18.47	-	-	-	
Surcharge on Sales tax	-	-	-	8.96	
Total Rs/KL	2317.91	2408.55	2502.55	2426.84	

Price Build-up of Selected Petroleum Products
As on 1.4.1981

(Rs/KL)

	Bombay	Calcutta	Delhi	Madras	Kanpur
		LIGHT DIESEL OIL			
Ex MI. Rate	2226.97	2239.57	2348.75	2241.46	N
State Surcharge	-	-	-	35.00	O
Sales tax	112.02	203.36	164.41	250.41	
Surcharge on Sales tax	-	-	-	-	R
Dealers Commission	8.00	-	6.60	6.00	E
Handling charges			3.75	3.00	T.
Godown Rent	-	-	-	3.50	A
Barrel Depreciation	-	-	-	5.00	I
Leakage @ 1%	-	30.00	25.13	25.27	L
Transportation	-	20.00	21.68	25.00	
B.D.A.	-	-	4.95	-	S
Octroi Surcharge	13.50	-	-		A
Entry tax	-	20.00	-		L
Total Rs/KL	2360.49	2512.93	2575.27	2594.64	E
Retail Selling Price	-	2.52	-	-	
		LIQUIFIED PETROLEUM GAS (Rs/15 Kg Cyl*)			
Ex Refinery Price	33.44	34.81	34.52	34.73	34.81
Freight	-	4.15	5.37	-	4.30
Terminal tax	-	-	0.20	-	0.60
Under/over recovery	-	+ 0.33	- 0.24	+ 1.61	-
Billable Rate Exclusive of Freight/tax	-	35.14	-	36.34	-
Local Delivery Charges	0.44	-	0.30	0.39	-
Total	33.88	39.29	40.15	36.73	39.71
Sales tax	1.69	5.89	2.01	2.91	39.71
S.C. on Sales tax	-	-	-	0.15	-
Billable Rate of Distributor	35.57	45.18	42.16	39.79	42.89
Octroi	-	0.54	-	-	-
Distributors Commission	3.37	3.37	3.37	3.37	3.37
Retail Selling Price	38.94	49.09	45.53	43.16	46.26

* Price for Bombay relates to cylinder containing 14.2 kg of LPG.

Price Build-up of Some Selected Petroleum Products
As on 1.4.1981

(Rs/KL)

	Bombay	Calcutta	Delhi	Madras	Kanpur
A.T.F. (Domestic Air Lines)					
Ex MI Price	3536.85	3555.04	3536.85	3556.21	3536.85
Railway Freight	-	-	151.07	-	157.24
Local Levies	13.50	20.00	15.00	-	10.00
Air field charges	24.44	24.44	24.44	24.44	41.94
Total	3574.79	3599.48	3727.36	3580.65	3746.03
Sales tax	125.76*	899.87	260.92	263.18	299.68
Total Rs/KL	3710.55	4499.35	3988.28	3843.83	4045.71
A.T.F. (International Airlines)					
Ex MI Price	3536.85	3555.04	3536.85	3556.21	
Less Excise Duty	333.52	333.52	333.52	333.52	
Duty Free Price	3203.33	3221.52	3203.33	3222.69	
Railway Freight	-	-	151.07	-	
Local Levies	13.50	-	15.00	-	
Total	3216.83	3221.52	3369.40	3222.69	
+App. Concessional duty w.e.f.18.8.1979	24.60	24.60	24.60	24.60	
Air field charges/ PPA Surcharge	24.44	24.44	24.44	24.44	
Total	3265.87	3270.56	3418.44	3271.73	
Adhoc Surcharge	200.00	200.00	200.00	200.00	
Total Rs/KL	3465.87	3470.56	3618.44	3471.73	
Sales tax	-	-	-	255.17	
Total Rs/KL	3465.87	3470.56	3618.44	3726.90	

*- Sales tax included in the Price build-up is at concessional rates for supplies to IAC flights only in Maharashtra State.

Note:- ~~For~~ Scheduled Airlines Payment of ST ~~is exempted except in the case of Madras where~~ ST rate is 7% plus 5% Surcharge on Sales tax.

Rates of Dealers Commission for M.S., HSDO and LPG

Slabs of Annual Volume of Sales (KL/Annum)	Dealers Commission effective from 1.4.1977	15.7.1980	1.3.1981	16.8.1981
Motor Spirit (Rs./KL)				
0 - 480	80 *	100	107	114
481 - 1080	50 *	70	75	82
Over 1080	35 *	50	55	61
H.S.D.O. (Rs./KL)				
0 - 600	50	55	58	60
601 - 1200	25	30	33	35
Above 1200	20	25	28	30

L.P.G.(Rs./Cylinder)

	Pre 1st March.1981	Post 1st March.1981
Per cylinder	3.37	3.62

* The minimum rate of commission was Rs.50/KL.

Note : The rates of dealership commission fixed at 3 Annas per imperical gallon for M.S. in 1954 and at 1 Anna and 3 Pies per imperical gallon for HSDO in 1955 continued upto 30th June, 1976. The revised commission rates effective 1.7.1976 were as follows :

Sales Per Annum (Combined MS/HSDO Sales)	Rs./K.L. M.S.	HSDO
Upto 360	80	50
361 - 720	35	15
721 and above	25	10

XI. EXCISE/CUSTOMS DUTIES AND SALES TAX.

Realization of Excise & Custom Duties From crude oil and Petroleum Products

(Rs.Crores)

Products	ACTUALS						1980-81 (RE)	1981-82 (BE)
	1970-71	1973-74	1975-76	1977-78	1978-79	1979-80		
A. Excise Duties								
1.Mogas	173	307	404	441	496	558	488	513
2.Kerosene Oil	121	141	161	161	159	165	124	156
3.Refined Diesel Oils & Vap.Oil	232	291	300	338	367	387	274	330
4.Diesel oil (Nos)	23	23	21	25	22	24	21	25
5.Furnace oil	33	30	49	41	39	43	46	58
6.Asphalt/Tar	9	16	11	15	14	18	17	19
7.Blended or compounded Lubes & Greases	-	18	45	44	-	-	-	-
8.Pet Products (others)	17	47	46	82	191	208	187	225
9.Calcined Pet. Coke	-	1	3	2	2	4	4	5
TOTAL (A)	608	847	1040	1152	1290	1407	1161	1331
B.Customs Duties								
1. Petroleum Crude	-	-	13	12	12	17	16	15
2.Mogas	5	8	9	8	9	7	9	9
3.Kerosene Oil	10	33	37	61	78	70	90	80
4.Batching Lubricating &other Mineral oils	9	15	21	13	24	30	79	47
5.HSD & Vap. Oil	1	18	26	28	57	80	150	146
6.Indl. Fuel Oil	5	22	9	5	10	9	18	18
TOTAL((B)	30	96	115	127	190	213	362	315
GRAND TOTAL	638	970	1155	1279	1480	1620	1523	1646

Figures rounded to nearest crore.

SOURCE:- Budget papers of the Central Government.

Percentage share of Central Excise on POL to Total Central Excise a nd to Net National Products.

Year	Net National Product Rs. crores	Central Excise Rs. Crores	Central excise on Pol Rs. crores	Central Excise as % of NNP(%)	Central Excise on POL as % of NNP (%)	Central Excise on POL as % of Total Central excise%
1	2	3	4	5	6	7
1960-61	13263	416	101	3.1	0.8	24.3
1965-66	20637	898	261	4.4	1.3	29.1
1970-71	34235	1759	608	5.1	1.8	34.6
1971-72	36573	2061	708	5.6	1.9	34.4
1972-73	40270	2324	767	5.8	1.9	33.0
1973-74	50424	2602	874	5.2	1.7	33.6
1974-75	59446	3231	1011	5.4	1.7	31.3
1975-76	62139	3845	1040	6.2	1.7	27.1
1976-77	67362	4221	1110	6.3	1.6	26.3
1977-78	76109	4448	1152	5.8	1.5	25.9
1978-79	81228	5194	1290	6.4	1.6	24.0
1979-80	90173	6148	1407	6.8	1.6	22.9

SOURCE: i) Government of India, Economic Survey for N.N.P.

ii) Budget paper of Central Government.

COMPOSITE INCIDENCE OF EXCISE AND CUSTOM DUTIES ON PETROLEUM PRODUCTS

YEAR	Consumption of POL Products (Excl. RBF) ('000'MTS)	Central Excise duty realisation Rs./crores	Customs Duties realisation Rs./crores	Total Central Excise & Customs duties Rs.crores	Composite Incidence of excise & customs duties Rs/MT
1	2	3	4	5	6
1960-61	7985	101.07	22.32	123.94	155.22
1965-66	11917	261.18	83.00	344.18	288.81
1970-71	17912	608.18	29.73	637.91	356.14
1971-72	20071	708.39	63.37	771.76	384.51
1972-73	21715	767.42	86.01	853.43	393.01
1973-74	22346	873.85	96.03	969.88	434.03
1974-75	22105	1010.57	95.86	1106.43	500.53
1975-76	22447	1039.51	115.49	1155.00	514.55
1976-77	24101	1110.00	112.00	1222.00	507.05
1977-78	25539	1152.00	127.00	1279.00	500.80
1978-79	28241	1290.00	190.00	1480.00	524.06
1979-80	29883	1407.00	213.00	1620.00	542.10

Revised Royalty and Oil Development Cess paid by the Oil Companies since 1969-70 (Rs./ Lakhs)

Year	Royalty @@ Onshore Gujarat	Onshore Assam*	Offshore	Total	Oil Development Cess @
1969-70	457	340	-	797	
1970-71	501	352	-	853	
1971-72	439	372	-	811	
1972-73	581	570	-	1151	
1973-74	560	558	-	1118	
1974-75	611	566	-	1177	3081
1975-76	658	649	-	1307	5007
1976-77	1325	1097	156	2578	5289
1977-78	1791	1903	1008	4702	6375
1978-79	1832	1716	1335	4883	6859
1979-80	1610	1793	1357	4760	6778
1980-81	1884	567	2424	4875	5932
1981-82	-	-	-	-	10100 (BE)**

*Royalty in respect of OIL and Assam included under this column pertain to calendar year. @@ Revised.

@ Oil Development Cess was levied w.e.f. 23.7.1974.

** As per Explanatory Memorandum of the Budget of the Central Government for 1981-82.

Excise Duty Element Included in selling prices of Bulk Refind Petroleum Products.

(In Rupees)

Products	Unit	w.e.f. 1.3.79	w.e.f. 17.8.79	w.e.f. 11.9.79	w.e.f. 8.6.80	w.e.f. 13.1.81
Avgas 100/130	KL	2702.43	2214.89	2214.89	2214.89	2214.89
" 115/145	KL	2700.50	2213.32	2213.32	2213.32	2213.32
" 73	KL	2701.60	2214.21	2214.21	2214.21	2214.21
MS - 83	KL	2703.25	2215.56	2215.56	2215.56	2215.56
MS - 93	KL	2704.90	2216.92	2216.92	2216.92	2216.92
A.T.F.	KL	493.10	402.56	402.56	333.52@	333.52
S.K.O.	KL	493.20	402.63	333.59	333.59@	333.59
H.S.D.O.	KL	493.95	399.15	330.00	330.00@	330.00
L.D.O.	KL	74.15*	153.96	153.96	153.96	153.96
F.O(Fert.Use)	KL	125.82	125.82	125.82	125.82	125.82
FO(Non-Fert. use)	KL	125.82	125.82	125.82	125.82	125.82
Bitumen(Bulk)	MT	157.55	110.30	110.30	110.30	110.30
,, (Packed)	MT	157.55	157.55	157.55	157.55	157.55
LPG(Domestic)		400.00	262.50	262.50	262.50	262.50
LPG(Indl.)		400.00	262.50	262.50	262.50	262.50
Naphtha(Fert.use)	KL	4.50**	4.50	4.50	4.50	6.40
Naptha(For non Fert.use)	KL	26.50**	26.50	26.50	26.50	--

* Concession of Excise Duty on LDO was withdrawn w.e.f. 17.3.79 and duty became Rs.153.96 per KL from that date.

**Duty at 15°C
w.e.f. = with effect from

@ Revision effective from 11.9.1979.

EXCISE AND CUSTOM DUTIES IN THE BASIC CEILING SELLING PRICES (BCSP) EX-STORAGE POINT EFFECTIVE 13.1.1981

PRODUCT	Selling Unit	Ex-Storage Point (Bombay) (Rs.)	Excise/ Custom Duties (Rs.)	Col. 4 as % of Col. 3
1.	2.	3.	4.	5.
A.T.F.	KL	3536.85	333.52	9.5
Motor Spirit 83	KL	4908.07	2215.56	45.1
Motor Spirit 93	KL	5063.48	2216.92	43.8
H.S.D.O.	KL	2329.55	330.00	14.2
S.K.O.	KL	1394.93	333.59	23.9
L.D.O.	KL	2226.97	153.96	6.9
F.O.(Non-fertilizers)	KL	2189.06	125.82	5.8
F.O.(Fertilizers)	KL	976.70	125.82	12.9
Bitumen St. Grade(Bulk)	MT	2060.85	110.30	5.4
Bitumen St. Grade(Packed)	MT	2345.91	157.55	6.7
Naphtha for non-ferts.*	MT	2792.00		
Naphtha for ferts.*	MT	1371.31		
J.B.O.*	MT	1999.42		
SBP Spirit 55/115*	KL	3155.56		
SBP Spirit 64/69*	KL	3331.36		
Solvent 1425*	KL	3155.56		
Hexane*	KL	3331.36		
M.T.O. 140/205*	KL	2044.26		
M.T.O.(Laws)*	KL	2125.96		
L.P.G.(Domestic use)	MT	2300.98	262.50	11.4
L.P.G.(Industrial use)	MT	2595.31	262.50	10.1

* Prices shown against these products are exclusive of Custom/ Excise duties chargeable extra at applicable rates.

SALES TAX RATES @ FOR PETROLEUM PRODUCTS
AS ON 1.4.1981.

PRODUCTS	Andhra Pradesh	Assam	Bihar	Chandi-garh	Delhi	Goa, Daman &Diu.
1	2	3	4	5	6	7
A. Crude Oil	-	4%	-	-	-	-
Aviation Spirit	16%	30P/L	16%	15P/L	7%	12%
Aviation Turbine Fuel	13.1%	30P/L	16%	15P/L	7%	12%
Motor Spirit	14.5%	30P/L	9%	15P/L	7%	12%
H.S.D.	13.1%	11P/L	17%	10P/L	7%	12%
L.D.O.	13.1%	11P/L	14%	6%	7%	12%
M.L.O.	13.1%	7%	9%	6%	7%	6%
S.K.O.	5.2%	3 P/L	7%	6%	3%	4%
I.K.O.	5.2%	2 P/L	5%	6%	3%	4%
F.O.	5.2%	7%	7%	6%	7%	6%
M.T.O.	5.2%	7%	9%	6%	7%	6%
Lubes	7.7%	10P/L	9%	6%	7%	6 %
Greases	7.7%	11PP/kg	9%	6%	7%	6%
Petroleum Naphtha	7.7%	7%	9%	6%	7%	6%
Bitumen	5.2%	7%	9%	6%	7%	6%
Petroleum Coke	4.00%	4%	4%		4%	4%
Indane (LPG)	6.5%	7%	9%	6%	5%	12%
Transformer Oil	5.2%	7%	9%	6%	7%	6%
Tins & Containers	5.2%	6%	9%	6%	7%	6%
H.B. Fluid	5.2%	10P/L	9%	6%	7%	6%

SALES TAX RATES FOR PETROLEUM PRODUCTS
AS ON 1.4.1981.

PRODUCTS	Gujarat	Haryana	Himachal Pradesh	Jammu & Kashmir	Kerala	Madhya Padesh
1	2	3	4	5	6	7
A. Crude Oil	4%	-	-	-	-	-
Aviation Spirit	20% Bonded 9% D.paid	12 PPL	7 PPL	12 PPL	12%	12%
Aviation Turbine Fuel	20%	12 PPL	7 PPL	8%	8%	12%
Motor Spirit	12%	15 PPL	7 PPL	4%	15%	13.50%
H.S.D.	12%	12 PPL	7 PPL	8%	20%	13.50%
L.D.O.	5%	7%	7%	8%	20%	13.50%
M.L.O.	5%	7%	7%	8%	4%	10%
S.K.O.	3%	7%	7%	2%	4%	5%
I.K.O.	3%	7%	7%	2%	4%	5%
F.O.	4%	7%	7%	8%	5%	12.00%
M.T.O.	5%	7%	7%	8%	4%	10%
Lubes	6%	7%	7%	8%	7%	10.00%
Greases	6%	7%	7%	8%	7%	10.00%
Petroleum Naphtha	5%	7%	7%	8%	5%	10%
Bitumen	5%	7%	7%	5%	4%	10%
Petroleum Coke	4%	4%	4%	-	4%	4%
Indane (LPG) packed bulk	12% 5%	7%	7%	Exempted	15%	12%
Transformer Oil	5%	7%	7%	8%	7%	10%
Tins & Containers	4%	7%	7%	8%	4%	10%
H.B. Fluid	9%	7%	7%	8%	7%	10.0%

SALES TAX RATES FOR PETROLEUM PRODUCTS
AS ON 1.4.1981.

PRODUCTS	Maha-rashtra	Karna-taka.	Manipur	Naga-land.	Orissa	Pondi-cherry.
1	2	3	4	5	6	7
A. Crude Oil	4%	-	-	-	-	-
Aviation Spirit	Bonded 23% D.paid 9%	12.5%	20 PPL	8 PPL	13%	3%
Aviation Turbine Fuel.	Bonded 30% D.paid 23%	15%*	20 PPL	8 PPL	10%	3%
Motor Spirit	11%	12.5%	20 PPL	8PPL	10%	3%
H.S.D.	9%	15%*	15 PPL	7 PPL	13%	3%
L.D.O.	4%	15%*	15 PPL	7 PPL	13%	3%
M.L.O.	4%	4%	6%	3%	7%	2%
S.K.O.	Exempted	4%	3%	3 PPL	7%	2%
I.K.O.	Exempted	4%	3%	2 PPL	Exempt	2%
F.O.	4%	8%	6%	5%	7%	3%
M.T.O.	4%	-	6%	-	7%	-
Lubes	6%	8%	15 PPL	9 PPL	10%	3%
Greases	6%	8%	15 PPL	9 PPL	10%	3%
Petroleum Naphtha	4%	4%	6%	-	7%	-
Bitumen	4%	8%	6%	5%	7%	-
Petroleum Coke	4%	4%	4%	4%	4%	3%
Indane (LPG)	4%	8%	6%	5%	7%	-
Transformer Oil	6%	8%	-	-	-	-
Tins & Containers	8%	4%	-	5%	7%	-
H.B. Fluid	8%	8%	-	-	-	-

* - Effective from 4.4.81.

SALES TAX RATES FOR PETROLEUM PRODUCTS
AS ON 1.4.1981.

PRODUCTS	Punjab	Rajas-than.	Tamil Nadu.	Uttar Pradesh	West Bengal
1	2	3	4	5	6
A. Crude Oil	-	-	-	-	-
Aviation Spirit	15 PPL	12%	7%	8%	9%
Aviation Turbine Fuel	7.14%	12%	7%	8%	25%
Motor Spirit	15 PPL	15%	17%	8%	9.9%
H.S.D.	10 PPL	12½%	17%	12%	9%
L.D.O.	8.12%	12½%	17%	12%	9%
M.L.O.	7.14%	8%	8%	4%	8.02%
S.K.O.	6.12%	8%	8%	8%	5%
I.K.O.	6.12%	8%	8%	8%	Exempted
F.O.	7.14%	8%	8%	4%	6%
M.T.O.	7.14%	12%	8%	4%	8.04%
Lubes	6.12%	8%	8%	8%	8.04%
Greases	6.12%	8%	8%	8%	8.04%
Petroleum Naphtha	7.14%	8%	8%	8%	8.02%
Bitumen	7.14%	8%	8%	8%	8.02%
Petroleum Coke	4%	4%	4%	4%	4%
Indane (LPG)	6.12%	8%	8%	8%	15%
Transformer Oil	7.14%	8%	4%	8%	8.02%
Tins & Container	6.12%	8%	4%	8%	8.02%
H.B. Fluid	7.14%	8%	8%	8%	8.04%

SALES TAX RATES FOR PETROLEUM PRODUCTS AS ON 1.4.1981.

PRODUCTS	ARUNACHAL PRADESH *	MEGHALAYA	TRIPURA	MIZORAM
1.	2.	3.	4.	5.
A. T. F.	-	-	-	10%
M. S.	-	Rs.200/KL + 1% SC	Rs.70/KL.	8%
H. S. D.	-	Rs.110/KL + 1% SC	Rs.50/KL	5%
L. D. O.	-	Rs.110/KL	-	5%
S. K. O.	-	Rs. 30/KL	-	5%
F. O.	-	7%	-	5%
Bitumen	-	-	-	5%
Indane (L.P.G.)	-	7% + 2% SC	-	8%

* = No Sales Tax on P.O.L. Products.

IN ADDITION TO THE SALES TAX PAYABLE THE FOLLOWING TAX AMOUNTS ARE ALSO PAYABLE/RECOVERABLE

1. Haryana	Surcharge at 2% on Sales Tax on all products under Sales Tax Act is payable. This is [illegible] recoverable.
2. Madhya Pradesh	The Sales Tax rates are inclusive of turnover tax levies.
3. Punjab	Addl. Tax at 2% of the sales tax on products under General Sales Tax Act is payable andis recoverable.
4. West Bengal	Turnover Tax @ 1% of the gross turnover of the bill is payable. This is non-recoverable.
5. Kerala	Surcharge at 8% of sales tax is payable, but the same is not recoverablefrom the market. Addl. S.Tax. @ 10% of S.Tax is also payable which is recoverable on our sales.
6. J&Kashmir	Surcharge at 5% of Sales tax is payable and the same is recoverable from the market. This does not apply to MST products.
7. Maharashtra	Additional sales tax @ 6% of tax is payable under the Sales Tax Actbut the same is not recoverable from the market. This does not applyto Kerosene and declared goods.
8. Karnataka	Surcharge at 10 % on tax (recoverable on the [illegible] Invoice)is also payable w.e.f. 1.4.79. o.5% turnover tax on oil value is recoverablew.e.f. [illegible] 29.3.81.
9. TamilNadu	Surcharge at 5.0 % on tax is payable on all products which is recoverable in specified areas Additional Sales Tax at 0.7% on taxable turnover under Sales Tax Actis also payable which has to be borne by seller. Additional S/C @ 5% is payable but on tax not applicable for Petrol, HSD, LDO effective 10.6.81. Applisto Sales within Madras City and its Suburban area within32 K.M.S.
10. Gujarat	Addl. Sales Tax at 10% on sales tax in respect of products under Gujarat Sales tax Act.*this is recoverable
11. Orissa	Addl. Sales tax at 1/2 % of invoice value is payable on all products. This is recoverable effective 1.4.79.
12. Uttar Pradesh	Addl. Tax @ 1 % on the taxable turnover is also payable. The sales tax rates indicated included this levy also.
13. Goa, Daman & Diu	Addl. S.Tax @ 10 % of Sales Tax is payable which is not recoverable on our sales.
14. Andhra Pradesh	Surcharge at 1/2 % per rupee of taxableturnover. This applies to all products. This is included in the sales tax rates indicated and it is recoverable.
15. Bihar	10 % surcharge on tax with effect from 15.1.81. This is non. recoverable

* and on MST product is also payable.

XII. TANKER AND FREIGHT RATES

Tonnage of Indian Tanker Fleet (DWT in '000')

Year*	Oil Tanker		Ore/Oil Carrier		T o t a l	
	No. of Tankers	DW Tonnage	No. of ships	DW Tonnage	No. of ships	DW Tonnage
1.	2.	3.	4.	5.	6.	7.
			(A) Coastal Tankers			
1966	3	37.3	-	-	3	37.3
1967	4	60.4	-	-	4	60.4
1968	5	75.0	-	-	5	75.0
1969	5	75.0	-	-	5	75.0
1970	5	74.1	-	-	5	74.1
1971	5	74.1	-	-	5	74.1
1972	4	58.0	-	-	4	58.0
1973	3	47.9	-	-	3	47.9
1974	5	80.7	-	-	5	80.7
1975	9	137.6	-	-	9	137.6
1976 £	9	137.6	-	-	9	137.6
1977 £	9	137.2	-	-	9	137.2
1978 £	8	126.8	-	-	8	126.8
1979 £	9	132.9	-	-	9	132.9
1980 £	10	158.5	-	-	10	158.5
			(B) Overseas Tankers			
1966	5	221.2	3	61.8	8	283.0
1967	5	227.4	3	61.8	8	289.2
1968	5	229.8	5	144 .6	10	374.4
1969	6	317.5	6	186.0	12	503.5
1970	7	409.9	9	381.5	16	791.4
1971	7	409.9	10	467.0	17	876.9
1972	8	427.6	10	467.0	18	894.6
1973	9	449.7	10	659.7	19	1109.4
1974	14	826.8	12	952.2	26	1779.0
1975	20	1542.8	11	877.2	31	2420.0
1976	22	1840.6	14	1237.4	36	3078.0
1977 £	23	1871.1	14	1237.8	37	3108.9
1978 £	23	1871.1	17	1573.4	40	3444.5
1979 £	22	1850.6	17	1573.4	39	3424.0
1980 £	22	1850.6	16	1484.7	38	3335.3
			(C) All Tankers			
1966	8	258.5	3	61.8	11	320.3
1967	9	287.4	3	61.8	12	349.2
1968	10	304.8	5	144.6	15	449.4
1969	11	392.5	6	186.0	17	578.5
1970	12	484.0	9	381.5	21	865.5
1971	12	484.0	10	467.0	22	951.0
1972	12	485.6	10	467.0	22	952.6
1973	12	497.6	10	659.7	22	1157.3
1974	19	907.5	12	952.2	31	1859.7
1975	29	1680.4	11	877.2	40	2557.6
1976	31	1978.2	14	1237.8	45	3215.6
1977 £	32	2008.3	14	1237.8	46	3246.1
1978 £	31	1997.9	17	1573.4	48	3571.3
1979 £	31	1983.5	17	1573.4	48	3556.9
1980 £	32	2009.1	16	1484.7	48	3493.8

* As on 31st December of each year £ DWT in Metric Tonnes

Source: Ministry of Shipping & Transport

INDIAN TANKER FLEET AS ON 31.12.1980

Owner	Name of the Ship	DWT Tonnes (M.Tonnes)	year of Built
1. Shipping Corporation of India(35)	1.Maharashi Dayanand*	123450	1978
	2.Vishvesvaraya	16450	1973
	3.Sarojini Naidu	16440	1975
	4.Bhagat Singh	16540	1974
	5.Rafi Ahmed Kidwai	24439	1975
	6.Jai Narayan Vyas	24529	1975
	7.Aurobindo	24411	1976
	8.Kolandia	24490	1976
	9.Desh Bandhu	36790	1964
	10.Lajpat Rai	49337	1965
	11.Gargi	58739	1963
	12.Jawaharlal Nehru	87170	1969
	13.Lal Bahadur Shastri	87170	1970
	14.Satyamurti	89351	1975
	15.Vivekananda	89371	1974
	16.Netaji Subhash Bose	89392	1973
	17.Lokmanya Tilak	89411	1975
	18.B.R.Ambedkar	89454	1974
	19.Chhatrapati Shivaji	89490	1974
	20.Rajendra Prasad	115723	1975
	21.Zakir Hussain	115853	1975
	22.Kanchanjunga	276755	1975
	23.Koyali	276800	1976
	24.Dadabhai Naoroji	24400	1977
	25.Bhaskara *	21941	1965
	26.Chanakya*	21962	1965
	27.Leelavati*	21962	1965
	28.Bailadila*	86890	1971
	29.Bellary*	86959	1970
	30.Barauni*	87200	1970
	31.Vallabhabhai Patel*	113920	1977
	32.Moti Lal Nehru *	114086	1973
	33.Vallathol*	114152-	1976
	34.Abul Kalam Azad*	114340	1974
	35.Maharashi Karve*	123450	1978
2.Great Eastern Shipping co.(5)	36.Jag Laadki*	103124	1972
	37.Jag Laxmi*	121423	1976
	38.Jag Leela *	125085	1976
	39.Jag Jyoti	17892	1968
	40.Jag Prakash	25480	1974
	41.Jag Priya	32878	1975
3.Varun Shipping Co.Ltd.(2)	42. Arya Doot	20968	1960
	43. Meghdoot	6102	1973
4.Bassar Bulk Carriers Ltd(2)	44. Nand Kala	6703	1972
	45. Nand Kavita	25604	1970
5.Sagar Line Pvt.Ltd.(1)	46. Sagar Tarni	712	1965
6.Scindia Steam Nav.Co,Ltd(1)	47. Walchand*	104750	1973
7.Ratnakar Shipping Co.(1)	48. Ratna Jayashree	60252	1966

* Ore/Oil bulk carriers.

Source: Ministry of Shipping & Transport.

SHARE OF TRAFFIC IN PETROLEUM PRODUCTS IN THE TOTAL TRAFFIC HANDLED AT MAJOR PORTS DURING 1965-66 TO 1980-81

(Million tonnes)

NAME OF THE PORT	Year	Total Traffic	POL Traffic	P.O.L. As % Age of Total Traffic at the Port
1	2	3	4	5
Clcutta/Haldia	1965-66	9.84	1.53	15.6
	1969-70	6.89	1.55	22.5
	1973-74	6.33	1.97	31.1
	1977-78	7.55	3.41	42.2
	1978-79	7.98	3.92	49.1
	1979-80	8.56	4.58	53.5
	1980-81	9.29	5.15	55.4
Bombay	1965-66	18.12	9.35	51.6
	1969-70	15.04	8.60	57.2
	1973-74	18.46	11.05	59.9
	1977-78	16.90	9.86	58.3
	1978-79	15.60	7.83	50.2
	1979-80	16.57	7.84	47.3
	1980-81	16.73	8.18	48.9
Madras	1965-66	4.87	0.93	19.1
	1969-70	6.44	2.24	34.8
	1973-74	7.75	3.47	44.8
	1977-78	8.07	3.47	43.0
	1978-79	9.57	3.63	37.9
	1979-80	9.99	3.73	37.3
	1980-81	10.40	4.58	44.0
Cochin	1965-66	2.87	1.04	36.2
	1969-70	4.79	3.56	74.3
	1973-74	3.72	2.50	67.2
	1977-78	5.17	3.81	73.7
	1978-79	5.47	3.84	70.2
	1979-80	5.47	3.87	70.8
	1980-81	5.27	3.94	74.8
Kandla	1965-66	2.51	0.93	37.1
	1969-70	2.11.	0.98	46.4
	1973-74	3.12	1.50	51.3
	1977-78	3.82	2.75	72.0
	1978-79	5.87	4.37	74.4
	1979-80	7.27	5.45	75.0
	1980-81	8.82	6.82	77.3
Vishakhapatnam	1965-66	4.38	2.01	45.9
	1969-70	8.30	1.94	23.4
	1973-74	7.95	1.93	24.3
	1977-78	9.69	1.74	18.0
	1978-79	10.05	1.94	19.3
	1979-80	10.23	1.94	19.0
	1980-81	10.26	2.39	23.3

SHARE OF TRAFFIC IN PETROLEUM PRODUCTS IN THE TOTAL TRAFFIC HANDLED AT MAJOR PORTS DURING 1965-66 to 1980-81

(Million Tonnes)

Name of the Port	Year	Total Traffic	P.O.L. Traffic	P.O.L AS % age of Total traffic at the port.
1	2	3	4	5
Marmugao	1965-66	7.86	0.09	1.1
	1969-70	9.03	0.15	1.1
	1973-74	14.34	0.55	4.5
	1977-78	11.28	0.62	5.5
	1978-79	10.80	0.64	5.9
	1979-80	14.80	0.73	4.9
	1980-81	13.76	0.59	4.3
Paradip	1965-66	-	-	-
	1969-70	1.75	-	-
	1973-74	2.29	-	-
	1977-78	2.74	-	-
	1978-79	2.17	-	-
	1979-80	2.31	-	-
	1980-81	2.29	-	-
Port of Tuticorin	1977-78	0.63	0.35	55.6
	1978-79	1.06	0.32	30.2
	1979-80	2.41	0.44	18.3
	1980-81	2.63	0.45	17.1
Port of Mangalore	1977-78	0.38	0.20	52.6
	1978-79	0.87	0.19	21.8
	1979-80	0.90	0.21	23.3
	1980-81	0.96	0.22	22.9
Grand Total	1965-66	50.46	15.88	31.5
	1969-70	54.35	19.02	35.0
	1973-74	63.96	23.07	36.1
	1977-78	66.23	26.21	39.6
	1978-79	69.44	26.68	38.4
	1979-80	78.49	28.78	36.7
	1980-81	80.41	32.30	40.2

Source: Ministry of Shipping & Transport (PT) Figure for 1980-81 are provisional.

COASTAL MOVEMENT OF PETROLEUM PRODUCTS

(Quantity moved to Indian Ports) (000 tonnes)

YEAR	I/F	F/F	TOTAL	ESTIMATED FREIGHT PAID* RS.MILLION
1968	754.71	2442.61	3197.32	60.04
1969	1089.76	1941.68	3031.44	54.20
1970	1131.23	1695.36	2826.59	65.79
1971	1190.04	1656.50	2846.54	82.79
1972	1452.89	1138.18	2591.07	75.50
1973	1477.73	1168.25	2645.98	86.97
1974	1640.71	1055.65	2696.35	136.59
1975	2191.35	177.62	2368.97	117.52
1976	2060.77	20.65	2081.42	84.63
1977	2342.19	-	2342.19	101.37
1978	2823.67	-	2823.67	146.06
1979	2889.00	-	2889.00	194.61
1980	2713.78	-	2713.78	254.60

NB: I/F=Indian Flag Vessels. F/F Foreign Flag vessels .
* = Includes Freight paid on Demurrage and Dead Freight paid.

AVERAGE FREIGHT RATES FROM RAST ANURA TO INDIAN PORTS (WORLD SCALE FLAT RATES ADJUSTED TO AFRA VARIATIONS)

($/Long Ton)

ANNUAL AVERAGE.	General Purpose 16500-24999 dwt.	Medium Range 25000-44999 dwt.	L. R. I. 45000-79999 dwt.	L.R. II 80000-159999 dwt.	VLCC* 160000-319999 dwt.	ULCC 320000-549999 dwt.
1.	2.	3.	4.	5.	6.	7.
			RAST ANURA TO BOMBAY			
1972	1.93	1.71	1.35	1.16	-	-
1973	3.00	2.60	1.94	1.60	-	-
1974	3.78	3.21	2.16	1.74	1.41	-
1975	3.20	2.86	1.91	1.44	1.30	-
1976	3.46	3.07	2.01	1.49	1.31	-
1977	4.02	3.04	1.98	1.45	1.27	-
1978	4.35	3.26	2.02	1.50	1.26	-
1979	7.50	5.89	3.66	2.37	1.54	1.44
1980	8.12	6.37	3.74	2.52	1.63	1.38
			RAST ANURA TO MADRAS			
1972	3.03	2.67	2.11	1.82	-	-
1973	4.64	4.03	2.98	2.67	-	-
1974	5.72	4.86	3.27	2.63	2.13	
1975	5.14	4.59	3.06	2.31	2.09	-
1976	6.44	4.82	3.16	2.34	2.06	-
1977	6.54	4.94	3.22	2.36	2.06	-
1978	7.10	5.33	3.30	2.45	2.05	-
1979	12.38	9.72	6.04	3.90	2.54	2.38
1980	13.46	10.55	6.20	4.17	2.70	2.28
			RAST ANURA TO CALCUTTA.			
1972	3.72	3.28	2.59	2.24	-	-
1973	5.72	4.96	3.68	3.29	-	-
1974	7.03	5.97	4.02	3.23	2.62	-
1975	6.31	5.64	3.76	2.83	2.57	-
1976	6.97	6.17	4.05	2.99	2.64	-
1977	8.10	6.13	3.99	2.93	2.56	-
1978	8.77	6.57	4.08	3.02	2.59	-
1979	14.98	11.76	7.31	4.73	3.08	2.88
1980	16.41	12.86	7.56	5.08	3.29	2.78

XIII. GENERAL

Retail Outlets in India As On 1st January of each Year

(Number)

YEAR	Nos.	B/Shell BPCL	ESSO/ HPCL	Caltex/ HPCL(VMU)	IOC	IBPC	ACC	TOTAL
1. 1.	2.	3.	4.	5.	6.	7.	8.	9.
1968	Nos.	3683	1955	1437	1516	229	119	8939
	%	41.2	21.9	16.1	16.9	2.6	1.3	100
1969	Nos.	3700	1948	1396	2131	223	124	9522
	%	38.8	20.5	14.7	22.4	2.3	1.3	100
1970	Nos.	3577	1922	1392	2655	233	129	9908
	%	36.1	19.3	14.0	26.8	2.4	1.4	100
1971	Nos.	3583	1928	1384	2967	249	144	10255
	%	35.0	18.8	13,5	28.9	2.4	1.4	100
1972	Nos.	3535	1923	1384	3129	297	150	10418
	%	33.9	18.5	13.3	30.0	2.9	1.4	100
1973	Nos.	3478	1920	1372	3274	440	155	10639
	%	32.7	18.0	12.9	30.8	4.1	1.5	100
1974	Nos.	3262	1887	1359	3349	487	164	10508
	%	31.0	18.0	12.9	31.9	4.6	1.6	100
1975	Nos.	3173	1868	1206	3546	525	163	10481
	%	30.3	17.8	11.5	33.8	5.0	1.6	100
1976	Nos.	3157	1872	1201	3583	619	164	10596
	%	29.8	17.7	11.3	33.8	5.8	1.6	100
1977	Nos.	3183	1916	1200	3804	717	166	10986
	%	29.0	17.5	10.9	34.6	6.5	1.5	100
1978	Nos.	3241	1965	1198	4051	850	168	11473
	%	28.3	17.1	10.4	35.3	7.4	1.5	100
1979	Nos.	3288	1996	1201	4150	998	173	11806
	%	27.8	16.9	10.2	35.2	8.4	1.5	100
1980	Nos.	3296	3198@		4231	975	173	11873
	%	27.8	26.9		35.6	8.2	1.5	100
1981	Nos.	3308	3225@		4333	1001	175	12042
	%	27.5	26.8		36.0	8.3	1.4	100

NOTE :-1.% = Percentage. 2. The data excludes consumers
@ = IncludesHPCL(VMU). retail outlets.

State-wise Distribution of Retail Outlets, Multi-purpose/Farm Fuel Centres, LDO/SKO Dealers and LPG Distributors as on 1.1.1981.

(Numbers)

State/Uniom Territory	Retail Outlets	Multi-purpose Distribution Centre/Farm Fuel Centre	LDO/SKO dealers	LPG Distributors
1	2	3	4	5
1.Andhra Pradesh	946	54	532	90
2.Assam	246	12	313	10
3.Bihar	680	25	302	35
4.Gujarat	796	40	324	112
5.Haryana	393	31	123	17
6.Himachal Pradesh	46	2	17	2
7.Jammu & Kashmir	93	1	20	20
8.Karnataka	765	23	261	63
9.Kerala	591	17	237	21
10.Madhya Pradesh	717	43	301	57
11.Maharashtra	1265	66	464	294
12.Manipur	10	-	22	1
13.Meghalaya	29	-	22	2
14.Nagaland	14	-	11	2
15.Orissa	241	20	171	21
16.Punjab	787	37	216	14
17.Rajasthan	618	44	213	10
18.Sikkim	7	1	7	1
19.Tamil Nadu	1076	40	421	73
20.Tripura	22	-	40	1
21.Uttar Pradesh	1505	109	560	62
22.West Bengal	765	27	377	94
23.A.N.Islands	1	1	1	-
24.Arunachal Pradesh	10	-	10	-
25.Chandigarh	99	-	9	6
26.D.N.Haveli	1	-	-	-
27.Delhi.	227	-	60	81
28.Goa, Daman & Diu.	62	-	15	13
29.Mizoram	4	-	8	1
30.Pondichery	19	-	7	2
31.Bhutan	7	-	2	-
Total	12042	593	5063	1105

State-wise Number of Domestic Consumers of LPG as on 1.4.1981

(Numbers)

State/Union Territory	BPCL	HPCL	IOC	Total
1.	2.	3.	4.	5.
1. Andhra Pradesh	9851	140924	68871	219646
2. Assam	-	-	26857	26857
3. Bihar	-	5575	99839	105414
4. Gujarat	59301	57651	227206	344158
5. Himachal Pradesh	-	-	5692	5692
6. Haryana	-	1117	54559	55676
7. Jammu & Kashmir	-	20759	-	20759
8. Karnataka	7638	54648	84317	146603
9. Kerala	-	-	61528	61528
10. Madhya Pradesh	10018	66365	89304	165687
11. Maharashtra	467358	453208	-	920566
12. Manipur	-	-	1370	1370
13. Meghalaya	-	-	3195	3195
14. Nagaland	-	-	2777	2777
15. Orissa	-	19846	18701	38547
16. Punjab	-	8009	49174	57183
17. Sikkim	-	-	1324	1324
18. Rajasthan	-	7981	47236	55217
19. Tamil Nadu	-	1433	241721	243154
20. Tripura	-	-	1259	1259
21. West Bengal	-	36400	148622	185022
22. Uttar Pradesh	-	-	281197	281197
23. Chandigarh	-	4087	23502	27589
24. Delhi	50526	28330	251528	330384
25. Goa, Daman & Diu	3137	9082	-	12219
26. Mizoram	-	-	1084	1084
27. Pondicherry	-	-	5925	5925
TOTAL	607829	915415	1796788	3320032

Crude Oil and Products Pipelines in India as on 1.4.1981

Pipelines	Owned by	Length in KMs	Diametre in inches
I. CRUDE PIPELINES (ONSHORE)			
Digboi Oilfield - Digboi Refinery	AOC	12.5	6"
Digboi Oilfield - Digboi Refinery	AOC	10.4	4"
Nahorkatiya - Gauhati	OIL	504	16"
Nahorkatiya - Digboi	OIL	35	8"
Gauhati - Barauni	OIL	866	14"-16"
Ankleshwer - Koyali	ONGC	94.8	16"
Kalol - Nawagam	ONGC	48.8	12"
Nawagam - Koyali	ONGC	77.6	14"
Sanand - Kalol	ONGC	12.5	8"
Sobhashan - North Kadi	ONGC	20.2	8"
North Kadi - Kalol	ONGC	35.6	12"
Jhalora - Sanand	ONGC	9.3	8"
Lakwa - Moran	ONGC	17.5	12"
Rudrasagar - Lakwa	ONGC	37.5	8"
Geleki - Dikhow	ONGC	18.9	8"
Geleki - Jorhat	ONGC	48.4	14"
Borholla- Jorhat	ONGC	55.0	8"
Charali to Dikhow - Geleki	ONGC	6.0	4"
Anguri to Geleki - Jorhat	ONGC	6.0	6"
SBM to Salaya Tank Farm Area	IOC	11	42"
Salaya - Viramgam	IOC	275	28"
Viramgam - Koyali	IOC	141	18"
Viramgam - Mathura	IOC	803	24"
Total Onshore(I)		3140.0	
II. CRUDE PIPELINES(OFFSHORE)			
Platform 'F' to Uran	ONGC	202.3	30"
Uran - Trombay	ONGC	22.8	36"
Total Offshore(II)		225.1	
TOTAL CRUDE PIPELINES(I+II)		3365.1	

..../-

Crude Oil and Products Pipelines in India as on 1.4.1981

Pipelines	Owned by	Length in KMs	Diametre in inches
III. PRODUCT PIPELINES			
Digboi Refinery - Tinsukia	AOC	34	6"
Digboi Refinery - Tinsukia	AOC	39	6"
Digboi Refinery - Tinsukia	AOC	34	4"
Gauhati - Siliguri	IOC	425.85	8-5/8"
Barauni - Kanpur	IOC	668.78	12-3/4"
Koyali - Ahmedabad	IOC	115.70	8-5/8"
Haldia - Mourigram - Rajbandh	IOC	268.58	12-3/4"
Haldia - Barauni	IOC	524.83	12-3/4"
Total Product Pipelines(III)		2110.74	
IV. GAS PIPELINES (ONSHORE)			
Cambay - Dhuvaran	ONGC	24.9	14"
Ankleshwer - Uttarn	ONGC	37.5	16"
Ankleshwar - Baroda	ONGC	96.6	14"
Nawagam - Calico Mills	ONGC	22.2	8"
Sanand - Kalol	ONGC	12.6	6"
Kalol - IFFCO HP	ONGC	2.6	8"
Kalol - IFFCO LP	ONGC	2.6	12"
Sobhashan - Dudh Sagar Diary	ONGC	9.2	8"
ASEB Gas Pipeline	ONGC	16.1	12"
Total Onshore(IV)		224.3	
V. GAS PIPELINES(OFFSHORE)			
Plat Form 'F' to Uran	ONGC	202.0	
Uran to Trombay	ONGC	23.8	
Total Offshore(V)		225.8	
TOTAL GAS PIPELINES(IV+V)		450.10	
GRAND TOTAL(I TO V)		5925.94	

GROSS PRODUCTION OF ENERGY BY VARIOUS SOURCES IN INDIA.

YEAR	Coal & Lignite			Hydro-carbon			Power (Million(KWH)			
	Coal (M.T.)	Lignite (M.T.)	Total (M.T.)	Natural Gas (Mn. cum.)	Crude Petroleum. ('000'MT)	Total domestic@ Petroleum ('000'MT)	Thermal	Hydel	Nuclear	Total
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1960-61	55.67	0.05	55.72	-	448	6077	9100	7837	-	16937
1965-66	67.73	2.57	70.30	507	3473	10081	19641	16734	-	36375
1970-71	72.95	3.39	76.34	1445	6822	18333	28162	25248	2417	55827
1971-72	72.42	3.72	76.14	1535	7299	19867	31713	28024	1189	60926
1972-73	77.22	2.89	80.11	1565	7321	19092	36217	27196	1133	64546
1973-74	78.17	3.32	81.49	1713	7189	20724	35321	28972	2396	66689
1974-75	88.41	2.94	91.35	2041	7684	20800	40109	27875	2206	70190
1975-76	99.66	3.05	102.71	2367	8448	22055	43303	33302	2626	79231
1976-77	104.02	4.01	105.03	2428	8898	22732	50245	34836	3252	88333
1977-78	101.00	3.59	104.59	2839	10763	24670	52495	37961	1740	92196
1978-79	101.97	3.27	105.24	2811	11633	25671	53420	47138	2770	103328
1979-80	103.87	2.92	106.87	2764	11768	27258	57155	45494	2876	105525
1980-81*	113.98	4.81	118.79	2364	10503	25492	62031	46532	3009	111572

@ = Includes R.B.F., * = Provisional.

Source:-i) Central Electricity Authority and Economic Survey, Department of Energy.
ii) Coal Statistics - Coal Controller's Organisation,
iii) Department of Petroleum, "Indian Petroleum & Petrochemicals Statistics".

Movement of POL Traffic on Railways Since 1970 - 71

Year	Tonnes Originating ('000MTs)	Earnings ('000Rs)	Average lead (Kms.)	Earnings (Paise/tonne Kms.)
1970-71	8857	464081	594	9.1
1971-72	10063	523049	593	8.8
1972-73	10181	550982	614	8.8
1973-74	9994	555560	638	8.7
1974-75	10751	723192	642	10.5
1975-76	11663	860925	605	12.2
1976-77	12395	1038462	609	13.8
1977-78	13062	1120693	631	13.6
1978-79	14301	1324332	698	13.3
1979-80	14266	1497510	729	14.4
1980-81 (Estd.)	15060	1875000	-	-

Rail Freight Rates in respect of Petroleum Products (Dangerous & Non-dangerous) as on 1.4.80 and 1.4. 81.

(Rs./MT)

Distance Kms.	1.4.1980		1.4.1981 @		Percentage increase	
	Non-dangerous POL	Dangerous POL	Non-Dangerous POL	Dangerous POL	Non-Dangerous POL	Dangerous POL
1	2.	3.	4.	5.	6.	7.
100	24.40	38.20	34.30	56.60	40%	48.2%
300	47.70	76.20	67.20	113.40	40.9%	48.8%
500	68.50	110.10	96.70	164.00	41.2%	49.0%
800	111.80	181.10	158.10	270.00	41.4%	49.1%
1000	132.90	215.50	187.80	321.40	41.3%	49.1%
1500	181.60	295.50	257.10	441.10	41.6%	49.3%
2000	223.50	364.40	316.60	544.20	41.7%	49.3%
2500	256.30	418.30	362.70	624.60	41.5%	49.3%

@ Proposed in the Budget.
Non-dangerous POL include HSDO, LDO and other petroleum and hydrocarbons oils(except Kerosene Oil)

Dangerous POL includes Motor Spirit, Benezene and other dangerous mineral oils.

Source: Railway Board.

XIV. INTERNATIONAL PETROLEUM STATISTICS

Estimated World Crude Oil And Gas Reserves (As on 1.1.1981)

Country	Crude Oil (Billion 10^9 Tonnes)	% of Total	Natural Gas (Trillion (10^{12}) Cubic feet)	% of Total
1. TOTAL WESTERN HEMISPHERE	14.0	15.7	438.1	16.6
Of which: USA	3.6	4.1	191.0	7.2
Venezuela	2.5	2.8	42.0	1.6
Ecuador	0.2	0.2	4.0	0.2
Canada	0.9	1.0	64.5	2.4
Mexico	6.0	6.8	87.3	3.3
Argentina	0.3	0.3	22.0	0.8
2. TOTAL AFRICA	7.6	8.6	208.5	7.9
Of which: Libya	3.2	3.6	23.8	0.9
Algeria	1.1	1.2	131.5	5.0
Nigeria	2.3	2.6	41.0	1.6
Egypt	0.4	0.4	3.0	0.1
Gabon	0.06	0.07	0.5	0.02
Tunisia	0.2	0.2	5.6	0.2
3. TOTAL MIDDLE EAST	49.6	55.8	752.4	28.5
Of which: Saudi Arabia	22.6	25.4	110.0	4.2
Kuwait	8.9	10.0	30.8	1.2
Iran	7.9	8.9	485.0	18.4
Iraq	4.1	4.6	27.5	1.0
Neutral Zone	0.8	0.9	4.8	0.2
Abu Dhabi	4.0	4.5	20.0	0.8
4. TOTAL EUROPE	3.2	3.6	159.3	6.0
Of which: West Germany	0.06	0.07	6.0	0.2
United Kingdom	2.0	2.3	24.8	0.9
Netherlands	0.04	0.05	62.0	2.4
Italy & Sicily	0.09	0.1	3.5	0.1
Norway	0.8	0.1	42.7	1.6
Yugoslaviya	0.03	0.03	1.5	0.06
5. TOTAL ASIA & PACIFIC	2.7	3.0	126.3	4.8
Of which: Indonesia	1.3	1.5	23.5	0.9
Australia	0.32	0.3	30.0	1.1
India *	0.37	-	12.43	-
Pakistan	0.03	0.03	15.1	0.6
Brunei	0.23	0.3	7.3	0.3
Malaysia	0.41	0.5	15.0	0.6
6. TOTAL FREE WORLD	77.0	86.7	1684.6	63.9
7. TOTAL COMMUNIST WORLD	11.8	13.3	953.9	36.1
Of which: Russia	8.63	9.7	920.0	3.5
China	2.81	0.3	24.5	0.9
Hungry(Others)	0.38	0.4	9.4	0.4
TOTAL WORLD	88.8	100.0	2638.5	100.0

Source : Oil & Gas Journal, December 29, 1980.
1 tonne = 7.3 per barrel. Neg.= Negligible. * As on 1.1.1980.

World Estimated Crude Oil Production - 1978-1980

(Million Tonnes)

Country	1978	1979 (Revised)	1980 (Estd.)	% change 1980/79	% age share 1979	% age share 1980
1.	2.	3.	4.	5.	6.	7.
North America	556.2	561.8	567.0	+ 0.9	17.6	18.5
USA	481.5	478.6	485.0	+ 1.3	15.0	15.8
Canada	74.7	83.2	82.0	- 1.5	2.6	2.7
Caribbean Area	200.9	221.3	240.4	+ 8.3	6.9	7.8
Of which:Venezuela*	115.7	122.8	113.0	- 7.9	3.8	3.7
Mexico	66.4	80.8	110.0	+36.1	2.5	3.6
Trinidad	11.9	11.1	11.3	+ 2.1	0.3	0.3
Colombia	6.8	6.4	5.8	-10.3	0.2	0.2
Other Latin America	51.1	54.6	56.8	+ 3.9	1.7	1.9
Argentina	23.0	23.9	25.0	+ 4.6	0.8	0.8
Ecuador*	9.7	10.5	10.0	- 4.9	0.3	0.3
Brazil	8.3	8.5	9.3	+ 9.2	0.3	0.3
Peru	7.7	9.4	9.8	+ 4.7	0.3	0.3
Bolivia	1.6	1.4	1.2	-15.1	neg.	neg.
Chile	0.8	0.9	1.5	+57.7	neg.	neg.
Middle East	1089.8	1091.9	956.6	-12.4	34.3	31.8
Of which:						
Saudi Arabia*b)	422.0	475.2	495.0	+ 4.2	14.9	16.4
Iran*	260.9	151.4	74.0	-51.1	4.7	2.4
Iraq*	128.9	168.0	138.0	-17.9	5.3	4.6
Kuwait*b)	108.9	127.2	86.0	-32.8	4.0	2.8
Abu Dhabi*	70.0	71.1	65.0	- 8.5	2.2	2.1
Egypt	24.4	26.0	30.0	+15.5	0.8	1.0
Qatar*	23.4	24.4	22.8	- 6.6	0.8	0.7
Dubai*	18.5	17.7	17.5	- 1.2	0.6	0.6
Oman	15.5	14.6	14.2	- 2.7	0.5	0.5
Syria	10.0	8.5	8.5	-	0.3	0.3
Bahrain	2.7	2.5	2.5	+ 0.1	0.1	0.1
Turkey	2.9	2.9	2.6	- 9.8	0.1	0.1
Sharjah*	1.1	0.7	0.5	-25.7	neg.	neg.
Africa	276.1	293.3	261.0	-11.0	9.2	8.5
Of which:						
Nigeria*	94.0	113.5	101.0	-11.0	3.6	3.3
Libya*	96.2	98.9	85.6	-13.5	3.1	2.8
Algeria*	58.8	53.2	44.8	-15.7	1.7	1.5
Gabon*	10.6	10.3	10.1	- 1.9	0.3	0.3
Angola	8.2	6.7	8.0	+19.4	0.2	0.3
Tunisia	4.9	5.5	5.2	- 5.6	0.2	0.2
Congo	1.6	2.6	3.0	+15.2	0.1	0.1
Zaire	1.1	1.0	1.0	- 2.6	neg.	neg.

...Continued/-

World Estimated Crude Oil Production - 1978-1980

(Million Tonnes)

Country	1978	1979 (Revised)	1980 (Estd.)	% change 1980/79	% age share 1979	% age share 1980
1.	2.	3.	4.	5.	6.	7.
West Europe	84.0	108.9	116.7	+ 7.1	3.4	3.8
U.K.	54.0	77.9	80.0	+ 2.8	2.4	2.6
Norway	16.8	18.3	23.7	+29.6	0.6	0.8
West Germany	5.1	4.8	4.7	- 1.8	0.2	0.2
Austria	1.8	1.7	1.6	-10.3	0.1	0.1
Netherlands	1.5	1.6	1.6	+ 1.1	neg.	neg.
Italy	1.5	1.8	1.9	+ 6.8	0.1	0.1
France	1.9	1.2	1.3	+ 7.2	neg.	neg.
Spain	1.0	1.2	1.5	+28.8	neg.	neg.
Denmark	0.4	0.4	0.4	-18.8	neg.	neg.
Far East: Of which	139.3	142.7	135.5	- 5.1	4.5	4.4
Indonesia*	82.4	79.1	77.5	- 2.1	2.5	2.5
Australia	20.9	20.6	18.8	- 8.6	0.7	0.6
India	11.0	12.8	9.4	-26.9	0.4	0.3
Malaysia	10.8	13.4	13.1	- 2.5	0.4	0.4
Brunei	11.0	12.0	11.5	- 4.2	0.4	0.4
Burma	1.4	2.0	2.5	+25.0	0.1	0.1
Japan	0.5	0.5	0.5	- 6.8	neg.	neg.
Pakistan	0.4	0.5	0.5	- 2.9	neg.	neg.
Taiwan	0.2	0.2	0.2	- 7.7	neg.	neg.
Non-Communist Areas	2397.4	2475.0	2334.0	- 5.7	77.7	76.1
Western Hemisphere	808.2	837.7	864.2	+ 3.2	26.3	28.2
Eastern Hemisphere	1589.2	1637.3	1469.8	-10.2	51.3	47.9
Of which OPEC Countries	1501.1	1524.0	1340.8	-12.0	47.8	43.7
USSR & East Europe	595.5	608.3	625.5	+ 2.8	19.1	20.4
USSR	572.5	586.0	603.0	+ 2.9	18.4	19.7
Rumania	13.7	12.3	12.0	- 2.6	0.4	0.4
Yugoslavia	4.1	4.1	4.2	+ 1.4	0.1	0.1
Hungary	2.2	2.0	2.0	+ 1.0	0.1	0.1
Albania	2.0	3.0	3.5	+16.7	0.1	0.1
Poland	0.5	0.4	0.3	- 9.1	neg.	neg.
East Germany	0.2	0.1	0.1	-	neg.	neg.
Bulgaria	0.2	0.3	0.3	-	neg.	neg.
Czechoslovakia	0.1	0.1	0.1	- 9.1	neg.	neg.
China	104.1	106.2	106.0	- 0.1	3.3	3.5
Cuba	0.1	0.1	0.1	-	neg.	neg.
WORLD TOTAL	3097.1	3189.1	3065.6	- 3.9	100.0	100.0

* OPEC Members.

a) Crude oil, plus gas condensates where known. Figures for USA, Canada and Mexico include substantial quantities of natural gas liquids.

b) Including share of production from Partitioned Zone(formerely Neutral Zone).

Source : Petroleum Economist, January, 1981.

WORLD NET PRODUCTION OF NATURAL GAS

(Million Cubic Metres)

Country	1973	1975	1977	1978	1979	% share 1979
North America	729645	656903	638984	637020	631648	41.0
U.S.A.	641311	569417	565638	565500	556000	36.1
Canada	88334	87486	73346	71420	75648	4.9
Caribbean Area	32030	32935	39280	43271	49228	3.2
Venezuela*	13025	12751	14830	14411	16298	1.1
Mexico	15341	16534	20500	24400	28070	1.8
Trinidad and Tobago	1822	1784	1700	2110	2450	0.1
Colombia	1842	1866	2250	2350	2410	0.2
Other Latin America	13739	14550	14489	14919	15514	1.0
Argentina	5729	7692	7570	7810	8410	0.6
Ecuador*	28	31	40	40	35	Neg.
Brazil	254	700	560	730	800	0.05
Peru	968	991	800	900	1080	0.07
Bolivia	1638	1702	1760	1900	2200	0.1
Chile	4104	3406	3730	3510	2960	0.2
Cuba	14	25	25	25	25	-
Others	4	3	4	4	4	-
Middle East	36011	40659	45222	47046	56049	3.6
Saudi Arabia*	4531	5663	8000	9484	11695	0.8
Iran*	19706	21834	20991	19465	19990	1.3
Iraq*	1210	1654	1600	1700	2230	0.1
Kuwait*	5268	5204	5961	6260	8612	0.6
UAE*	1732	1656	3898	5758	6010	0.4
Egypt	88	45	500	730	1110	0.1
Syria	198	209	200	200	200	0.01
Baharain	1602	2077	2360	2590	2850	0.2
Qatar*	1580	2209	1507	1479	4362	0.3
Others	96	108	105	100	100	0.01
Africa	16501	21383	15508	20770	35898	2.3
Nigeria*	303	402	500	380	1378	0.1
Libya*	10909	10835	15751	15921	18785	0.2
Algeria*	4745	9532	8634	13878	25939	1.7
Gabon	283	262	177	165	150	0.01
Angola	65	65	100	100	100	0.01
Tunisia	114	212	240	300	340	0.02
Congo	16	7	16	16	16	-
Morocco	65	57	90	80	80	0.01
Others	1	1	-	-	-	-
West Europe	145845	170885	182019	185855	203457	13.2
U.K.	28838	35074	40398	38200	38515	2.5
Norway	-	-	2579	12702	25689	1.7
Germany(F.R.)	19989	18106	19200	20230	20360	1.3
Austria	2190	2262	2393	2369	2206	0.1
Netherlands	70542	90853	94800	89300	93390	6.1
Italy	15319	14562	12931	13128	12898	0.8
France	7410	7358	7697	7865	7758	0.5
Belgium	55	51	50	50	50	-
Gugosalivia	1329	1553	1900	1940	1860	0.1
Turkey	69	65	70	70	70	-
Others	4	1	1	1	1	-

WORLD NET PRODUCTION OF NATURAL GAS (Contd.)

(Million Cubic Mitres)

Country	1973	1975	1977	1978	1979	%share 1979
Asia & Far East (except China)	22420	27838	40244	45528	52141	3.39
Afganistan	3115	2800	3000	2850	3050	0.2
Australia	4099	5026	6240	7173	7860	0.5
Bangladesh	906	934	600	720	800	0.05
Brunei	2879	6071	8840	8010	8790	0.6
Burma	153	159	200	200	220	-
India	913	998	2090	2680	2900	0.2
Indonesia*	805	2328	5662	10877	15777	1.0
Japan	2904	2436	2804	2519	2399	0.2
Malaysia	538	566	530	420	450	0.03
Newzeland	264	324	2328	2149	1315	0.1
Pakistan	4400	4647	5850	5870	6580	0.4
Taiwan	1444	1549	2100	1960	2000	0.1
Non-Communist Areas	996191	965153	985746	994481	1043945	67.8
Western Hemisphere	775414	704388	692753	695210	696390	45.2
Eastern Hemisphere	220777	260765	292993	299271	347555	22.6
of which:						8.5
OPEC Countries	64125	74361	87651	99733	131111	
OPEC % share of world	4.9	5.5	6.1	6.8	8.5	
USSR and East Europe	283393	340795	397700	413450	445900	29.0
USSR	236326	289000	346000	360000	396000	25.7
Albania	190	204	200	200	200	0.01
Bulgeria	222	111	40	30	30	-
Czechoslovakia	1042	929	700	900	820	0.05
G.D.R.	7012	7358	8460	8490	8000	0.5
Hungary	4821	5182	6600	7230	6510	0.4
Poland	6027	5963	6950	7600	7340	0.5
Romania	27753	32048	28750	29000	27000	1.8
China	26901	39644	45000	49400	50350	3.2
WORLD TOTAL	1306485	1345592	1428446	1457331	1540195	100

* OPEC countries.

Source : OPEC Annual Statistical Bulletin, 1979.

CRUDE OIL PRODUCTION* IN OPEC MEMBER COUNTRIES.

(Million Tonnes)

OPEC COUNTRIES	1970	1973	1975	1978	1979	1980
1.	2.	3.	4.	5.	6.	7.
Algeria	49	51	48	59	60	45
Eduador	Neg.	10	8	10	11	10
Gabon	5	8	11	10	10	10
Indonesia	42	66	65	82	80	78
Iran	191	293	268	261	145	74
Iraq	77	99	111	129	175	138
Kuwait	139	138	94	109	130	86
Libya	160	105	71	96	101	86
Nigeria	53	100	89	94	114	101
Qatar	18	27	21	23	25	23
Saudi Arabia	178	365	344	422	510	495
U.A.E	37	74	82	90	89	83
Venezuela	195	179	125	116	125	113
Total	1144	1515	1337	1501	1575	1342

Source: B.P.Statistical Review/OPEC Annual Statistic Bulletins

CRUDE OIL EXPORTS* BY OPEC MEMBER COUNTRIES

(Million Tonnes)

QPEC COUNTRIES	1970	1973	1975	1978	1979
1.	2.	3.	4.	5.	6.
Algeria	48.7	49.7	43.9	50.2	48.0
Ecuador	Neg.	9.8	7.3	6.1	6.1
Gabon	4.2	6.0	10.3	8.7	8.2
Indonesia	31.3	50.6	49.7	63.4	56.2
Iran	165.5	263.8	233.5	228.4	120.4
Iraq	74.8	96.3	102.9	119.2	163.8
Kuwait	129.0	132.1	90.2	88.1	104.2
Libya	165.6	108.7	71.6	92.7	98.3
Nigeria	52.5	98.9	85.7	91.4	110.5
Qatar	18.1	28.5	21.4	24.0	24.7
Saudi Arabia	160.8	350.7	330.0	385.3	440.9
U.A.E.	34.7	76.1	83.1	90.8	90.1
Venezuela	121.7	106.2	73.6	62.2	70.7
Total	1006.9	1377.4	1203.2	1304.5	1342.1

Source: OPEC Annual Statistical Bulletin - 1974 & 1979

* Conversion: - 1 Mn.Tonnes/Year = 20,000 bbl/day

PRODUCTIVITY OF PRODUCING WELLS IN SELECTED FIELDS IN THE WORLD - 1980.

COUNTRY	FIELD	Discovery date	Depth (metres)	Wells Flowing	Wells Pumping	Daily average first 6 months 1980 (000bbl)	Gravity API*	T/W/D
Algeria:	All fields Since	1956	458-3834	-	1270*	1000	43.3[a]	101
Libya:	Gialo	1961	671-1922	3	239	220	35.7	122
	Waha	1960	2013	-	46	99	36.0	288
	BU Attifel	1968	4362	21	-	167	41.0	1035
	Intisar D	1967	2867	14	7	127	39.0	798
	Defa	1969	1647-1800	31	44	212	35.6	380
	Nasser	1959	1678-2318	5	85	83	38.0	122
Iran@	Onshore fields	1923	488-3721	NA	NA	1900	32.0[a]	NA
	Offshore	1960	2288-3355					
Iraq@	All fields	1909	854-3813	250	-	3500	33.6[a]	1900
Saudi Arabia:	Onshore:Abqaic	1940	2040	52	-	742	37.0	1901
	:Ghawar	1948	2111	332	-	5452	34.0	2228
	Offshore:Berri	1964	2532	30	-	531	34.0	2401
	:Safaniyah	1951	1556	188	-	1512	27.0	1055
	:Zuluf	1965	1769	32	-	561	32.0	2566
Burma@	All fields	1902	30-2135	170	275	30	37.2	9
India:	Onshore(Total)	1890	92-3902					
	Offshore (,,)	1974	1302-1412		1600	185	35.0	16
Indonesa:	Onshore: field:	1928	458	419	2935	1031	35.0	41
	Offshore	1970	726-3401	256	153	542	31.5	182

t/w/D Tonne/Well/Day @ Estimated a = average API°
N.A = Not available
* = Flowing, Pumping and shut-in wells including wells used for injenction purposes.

Source: Oil & Gas Journal, December 29, 1980.

WORLD OIL REFINING CAPACITIES AT END 1980 AND 1979

MILLION TONNES PER ANNUM

COUNTRY/AREA	Refining Capacities 1980	1979	% Share of Total 1980	Percentage Change Over 1980-1979	Annual Average 1975/80
1.	2.	3.	4.	5.	6.
U.S.A.	916	892	22.5	+ 2.7	+ 3.8
Canada	107	115	2.6	- 7.1	- 0.7
Total North America	1023	1007	25.1	+ 1.6	+ 3.5
Latin America					
Argentina	42	33	1.0	+26.7	+ 3.6
Brazil	68	61	1.7	+11.9	+ 6.2
Mexico	69	61	1.7	+13.	+12.2
Netherlands Antiles	42	42	1.0	-	- 0.8
Trinidad	23	23	0.6	- 2.6	- 0.3
Venezuela	71	72	1.7	- 1.5	- 0.3
Other Latin America	140	138	3.4	+ 1.7	+ 4.1
Total Latin America	455	438	11.1	+ 3.8	+ 4.0
Total Western Hemisphere	1478	1445	36.2	+ 2.2	+ 3.6
Western Europe					
Belgium	51	51	1.3	+ 0.1	+ 0.9
France	168	170	4.1	- 1.3	- 0.5
Italy	206	209	5.1	- 1.5	- 0.9
Netherlands	88	90	2.2	- 2.2	- 1.3
Spain	71	74	1.7	- 3.2	+ 3.9
United Kingdom	123	123	3.0	-	- 3.6
West Germany	154	151	3.8	1.7	- 0.1
Other Western Europe	161	155	4.0	+ 3.7	+ 2.9
Total Western Europe	1022	1023	25.2	- 0.1	- 0.1
Middle East					
Bahrain	12	12	0.3	-	-
Iran	61	52	1.5	+17.4	+11.4
Iraq	13	13	0.3	-	+ 7.3
Kuwait	29	29	0.7	-	+ 0.5
Neutral Zone	4	4	0.1	-	+ 0.8
Saudi Arabia	25	32	0.6	-22.0	+ 1.3
Southern Yemen	7	7	0.2	-	- 2.2
Other Middle East	27	27	0.7	- 2.0	+ 9.9
Total Middle East	178	176	4.4	+ 0.9	+ 5.4
South Africa	104	101	2.5	+ 3.0	+10.9
South Asia	49	41	1.2	+20.2	+ 6.2
South East Asia					
Indonesia	26	27	0.6	- 4.3	+ 4.2
Singapore	53	52	1.3	+ 3.0	+ 0.6
Other South East Asia	96	92	2.4	+ 4.2	+ 8.3
Total South East Asia	175	171	4.3	+ 2.5	+ 5.0
Japan	281	263	6.9	+ 6.6	+ 1.9
Australasia	40	40	1.0	+ 1.5	+ 1.4
U.S.S.R., E.Europe & China	742	730	18.3	+ 1.7	+ 4.0
Total Eastern Hemisphere (excl.U.S.S.R. E.Europe & China	2591	2545	63.8	+ 1.8	+ 2.3
World	3327	3260	81.7	+ 2.0	+ 2.5
	4069	3990	100.0	+ 2.0	+ 2.8

Source:-B.P. Statistical Review of the World Oil Industry 1980.

WORLD NATURAL GAS CONSUMPTION

(Million Tonnes Oil Equivalent)

Country/Area	1970	1975	1978	1979	1980	Yearly Change 1980 over 1970 %	Yearly Change 1980 over 1975 %	1980 share% of total
U.S.A.	564.1	508.7	504.2	499.0	492.0	- 1.4	- 0.7	38.5
Canada	32.7	43.1	47.3	50.1	49.0	+ 4.1	+ 2.6	3.8
Total North America	596.8	551.8	551.5	549.1	541.0	- 1.0	- 0.4	42.3
Latin America	30.4	39.2	42.3	49.1	53.0	+ 5.7	+ 6.2	4.2
Total Western Hemisphere	627.2	591.0	593.8	598.2	594.0	- 0.5	+ 0.1	46.5
Western Europe								
Austria	2.5	3.6	4.4	4.3	3.8	+ 4.3	+ 1.0	0.3
Belgium & Luxembourg	4.2	9.6	9.9	10.3	10.3	+ 9.5	+ 1.5	0.8
Denmark	-	-	-	-	-	-	-	-
Finland	-	0.7	0.8	0.8	0.8	*	+ 4.1	0.1
France	9.3	17.0	20.9	23.3	23.2	+ 9.6	+ 6.4	1.8
Greece	-	-	-	-	-	-	-	-
Iceland	-	-	-	-	-	-	-	-
Republic of Ireland	-	-	-	0.3	0.5	*	*	-
Italy	12.3	18.0	22.5	22.9	22.2	+ 6.1	+ 4.3	1.7
Netherlands	19.1	33.2	32.6	33.1	31.5	+ 5.1	- 1.1	2.5
Norway	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-
Spain	0.1	1.3	1.5	1.4	1.7	+ 38.2	+ 5.5	0.2
Sweden	-	-	-	0.1	0.1	*	*	*
Switzerland	@	0.5	0.7	0.8	0.9	+ 54.6	+ 10.7	0.1
Turkey	-	-	-	-	-	-	-	-
United Kingdom	11.2	32.9	37.9	41.9	41.3	+ 13.9	+ 4.7	3.2
West Germany	13.0	34.4	41.7	46.2	45.2	+ 13.3	+ 5.6	3.5
Yugoslavia	0.9	2.2	1.7	2.3	3.4	+ 14.1	+ 9.2	0.3
Cyprus/Gibraltar/ Malta	-	-	-	-	-	-	-	-
Total Western Europe	72.6	153.4	174.6	187.7	184.9	+ 9.8	+ 3.8	14.4
Middle East	19.0	26.2	30.1	31.0	34.1	+ 6.0	+ 5.4	2.7
Africa	1.5	4.3	11.1	16.5	17.5	+ 27.8	+ 32.6	1.4
South Asia	5.4	8.1	9.7	6.4	5.1	- 0.7	- 9.0	0.4
South East Asia	2.3	4.1	9.5	6.4	7.1	+ 11.9	+ 11.3	0.5
Japan	3.6	7.7	15.8	19.3	22.1	+ 19.9	+ 23.4	1.7
Australasia	1.5	4.9	7.8	9.7	9.8	+ 20.6	+ 14.8	0.8
U.S.S.R.	159.0	230.0	289.2	307.0	328.0	+ 7.5	+ 7.4	25.6
Eastern Europe	33.3	51.3	60.0	61.5	64.0	+ 6.8	+ 4.5	5.0
China	3.3	8.7	11.7	12.4	11.7	+ 13.5	+ 6.1	0.9
Total Eastern Hemisphere	301.5	498.7	619.5	656.9	684.3	+ 8.5	+ 6.5	53.5
World (excl.U.S.S.R E.Europe & China)	733.1	799.7	852.4	874.2	874.6	+ 1.8	+ 1.8	68.4
World	928.7	1089.7	1223.3	1255.1	1278.3	+ 3.2	+ 3.2	100.0

Note *Greater than 300%
@Less than 0.05 million tonnes oil equivalent

Source BP statistical review of the World oil industry 1980

WORLD OIL CONSUMPTION

(Million Tonnes)

Country/Area	1970	1975	1979	1980	Percentage Yearly Change 1980 over 1970	Percentage Yearly Change 1980 over 1975	1980 share of Total
U.S.A.	694.5	765.9	868.0	791.4	+ 1.3	+ 0.7	26.4
Canada	73.0	83.1	90.1	87.5	+ 1.8	+ 1.1	2.9
Total North America	767.6	849.0	958.1	878.9	+ 1.4	+ 0.7	29.3
Latin America	134.9	176.0	214.2	222.1	+ 5.1	+ 4.8	7.4
Total Western Hemisphere	902.5	1025.0	1172.3	1101.0	+ 2.0	+ 1.4	36.7
Western Europe							
Austria	9.1	10.7	12.5	12.1	+ 2.9	+ 2.5	0.4
Belgium & Luxembourg	27.9	26.5	27.6	27.0	- 0.3	+ 0.4	0.9
Denmark	18.4	15.7	15.9	13.2	- 3.2	- 3.3	0.4
Finland	10.8	11.9	13.3	12.8	+ 1.7	+ 1.4	0.4
France	94.3	110.4	118.3	111.1	1.7	0.1	3.7
Greece	6.7	9.9	12.4	12.5	+ 6.4	4.7	0.4
Iceland	0.6	0.6	0.6	0.5	-	- 0.9	-
Republic of Ireland	4.1	5.2	6.3	5.7	+ 3.4	+ 1.9	0.2
Italy	87.3	94.5	103.2	98.1	1.2	0.8	3.3
Netherlands	36.5	34.8	41.3	39.2	0.7	+ 2.4	1.3
Norway	8.3	8.0	9.0	8.2	- 0.2	+ 0.3	0.3
Portugal	4.6	6.8	8.1	8.5	+ 6.3	+ 4.4	0.3
Spain	28.1	42.7	49.1	50.7	+ 6.1	3.5	1.7
Sweden	29.9	26.6	28.4	24.6	- 1.9	- 1.5	0.8
Switzerland	12.5	12.5	12.9	12.8	+ 0.3	+ 0.5	0.4
Turkey	7.7	13.4	14.7	17.2	+ 8.3	+ 5.0	0.6
United Kingdom	103.6	92.0	94.5	80.6	- 2.5	- 2.6	2.7
West Germany	128.6	128.9	147.0	131.1	+ 0.2	+ 0.3	4.4
Yugoslavia	7.0	12.2	15.8	15.1	+ 8.0	+ 4.3	0.5
Cyprus/Gibraltar/ Malta	1.0	1.1	1.5	1.5	+ 3.6	6.1	-
Total Western Europe	627.0	664.4	732.4	682.5	+ 0.9	+ 0.5	22.7
Middle East	49.5	66.8	75.4	82.0	+ 5.2	+ 4.2	2.7
Africa	42.1	51.5	65.9	71.9	+ 5.5	+ 6.9	2.4
South Asia	26.8	30.1	36.7	38.4	+ 3.7	+ 5.0	1.3
South East Asia	59.6	81.2	119.2	121.6	+ 7.4	8.4	4.1
Japan	199.1	244.0	265.1	240.9	+ 1.9	+ 0.3	8.0
Australasia	29.7	35.1	38.1	36.5	+ 2.1	+ 0.8	1.2
U.S.S.R.	263.0	375.1	427.0	436.0	+ 5.2	+ 3.1	14.6
Eastern Europe	54.2	83.3	101.1	102.6	+ 6.6	+ 4.3	3.4
China	28.2	68.3	91.1	88.0	+12.1	+ 5.2	2.9
Total Eastern Hemisphere	1379.2	1699.8	1952.0	1900.4	3.3	+ 2.3	63.3
World (excl. U.S.S.R., E.Europe & China)	1936.3	2198.1	2505.1	2374.8	+ 2.1	+ 1.6	79.1
World	2281.7	2724.8	3124.3	3001.4	+ 2.8	+ 2.0	100.0

Source :- BP Statistical review of the world oil industry 1980.

MAIN PRODUCT CONSUMPTION (INCLUDING BUNKERS)

(Million Tonnes)

Country/Area	1970	1975	1979	1980	Yearly Change 1980 over 1970	Yearly Change 1980 over 1975
U.S.A.						
Gasolines	272.7	304.5	323.5	305.5	+1.1%	+0.1%
Middle Distillates	170.7	190.0	231.2	205.5	+1.9%	+1.6%
Fuel Oil	114.6	129.4	148.5	131.2	+1.4%	+0.3%
Others	136.6	142.0	164.8	149.2	+0.9%	+1.0%
Total	694.6	765.9	868.0	791.4	+1.3%	+0.7%
Canada						
Gasolines	22.2	29.0	33.8	32.1	+3.8%	+2.1%
Middle Distillates	23.2	26.1	27.1	27.1	+1.8%	+1.2%
Fuel Oil	16.4	16.1	15.0	14.4	+1.3%	+2.2%
Others	11.2	11.9	14.2	13.3	+1.9%	+2.4%
Total	73.0	83.1	90.1	87.5	+1.8%	+1.1%
Western Europe						
Gasolines	104.1	126.8	148.7	141.8	+3.2%	+2.3%
Middle Distillates	202.2	222.9	254.6	235.5	+1.5%	+1.1%
Fuel Oil	236.9	230.0	231.8	212.7	-1.1%	-1.6%
Others	83.8	84.7	97.3	92.5	+1.0%	+1.8%
Total	627.0	664.4	732.4	682.5	+0.9%	+0.5%
Japan						
Gasoline	30.4	39.4	46.2	42.8	+3.5%	+1.7%
Middle Distillates	32.1	50.4	61.5	59.4	+6.4%	+3.3%
Fuel Oil	111.7	125.1	123.7	104.6	-0.7%	-3.5%
Others	24.9	29.1	33.7	34.1	+3.2%	+3.2%
Total	199.1	244.0	265.1	240.9	+1.9%	-0.3%
Australasia						
Gasolines	9.6	12.2	13.6	13.5	+3.5%	+2.0%
Middle Distillates	7.4	9.7	10.7	10.4	+3.4%	+1.3%
Fuel Oil	8.3	8.6	8.9	7.9	-0.5%	-1.5%
Others	4.4	4.6	4.9	4.7	+0.7%	+0.8%
Total	29.7	35.1	38.1	36.5	+2.1%	+0.8%
Rest of World (excl. USSR, E.Europe & China)						
Gasolines	53.3	78.5	92.4	97.2	+6.2%	+4.4%
Middle Distillates	93.7	129.1	164.3	173.2	+6.4%	+6.1%
Fuel Oil	120.2	140.5	185.3	192.6	+4.8%	+6.5%
Others	45.7	57.5	69.4	73.0	+4.8%	+4.9%
Total	312.9	405.6	511.4	536.0	+5.5%	+5.7%
WORLD (excl. USSR, E.Europe & China)						
Gasolines	492.3	590.4	658.2	632.9	+2.5%	+1.4%
Middle Distillates	529.3	628.2	749.4	711.7	+3.0%	+2.5%
Fuel Oil	608.1	649.7	713.2	663.4	+0.9%	+0.4%
Others	306.6	329.8	384.3	366.8	+1.8%	+2.1%
Total	1936.3	2198.1	2505.1	2374.8	+2.1%	+1.6%

Source:- B.P.Statistical Review - 1980.

WORLD OIL PRODUCTION, CONSUMPTION AND RELATIVE DEFICIT/SURPLUS IN EACH REGION/COUNTRY DURING 1980 & 1973.

(Million Tonnes)

Country/Region.	1980 Produ-ction	1980 Consum-ption.	Deficit-Surplus.+	% extent of depend-dence.	1973 Produ-ction	1973 Consum-ption.	Deficit-Surplus+	%extent of dependence
1.	2.	3.	4.	5.	6.	7.	8.	9.
North America (including Canada)	563.9	878.9	-315.0	- 35.8	621.3	901.7	-280.4	-31.1
Latin America	296.6	222.1	+ 74.5	33.5	272.1	168.3	+103.8	61.7
West Europe	126.0	682.5	-556.5	-81.5	22.6	748.9	-726.3	-97.0
Middle East	927.0	82.0	+845.0	1030.5	1052.5	62.2	+990.3	1592.1
Africa	296.9	71.9	+225.0	312.9	290.0	49.5	+240.5	485.9
South East Aaia (excluding India)	105.1	121.6	-16.5	-13.6	82.0	77.6	- 4.4	- 5.7
India	9.4	30.2	-20.8	-68.9	7.4	23.7	-16.3	-68.9
Japan	0.4	240.9	-240.5	-99.8	0.7	269.1	-268.4	-99.7
Australasia	19.2	36.5	-17.3	-47.4	18.5	34 .8	- 16.3	46.8
U.S.S.R.	603.0	436.0	+375.7	86.2	429.0	325.7	+103.3	31.7
Eastern Europe	18.7	102.6	- 83.9	-81.8	19.2	75.1	-55.9	-74.4
China	105.8	88.0	+ 17.8	20.2	54.8	53.8	+ 1.0	1.9
T O T A L	3074.0	3001.4	+ 72.6	2.4	2871.7	2798.0	+ 73.7	2.6

Source :- B.P. Statistical Review on World Oil Industry - 1980.

Country-wise Imports & Exports of Crude Oil & POL Products-1980
(Million Tonnes)

Country/Area	Imports		Exports	
	Crude	Products	Crude	Products
1.	2.	3.	4.	5.
U.S.A.	259.3	77.7	14.1	15.0
Canada	29.3	2.1	10.1	12.2
Latin America	131.2	15.5	93.2	103.5
Western Europe	514.9	74.0	15.3	7.9
Middle East	4.5	9.9	815.2	54.1
North Africa	3.5	2.0	131.0	9.2
West Africa	0.5	4.9	116.6	3.9
East and South Africa	21.3	1.8	-	0.5
South Asia	23.5	7.2	-	1.9
South East Asia	81.1	19.0	66.3	17.3
Japan	220.2	25.6	-	0.4
Australasia	9.9	8.1	-	0.9
U.S.S.R., E. Europe & China	8.1	9.6	55.7	43.9
Destination not known*	10.2	13.3	-	-
TOTAL	1317.5	270.7	1317.5	270.7

* Includes changes in the quantity of oil in transit, transit losses, minor movements not otherwise shown, unidentified military use etc.

Source :- BP statistical review of the World Oil Industry 1980.

Country-wise Export of Crude Oil by Main OPEC Producers - 1979.

(Tonnes)

Country	Algeria	Indonesia	Iran*	Kuwait	Libya	Nigeria@@	Qatar	Saudi Arabia	UAE@@@	Venezuela
NORTH AMERICA	28.02	16.5	15.8	1.6	36.0	37.2	1.0	87.9	13.9	25.9
Of which :										
Canada	0.02	-		0.9	-	-	-	-	-	9.2
U.S.A.	28.0	16.5		0.7	36.0	37.2	1.0	-	13.9	16.7
LATIN AMERICA	0.8	3.5	18.7	2.9	6.7	14.7	2.1	15.9	2.1	34.6
Of which :										
Argentina	-	-		-	-	-	-		-	0.3
Bahamas	-	-		-	3.2	-	-		-	
Brazil	0.2	-		2.5	0.3	-	0.7		-	1.5
Chile	-	-		-	-	-	-		-	0.7
Colombia	-	-		-	-	-	-		-	-
Mexico	-	-		-	-	-	-		-	0.03
Netherlands A.	-	-		-	-	-	1.3		-	21.0
Jamaica	-	-		-	-	-	-		-	1.1
Puerto Rico	-	-		-	-	-	-		-	3.1
Panama	-			-	-	-	-		-	0.4
Uruguay	-	-		0.3	-	-	-		-	-
Trinidad & Tobago	-	3.5		-	0.1	-	-		-	-
WESTERN EUROPE	18.4	0.4	48.1**	40.7	51.8	37.3	10.3	183.2	34.7	8.9
Of which :										
Austria	-	-		-	0.9	-	-		-	
Belgium	0.3	-		-	0.4	0.3	-		-	0.6
Denmark	-	-		-	0.1	0.2	-		-	
France	5.6	0.1		4.4	5.7	8.9	2.3		10.0	0.8
Germany(FR)	7.0	-		0.5	14.9	6.9	0.5		4.5	1.1
Ireland	-	-		3.3	-	-	-		-	
Italy	1.3	0.06		10.1	17.8	2.6	1.5		1.6	1.1
Netherlands	0.7	0.2		13.0	2.3	12.1	3.5		11.9	0.4
Spain	1.3	-		0.9	4.8	-	-		-	2.1
U.K.	0.7	-		7.9	0.7	3.3	0.2		3.5	1.6
Switzerland	-	-		-	0.3	-	-		-	-
Norway	-	-		-	-	0.9	-		-	0.2
Sweden	-	-		-	-	0.9	-		-	0.6
EASTERN EUROPE	0.6	-		Neg.	3.3	-	-	-	1.0	0.05
MIDDLE EAST	-	-		1.1	0.05	-	0.4	14.3	-	
Yaman	-	-		0.5		-	0.4	-	-	
AFRICA	0.2	-	1.4	1.9	0.1	2.2	0.3	4.3	0.8	0.8
ASIA & FAR EAST	-	34.7	35.8@	54.3	0.4	-	10.3	129.8	29.3	0.4
Of which :										
Japan	-	32.2		28.6	0.3	-	7.1		26.2	0.4
Malaysia/Singapore	-	0.8		8.1	-	-			-	-
Phillipines	-	1.1		1.4	-	-			-	-
Taiwan	-	-		7.6	-	-			-	-
Thailand	-	-		-	-	-	2.3		-	-
Korea	-	-		8.0	-	-			-	-
OCEANIA	-	1.1	0.6	1.6	-	-	-	5.5	0.3	-
Of which:										
Australia	-	0.9		1.3	-	-			0.3	-
Newzeland	-	-		0.3	-	-			-	-
Unspecified	-	-		-	-	-	0.3		-	-
GRAND TOTAL	48.0	56.2	120.4	104.2	98.3	91.4 (110.5)	24.7	440.9	82.1 (71.7)	70.7

* Break up is not available. ** Including Eastern Europe. @ Including Middle East. @@ Relates to 1978. @@@ Relates to 1979. Source : OPEC Annual Stats.Bulletin-1979.
Note: Exports by destinations from Iraq are not available.

OIL REVENUES OF MAIN OPEC MEMBER COUNTRIES.

(Billion Dollar)

OPEC MEMBER COUNTRIES.	1972	1974	1977	1978	1979(R)	1980(P)
1.	2.	3.	4.	5.	6.	7.
	GROSS OIL REVENUES.					
Saudi Arabia	3.1	22.6	33.6	34.6	55.5	104.2
Iraq	0.6	5.7	9.8	9.6	20.3	26.5
Iran	2.4	17.5	21.6	20.9	20.8	11.6
Kuwait	1.7	7.0	7.9	8.0	16.0	18.3
Qatar	0.3	1.6	2.0	2.0	3.1	5.2
U. A. E.	0.5	5.5	9.0	8.0	12.4	19.2
Algeria	0.7	3.7	4.3	4.6	7.2	11.7
Libya	1.6	6.0	8.9	8.6	14.8	23.2
Nigeria	1.2	8.9	8.6	8.2	16.1	20.0
Venezuela	1.9	8.7	6.1	5.6	12.0	18.9
Indonesia	0.4	3.3	4.7	4.8	8.1	10.5
TOTAL	14.4	90.5	122.5	114.9	186.3	269.3
	REVENUES PER BARREL OF EXPORTS				($/bbl)	
Saudi Arabia	1.44	7.78	11.75	11.70	17.00	29.68
Iraq	1.51	8.68	12.20	10.96	19.44	30.17
Iran	1.36	8.41	11.83	12.73	23.74	28.76
Kuwait	1.36	7.99	14.00	10.44	18.26	31.25
Qatar	1.45	8.79	13.70	10.99	20.38	30.09
U. A. E.	1.43	8.87	12.33	12.18	19.48	30.86
Algeria	1.88	11.28	10.72	11.47	21.95	35.52
Libya	1.97	10.97	12.19	11.78	22.33	37.29
Nigeria	1.87	11.08	13.15	12.48	21.02	28.76
Venezuela	1.72	8.51	8.36	8.08	16.44	28.69
Indonesia	1.24	7.53	8.59	9.39	17.09	23.91
TOTAL	1.53	8.49	11.53	11.41	19.02	30.14

R = Revised. P = Provisional.

Source : Petroleum Economist/Petroleum Intelligence Weekly.

OFFICIAL DEVELOPMENT ASSISTANCE FROM OECD AND OPEC MEMBERS - 1978 - 1980

	Amount (Million of US $)			As percentage of GNP		
	1978	1979	1980*	1978	1979	1980
OECD						
Italy	375	279	600	0.14	0.09	0.15
New Zealand	55	62	63	0.34	0.30	0.27
United Kingdom	1456	2067	1766	0.48	0.52	0.34
Finland	55	86	106	0.17	0.21	0.22
Austria	166	127	174	0.29	0.19	0.22
Japan	2215	2638	3300	0.23	0.26	0.32
Australia	588	620	653	0.54	0.52	0.47
Canada	1060	1042	1035	0.52	0.47	0.42
France	2705	3358	4041	0.57	0.59	0.62
Netherlands	1074	1404	1577	0.82	0.93	0.99
United States	5664	4567	7091	0.27	0.19	0.27
Norway	355	428	472	0.90	0.93	0.82
Belgium	536	631	575	0.55	0.56	0.48
Germany, Fed.Rep.	2347	3350	3512	0.37	0.44	0.43
Denmark	388	448	464	0.75	0.75	0.72
Sweden	783	956	928	0.90	0.94	0.76
Switzerland	173	205	246	0.20	0.21	0.24
Total	19994	22267	26603	0.35	0.34	0.37
OPEC						
Nigeria	38	31	42	0.06	0.04	0.05
Algeria	44	272	83	0.18	0.87	0.21
Iran	278	21	29	0.37	0.03	0.03
Venezuela	109	82	130	0.27	0.17	0.23
Iraq	172	868	854	0.76	2.60	2.19
Saudi Arabia	1470	2298	3033	2.27	3.01	2.60
Libya	169	108	281	0.99	0.46	0.92
Kuwait	1268	1053	1186	7.36	4.08	3.87
U.A.E.	684	1113*	1062	4.82	6.17	3.96
Qatar	106	277	299	3.56	5.89	4.50
Total OAPEC	3913	5989	6798	2.39	2.80	2.34
Total OPEC	4338	6123	6999	1.29	1.49	1.36

* = Estimated.

Source : World Development Report - 1981.

KEY CRUDE OIL PRICE POSTINGS AROUND THE WORLD ($/Barrel)

Crude	Gravity	1970 Pre-Nov. 14	1970 Nov. 14	1971 Feb. 15	1971 June 1	1971 July 1	1971 Oct. 1	1972 Jan. 20	1972 March 18	1972 April 1	1972 July 1	1973 Jan. 1	1973 April 1	1973 June 1
Arab. Light	34	1.80	1.80	2.180	2.285			2.479				2.591	2.742	2.898
Arab. Berri	39			2.255	2.360			2.554				2.666	2.817	2.973
Arab. Medium	31	1.590	1.680	2.085	2.187			2.373				2.482	2.626	2.776
Arab. Heavy	27	1.470	1.560	1.960	2.064			2.239				2.345	2.481	2.623
Iran. Light	34	1.790	1.790	2.170	2.274			2.467				2.579	2.729	2.884
Iran. Heavy	31	1.630	1.720	2.125	2.228			2.417				2.527	2.674	2.826
Iran. Darius	34	1.630	1.630	2.160	2.264			2.456				2.567	2.716	2.871
Kuwait	31	1.590	1.680	2.085	2.187			2.373 b)				2.482	2.626	2.776
Abu Dhabi -														
Umm Shaif	37	1.860	1.860	2.225	2.331			2.529				2.642	2.796	2.955
Murban	39	1.880	1.880	2.235	2.341			2.540				2.654	2.823	2.968
Zakum	40											2.687		
Iraq - Basrah	35	1.720	1.720	2.155	2.259			2.451				2.562	2.711	2.865
Qatar - Marine	36	1.830	1.830	2.200	2.305			2.501				2.614	2.766	2.923
Qatar - Dukhan	40	1.930	1.930	2.280	2.387			2.590				2.705	2.862	3.025
Oman	34											2.634		
MEDITERRANEAN & AFRICAN CRUDES														
Iraq Kirkuk	36	2.410	2.410		3.211 d)	3.188	3.166	3.136 a)	3.402 g)	3.373	3.353	3.484	3.712	3.921
Libyan Light	40	2.530	2.530		3.447 d)	3.423	3.399	3.386 a)	3.673 g)	3.642	3.620	3.777	4.024	4.252
Nigerian Medium	26	2.280	2.280		3.104 d)	3.087	3.070	3.068 a)	3.328 e)	3.306	3.291	3.440	3.659	3.868
Nigerian Light	37	2.420	2.420		3.212 d)	3.195	3.178	3.176 a)	3.446 e)	3.424	3.409	3.561	3.787	4.003
VENEZUELAN CRUDES														
Tia Juana	26	2.0114	2.0114	2.0164 a)	2.590 c)			2.901 a)				3.0596	3.355 f)	
Tia Juana	31	2.193	2.193	2.1984	2.665 c)			2.035 a)				3.215	3.575 f)	
Officina	35	2.339	2.339	2.344 a)	2.725 c)			3.211 a)				3.362	3.768 f)	

a) Effective Jan. 1.
b) Effective Jan. 2.
c) Effective March, 18.
d) Effective March, 20.
e) Effective Feb. 15.
f) Effective March, 13.
g) Effective Jan. 20.

KEY CRUDE OIL PRICE POSTINGS AROUND THE WORLD ($/Barrel)

Crude	Gravity	1973 July 1	1973 Aug. 1	1973 Oct. 1	1973 Oct. 16	1973 Nov. 1	1973 Dec. 1	1974 Jan. 1	1974 Nov. 1
Saudi Arabia									
Arab Light	34	2.955	3.066	3.011	5.119	5.176	5.036	11.651	11.251
Arab Berri	39	3.030	3.141	3.086	5.682	5.741	5.596	12.351	11.951
Arab Medium	31	2.830	2.936	2.884	4.903	4.957	4.822	11.561	11.161
Arab Heavy	27	2.674	2.755	2.725	4.633	4.684	4.557	11.441	11.041
Iran									
Iran. Light	34	2.940	3.050	2.995	5.341	5.401	5.254	11.875	11.475
Iran. Heavy	31	2.881	2.989	2.936	4.991	5.046	5.006	11.635	11.235
Iran. Darius	34	2.927	3.037	2.983	5.071	5.127	4.988	11.616	11.216
Kuwait									
Kuwait	31	2.830	2.936	2.884	4.903	4.957	4.822	11.545	11.145
Abu Dhabi									
Umm Shaif	37	3.013	3.126	3.110	5.537	5.599	5.446	12.086	11.686
Murban	39	3.026	3.140	3.144	6.045	6.113	5.944	12.636	12.236
Zakum	40			3.185	5.965	6.031	5.864	12.566	12.165
Iraq Basrah	35	2.921	3.031	2.977	5.061	5.117	4.978	11.672	11.272
Qatar									
Marine	36	2.980	3.092	3.037	5.503	5.563	5.412	12.013	11.613
Dukhan	40	3.084	3.200	3.143	5.834	5.899	5.737	12.414	12.014
Oman : Oman	34			3.058	5.738			12.298	12.298
MEDITERRANEAN & AFRICAN CRUDES									
Iraq Kirkuk	36	4.070	4.223	4.243	7.213	7.293	7.096		
Libyan Light	40	4.416	4.582	4.604	8.925	9.061		15.768	14.600
Nigerian Medium	26	3.997	4.148	4.147	8.072c)	8.163		14.481	11.453
Nigerian Light	37	4.135	4.291	4.287	8.310c)	8.404		14.691	11.663
VENEZUELAN CRUDES									
Tia Juana	26		3.7667	4.095a)	4.2332b)	6.5693	6.7697	11.797	12.333 d)
Tia Juana	31		4.0137	4.3635a)	4.5108b)	6.8712	7.0700	12.097	12.647 d)
Oficina	35		4.2306	4.5993a)	4.7546b)	7.1105	7.3124	12.337	12.898 d)

a) Effective Sept. 1
b) Effective Oct. 1
c) Effective Oct. 20
d) W.e.f. July 1.

KEY CRUDE OIL PRICE POSTINGS AROUND THE WORLD - ($/Barrel)

Crude	Gravity	1975 Jan. 1	1975 Oct. 1	1976 July 1	1976 Oct. 1	1977 Jan. 1	1977 July 1	1978 Jan. 1	1978 May 1
Arab Light	34		12.376			13.000	13.660		
Arab Berri	39		12.768			13.420	14.220		
Arab Medium	31		12.184	12.129 c)		12.570	13.250		
Arab Heavy	27		11.978	11.871 c)		12.230	12.920		
Iran. Light	34		12.495			13.774			
Iran. Heavy	31		12.360	12.258 b)	12.183 d)	13.430			
Iran. Darius	34		12.344						
Kuwait	31		12.151			13.301			
Abu Dhabi -									
Umm Shaif	37	11.446	12.575			13.200	14.020		
Murban	39	11.686	12.815			13.440	14.260		
Zakum	40	11.586	12.715			13.340	14.160		
Iraq - Basrah	35		12.400 a)				13.624		
Qatar Marine	36		12.540			13.979			
Qatar Dukhan	40		12.740			14.183			
Oman	34						13.677 e)		
MEDITERRANEAN & AFRICAN CRUDES									
Iraq Kirkuk	36								
Libyan Light	40		16.060	16.350		18.250	17.780	18.340	18.170
Nigerian Medium	26		13.499	13.610	13.780	14.609	14.534f)	14.443	14.318 f)
Nigerian Light	37		13.709	13.820	13.990	15.291	15.523f)	15.182	14.943 f)
VENEZUELAN CRUDES									
Tia Zuana	26		13.436	13.185					
Tia Zuana	31		14.091	13.828					
Oficina	35	14.402	14.402	14.133					

a) Nctional price. b) Effective Feb. 14. c) Effective June, 1.

d) Effective June, 9. e) Effective Feb. 1. f) Effective April, 1.

KEY CRUDE OIL PRICE POSTINGS AROUND THE WORLD ($/Barrel)

Crude	Gravity	1979 Jan. 1	Feb. 21	April 1	May 17	June 1	July 1	Nov. 1	Dec. 17	1980 Jan. 1
Arab. Light	34	14.343		15.461		19.355		25.806		27.957
Arab. Berri	39	15.118		17.710	19.215 b)	22.929		26.582		29.591
Arab.Medium	31	13.856		15.110		18.868		25.319		27.370
Arab.Heavy	27	13.453		14.670		18.465		24.916		26.882
Iran. Light	34	14.462								
Iran.Heavy	31	14.043								
Iran.Darius	34									
Kuwait	31									
Abu Dhabi :										
Umm Shaif	37	14.820	15.720a)	18.151	19.011		22.968	29.419		31.570
Murban	39	15.160	16.258a)	18.387	19.247		23.183	29.634		31.785
Zakum	40	15.060	16.161a)	18.290	19.151		23.075	29.527		31.677
Iraq Basrah	34									
Qatar Marine	36	14.806								
Qatar Dukhan	40	15.086								
Oman	34									
MEDITERRANEAN & AFRICAN CRUDES										
Iraq Kirkuk	36									
Libyan light	40	19.250	20.210	21.200h) 24.280	25.280c)	25.830d)	31.620	35.530e)	40.800g)	47.470
Nigerian Medium	26	15.073								
Nigerian Light	37	15.732		19.926	22.722c)		25.574	28.722f)	32.960	32.960

a) Effective Feb. 15.
b) Effective May, 15.
c) Effective May, 16.
d) Effective May, 27.
e) Effective Oct. 15.
f) Effective Nov. 6.
g) Effective Dec. 13.
h) Effective March, 3.

OFFICIAL SELLING PRICES OF KEY OPEC CRUDES ($/Barrel)

Crude	Gravity	Effective Dates											
		1974	1975		1976				1977		1978		
		Nov. 1	Jan. 1	Oct. 1	Feb. 14	June 1	July 1	Oct. 1	Jan. 1	July 1	Jan. 1	April 1	
Arab. Light	34	10.463		11.510					12.090	12.704			
Arab. Berri	39	11.114		11.874					12.480	13.225			
Arab. Medium	31	10.380		11.331		11.280			11.690	12.323			
Arab. Heavy	27	10.268		11.140		11.040			11.370	12.016			
Iran. Light	34	10.67		11.62					12.81				
Iran. Heavy	31	10.45		11.49	11.40	11.33 b)			12.49				
Kuwait	31	10.365		11.300		11.230			12.370		12.270		
Abu Dhabi -													
Umm Shaif	37	10.868	10.645	11.695					12.280	13.040			
Murban	39	11.379	10.868	11.918					12.500	13.260			
Zakum	40	11.313	10.775	11.825					12.410	13.170			
Iraq Basrah	35	10.48		11.53			11.43		12.58				
Qatar Marine	36	10.80		11.66					13.00				
Qatar Dukhan	40	11.17		11.85					13.19				
MEDITERRANEAN & AFRICAN CRUDES													
Iraq Kirkuk	36						11.65		12.77				
Libyan Light	40			12.32			12.62		13.92	14.20	13.97	13.85	
Nigerian Light	37			12.70			13.10	13.25	14.31	14.61c)	14.31	14.10	
Nigerian Medium	26						12.55	12.52	13.71		13.66	13.55	
Sumatra Light	34	12.60		12.80					13.55				
VENEZUELAN CRUDES													
Tia Zuana	26			11.12a)	11.22c)		11.32	11.65	12.72	12.82c)		12.70	
Tia Zuana	31			12.30a)				12.35	13.54				
Oficina	35			12.80a)					13.99				

a) Effective Jan. 1.
b) Effective June, 9.
c) Effective Oct. 1.
c) Effective April, 1.

OFFICIAL SELLING PRICES OF KEY OPEC CRUDES ($/Barrel)

Crude	Gravity	(Effective Dates) 1 9 7 9 Jan. 1	Feb. 15	March 3	April 1	May 17	June 1	July 1	Oct. 20	Nov. 1	Dec. 17
Arab. Light	34	13.339			14.546		18.000			24.00c	
Arab. Berri	39	14.060			16.470	17.870d)	21.324			24.721	
Arab. Medium	31	12.886			14.052		17.547			23.547	
Arab. Heavy	27	12.511			13.643		17.172			23.172	
Iran. Light	34	13.45			16.57	17.17d)	18.47	22.00	23.50i)		28.50m)
Iran. Heavy	31	13.06			16.04	16.64d)	17.74	19.90	22.77i)		27.77m)
Kuwait	31	12.830	14.030a)		15.800	16.40d)		19.490	21.43i)	25.500	
Abu Dhabi -											
Umm Shaif	37	13.780	14.620		16.880	17.68		21.360		27.360	
Murban	39	14.100	15.120		17.100	17.90		21.560		27.560	
Zakum	40	14.010	15.030		17.010	17.81		21.460		27.460	
Iraq Basrah	35	13.21			15.60	16.20c)	16.94	19.96	21.96	23.96	25.96m)
Qatar Marine	36	13.77	14.71		16.85	17.65		21.23		27.23	
Qatar Dikhan	40	14.03	15.05		17.04	17.84		21.42		27.42	
Oman	34	13.94									
MEDITERRANEAN CRUDES											
Iraq Kirkuk	36	13.41			15.82	16.42c)	17.16	22.00	22.18	24.18	26.18m)
Libyan Light	40	14.69	(15.37)b) (16.07)m)		18.25	18.95e)	21.26f)	23.45	26.22j)		29.95n)
Nigerian Light	37	14.80			18.50	20.96e)		23.47		26.24k)	29.97
Nigerian Medium	26	14.23			17.50	20.00e)		22.00		24.77k)	28.70
INDONESIAN CRUDES											
Sumatra Light	34	13.90			15.65	16. e)	18.25g)	21.12		23.501)	25.50
VENEZUELAN CRUDES											
Tia Zuana	26	13.36			15.76	16.36e)		19.31	19.48i)		23.48p)
Tia Zuana	31	14.22			16.70	17.30e)		20.90			24.90p)
Oficina	34	14.69			17.21	17.81		22.45			26.75p)

a) Effective Feb. 20. b) Effective Feb. 21. c) Effective May, 1. d) Effective May, 15.
e) Effective May, 16. f) Effective May, 27. g) Effective June, 15. h) Effective July, 15.
i) Effective Oct. 1. j) Effective Oct. 15. k) Effective Nov. 6. l) Effective Nov. 17.
m) Effective Dec. 1. n) Effective Dec. 13. p) Effective Dec. 14.

OFFICIAL SELLING PRICES OF KEY OPEC CRUDES ($/Barrel)

Crude	Type	(Effective dates) 1980 Jan.1	Feb.1	April 1	May 1	July 1	Aug.1	Sept.1	Nov.1	1981 Jan.1
Arab. Light	34	26.000		28.00			30.00		32.00	
Arab. Berri	39	27.520		29.52			31.52		33.52	
Arab. Medium	31	25.454		27.454			29.454		31.454	
Arab. Heavy	27	25.000		27.00			29.00		31.00	
Iran. Light	34	30. 00	31.00	35.00						37.00
Iran. Heavy	31	29.27	30.27	34.00						36.00
Kuwait	31	27.500			29.50	31.50				35.50
Abu Dhabi -										
Umm Shaif	37	29.360			31.36			33.36		36.36
Murban	39	29.560			31.56			33.56		36.56
Zakum	40	29.460			31.46			33.46		36.46
Iraq Basrah	35	27.96			29.96	31.96				35.96
Qatar Marine	36	29.23			31.23	33.23				37.23
Qatar Dukhan	40	29.42			31.42	33.42				37.42
Oman	34					32.20 c)	33.40			39.50
MEDITERRANEAN & AFRICAN CRUDES										
Iraq Kirkuk	36	28.18				32.18				36.18
Libyan Light	40	34.67			36.67	37.00				40.00
Nigerian Light	37	29.97		34.69	36.69 b)	37.00				40.00
Nigerian Medium	26	28.70		33.42	35.42 b)	35.73				38.70
INDONESIAN CRUDES										
Sumatra Light	34	27.50								35.00
VENEZUELAN CRUDES										
Tia Zuana	26	25.20	26.78 a)							32.88
Tia Zuana	31	26.90	28.90 a)							36.00
Oficina	35	28.75	30.75 a)							38.06

a) Effective Feb. 6. b) Effective May, 22. c) Effective June, 30.

OPEC'S WEIGHTED AVERAGE PRICES OF CRUDE OIL

Short-term trend in weighted average Official Prices of OPEC Crude Vs. their Spot Assessment (June 1980 to September 1981)

Period	OPEC's Weighted Average		Difference (+) Premium (-) Discount
	Official Price	Spot Assessment	
19.6.80	30.83	34.80	+3.97
26.6.80	30.83	34.80	+3.97
3.7.80	31.30	34.34	+3.04
2.10.80	31.97	31.32	+1.15
9.10.80	31.97	35.27	+3.30
30.10.80	31.76	37.62	+5.86
7.11.80	31.76	38.78	+7.02
14.11.80	31.79	39.77	+7.98
21.11.80	31.79	41.46	+9.67
28.11.80	31.79	40.07	+8.28
19.12.80	32.65	38.62	+5.97
26.12.80	32.65	39.06	+6.41
9.1.81	34.26	38.93	+4.67
16.1.81	34.34	38.92	+4.28
23.1.81	34.80	38.49	+3.69
30.1.81	34.83	37.55	+2.72
6.2.81	34.83	37.02	+2.19
13.2.81	34.83	36.27	+1.44
20.2.81	34.83	36.27	+1.44
27.2.81	34.83	36.72	+1.89
6.3.81	34.83	36.72	+1.89
13.3.81	34.82	36.58	+1.76
20.3.81	34.83	36.34	+1.51
27.3.81	34.83	36.19	+1.31
3.4.81	34.83	35.90	+1.07
10.4.81	34.82	35.84	+1.02
17.4.81	34.82	35.43	+0.61
24.4.81	34.82	34.34	-0.48
1.5.81	34.82	33.90	-0.92
8.5.81	34.80	32.69	-2.11
15.5.81	34.80	32.68	-2.12
22.5.81	34.80	33.14	-1.66
29.5.81	34.80	32.75	-2.05
5.6.81	34.75	31.84	-2.91
12.6.81	34.77	31.61	-3.16
19.6.81	34.77	31.21	-3.56
26.6.81	34.77	31.07	-3.70
2.7.81	34.77	31.04	-3.73
10.7.81	34.77	31.23	-3.54
17.7.81	34.62	31.66	-2.96
24.7.81	34.62	31.40	-3.22
7.8.81	34.66	31.52	-3.14
14.8.81	34.66	31.81	-2.85
21.8.81	34.66	31.81	-2.85
28.8.81	34.66(34.32)	31.60	-3.06
4.9.81	34.66(34.32)	31.48	-3.18

(Figures in brackets are after allowing discount of $ 4/bbl. on OSP by Nigeria).

DEVELOPMENTS OF LOWEST POSTED PRICES OF POL PRODUCTS AT BANDAR M.HSHR

PRICE AS ON	Light Distillates (US ¢ / US Gallon)				
	Avgas 115/145	Avgas 100/130	Avgas 73	Octane 93	Octane 83
1.1.68	16.0	14.7	12.7	9.3	7.3
1.1.69	"	"	"	"	"
1.1.70	"	"	"	9.0	7.1
1.1.71				"	"
1.1.72	16.9	15.6	13.7	9.9	8.0
1.1.73	17.2	15.9	14.1	10.2	8.3
1.1.74	24.3	23.0	21.0	17.3	15.4
1.1.75	50.6	48.6	47.5	35.9	34.0
1.1.76	53.0	51.3	51.0	38.3	36.4
1.1.77	53.0	51.0	48-0	"	"
1.1.78	58.5	56.5	53.5	41.2	39.0
1.1.79	64.0	61.0	-	44.0	40.5
1.1.80	-	-	-	79.3	76.0
1.1.81	-	-	-	106.3	102.5
16.1.81	-	-	-	"	"
26.1.81	-	-	-	111.8	108.0
15.6.81	-	-	-	109.8	106.0

PRICE AS ON	Middle Distillates (US ¢ /US Gallon)				
	Turbine Fuel 58F	Kerosene	Diesel Index	Indl.Diesel ($/bbl)	Others Light Fuel ($/bbl.)
1.1.68	9.5	8.9	6.8	2.70	1.52
1.1.69	"	"	"	"	1.50
1.1.70	"	"	6.6	2.62	1.42
1.1.71			"	2.70	1.50
1.1.72	10.4	9.8	7.5	3.20	1.95
1.1.73	10.7	10.1	7.8	3.32	2.07
1.1.74	18.6	18.3	15.7	6.16	3.75
1.1.75	33.7	33.4	30.8	12.11	10.05
1.1.76	36.7	36.4	33.6	12.86	10.80
1.1.77	"	"	"	"	10.50
1.1.78	39.6	39.2	36.5	14.35	11.85
1.1.79	43.5	42.5	40.5	-	11.15
1.1.80	77.5	76.5	73.0	-	22.35
1.1.81	110.0	105.5	102.0	-	31.00
16.1.81	"	109.0	104.0	-	"
26.1.81	117.5	113.0	107.5	-	34.0
15.6.81	112.5	110.0	104.5	-	32.95

RETAIL PRICES OF PETROLEUM PRODUCTS IN NEIGHBOURING AND INDUSTRIALLY ADVANCED COUNTRIES DURING MAY/JUNE, 1981.

Country	H.S. (Rs./litre)	S.K.O. (Rs./litre)	H.S.D.O. (Rs./litre)	F.O. (Rs./litre)	L.P.G. (Rs./Kgm)	L.P.G. (Rs./15 Kgm cylinder)
1. Malaysia (KualaLumpur)	3.62	1.70	1.70	2.06	5.29	79.35
2. Srilanka	4.56	1.78	2.71	2.02	2.51	37.65
3. Philippines (Manila)	5.42	3.47	3.33	-	5.72	85.80
4. Japan	6.00	3.37	3.88	-	9.42	141.30
5. Thailand	4.63	2.49	2.89	1.82	4.07	61.05
6. Pakistan	4.15	2.74	2.53	8.29	-	-
7. Yugoslavia	6.82	4.35	6.25	-	3.52	52.80
8. Newzealand	4.39	4.62-4.83	3.17	2.30	8.79	131.85
9. Bangla Desh.	5.89	2.77	2.73	-	-	-
10. Argentina.	4.97	3.06	3.06	0.91	5.80	87.00
11. U.K.	6.18	3.13	6.59	1.72	-	-
12. Italy	5.97	-	2.76	-	4.34	65.10
13. U.S.A.	2.66	2.59	2.44	2.09	-	-
14. India (New Delhi)	5.50(6.07)	1.65 (1.81)	2.67(3.02)	2.50(2.74)	3.04(3.39)	45.43 (50.78)

(Figures in brackets indicate prices after 13th July, 1981 price hike.)

Posted Airfield Prices of Jet -A.I Fuel at Major International Airports as on 1.12.79, 1.3.80, 1.12.80, 1.3.81.

(U.S. $/U.S. Gallon)

	PRICES AS ON.					
	1.12.79	1.3.80	1.6.80	1.12.80	1.3.81	1. 6. 1981.
1.	2.	3.	4.	5.	6.	7.
Australia						
Perth	87.00	116.43	121.05	132.42	140.25	138.49
Sydney	87.00	116,43	121,05	132.42	140.25	138.49
Bahrain	126.50	153.40	159.35	159.35	167.68	167.68*
Belgium						
Brussels	120.00	159.00	164.00	169.00	174.00	174.00
Egypt						
Cairo	153.00	155.20	155.20	155.20	162.77	162.77
Ethopia						
Addisababa	136.48*	156.06*	156.06*	172.48*	182.24*	182.24*
France						
Paris (Orly)	144.29	154.97	151.33	147,14	149.44	150.00
Germany						
Frankfurt	125.25	155,74	157.30	146.15	142.31	152.50
Holland						
Amsterdam	125.00	142.60	143.20	165.00	159.80	159.80
Italy						
Rome	153.00	166.00	165.00	155.00	155.00	145.00
Kenya						
Nairobi	124.99*	144.00	144.00	167.00	172.00	175.00
Lebonon						
Beirut	100.00	185.00	185.00	185.00	185.00	185.00
Malaysia						
Kuala Lumpur	96.00	137.00	137.00	136.72	155.00	155.00
Mauritius						
Plaisance	120.00	140.00	140.00	145.00	150.00	150.00
Singapore						
Paya Lebar	114.75*	137.00*	137.00*	137.00*	152.50	152.50
Switzerland						
Geneva	123.88	155.73	155.60	155.87	155.51	153.36
U.A.E.						
Abu Dhabi	132.00	154.88	161.74	163.97	172.11	172.38
Sharjah	132.00	154.88	161.74	163.97	172.11	172.38
United Kingdom						
London (H)	156.00	161.83	168.02	177.97	177.92	167.27
Kerachi	123.28	123.28	123.28	166.10	173.76	175.50
Kuwait (1)	103.66	113.96	120.64	130.92	136.54	137.86
New York (2)	122.00	112.00	112.00	91.12	108.19	108.21
Teheran (1)	91.60	100.96	137.89	137.89	137.89	140.74
Tokyo	108.20	118.96	127.01	127.01	128.00	127.50
Delhi	134.03	154.36@	158.74	157.37	163.33@@	162.28
Bombay	128.86	149.23@	153.46	151.43	158.26@@	155.45

* = Less rebate 2.00 U.S.C / U.S.G. C As on 3.3.1980.

1. Monopoly price. @@ As on 2.3.1981.

2. Air India Contract price. PAP not available.

Source:- Air India, Bombay. I.O.C. New Delhi.,

WORLD DEVELOPMENT OF AVERAGE FREIGHT RATE ASSESSMENT (AFRA)

(Percentage)

Period		General purpose 16500-24999dwt	Medium range 25000-44999dwt	LR 1 45000-79999dwt.	LR 2 80000-159999 dwt	VLCC 160000 dwt above	ULCC 320000-549999 dwt
1		2	3	4	5	6	7
Average	1974	211.2	179.4	120.6	97.0	78.6	
"	1975	139.5	124.8	83.2	62.7	56.9	
"	1976	132.7	117.6	77.1	57.0	50.3	
"	1977	151.7	114.7	74.7	54.8	47.9	
"	1978	155.5	116.5	72.2	53.5	44.8	
"	1979	255.2	200.4	124.5	80.5	52.4	49.0
1980							
January		267.6	222.9	134.4	83.9	51.3	43.3
February		289.3	265.0	143.3	87.9	53.0	44.7
March		258.9	215.3	130.6	86.4	54.0	45.3
April		255.0	200.0	123.0	81.3	52.4	43.0
May		255.9	198.0	121.3	79.6	49.8	42.4
June		253.4	192.7	114.1	78.6	49.3	40.6
July		199.6	147.3	88.5	60.6	38.7	31.0
August		208.3	147.7	87.0	62.7	40.4	32.6
September		202.9	151.0	91.6	62.4	41.6	35.3
October		200.5	152.9	84.4	60.0	41.1	35.0
November		203.9	155.9	87.6	61.8	43.0	38.6
December		211.6	168.4	98.8	66.0	45.4	41.4
Average	1980	233.9	184.8	108.7	72.6	46.7	39.4
1981*							
January		218.2	188.1	112.9	72.2	46.0	39.9
February		229.0	189.4	118.9	77.7	47.0	39.2
March		225.3	169.9	103.0	71.6	46.6	40.9

* London Tanker Brokers average freight rate assessments calculated on the basis of rates prevailing during the month ending on the 15th of the month shown, and used by oil companies for pricing purposes during the months mentioned above.

*

World Tanker Fleet as 2nd 1980

By Flag and Ownership

(Million Long Tonnes Deadweight)

Flag	Oil Company	Private	Govt.	Others	Total 1980	Total 1979	% Shares of Total 1980
Liberia	36.0	61.8	-	2.5	100.3	102.5	30.9
Norway	0.5	22.6	-	0.9	24.0	24.4	7.4
United Kingdom	17.3	6.8	0.1	0.6	24.8	24.8	7.6
Japan	3.5	20.5	-	6.0	30.0	30.0	9.3
U.S.A.	8.0	6.9	1.3	-	16.2	15.7	5.0
Panama	4.9	7.0	-	0.3	12.2	11.7	3.8
France	10.6	4.1	0.1	0.2	15.0	15.4	4.6
Greece	-	22.5	-	0.3	22.8	22.0	7.0
Other Western Europe	15.7	21.4	-	-	37.1	39.4	11.4
Other Western Hemisphere	8.1	0.4	0.3	0.1	8.9	8.2	2.7
U.S.S.R., E. Europe & China	-	-	10.2	-	10.2	9.9	3.1
Other Eastern Hemisphere	11.5	10.9	-	0.9	23.3	23.9	7.2
Total	116.1	184.9	12.0	11.8	324.8	327.9	100.0
Fleet as at end 1979	114.9	194.9	11.6	6.5	327.9		
Net change 1980	+ 1.2	- 10.0	+ 0.4	+5.3	- 3.1		

* 10000 dwt and over, excluding 46.8 Million dwt Combined Carriers

Source :- BP statistical review of the World Oil Industry 1980.

Inter-Area Total Oil Movements 1980

(Million Tonnes)

From To	U.S.A.	Canada	Latin America	Western Europe	Africa	South East Asia
	1.	2.	3.	4.	5.	6.
U.S.A.	-	5.2	14.8	8.2	0.3	0.6
Canada	18.6	-	-	1.5	-	0.5
Latin America	105.4	10.7	13.8	31.1	2.5	-
Western Europe	18.1	0.2	-	-	4.2	0.2
Middle East	77.2	14.8	80.4	362.3	22.0	86.3
North Africa	50.8	0.3	6.7	71.2	0.8	-
West Africa	46.8	0.2	20.8	49.0	3.0	-
East and South Africa	-	-	-	-	-	0.5
South Asia	-	-	-	-	-	-
South East Asia	20.1	-	-	0.7	1.2	-
Japan	-	-	-	-	-	0.4
Australasia	-	-	-	0.2	-	0.3
U.S.S.R., E. Europe & China	-	-	10.2	64.7	-	11.1
Total Imports	337.0	31.4	146.7	588.9	34.0	100.1

Contd/-

From To	Japan	Australasia	Other Eastern Hemisphere	Destination Not known	Total Exports
	7.	8.	9.	10.	11.
U.S.A.	-	-	-	-	29.4
Canada	0.5	-	-	1.2	22.3
Latin America	4.0	0.2	11.7	17.3	196.7
Western Europe	-	-	0.5	-	23.2
Middle East	176.1	10.9	34.3	5.0	869.3
North Africa	2.7	-	7.7	-	140.2
West Africa	0.7	-	-	-	120.3
East and South Africa	-	-	-	-	0.5
South Asia	0.2	-	1.7	-	1.9
South East Asia	52.5	6.9	2.2	-	83.6
Japan	-	-	-	-	0.4
Australasia	0.2	-	-	-	0.9
U.S.S.R., E. Europe & China	8.9	-	4.7	-	99.6
Total Imports	245.8	18.0	62.8	23.5	1588.2

Source :- BP statistical review of the World oil industry 1980.

WORLD PRIMARY ENERGY CONSUMPTION - 1980

Million Tonnes Oil Equivalent

COUNTRY/AREA	Oil	Natural Gas	Coal	Water power	Nuclear Energy	Total
U.S.A.	791.4	492.0	409.9	78.9	70.9	1843.1
Canada	87.5	149.0	20.0	57.3	9.3	223.1
Total North America	878.9	541.0	429.9	136.2	80.2	2066.2
Latin America	222.1	53.0	16.6	47.9	0.8	340.4
Total Western Hemisphere	1101.0	594.0	446.5	184.1	81.0	2406.6
Western Europe						
Austria	12.1	3.8	3.2	6.8	-	25.9
Belgium & Luxembourg	27.0	10.3	10.5	0.1	2.7	50.6
Denmark	13.2	-	5.9	-	-	19.1
Finland	12.8	0.8	3.4	2.8	1.6	21.4
France	111.1	23.2	28.4	15.3	12.8	190.8
Greece	12.5	-	4.4	0.9	-	17.8
Iceland	0.5	-	-	1.5	-	2.0
Republic of Ireland	5.7	0.5	1.9	0.2	-	8.3
Itlay	98.1	22.2	12.6	11.2	1.1	145.2
Netherlands	39.2	31.5	4.4	-	1.0	76.1
Norway	8.2	-	0.5	20.7	-	29.4
Portugal	8.5	-	0.4	2.5	-	11.4
Spain	50.7	1.7	14.1	6.9	1.3	74.7
Sweden	24.6	0.1	1.8	10.0	4.5	41.0
Switzerland	12.8	0.9	0.5	8.9	3.5	26.6
Turkey	17.2	-	7.5	2.2	-	26.9
United Kingdom	80.6	41.3	72.7	1.2	7.8	203.6
West Germany	131.1	45.2	79.7	5.2	9.7	270.9
Yugoslavia	15.1	3.4	14.3	7.1	-	39.9
Cyprus/Gibraltar/ Malta	1.5	-	@	-	-	1.5
Total Western Europe	682.5	184.9	266.2	103.5	46.0	1283.1
Middle East	82.0	34.1	@	1.0	-	117.1
Africa	71.9	17.5	62.2	13.1	-	164.7
South Asia	38.4	5.1	82.2	12.2	0.8	138.7
South East Asia	121.6	7.1	55.9	8.5	1.9	195.0
Japan	240.9	22.1	57.6	21.2	20.2	362.0
Australasia	36.5	9.8	30.5	8.8	-	85.6
U.S.S.R.	436.0	328.0	342.5	47.0	13.5	1167.0
Eastern Europe	102.6	64.0	274.0	5.6	4.0	450.2
China	88.0	11.7	403.3	9.6	-	512.6
Total Eastern Hemisphere	1900.4	684.3	1574.4	230.5	86.4	4476.0
World (excl. U.S.S.R., E. Europe & China)	2374.8	874.6	1001.1	352.4	149.9	4752.8
WORLD	3001.4	1278.3	2020.9	414.6	167.4	6882.6

@ - Less than 0.05 million tonnes oil equivalent.

Source :- BP Statistical Review of the World Oil Industry 1980.

Commercial primary energy production and consumption by country groups - 1970-1980.

(Million b/d of oil equivalent)

	1970		1980		1990	
	Production	Consumption	Production	Consumption	Production	Consumption
I. Industrial Market Economies	43.2	60.6	50.6	72.4	64.3	87.0
Petroleum	12.7	29.9	14.5	35.0	16.4	37.4
Natural gas	13.0	12.8	13.8	15.0	13.2	16.2
Solid fuels	13.0	13.3	13.9	14.0	20.4	19.1
Primary electricity	4.5	4.6	8.4	8.4	14.3	14.3
II. Non-Market Industrial Economies	28.8	27.6	45.2	43.0	63.4	62.1
Petroleum	8.0	7.2	13.7	13.1	17.9	17.3
Natural gas	3.8	3.8	7.7	7.0	12.6	12.3
Solid fuels	16.1	15.7	21.8	20.9	29.8	29.4
Primary electricity	0.9	0.9	2.0	2.0	3.1	3.1
III. Capital surplus Oil Exporters	12.8	0.3	18.6	0.9	21.7	1.7
Petroleum	12.7	0.2	18.3	0.7	20.4	1.1
Natural gas	0.1	0.1	0.3	0.2	1.3	0.6
Solid fuels	-	-	-	-	-	-
Primary electricity	-	-	-	-	-	-
IV. Developing Countries						
i) Oil Exporters	13.7	2.8	16.7	5.5	25.2	10.0
Petroleum	12.7	1.8	14.2	3.6	18.3	5.5
Natural gas	0.7	0.7	2.0	1.4	5.9	3.5
Solid fuels	0.1	0.1	0.1	0.1	0.3	0.3
Primary electricity	0.2	0.2	0.4	0.4	0.7	0.7
ii) Oil Importers	4.7	7.8	7.5	13.7	15.1	24.3
Petroleum	1.2	4.2	1.5	7.3	2.8	11.2
Natural gas	0.3	0.3	0.5	0.7	1.6	1.6
Solid fuels	2.3	2.4	3.5	3.7	5.6	6.4
Primary electricity	0.9	0.9	2.0	2.0	5.1	5.1
TOTAL WORLD	103.2	99.1	138.6	135.5	189.7	185.1
Petroleum	47.3	43.3	62.2	59.7	75.8	72.5
Natural gas	17.9	17.7	24.3	24.3	34.6	34.2
Solid fuels	31.5	31.5	39.3	38.7	56.1	55.2
Primary electricity	6.5	6.6	12.8	12.8	23.2	23.2
Bunkers & others		2.9		3.1		4.6

Average annual growth rate of world supplies (%)

	1970-1980	1980-1990
Total World	3.0	3.2
Petroleum	2.8	2.0
Natural gas	3.1	3.6
Solid fuels	2.2	3.6
Primary electricity	7.0	6.1

Source : World Bank Development Report - 1981.

i) Composition of various forms of Commercial Energy - 1980

(Million b/d of oil equivalent)

	Oil	Natural gas	Solid fuels	Primary electricity	TOTAL
1. Industrial Market Economics	35.0	15.0	14.0	8.4	72.4 (53.4%)
2. Industrial Non-Market Economics	13.1	7.0	20.9	2.0	43.0 (31.7%)
3. Capital surplus oil exporters	0.7	0.2	-	-	0.9 (0.7%)
4. Developing countries					
i) Oil exporters	3.6	1.4	0.1	0.4	5.5 (4.1%)
ii) Oil importing developing countries	7.3	0.7	3.7	2.0	13.7 (10.1%)
TOTAL	59.7 (44.1%)	24.3 (17.9%)	38.7 (28.6%)	12.8 (9.4%)	135.5 (100.0%)

Note : Figures in brackets indicate percentage share to total.

ii) Relative percentage share of different forms of energy according to Groups of Countries - 1980.

	Oil	Natural gas	Solid fuels	Primary electricity	Total
1. Industrial Economics	80.5%	90.5%	90.2%	81.2%	85.1%
2. Oil exporting surplus countries	1.2%	0.8%	-	-	0.7%
3. Developing Countries	18.3%	8.7%	9.8%	18.8%	14.2%
T O T A L	100%	100%	100%	100%	100%

Source : World Bank Development Report, 1981.

(Percentages computed).

PART - II

PETRO-CHEMICALS

STATISTICS

CHRONOLOGY OF SOME IMPORTANT EVENTS IN THE PETRO-CHEMICALS INDUSTRY IN INDIA

(A) ORGANIC INTERMEDIATES

(i) Durgapur Project Limited

1955: A State-sponsored Enterprise entitled 'THE DURGAPUR INDUSTRIES BOARD' was constituted with a view to develop an industrial complex at Durgapur under the State Control.

1959: In February, the Second Battery of the Coke Oven Plant was commissioned.

1960: In March, the first Battery of the Coke Oven Plant was commissioned. In June, the first two power generating units were commissioned.

1961: On 6th September, the Durgapur Project Ltd. was incorporated as a Private Limited Company. From 15th September, the Company took over the complex managed previously under departmental control of the Durgapur Industries Board.

1962: The Tar Distillation Plant with the capacity of 100 M.T. Cr. Coal Tar Distillation per day was commissioned in May.

1963: With a view to minimise the smoke nuisense at Calcutta, a Gas-Grid along with a gas Compression & Gas Purification Plant was commissioned in July.

1964: In order to meet the increasing demand of power, the Power Station was expanded, two more unit each with the capacity of 75 M.W. were commissioned.

1966: The fifth Power generating unit was commissioned.

1967: The third battery was commissioned on 17th April. To make economic use of high grade coking coal which is scarce in the country, a cyclone type Washery was built and commissioned.

1972: The fourth battery of the Coke Oven Plant was commissioned on 26th April.

1975: The construction of an additional power generating unit with the capacity of 110 M.W. was planned and necessary clearance from the Government was obtained for inclusion of the same in the Fifth Five Year Plan Period.

1976: Alum plant was commissioned on 13th January.

1977: In October, an all time record generation of about 105,000 M.W. HRS was achieved.

1978: In September, many equipments had savere damage due to flood.

1979: In July, construction of the 6th power generating unit of 110 M.W. capacity was started.

1980: Attempts were made for replacement of coke-oven Battery No.5 under DPL.

(ii) Durgapur Chemicals Limited

1963: The Company was incorporated on 31st July and Certificate of Commencement of Business was issued.

The assets and liabilities of this project were taken over by the Company with effect from 1st September.

A technical Consultancy Agreement was entered into with Krebs & CIE, Paris, Consulting engineers of international repute for providing technical know-how. Another contract was entered into with them for supply of foreign equipments and machinery under the Indo-French Credit Terms. An agreement with M/s Krebs & CID India (P) Ltd. is a Company sponsored by M/s Krebs & CID Paris was also entered into for procurement of equipment in India and engineering of utility services.

The construction work of the factory buildings at Drugapur was started.

1966: The construction work of the factory buildings was completed.

1968: In January, Phthalic Anhydride Plant was commissioned.

In April, Caustic Soda/Chlorine Plant was commissioned.

1969: In June, Pentachlorophenol Plant was commissioned.

1970: In May, Phenol Plant was finally commissioned after repeated failure of guarantee test.

(iii) Herdillia Chemicals Limited

1963: On 1st July, the Company was incorporated.

1964: Agreement was finalised to lease about 300 acres of land at Thana-Balapur Road, Thana(Maharashtra) from Maharashtra Industrial Development Corporation.

1965: An industrial licence for manufacture of various organic chemicals was received.

Agreements were signed with the Distillers Co. Ltd. (now BP Chemicals International Ltd., U.K.) for provision of technical know-how, patent licence fee and engineering services including services as engineering consultants in respect of construction.

Contracts for engineering, technical services and construction of the factory were placed with the Lummus Co., London and the Lummus Co., India.

In October, grading and levelling of the grounds at site was commenced.

1966: Agreements were entered into with Universal Oil Products Company, USA for obtaining exclusive non-transferable licence to use a U.O.P. catalytic con-densation process for the manufacture of Cumene. The same was guaranteed by U.O.P.

1968: On 18th February, the plant was inaugurated. Commercial production of phenol, acetone, diacetone alcohol, phthalic anhydride and phthalates was also commenced.

1972: In November, the licenced capacity of Phthalates was increased to 5000 M.T. per annum.

1973: In January, there was a major fire in the reactor of Phthalic Anhydride plant causing extensive damage.

In December, a new reactor was fabricated indigenously in place of the earlier reactor which was imported and the plant was re-started.

Commenced recovery of crude acetophenone from Phenol Plant for sale.

1974: Through progressive debottlenecking the installed capacity of the phenol plant was increased to 14000 tonnes per annum.

The installed capacity of the Phthalatos plant was fully established at 5000 tonnes per annum by installing minor balancing equipment.

1975: Phenolic tar was previously burnt in open pit. The operation was hazardous and pollutive. After prolonged research and development work, phenolic tar in a blend with other by-product streams, was used as a boiler fuel resulting in saving of approximately 1200 tonnes of fuel oil per year.

The Effluent treatment system was modified for effective removal of free oil and reduction in phenol content. Propane gas which was partly flared was wholly utilised for the burner of hot oil furnace.

The installed capacity of phenol plant was again increased from 14000 M.T. year to 14300 M.T./year by installation of balancing equipment.

1976: As a result of successful laboratory scale trials, Phenol content in the effluent was further reduced by dephenolation of waste streams.

A 750 KVA diesel generating set was installed to augment power supply.

1977: A second 730 KVA diesel generating set was installed to augment power supply.

R&D Laboratory was recognised by Department of Science & Technology.

1978: A stand-by 250 psig package type boiler, 5000 KVA, 22/11 KV stand-by transformer and 75 tons refrigeration stand-by units were installed.

1979: A third oxidiser in the Phenol plant was commissioned.

In September, a letter of intent was received for the manufacture of Alpha Methyl Styrene (900 M.T.), Acetophenone (500 M.T.) and Cumyl Phenols (900 M.T.). A pilot scale plant for manufacture of Alpha Methyl Styrene was also sucessfully commissioned.

1980: Based on Company'S R&D process, a pilot plant for the production of 30 TPA of Di-allyl phthalate was commissioned.

1981: The original industrial licence of the Company was endorsed for the manufacture of 900 TPA Alpha Methyl Styrene, 500 TPA Acetophenone, 900 TPA Cumyl Phenols and 360 TPA Fumaric Acid.

A letter of intent for the manufacture of 2000 TPA capacitor fluids and 6250 TPA Phthalates was received.

(iv) Hindustan Polymers Limited

1961: The Company obtained industrial licence for the manufacture of alcohol and styrene, polystyrene and its co-polymers.

Technical collaboration agreements was finalised for the styrene monomer plant with M/s Universal Oil Products.

1962: Incorporated as Hindustan Polymers Limited.

1964: Collaboration agreements between the Company and BX Plastics Ltd., London for the supply of technical information for the manufacture of polystrene and its co-polymers were executed.

1965: Detailed contracts with Power Gas Corporation Ltd., U.K. and France for fabrication procurement and supply of plant and equipment(imported) for distillary, styrene monomer and polystyrene plants and supervision of erection and commissioning of styrene monomer and polystyrene plants were executed.

Construction of buildings at factory site commenced.

1967: Alcohol distillary commenced production.

1969: Polystyrene plant commenced production.

1972: The management of the Company was taken over by Dr. Charat Ram, Managing Director, Delhi Cloth & General Mills.

1973: Styrene Plant was commissioned. But the capacity utilisation was low due to technical problems on account of bad and unproven technology for alcohol to ethylene manufacture.

1974: Faced extreme demand recession due to increased cost of petrobased raw materials, etc.

1975: Improved alcohol to ethylene technology partially with own resources.

1978: Technical problems debottlenecking were accomplished by own staff without any foreign help and plant production capacity improved.

The management of the Company was taken over by McDowell & Company.

1979: For the first time Company achieved capacity utilisation of 78%.

1981: The Company commissioned a head recovery scheme by installing imported convection Box.

A collaboration agreement was signed with a French Company for process technology modernisation to reduce production cost.

Company received letter of intent for expandable polystyrene plant.

(v) Indian Organic Chemicals Limited

1960: The Company was incorporated.

1962: The commercial production of Acetic Acid was started.

1964: The Ester Solvent Plant with own know-how started commercial production.

1969: Started indigenously fabricated plant for manufacture of Plasticizers.

Commenced production of Benzyl Chloride and Benzyl Acetate.

1970: Plasticizers Plant was expanded to its full licensed capacity of 10,000 M.T. per annum.

1971: Commenced production of Monochloro Acetic Acid.

1974: Exported Chemicals worth Rs. 43 lakhs.

1975: Expanded Benzyl Chloride capacity to 1,000 M.T. per annum.

1976: Acetic Anhydride Plant was constructed. Exported Ethyl Acetate worth Rs.28 lakhs.

1977: Acetic Anhydride Plant was commissioned.

1979: Letter of intent for Mico bial Auxillaries was received.

1981: Received Industrial Licence for manufacture of Microbial Auxiliaries.

(vi) Indian Petrochemicals Corporation Limited.

1950: Towards late 1950s Government evinced keen interest in the development of the Petro-chemicals Industry.

1960: A Committee headed by Prof. G.P. Kane submitted its report to Government setting out the main targets for chemical products for the Third and Fourth Plan Periods.

1963: Mr. V.E. Henney submitted his Report to the Government.. A Planning Group on Petrochemicals Industries to recommend specific steps for implementation of petrochemical project was appointed by the Government.

The Petrochemicals Division was created as a part of the Oil & Natural Gas Commission to take follow-up action on the recommendations of the Planning Group.

1967: In March, the Petrochemicals Division of ONGC submitted a detailed project report regarding the Gujarat Aromatics Project (GAP) to Government. Based on this Report, investment approval for the Project was obtained.

1968: Collaboration agreements for Aromatics Project were concluded between Govt. of India and Fried Krupp GMBH Chemieanlagenbau of West Germany.

1969: In March, IPCL was incorporated and the Government assigned the agreements in respect of GAP to IPCL.

1970: On 24th January, foundation stone for Gujarat Aromatics Project was laid.

In May, detailed project Report for Gujarat Olefins Project was submitted to the Government.

Foreign collaboration agreement for Naphtha Cracker Unit was signed with M/s Lummus Company Ltd., U.K.

In June, detailed Project Report in respect of Acrylonitrile Project was submitted to the Government.

In September, collaboration agreement with M/s Universal Oil Products Co., U.S.A. in respect of Benzene Extraction Unit was signed.

1971: In May, letter of intent were received for Gujarat Olefins, Acrylonitrile, Acrylic Fibre, Detergent, Alkylate, Ethylene Glycol, Polybutadiene Synthetic Rubber, Polypropylene and Low Density Polyethylene Projects.

1972: On January 29th, foundation stone for Gujarat Olefins Project was laid.

Foreign collaboration agreement for Butadiene Extraction Unit of GCP was signed in June.

Between June and November, foreign collaboration agreements in respect of polypropylene, Ethylene, Glycol Acrylonitrile Acrylic Fibre, Polybutadiene Rubber Low Density Polyethylene and Detergent Alkylate Projects were signed.

1973: In April, commercial production of DMT commenced in the Aromatics Plant.

In August, commercial production of mixed xylene commenced.

In September, commercial production of orthoxylene commenced.

1974: In March, regular production of para-xylene commenced.

Civil construction work in Low Density Polyethylene Project commenced in April.

In May, civil construction work on Ethylene Glycol and Detergent Alkylate Projects commenced.

In July, civil construction work on Polypropylene project commenced.

In September, a cooperative society Petrofils Cooperative Ltd. was formed to take over from IPCL further implementation of Polyester Filament Yarn Project.

In October, civil construction work on Polybutadiene Synthetic Rubber Project commenced.

In October, work on BBH Unit of GOP commenced.

1975: In March, Training Centre was inaugurated.

Civil construction work on Acrylonitirile Project commenced.

In April, civil construction work on Acrylic Fibre Project commenced.

In September, production of C9 Aromatics (a by-product of the Aromatics Plant) commenced.

The work on electrical installation for Naphtha Cracker and its offsites commenced.

1976: In January, mechanical erection of equipment and piping for Low Density Polyethylene Plant commenced.

In February, mechanical erection in the Detergent Alkylate Plant commenced.

Bridge leading to the radial well constructed in the Mahi river bed at Khandi launched.

The first phase of railway siding for handling the incoming machinery and equipment for various project was declared open.

In March, mechanical erection work of BBH Units of Olefins project commenced.

Civil works for R&D Centre completed.

Mechanical erection of the Polybutadiene Rubber Plant commenced in April.

Mechanical erection of equipment and piping work for the Polypropylene Project was also commenced.

Production of DMT in the Aromatics Plant reached its pro-rata installed/licensed capacity in April.

Mechanical erection work for Polybutadiene Rubber and Ethylene Glycol Plants commenced.

33 KV and 6.6 KV Power distribution system for the Olefins and seven downstream projects was commissioned in June.

Construction of radial well No.1 at Mahi river completed with its connecting bridge and commissioned in June.

In September, mechanical erection of Acrylonitrile Plant commenced.

Instrumentation erection for Low Density Polyethylene Plant was inaugurated.

Erection of cold box for Air Separation Plant of the Integrated Offsites Project completed.

The textile equipment erection work started in Acrylic Fibre Project in November.

All the three chains of DM Water treatment plant in the Integrated Offsites Project commissioned in November.

Mechanical erection work for Acrylic Fibre Plant commenced.

In December, work on neutralisation facility for Polypropylene Project commenced by M/s Paramount.

Boiler No.1 for PBR Project completed and commissioned.

Construction of raw water reservoir and sump in UB-II completed & Service water system of UB-II commissioned for Polybutadiene Rubber Project. commissioned.

Instrumentation erection for the Polypropylene Project commenced.

In December, mechanical erection of Refrigeration Plant for the Polybutadiene Rubber and Acrylic Fibre Plants commenced.

1977: In January, the vertical turbine aerator of the Central Water Treatment Plant and Rs.20 crores Water Systems Project for various plants of IPCL were commissioned.

Flushing and testing of charge gas system, regeneration gas system, cooling water systems of Naphtha Cracker Plant and civil works, for low Density Polyethylene Project was also completed during the month.

In February, letter of intent from DMT Expansion Project was received. Utility Block No.2 of ICP (all the three recirculating cooling water pumps and cooling tower) was commissioned. Trial runs of main DEMAG Air compressor of O2/N2 plant and the DRESSER Air compressor High Purity Nitrogen Plant in ICP were also successfully completed.

In March, propylene compressor of polypropylene Project was erected and instrument erection work for Acrylonitrile and for Acrylic Fibre Project were awarded. N2 / O2 Plant of Integrated Offsites Project was commissioned and trial run completed.

In April, the Gujarat State Safety Award was awarded to IPCL. Civil foundation for all the pumps in PBR Project and construction of cooling tower for Acrylonitrile Project was completed. Insulation work for LAB Project was also started and tender for LAB Plant laboratory building was issued. Air-conditioning of LAB control room building Pre-commissioning activities, checking out systems, identification and hydrotesting of piping loops for LAB Project were taken up.

In May, Technical auditing of the Polybutadiene Rubber Plant was started in association with M/s Polysar's representative, erection of polymer dryer for Acrylic Fibre Project was completed and Caustic line unloading distribution system and DM water distribution system was commissioned in ICP.

In June, pre-commissioning activities on all systems relating to the solvent recovery and storage sections in Polypropylene project and on utility system except stream condensate and the D.M. water system in Polypropylene Project were completed.

Air-conditioning plant for control room building in Polypropylene Project and High Purity Nitrogen Plant for Integrated Offsites Project were commissioned. Technical audit of the Process area in Polybutadiene Rubber Project was also completed. Acid Prooflining work in Acrylic Fibre Project started.

Trial run of DM Water Treatment Plant to test its full lead capacity was started in ICP and Process Water Treatment Plant in Integrated Offsites Project were mechanically completed.

In July, work on cooling tower in Ethylene Glycol Project. Tray erection work in all the three towers of Polybutadiene Rubber Plant, Control room building air-conditioning system in PBR Project, cooling water recirculation line and instrument air line from ICP to Linear Alkyl Benzene Plant and Jalampura radial well for water supply started.

GHH air compressor erection work for Acrylic Fibre Project, Erection and alighnment of instrumentation control panel for AF Project and process water treatment plant under ICP Integrated offsite Project commissioned.

In August, letter of intent for manufacture of 5500 TPA of Polyvinyl chloride was received. Engineering work for EG main plant as well as for ethylene oxide storage area and for Linear Alkyl Benzene were generally completed.

In September, the Rs.1 crore refrigeration plant for Polybutadiene Rubber Plant was inaugurated. Engineering work and BBH units and Polypropylene project was completed. Ground floor air-conditioning plant in Acrylonitrile Project completed and was commissioned. Besides this phosphate dosing pump for LAB/EG cooling water treatment plant under Integrated Offsites Project and fire Water Pump in ICP were commissioned.

In October, in-take of low Sulphur Heavy Stock (LSHS) for the IPCL boilers from Gujarat Refinery commenced. Detailed engineering performance guarantee run of DM plant and LAB/EG hydraulic testing of chemicals design system in ICP, cooling tower for PE/PP was also mechanically completed and the fire fighting system in ICP was commissioned.

In November, the Rs.3 crores refrigoration system of Integrated Offsites Project was inaugurated. All civil and structural works including additional work for Ethylene Glycol Project completed. Detailed engineering work for Polybutadiene Rubber Project, Acrylic Fibre Project, Linear Alkyl Benzene (LAB) Project, all structual steel work in LAB Project and cooling tower for PP/LDPE were completed.

In December, all process systems except one of PGH, Benzene and Butadiene units flushed and tested. Low pressure Steam, Cooling water, instrument air, plant air and N2 flushed and commissioned. Contracts for chemicals cleaning for BHH units awarded and preparation for chemical cleaning in Benzene unit was started. Works like underground piping, equipment erection, aluminium piping and chemical cleaning for LDPE Project was completed. Trial run for extruder with imported Polyethylene and for Hyper Compressor with Nitrogen in LDPE Project was also successfully completed. Investment approval for Polyvinyl Chloride, Acrylate and DMT Expansion Project was received from Government of India.

1978: In February, the call room of the hydrogen plant in propylene Plant battery was commissioned and power sub-station for the Acrylic Fibre Plant was inaugurated.

In March, Olefins plant was commissioned and critical power supply scheme for IPCL from Gujarat Refinery was started.

Pyrolysis Gasoline & Hydrogenation Unit was commissioned in April and the Butadiene Extraction unit of Olefins complex was commissioned in May.

In June, the first consignment of carbon black feed-stock was despatched to Gujarat Carbon Ltd., by road tankers.

In July, Ethylene Glycol, Polybutadiene Rubber, Low Density Polyethylene and Polypropylene Plants were commissioned.

In August, Benzene Extraction unit of Olefins complex was started.

In October, two major products, viz. 'Indothene' (Low Density Polyethylene) and 'Koylene' (Polypropylene) were released for sale. The first consignment of Benzene was also despatched to M/s Polychem Ltd., Bombay.

In December, construction work in respect of Acrylonitrile and Acrylic Fibre projects was completed and commissioning activities were started in the Acrylonitrile plant. Foreign collaboration for setting up a Methyl Acrylate Plant was also approved by the Government during the same month.

1979: In January, Nitrogen plant was started and the Acrylonitrile plant was commissioned on 16th January.

On 30th March, the IPCL complex was formally inaugurated by the Prime Minister. Acrylic Plant was also commissioned during the same month due to which the entire Olefins complex went in production.

In May, IPCL won for the second successive year Gujarat State Safety Award. Site grading work for 2 x 12.5 MW Captive Power Plant for IPCL Complex was commenced.

In June, civil construction work for Acrylates 10,000 TPA Project was commenced.

In September, Government of India approved the implementation of Petroleum Resins Project by IPCL and two days Exhibition was also held on the Acrylic Fibre products at IPCL Complex.

In December, production of Ethylene Oxide was commenced in Mono Ethylene Glycol Plant and approval of the Foreign Collaboration agreement in respect of VC/PVC Project was received from the Govt. of India. The Expert Committee on R&D appointed by the Govt. of India visited IPCL to review the work of IPCL R&D Centre.

1980: In January, extension of validity of letter of intent upto 27.2.81 in respect of DMT Expansion to manufacture 30,000 MTA was received from the Ministry. Design Conference in respect of VC/PVC Project was held with process licensors in USA.

In February, foreign collaboration agreements in respect of VC/PVC Project was taken on record by the Govt. of India.

In March, civil construction work in respect of Time office, ware house and operational building of VC/PVC project was commenced.

In June, industrial licence for manufacture of 6000 MTA DMT, 60 MTA Methyl Benzoate and 40 MTA Dimethyl Isophthalate was received for DMT Expansion Project.

In August, letter of intent for manufacture of 5000 MTA Petroleum Resins was received.

In November, letter of intent for manufacture of 2500 MTA of Diethyl Glycol and 250 MTA Tri-ethylene Glycol was received. A feasibility report in respect of FCCO Gas Utilisation Project, Baroda was submitted to the Government.

In December, preliminary feasibility reports in respect of Toluene Extraction, Linear Alkyl Benzene Expansion, Kerosene Prefractionation, Naphtha Prefractionation, DMT expansion Phase II, Acrylic Fibre Expansion Projects were submitted to the Government.

1981: In March, industrial licence in respect of manufacture of solvents was received.

(vii) Mysore Petrochemicals Limited

1969: On 9th June, the Company was incorporated in the name of Premier Petrochemicals Ltd.

1970: The name was subsequently changed to Mysore Petrochemicals Ltd. on 3rd September.

The project was promoted by the Karnataka State Industrial Investment & Development Corporation Ltd., Bangalore and Shekhavati Investment Corporation Ltd., Calcutta.

1972: On 4th August, the Industrial licence for the manufacture of 6000 tonnes Phthalic Anhydride per annum and 3000 tons Plasticisers per annum was issued to the Company.

1976: On 16th May, commercial production of Phthalic Anhydride was commenced.

1980: To meet with large shortfall in power, one 1100 KVA/11 'SKL' DG set together with two other DG sets of 250 and KVA respectively were installed. Implementation of P' Plasticizer Projects was in progress.

(viii) National Organic Chemicals Industries .

1961: On 11th May, the Company was incorporated.

1964: In July, various technical collaboration and Engine Agreement with Companies of Royal Dutch Shell Group Companies were signed.

In August, industrial licence was granted.

1965: In January, ground was broken for the constructi complex.

In December, foreign currency loan agreement w with Shell Petroleum.

1966: Rupee loan agreement was signed with Indian F Institutions and SBI.

1968: In January, NOCIL Petrochemicals Complex we

Installation of naphtha pipe along the Eas Highway was completed.

1968: In March, first Ethylene deliveries to Polyolefins Industries (Contd.)Ltd. took place.

Various plants of the complex such as Glycols Plant, PVC Plant and Solvents Plant were commissioned.

1969: In September, Alcohols Plant and PVC Compounding Unit were commissioned.

1970: In September, Technical Service Laboratory was inaugurated.

In October, a Jetty for bulk exports was completed.

1974: Naphtha Pipe Line from Burmah-Shell Refineries to the factory was installed.

1977: Research and Development activities were reorganised.

1978: NOCIL launched a programme for integrated rural development to raise the poverty line in Yavatmat district of Maharashtra with 2500 families living in backward and draught prone villages.

1980: New site in backward area of Ratnagiri, Maharashtra was selected for Agrochemicals operations.

1981: R&D Centre was constructed, Effluent Treatment Plants Phase I & II were completed and work on Monocrotophos Project was started.

Government's approval for revamping of certain plants and industrial licence for Monocrotophos was obtained.

(ix) Polychem Limited

1965: Company was incorporated.

1957: On 26th May, the Polystrene Plant was brought on stream.

On 16th June, the plant was formally inaugurated.

1958: The facilities for production of High Impact Polystyrene Sheet were commissioned.

1959: The production capacity of the plant was doubled to 12 million lbs (5500 tonnes) per year.

1960: In February, an industrial licence was obtained for establishing a Styrene Monomer plant of 6,800 tonnes/year in Bombay in technical collaboration with the Dow Chemicals Company, USA.

In August, another industrial licence for establishing a 5,450 KL/year Alcohol Distillery in Maharashtra was also received.

1962: The authorised capital was increased from Rs.150 lakhs to Rs.5 crores and subscribed equity capital from Rs.40 lakhs to Rs.56 lakhs.

1963: In August, Styrene Monomer and Alcohol Plants were brought on stream.

1964: The capacity of Styrene and Polystrene plants were increased to 10,000 tonnes per year and that of Alcohol Distillery to 9,090 KL per year.

1967: Started export of substantial quantities of Polystyrene directly.

1968: With the availability of petro-based ethylene and benzene, the capacity of styrene plant was further increased to 14,000 tonnes per annum, without any foreign technical help of collaboration.

1972: A pilot plant for the manufacture of 150 tonnes/year Divinyl benzene Monomer was brought on stream based on the know-how developed by Research & Development work carried on since 1968.

The production of netural spirit and Indian made Foreign Liquors as well as Country Liquors was started utilising surplus alcohol subsequent to the availability of Petro-ethylene.

1973: During the period 1964 to 1973 the Company increased its equity capital from Rs.56 lakhs to Rs.160 lakhs by issue of 'Bonus Shares'.

1974: The production capacity of the Polystyrene Plant was increased to 16,000 tonnes per year.

The Polystyrene Plant received second prize for the reduction in frequency rate of accidents for the period 1972-74 from the Council of Industrial Safety.

An award from the Indian Merchants Chamber for Outstanding Contribution for improvement of Industrial and Labour relations for the year 1974 was also awarded.

The Company received a letter of intent for the manufacture of 2,000 tonnes per year of acrylonitrile Butadiene Styrene (ABS) resins at Koyali in Gujarat State. A pilot plant with a capacity to produce one ton per day of ABS resins was commissioned in November for developing indigenous commercial technology based on bench scale work done by Sri Ram Institute for Industrial Research on the manufacture of ABS resins, for which know-how was purchased through National Research Development Corporation of India.

1975: The Divinyl benzene plant of 150 tonnes/year capacity was built based on self developed technology.

To improve gloss and abrasion resistence and sales appeal of Polystyrene, technology for production of suitable overcoat lacquer (Butylated melamine Formaldehyde lacquer) was developed and sold to N.G. Industries, Bombay for production on commercial basis.

1975: Bunch scale technology for making styrene based on exchange (Contd)resins was developed.

1976: Received a letter of intent for manufacture of Vinyl Acetate Monomer by Ethylene route in Maharashtra State.

Foreign collaboration proposals and import of technology for this project were approved by the Government.

1977: Industrial licence for the manufacture of 2000 MTPA of ABS resins at Baroda, Gujarat was received.

Contract for detailed engineering for ABS plant was awarded.

Technical collaboration agreement with Bayer A.G., West Germany for Vinyl Acetate Monomer Project was signed.

1978: Equity capital was increased from Rs. 160 lakhs to Rs. 200 lakhs by issue of bonus shares.

1979: Successfully commissioned the 2000 MTPA ABS plant at Baroda.

Capital goods Licensing Committee cleared the import of capital goods for the Vinyl Acetate Monomer Project.

Received an industrial licence for the manufacture of 5000 tonnes per annum Vinyl Acetate Monomer.

Sanction letters of financial assistance for VAM Project was received from financial institution. 50,000 10% Redeemable Mortgage Debentures of Rs. 100 each for cash at par were subscribed by members, depositers and associate companies, etc.

(x) Sirsilk Limited

1946: The Company was incorporated.

Collaboration agreement was entered into with M/s Lansils Ltd. of Lancaster, England.

1954: Following plants were commissioned during the year :

1. Bleached cotton linter pulp
2. Cellulose acetate plant
3. Acetic Acid Plant
4. Acetic Anhydride Plant
5. Acetone Plant
6. Acetate Rayon Filament Yarn
7. Ethyl Acetate

Collaboration agreement with M/s Lansils Ltd. of Lancaster, England was terminated.

1955: Weaving unit was commissioned with 480 Looms having yearly production capacity of 95 lakhs metres of Art Silk Fabrics.

1956: Licence for substantial expansion was granted.

1960: Licence was granted for substantial expansion for weaving plant unit.

1964: Yearly installed capacity of the plants was increased.

1965: Installed capacity of the plant was increased.

1966: Production of acetate staple fibre was commenced.

1968: Part of looms were diverted for manufacture of synthetic fabrics.

1974: Research and Development Division and Technical Consultancy Service Unit for rendering Technical know-how and other Engineering services for manufacture of chemicals etc. were established.

1975: Process know-how was offered to manufacture chemicals such as acetone, acetic acid, acetic anhydride etc.

1979: In order to diversify production on Synthetic line, latest type of processing mechineries like Hot Air Stenter, Beam Dyeing Machine and Thermo were installed.

1981: Schemes for modernisation of cellulose Acetate, spinning and weaving plants were submitted under the Soft Loan Scheme for consideration of the Ministry of Finance.

(xi) Somaiya Organics (India) Limited

1964: The Company was incorporated on 1st June under the Companies Act, 1956.

1967: The Company acquired a Distillery at Captainganj, Dist. Deoria, U.P. from M/s Godavari Sugar Mills Ltd. who are the promotors of the Company.

1969: In the second quarter of civil construction work of the factory was commenced.

1970: Erection of Butanol and Butyl Acetate plants was completed and trial production was undertaken on 11th November.

1971: The erection of Acetic Acid plant was completed and it was commissioned.

1972: A Research & Development Wing was started. After Laboratory trials production of Paraldehyde, a chemical which was till then being imported in the country, was commenced.

1973: A Pilot plant for production of Plasticizers was erected and commissioned.

1973: (Contd) Factory successfully distilled and manufactured a 'Solvent' by name 'Solvent-72' which could be made available to the Paint Industries at much cheaper rates compared to other solvents of same effectiveness, out of a waste which was till then being drained out.

1974: A third Furnace was added in the Main Plant. Trial production of Ethyle Acetate was also commenced. Organic chemicals were exported to Japan and Far East countries.

1975: Commercial production of Ethyl Acetate was started on a regular basis. Further, installed capacity of Acetic Acid Plant was increased to 5700 tonnes per annum.

1976: Erection work of an independent Mini Plant for production of Paraldehyde and Plasticizers was started.

1978: Installed capacity of Acetic Acid Plant was increased to 7600 tonnes per annum.

1980: Letter of intent for production of 300 lakh litres of Alcohol was received and application of industrial licence was made.

(xii) Union Carbide India Limited

1926: Eveready Company (India) Limited started manufacturing flashlight batteries in Calcutta.

1934: The Eveready Company (India) Limited was incorporated in India as a Private Company.

1941: National Carbon Company (India) Ltd. was formed to assume both manufacturing and selling functions. This was a fundamental beginning of the Company in India.

1961: Chemicals and Plastics plant was commissioned in Bombay.

1966: The Company expanded its Chemicals and Plastics operations and set up India's first Petro-chemicals Complex at Bombay.

1977: The Company received letter of intent to increase the Low Density Polyethylene production capacity to 20,000 tonnes per annum. The letter of intent was converted into an Industrial Licence.

The Company received an industrial licence for the manufacture of 5000 tonnes of Pesticides per annum based on Methyl Isocynate at its Agricultural Chemicals Plant at Bhopal.

(xiii) Bongaigaon Refinery & Petrochemicals Ltd.

1974: On 20th February, the Company was registered under Companies Act, 1956 in the State of Assam, with an authorised capital of Rs.50 crores.

1977: In November, the share capital of the Company was increased to Rs.100 crores.

1979-80: The implementation of Xylene and DMT Projects and selection of foreign technology for polyester Fibre Plant was under way.

1980-81: Work on the Xylene, DMT Plant and the offsites Phase II was progressed further.

The technology selected for the Polyester Staple Fibre Plant was approved by the Government.

(B) PLASTIC RAW MATERIALS

(i) The Alkali & Chemicals Corporation of India Ltd.

1937: The Company was incorporated with a share capital of Rs.35.34 lakhs of which preference capital was of the order of Rs.31.00 lakhs and equity Rs.4.34 lakhs. Out of the equity shares, 1% was held by the Indian public and the balance 99% was held by ICI (India) Private Ltd., a wholly owned subsidiary of ICI (U.K.).

1940: The Company started operations with a caustic soda/chlorine plant at Rishra in West Bengal.

1949: A hydrochloric acid plant with a capacity to produce 2,400 m.t.p.a. was put up at Rishra.

1951: A plant to produce 2,800 KL of nitrocellulose and synthetic paints per annum was installed at Rishra.

1952: The capacity of the caustic soda/chlorine plant was expanded to 5,600 m.t.p.a. of caustic lye on 100% basis and 5200 m.t.p.a. of Liquid Chlorine.

A benzene hexachloride plant with a capacity of 500 tonnes was set up at Rishra.

1958: While the scheme for the manufacture of polythene was being implemented the equity share capital of the company was expanded to Rs.310 lakhs by the issue of fresh share capital, at this stage the shares held by the Indian public went up to 24.1% and the remainder 75.9% was being held by ICI (India) Private Ltd.

1959: Polyethylene plant was set up at Rishra.

1963: The Company set up India's first rubber chemicals plant.

The capacity of the cuastic soda/chlorine plant was expanded to 7041 m.t.p.a. of cuastic lye on 100% basis, and 5814 m.t.p.a. of liquid chlorine.

1965: The capacity of the polythene plant was expanded to 10,000 m.t.p.a. and that of the paints plant to 4,700 kl.p.a.

1966: The capacity of the rubber chemicals plant was expanded from 2250 to 2700 tonnes p.a.

Equity share capital was increased to Rs.434 lakhs by the issue of bonus shares.

1967: The capacity of the BHC Technical plant was expanded to reach a figure of 5,200 m.t.p.a.

1971: A new paints plant with a capacity of 2350 kl.p.a. was set up at Hyderabad.

1974: An industrial licence for expansion in the capacity of the rubber chemicals plant to 6,000 t.p.a. and 2500 t.p.a. of diphenylamine was received.

Received an industrial licence to put up a pharmaceuticals plant in Madras.

1976: Industrial licence for manufacture of 2500 K.L. per annum of Gramoxane Bipyridilium Herbicide was received and work commenced. Agro-chemicals screening station at Bangalore was also inaugurated.

Expansion work for rubber chemicals was commenced.

Equity holding in the Company was diluted.

1977: Production at the formulation unit of the pharmaceuticals plant was commenced.

1978: Production at the Gramoxone and Bulk Drung plants was commenced.

(ii) <u>Ahmedabad Manufacturing & Calico Printing Co. Ltd.</u>

1880: Calico (Textiles) was established at Ahmedabad. The Company is now Public Company with Limited liability. Today it has three Main Divisions - Textiles, Chemicals Plastics and Fibres & Marketing Division and four wholly owned subsidiaries as under :

a) Ilac Limited
b) Rajindra Dyeing & Printing Mills Ltd.
c) Gujarat Nets Ltd.
d) Varma Industrials Ltd. (Subsidiary of Rajindra Dyeing & Printing Mills Ltd.)

1958: The Company obtained two industrial licences for the manufacture of Calcuim Carbide and Polyvinyl chloride. By 1961 both licences were implemented at Bombay. The Company obtained permission on the same licence to manufacture PVC fabricated products. This plant was commissioned in 1961.

1959: The Company obtained industrial licence for manufacture of Polyvinyl Alcohol.

The Company obtained industrial licence for manufactures of plastic moulded and extruded articles. The plant was commissioned in 1961 at Bombay.

1960: The Company obtained industrial licence for manufacture of PVC Coated Wires & Cables. The licence was implemented and production started in 1961.

1965: Polyvinyl Alcohol plant commissioned.

1967: The Company obtained industrial licence for effecting substantial expansion of Polyvinyl chloride and its co-polymers.

1972: P.V.C. (Bulk Polymerisation) plant was commissioned.

1976: on 28th February, the Company obtained industrial licence for Polyvinyl pyrrolidon.

1978: Plant for manufacture of Polyvinyl Pyrrolidon was commissioned.

(iii) Bakelite Hylam Limited

1947: On June 18, Hyderabad Laminated Products Limited was incorporated in the Nizam's Dominion of Hyderabad.

1949: Plant from U.K. arrived and erection was started.

1950: Erection of plant and machinery was completed.

1951: Started trial production with imported varnishes of Laminates for panelling.

Managing Agency changed from the promoters, Khan Bahadur Ahmad Alladin & Co. to Best & Company Limited.

1953: Varnishes developed indigenously.

Manufacture of Laminated Wood commenced under the trade Mark HYPLY.

1954: Break-even point reached in operations.

1955: Manufacture of higher electrical grade laminate commenced.

1956: 2-shift production started to cater for bulk business from the Railways for pancelling.

1958: Manufacture commenced of laminates of vary high electrical properties as also Asbestos-based Laminates and Decorative Veneers.

1959: Laminate Expension sanctioned.

Licence received for manufacture and sale of Polyester Resins, Phenolic Resins, and Moulding Materials.

1962: Trial production commenced of Laminates on the new Press.

Trial production of Polyester Resins, Phenolic Resins ana and Moulding Materials commenced.

1963: Progress in the development of new grades of Polyester Resins, phenolic Resins and Moulding Materials.

1965: Name of Company changed from Hyderabad Laminated Products Limited to Hylam Limited.

1967: First export of Industrial Laminates to Holland.

1968: Industrial Laminates exported to Holland, West Germany, Sweden, U.A.E.

Managing Agency terminated.

1969: Hylam Limited and Balkelite (India) Private Limited merged to form Bakelite Hylam Limited on 4th December.

1970: Expansion taken in hand.

1971: Expansion work on schedule. Press No. 3 installed and production started.

1972: Sophisticated 4-Colour Printing Machine installed for Decorative Papers.

1973: Buildings for Thixotropic Plant and storage of Polyester Resins completed.

New Polyester still installed and production started.

Glass-Epoxy and Cold-punching Laminate Grades developed.

1974: Expansion completed. Two Boilers converted to Coal-firing. Diesal Generation installed.

1975: Introduced a range of high-quality Insulating Phenolic Varnishes for the Electrical Industry.

1977: Rigid PF foam was developed in R&D Laboratory of the Company.

1978: Application for an industrial licence for the manufacture of Rigid PF foam developed in company's R&D Laboratory, was made to the Government.

Effluent treatment plant was established at the factory for pollution control.

A new material, Phenolic Foam Based Marine Board, was developed at company's RID Laboratory, to replace imported asbestors-filled Marine Board used in ship building.

Acquired land at a new site of Jeedimetla in a backward district of Andhra Pradesh to locate new plants for manufacture of PF foam and Marine Boards.

1980: Letter of intent for the manufacture of Rigid PF foam and Phenolic Foam bassed Marine Board were received.

(iv) Chemicals and Plastics India Ltd.

1961: In May, licence was granted to The India Cements Ltd. to manufacture 6,000 tonnes per annum of PVC resins/compounds.

1962: Company was incorporated.

In November, original licence was changed to the name and style of Chemicals and Plastics India Ltd.

1963: Certificate for commencement of business was issued.

Licence was granted to manufacture 1,500 tonnes per annum of PVC pipes and fittings, other extrusions and mouldings (rigid & flexible) in January.

1967: In May, PVC Plant was inaugurated.

In July, commercial production of PVC resins was commenced.

1969: Production of PVC pipes was commenced.

1970: Industrial Licence was issued for expanding PVC capacity to 20,000 tonnes per annum.

1971: Successful commercial production of gramophone record was compounded.

1972/73: Intermediate stage of expansion in PVC capacity to 13,500 tonnes per annum was completed.

1975: Permission was granted by the State Government to set up a captive distillery for production of industrial alcohol.

In December, Industrial Licence was granted for production of 3,500 tonnes of PVC pipes per annum.

1976: Entered export market for PVC conduits pipes and fittings.

1978: Debottlenecking programme to achieve an initial rated capacity of 16,500 tonnes of PVC resin was commenced.

In October, production of Industrial Alcohol in the captive distillery unit at Krishnagiri was commenced.

Government approval was received for effecting substantial expansion for manufacture of Rigid PVC pipes and fittings, other extrusions and mouldings to an annual capacity of 6,000 tonnes.

1979: Debottlenecking programme to achieve 20,000 tonnes of PVC resins was in progress.

The Company entered into an agreement with the BF Goodrich Co. for the introduction of VCM Technology.

1981: Debottlenecking programme to achieve 20,000 tonnes of PVC Resin per annum was completed.

Production had to be suspended due to workers strike from February 12 to April 16.

(v) Chemo-Pharma Laboratories Limited

1970: Diversification and expansion programme was undertaken to maintain sufficient diversity of products and product lines. The necessary land was acquired at MIDC Industrial Area, Kalyan Hiwandi Road.

1971: First stage of gradual diversification costing about Rs.20 lakhs was completed with commissioning of plant to manufacture Urea Formaldehyde & Melamine formaldehyde moulding powders.

1972: Commercial production of Urea Formaldehyde & Melamine formaldehyde powder was started.

1975: An improved pullveriser was installed which could pullverise the sheets into fine granules without any increase of temperature.

1976: Manufacturing technology of Indigo Vat Blue was developed in the R&D Department of the Company.

1977: New/improved process of manufacture of Niacinomide IP and Isomeazed IP was developed. Development of Solid Resins of Urea and Melamine for Industrial application was also done.

1978: Manufacture of Indigo, Urea Formaldehyde and Melamine Formaldehyde was suspended due to market conditions.

1979: Manufacturing technology of Analgin and Melronidozoli was developed in the R&D Department of the Company. Process was also tried on pilot scale with satisfactory results.

1980: Manufacturing technology of Trimethoprim was developed in R&D Department of the Company.

(vi) East Anglia Plastics (India) Limited

1956: Incorporated in West Bengal with an authorised capital of Rs.1 crores. Government approval to manufacture Cellulose Acetate Moulding Compound and PVC Compound in technical collaboration with East Anglia Plastics Ltd., U.K. was accorded.

1961: Government modified terms of collaboration with East Anglia Plastics Ltd., U.K. and collaboration agreement was made.

1962: Production of Cellulose Acetate Moulding Compound was commenced.

1963: Further share capital of Rs.85 lakhs was raised. Industrial Licence for manufacture of 1000 tons Phthalate Plasticisers and foreign collaboration arrangement was approved by Govt.

1964: Capital Goods Import Licence for Phthalate Plasticisers was received.

1965: Manufacture of PVC Compound was commenced.

1966: Production of Lighter Phthalates was commenced.

1967: Production of Heavier Phthalates was commenced and Industrial Licence for Plastic Films, Foils and Laminates was received.

1968: Industrial Licence for expansion of capacity of Phthalate Plasticisers to 2000 tonnes was received.

1970: Industrial Licence for expansion of capacity of Phthalate Plasticisers to 5,000 tonnes was received.

1971: Letter of intent for manufacture of Phthalic Anhydride one of the major raw materials for Phthalate Plasticisers was received.

1972: Industrial Licence for Phthalate Plasticisers was endorsed by Government for production upto the installed capacity of 8,500 tonnes.

1973: Production of Plastic Films and Foils was commenced.

1974: Industrial Licence for 6,000 tonnes of Phthalic Anhydride was received.

1975: Letter of intent for production of Malathion was received.

1976: A process for manufacture of Titanium Dioxide from an industrial waste was developed by R&D Laboratory and provisionally patented.

1977: Successful Pilot scale trial of the process for manufacture of Titanium Dioxide including a catalyst or Fertilizer Industry as a by-product was made.

(vii) Indian Plastics Limited

1946: M/s Bestolite Moulding Company of India, a British firm having its factory at Jogeshwari was taken over in 1944 by BIRLA BROTHERS was named as INDIAN PLASTICS LTD.

1947: The manufacturing work of Phenol Formaldehyde Moulding Powder was started for using the same in its compression moulding section, where mainly Electrical Accessories were being produced. On Injection side, house-hold products in plastics were produced and sold for home consumption.

1948: The manufacture of thermosetting Synthetic Resins for commercial sale was undertaken.

1950: The factory was shifted from Jogeshari to a more spacious site comprising about 29,000 sq. metres at Poisar Bridge Kandivli, Bombay.
Started manufacturing of Valve set Raiods with the technical know-how from LEYLAND'S INSTRUMENTS LIMITED, LONDON.

1956: Started manufacture of Urea Formaldehyde Moulding Powder.

1957: Manufacture of Transister Radios started.

1961: Entered into 5 years collaboration agreement with HAMAKAWA ELECTRIC COMPANY LIMITED OF JAPAN for the manufacture of Transistor Radios.

1962: Entered into collaboration agreement for 10 years with BAKELITE GESELISCHAFT MBH, West Germany for the technical know-how for the manufacture of thermosetting moulding powder-Phenol Formaldehyde, Urea Formaldehyde and Melamine-Formaldehyde and Synthetic Resins for various Industrial applications.

1964: Started the manufacture of Melamine Formaldehyde Moulding Powder.

1967: Research & Development Department was set up and started accepting custom mouldings to meet the specific requirements of the industries in different fields right from development of powder and moulds.

1972: Rayon Spinning Bucket was manufactured from technical know-how developed at R&D Section for the first time in India. This will save the country approximately one crore of rupees in foreign exchange annually.

1976: Through the efforts of R&D Division, many new types of Phenolic Moulding Powders and resins (mainly for import substitution) were formulated and sold.

1977: R&D Laboratory was recognised by the Government of India, Department of Science & Technology.

Licence under IS Specification 3389 - 1965 for U.F. Moulding Powder was received.

Developed many defence stores in Plastics.

1978: Development and Commercialisation of special, P.F. Moulding and M.F. Moulding Powder.

1979: Special P.F. Moulding Powders based on Nylon, Mica, Glass, etc. were launched.

1980: Developed P.F.Moulding Powder and substitutes for various types of rubber grade, resins hitherto imported.

(viii) Mysore Acetate and Chemicals Co. Ltd.

1963: On 24th December, the Company was incorporated under the Indian Companies Act with its registed office at Bangalore to manufacture various derivatives of Cellulose like Cellulose Triacetate, Cellulose Diacetate and Cellulose Acetate Moulding Granules. The Company was formed with the main object of supplying Cellulose Triacetate to M/s Hindustan Photo Films Mfg. Co.Ltd., Ootacamund, Tamil Nadu.

1964: On 25th May, certificate was issued for commencement of business.

1965: Entered into collaboration with M/s Vankoharn Inc., U.S.A. for supply of plant and machinery for the manufacture of Bleached Cotton Linters, Cellulose Triacetate, Cellulose Secondary Acetate and Cellulose Acetate Moulding Granules and with M/s A.B.Chematur of Sweden for the supply of plant and machinery for the manufacture of Acetic Anhydride.

1967: The construction of factory buildings and erection of plant and machinery was started.

1968: Acetic Anhydride plant was put into operation in July after completion of trial runs. The moulding compound plant began trial production of Cellulose Acetate Moulding Granules with imported flakes.

1969: Started supplying Cellulose Triacetate to Hindustan Photo Films during the latter part of the year, thus saving considerable amount of Foreign Exchange. The other plants like, Bleached Cotton Linters, Cellulose Triacetate etc. was commissioned and production started with effect from 1st July.

1970: Cellulose Secondary Acetate Plant went into trial production via. Triacetate route and Dil.Acetic Acid Plant also went into trial production. All the foreign technicians were withdrawn and the Company was manned entirely by Indian personnel. The Ethyl Acetate plant was also commissioned during the year.

1972: The plasticizer unit, i.e. Diethyl Phthalate was commissioned in July to manufacture Diethyl Phthalate required for captive use. The plant was designed and commissioned entirely by the Company personnel.

1974: The direct solution process for the manufacture of Cellulose Secondary Acetate was commissioned in September.

1975: The Secondary Acetate solution process was stabilised and all grades of CAMG were reformulated to adopt to the cellulose acetate flakes produced by the solution process.

1977: The Company installed and commissioned two Diesel Generators sets of 210 KV each to meet the chronic power shortage of the State.

1978: Registeration for manufacture of Cellulose Acetate Butyrate (CAB) was entered with DGTD and also applied for registration for installation of a 20 tonne per day alcohol based acetic acid plant.

1979: Applied for letter of intent for manufacture of Cellulose Triacetate based photo films viz. X-ray, Roll and cine, in colour and in black & white, Graphic Arts and photo-paper.

(ix) Muchem Plastics Limited

1951: Started as Button moulders, Rattanchand Harjasraj (Plastics) Ltd. at Amritsar with a paid up capital of 3.11 lakhs.

1952/ 1954: Developmental work on moulding powders and collection of valuable data regarding the manufacture of U.F.Moulding Powder in tropical conditions was undertaken.

1955/ 1956: Agreement was concluded with M/s British Industrial Plastics (Chemicals) Ltd. Birmingham for Technical Collaboration.

1957: U.F. Moulding Powder production was started.

1959: Expansion for 840 tonnes of Urea Formaldehyde and for 250 tonnes of Malamine Formaldehyde Moulding Powders was sanctioned. A licence to manufacture Urea Formaldehyde Resins 1800 tonnes per annum was also received.

1962: Expansion was completed. Production on new plant was started. The Company received a Licence to manufacture 192 Compression and Injection Moulding Tools per annum. Engineering Division started.

1965 : Resin plant was commissioned.

1967: Bonus shares 2:1 issued. Company's name changed to NUCHEM PLASTICS LIMITED, now a Public Limited Company.

1969: First public issue.

1970: Formaldehyde plant was installed.

1971: International Division was set up to accelerate exports. Production of 5000 tonnes Moulding Powders per annum taken up.

1972: Research & Development Centre started functioning.

1973: Hexamine Plant was commissioned.

Company was awarded National Safety Award by Ministry of Labour.

1974: Bonus shares 1:2 issued.

1975: A formaldehyde Plant was sold out on turn-key basis to M/s Southern Synthetics Ltd., Ranipet (Tamil Nadu).

Company was awarded TOP EXPORTERS AWARD in the category of raw-materials by Government of India.

1976: Process for manufacture of Phenyl Butazone was sold to M/s Nufarm Chemicals, Faridabad.

Formaldehyde plant to M/s Southern Synthetics Ltd., Ranipet was commissioned successfully.

Engineering Division started manufacturing compression processes for plastics, rubber and other specialised usage.

1977: Process for manufacture of Paraformaldehyde was completed and taken up in hand for execution.

1978: Encapsulation Process Ferite Moulding Presses and such specialised hydraulic presses were introduced in the market by the Engineering Division.

1979: A pilot plant for Phenolic Resins was supplied to Burma through National Research & Development Corporation.

1979 (Contd): An agreement was arrived at between Nuchem and U.P. State Industrial Development Corporation to flow a joint sector company to exploit CMC know-how, developed by the country.

1980: The Company exported its technology for Phenolic Resins to Burma through NRDC, New Delhi.

Submitted application for grant of Industrial licence for the production of 2000 tonnes of specialised Pehnolic Resins and Moulding Powder.

(x) Plastics Resins and Chemicals Limited

1962: The Company was incorporated under the Companies Act, 1956.

1971: Commenced manufacturing of PVC Compound with own technical know-how.

1972: Set up a Research Laboratory for quality control and Technical Service Laboratory for customer service in Bombay.

1973: Exported 462 tons of PVC resins.

Exporter's Award by Plastic Lineleum Export Promotion Council for the year 1973-74 was awarded.

Won the National Safety Award for Industrial Safety.

1975: Commenced commercial sale of by-product, i.e. Benzene.

1978: From 4th February, manufacturing operation was stopped due to uneconomical working conditions.

1979/80: Plant remained closed due to uneconomical working conditions.

1980/81: Plant continued to remain closed.

The Company applied for an industrial licence for the manufacture of 10,000 tonnes per annum of 1,1,1 Trichloro Ethane.

(xi) Polyolefins Industries Limited

1964: The Company was promoted by National Organic Chemical Industries Limited with financial and technical collaboration with Farbwerke Hoechst AG, West Germany for the manufacture of 20,000 tonnes per annum of High Density Polyethylene(HDPE), 320 tonnes per annum of Ziegler Catalysts and 5,600 tonnes per annum of processed products made out of HDPE for which the necessary industrial licence was received.

1965: Fondation stone was laid on 18th February and construction work started.

1965: (Contd) The Engineering Contract, Agreement with German Reconstruction Bank for foreign loans and all other major Agreements were finalised. It was for the first time Kreditanastalt fur Wederfbar (KfW), a German Reconstruction Bank gave direct loan to a party in India.

1966: In Order to develop the market for HDPE raw material in India, Company imported 1,500 tonnes of HDPE raw material on a product loan basis. This material was distribution to various processors throughout India. This timely action by the Company resulted in rapid growth of plastic processing industry and also gave impetus to plastic machinery manufacturing industry in India.

1968: Started production of HDPE for the first time in India, in the month of March. Company also started simultaneously production of Ziegler Catalyst, viz. Ethyl Aluminium Sesqui Chloride and Ethyl Aluminium Mono - Chloride, essential raw materials required for manufacture of HDPE. The Company successfully developed indigenously, an essential raw-material-dispersing agents required for manufacture of HDPE. To remove excess sulphur contents in locally developed dispersing agent, the Company put up a Desulphurisation Plant. In the latter part of the year, the Company developed HDPE top up containers for packing of lubricating oils. A small quantity of the product was exported.

1969: Exported 10,300 tonnes of its product to various parts of the world.

After extensive tests and trials, a leading oil company started packing their lubricating oils in one litre and half litre top up containers made of HDPE. This changed the concept of packaging in India which has resulted in considerable saving of foreign exchange and conserving of essential raw materials.

Production of barrels and jerrycane made of HDPE for storage and transportation of hazardous chemicals was undertaken.

1970: Started production of HDPE Pipes which are extensively used by Chemical Industry for transportation of corrosive chemicals and effluents. These pipes are also used for water supply in inaccessible hilly terrains and in Agriculture.

Obtained special permission for use of HDPE containers for packing hydrogenated vegetable oils.

Share capital was increased from Rs.3.6 crores to 5.4 crores by issuing Right Shares.

1971: Obtained Industrial Licence to manufacture N-Butene-1 required for the manufacture of HDPE.

Highest production of HDPE achieved.

1972: Export of processed products made of HDPE was started.

Undertook contract of laying HDPE Pipes for distribution of natural gas in Baroda City. 250 KM of HDPE Pipes of various sizes were laid down in Baroda City and gas connections were given to more than 26,000 consumers.

1973: Industrial Licence for expansion from 20,000 MT to 30,000 MT of HDPE was received. Also received capital goods licence for expansion.

1974: Plant for manufacture of N-Buteno-1 started.

Bonus shares were issued in the ratio of one share for every three shares held by Shareholders, thus increasing the share capital from Rs.540 lakhs to Rs.720 lakhs achieved highest production of 24,618 M.T.

1975: Decided to set up a joint venture project in Malaysia for production of HDPE Pipes.

Received highest award in export performance for export of HDPE Pipes during 1974-75 from PLEX Council.

1976: Received highest award in export performance for export of HDPE pipes during the year 1975-76 from PLEX Council.

1977: The share capital was increased from Rs.7.2 crores to Rs.9 crores.

A joint venture Agreement, Engineering Agreement, Technical Service Agreement and Equipment Sales Agreements were entered into with the Malysia Partners for establishment of a Pipe Project with a capacity of 600 MTA.

1978: The Company switched over to a new manufacturing process.

A joint venture project set up by the Company in Malaysia for the manufacture of High Density Polyethylene Pipes, commenced production.

(xii) Shriram Fertilizers & Chemicals Industries

1960: Application for grant of industrial licence for setting up a 20 tons/day PVC plant at Kota was submitted.

1961: Industrial licence was received.

Technical collaboration agreement was signed with M/s Shin Etsu Chemicals Industry Co.Ltd. and Mitsui Bussan Kaisha Ltd., Japan and the same was approved by the Government.

Import licence was received.

Foundation stone was laid.

1963: Commercial production of calcium carbide was started.

1964: Plant was formally inaugurated and commercial production of PVC was started.

Application for expansion of PVC capacity to 40 tons/day was submitted to the Government.

1965: Received ICMA export promotion award for outstanding performance in the promotion for exports. Letter of intent for expansion of PVC capacity was received.

1966: Licence for expansion of PVC capacity to 40 tons/day was received.

1968: Commercial production for expanded capacity of PVC, i.e. 40 tons/day was commenced.

1969: Got National Safety Award given for outstanding performance in industrial safety by achieving highest percentage reduction in frequency rate during the year 1967.

1972: Application for expansion for PVC capacity from 40 to 80 tons/day was submitted.

1973: Licence for increased capacity of PVC, i.e. 80 tons/day was received.

1974: Letter of intent for calcium expansion by 100 tons/day was received.

1976: Licence for expansion of calcium carbide capacity by 100 tons/day was received.

Design engineering contract was finalised and civil work for carbide expansion was commenced.

1977: Additional carbide capacity of 100 tons/day, i.e. total of 170 tons/day was commissioned.

1978: PVC Plant capacity increased was to 80 tons/day.

Technical collaboration agreement for modernisation of Vinyl Chloride polymerisation plant was signed with M/s Kanegafuchi Chemical Industry Co.Ltd., Japan.

1979: Letter of intent for expansion of PVC capacity to 60,000 tons per annum was received.

1980: Letter of intent for expansion of calcium carbide capacity from 56,100 tons to 125,000 tons per annum was received.

(xiii) <u>The Industrial Plastics Corporation Pvt.Ltd. (TIPCO)</u>

1947: Established a production of Phenolic Resins/compounds of 72 tons per annum, became a founder member of all-India Plastic Mfg. Association.

1958 : Established a production of Phenolic Resins/compounds of 809 tons per annum.

Entered into a technical collaboration for manufacturing special purpose Phenol Formaldehyde Resins/Compounds with Phillips, Holland.

1961: Appointed on thermosetting panel of ISI.

Central Excise was levied on P.F. Resins/Compounds.

1964: Established as a regular suppliers of Phenolic Resins/ compounds to companies like Indian Telephone Industries, BHEL, HAL, BEL, etc. who were hitherto required to import their raw material based on Phenol and formaldehyde.

1968: Established Research & Development Wing on the most modern scale. Developed several additional special filler/property Phenolic Resins/compounds as import substitution. Also modernised the factory, technology and equipments - Phillips collaboration terminated. Established production of many additional especial purpose Phenolic Resins for foundries Brakelining Industries, etc.

1970: Celebrated silver jubilee year.

1971: Joined Release Order scheme to supply P.F.Resins compounds at International prices to domestic manufacturers of components for export production.

1972: AIPMA celebrated its silver jubilee on which occasion the Chairman, Shri B.K.Thakkar was honoured by an award for pioneering work done for Plastics Industry.

1973: Established a production Phenolic Resins/compounds of 2000 tons per annum.

Exported Phenolic Resins/compounds for the first time to Hongkong.

Introduced Phenolic Resins compounds for injection moulding for the first time in India.

1975: Added a very modern, continous process closed system equipment for processing P.F. Resins compounds by way of modernisation of the plant.

1976: Excise duty was reduced from effective 56% to effective 40% in March.

Export obligation imposed of Rs.3.75 lakhs per annum became effective and over two years obligation was set off during the first year itself. Business under indigenous Release Order Scheme was at an all time high, value of total supplies exceeded Rs. 7 lakhs approximately.

1978: Exported Nigrosine to USA and realised foreign exchange worth Rs. 1,82,125.

Completed export obligation of Rs.15 lakhs imposed on 1975 for Import of capital goods.

1979: Earned foreign exchange by exporting Nigrosine worth Rs,2,40,721/--

Industrial licence for manufacture of Engineering Plastics Polymer Resins was received.

An application was made for an industrial licence to manufacture 2200 tons of Nylon Tyre Yarn per annum.

(C) SYNTHETIC FIBRES

(i) Ahmedabad Manufacturing & Calico Ptg. Co.Ltd.

1880: Calico (Textiles) was established at Ahmedabad.

The Company is now a Public Limited Company with three Main Divisions (Textiles, Chemicals & Plastics and Synthetic Fibres Division) and following four wholly owned subsidiary companies.

a) Ilao Limited
b) Rajindra Dyeing & Ptg. Mills Ltd.,
c) Gujarat Nets Limited.
d) Varma Industries Ltd. (Subsidiary of Rajindra Dyeing & Ptg. Mills Ltd.)

1970: Industrial licence for manufacture of polyester staple fibre at Baroda was received.

1974: In May, the Spinning and Processing Unit of Polyester Fibre Plant started.

In July, commercial production of polyester staple fibre was commenced.

1976: In March, the remaining polymer unit of the Polyester Staple Fibre Plant was started up.

In May, the integrated Polyester Staple Fibre Plant from DMT and MEG to Baled Fibre went into commercial production.

1977: On 31st December, a letter of intent for doubling the polyester staple fibre production was received.

1979: In December, all Government formalities were completed for issuance of the Industries Licence, Capital Goods Licence and Foreign Collaboration approval for the doubling of our polyester staple fibre plant as per the letter of intent dated 31st December, 1977.

1980: In March, the Converter Unit was commissioned to market worsted tops for the first time to the woollen industry.

In September, additional high tenacity cotton type polyester staple fibre spinning and processing equipment was commissioned to increase the overall plant capacity from the licensed 6100 tonnes to 7400 tonnes per annum, within the permissible maximum limit under the IDR Act 1951.

(ii) Baroda Rayon Corporation Limited

1958: In May, the Company was incorporated.

1959: Received an Industrial Licence for the manufacture of Filament Rayon Yarn, Sulphuric Acid, Carbon-Dil-Sulphide and Anhydrous Sodium Sulphate in September.

1960: About 320 acres of land was acquired from Government.

1961: In May, Railway Siding was commissioned.

1962: The Water Pumping Station at Varachha was put into commission in the last week of July and to ensure water supply, pipelines were laid from Tapti River bed at Varachha to the factory site.

The Sulphuric Acid and Carbon-Di-Sulphide Plants and the Viscose Section of the Rayon Plant was commissioned on 31st October.

The Rayon Plant formally inaugurated on 23rd December.

1965: Produced for the first time in the country Finer counts such as 30 and 40 denier.

1968: The expansion of the Spinning Division was completed in May with the installation of 8 more spinning frames.

1969: Additional machinery was installed to increase the viscose capacity and the expansion programme was completed in July.

The French type Radial well was commissioned.

1971: In June, building foundation for Nylon plant was laid.

1973: On 1st January, Gujarat Polyamides was merged with The Baroda Rayon Corporation Ltd. and was named NYLON DIVISION of The Baroda Rayon Corporation Ltd.

1974: On 18th January, the Nylon Plant was inaugurated.

1975: In September, licence for increasing the Nylon Yarn capacity from 1800 million tonnes per annum to 2100 million tonnes per annum was received.

Industrial licence for manufacture of Nylon cord was received.

1976: Licence to manufacture 360 tonnes of Polyester filament yarn per annum within existing licenced capacity of 2100 tonnes per annum for nylon yarn was received.

In April, production of Polyester filament yarn was started.

1977: Licence for increasing the Nylon Yarn capacity from 1740 to 2436 tonnes per annum and Polyester Yarn from 360 tonnes to 576 tonnes was received.

1978: On 7th August, Polyester Polymerisation Plant was started for manufacture of Polyester Chips.

On 11th December, civil work for Nylon Tyre-cord Project was started.

1979: Industrial approval for Import of Equipment for Caprolactum Recovery Plant was granted.

On 31st December, Industrial Licence granting increase of licenced capacity of Nylon Tyre Yarn fabrics from 1000 tonnes to 1700 tonnes per annum was issued by the Government.

(iii) Century Enka Limited

1967: Public issue of shares.

1968: Construction work was commenced.

1969: Nylon Plant was commissioned.

1976: Industrial licence for expansion of Nylon Plant was received.

1977: Industrial licences for manufacture of 360 tonnes p.a. Polyester Filament Yarn was received.

1978: Expansion of capacity of Nylon Plant to 6.5 tons per day was implemented and manufacture of Polyester Filament Yarn was commenced. Proposal for recognition of additional capacity for Nylon Yarn of 1660 tons p.a. through modernisation was approved and Industrial Licence to this effect was endorsed.

1979: Industrial licence for manufacture of Engineering Plastics Polymer Resins was received.

1980: An application was submitted for expansion of licensed capacity of Nylon Plant from 4000 to 6000 tons per annum. Another application for an Industrial Licence to manufacture Polyester Yarn upto a capacity of 6000 tons per annum was also submitted.

(iv) Chemicals and Fibres India Limited

1961: Company was incorporated and licence was obtained for manufacture of Polyester Staple Fibre.

1963: Possession of land was given by State Government.

1965: Production of Polyester Staple Fibre was commenced.

1967: Licence was obtained for expansion of Polyester Staple Fibre.

1968: Expansion was completed.

1971: Licence was granted for expansion to 6,100 tonnes per annum of Polyester Staple Fibre.

1972: Expansion to 6,100 tonnes per annum of Polyester Staple Fibre plant was completed.

1979: Licence was obtained for expansion to 10,000 tonnes p.a. capacity of Polyester Staple Fibre Plant.

1980: In August, the expansion programme was completed.

(v) Garware Nylons Limited

1962: Factory was set up at Poona with a production capacity of 500 kgs. per day. It was the first Nylon Plant in the country set up without any foreign collaboration.

1965: Plant was set up for polymerisation of Caprolactum to Nylon chips.

1968: Substantial expansion was carried out, raising the capacity of 756 tons per annum of Nylon Yarn.

1969: The Company received a letter of intent to increase its capacity to 2000 tonnes.

1970: The Company became a Public Limited Company.

Licenced capacity was increased to 2000 tonnes.

1972: The Industrial licence for 2000 tonnes was implemented due to which the total capacity of production was raised to 2394 tonnes per annum of Nylon Yarn. Letter of intent was received for the manufacture of Polyester filament yarn for 360 tonnes per annum. Industrial Licence for the manufacture of Nylon Chips for Plastics Industry with an annual capacity of 330 tonnes was also received.

1973: Industrial licence for manufacture of Polyester filament yarn was received.

1974: The Company entered into Joint Venture Agreement with Malaysian State Development Corporation for setting up a plant for manufacture of Fabrics in Malaysia.

1975: Commercial production of Polyester filament yarn commenced. Two diesel generating sets of 1450 KVA capacity each were installed.

1976: Depolymerisation plant to recover basic raw material (viz. Caprolactum) from Nylon waste was inaugurated on 20th March.

1977: As a result of modernisation programme, the licence capacity of Nylon and Polyester Filament Yarn was increased by the Government by 958 and 216 tons respectively.

As regards Polyester filament yarn, the additional capacity has already been achieved and the licence capacity stands at 576 tons per annum.

The modernisation programme of the Nylon filament yarn plant was under implementation.

1978: Third Diesel Generation set of 1450 KVA capacity was installed and construction/erection work of Ethylene Glycol recovery plant was started.

1979: Some of the operations of the plant were shifted from Poona to Ahmednagar.

Ethylene Glycol Recovery Plant was commissioned.

1980: Modernisation programme of Nylon Filament Yarn was completed.

(vi) Indian Organic Chemicals Ltd. (Fibre Division)

1960: The Company was incorporated.

1969: Site for the Polyester Staple Fibre Plant was selected.

1970: Industrial licence for the manufacture of 6100 metric tonnes of Polyester Staple Fibre per annum was granted.

1971: In February, foundation stone was laid.

In November, machinery erection was commenced.

1972: In August, the plant was commissioned.

1973: In January, commercial production was started.

1974: Pilot plant was set up in R&D Laboratory.

R&D Unit was recognised by the Deptt. of Science & Technology.

First Diesel Generator set was commissioned.

1976: Second Diesel Generator set was commissioned.

In December, production of high performance polyester fibre was started.

1977: Licence for importing capital goods by way of balancing equipment was received.

In December, letter of intent for increasing the existing production capacity was received.

1978: In March, commercial production of polyester fibre from waste was started.

In August, production of high tenacity polyester fibre was started.

1979: Capital goods licence for expansion was received.

1980: In October, foundation stone for expansion was laid.

(vii) J.K. Synthetics Limited

1943: Incorporated at Kmpur, U.P.

1958: Received Industrial licence for manufacture of Nylon/ Perlon Yarn at Kota.

1960: The name of the Company was changed to J.K. Synthetics Ltd. on its taking up industrial activities. Additional equity share capital was raised to finance the project.

1962: Country's first Nylon Plant with a capacity of 800 Kgs. per day was inaugurated. Nylon yarn was marketed under the trade names of Jaykaylon' and Jayanca'. The plant also produced stretch yarn.

1963: Technology developed for production of high tenacity industrial nylon yarn to cater to defence requirements of the country. Braiding plant at Kanpur commenced production to execute defence orders.

Industrial licence for first stage expansion for nylon plant was received.

1964: Industrial licence for manufacture of 4000 tonnes per annum of acrylic staple fibre was received.

1965: First stage expansion was completed in record time raising the plant capacity to approx. 3 tonnes/day.

1966. Industrial licence for the manufacture of 1000 tonnes per annum of Nylon Tyre Cord was received.

1967: Encouraged by the success of its research activities, the Company had undertaken further research work in the field of manufacture of synthetic fibres.

1968: The 2nd stage of expansion of nylon plant was completed raising its installed capacity to 2200 tonnes per annum.

In the research centre of the company, technologies were developed for the first time in India for production of spaced-dyed and draw-wound yarns.

Research activities were further strengthened by incurring capital expenditure of Rs.72.06 lacks during the year.

Initiated research for development of technology for manufacture of polyester filament yarn from chips.

1969: Research work con-tinued for development of technologies for manufacture of polyester filament yarn, nylon tyre cord, acrylic staple fibres, recovery of caprolactum etc. Engineering technology was also developed by doubling the number of ends in the spinning equipment. Additional capital expenditure of Rs.75.80 lakhs was incurred for carrying out scientific research.

1970: Research efforts continued for improvement in the techniques for the manufacture of nylon yarn and perfecting new technology. Additional capital expenditure amounting to Rs.40.80 lakhs was incurred in the year for strengthening research facilities.

1971: Developed technologies for manufacture of nylon tyre cord and synthetic staple fibre.

Research activities further strengthened by incurring capital expenditure of Rs.80.24 lakhs.

Trial production in nylon tyre cord plant and synthetic fibre plant commenced.

1972: Received an industrial licence for manufacture of 360 tonnes per annum of polyester filament yarn and 450 tonnes per annum of polyester staple fibre by way of diversification.

Commercial production of nylon tyre cord, nylon staple fibre and polyester staple fibre was commenced.

1973: Licence for the manufacture of 3840 tonnes per annum of nylon yarn was implemented.

Received the approval of Government of Kenya for setting up of an industrial joint venture in Kenya for the manufacture of synthetic filament yarn. The Company was also selected for supply of know-how and engineering services.

Secured a contract for supply of know-how, engineering services and plant and machineries to Indian Petrochemical Corporation, Baroda for their proposed polyester filament plant.

The installed capacity for manufacture of nylon tyre cord and polyester filament yarn was increased to 1600 tonnes per annum and 600 tonnes per annum respectively.

1973: Foundation stone laid for Sir Padampat Research Centre, Kota. (Contd)

Developed successfully the process of differential dyeable nylon yarn known as "Nova colour nylon" for the first time in India.

1974: Approval for foreign technical collaboration with M/s Technimont S.P.A., Milano (Italy) for setting up an acrylic fibre plant at Kota received.

Installed capacity for manufacture of Polyester Staple Fibre increased to 900 tonnes per annum as licensed.

Received and implemented industrial licence for manufacture of 800 tonnes per annum of nylon tyre yarn fabrics.

Sir, Padmpat Research Centre recognised by the Govt. of India, Research activities continued to contribute towards diversification and development of new products.

1975: Received Central Government's approval and import licence for the import of capital goods for acrylic fibre project.

1976: Received Government approval for the technical collaboration agreement with M/s Zinser Textilmaschinen, West Germany for the manufacture of draw twisting machines suitable for nylon and polyester filament yarn and for heavy denier yarn.

Indigenous know-how was developed for recovery of DMT from Polyester waste for the first time in India.

First ever agreement for supply of know-how and engineering services and managing a synthetic yarn plant abroad was signed with Africa Synthetic Fibres Ltd. (a company incorporated in Kenya).

Indigenous Nylon-6 battery fabric was developed which would save substantial foreign exchange.

1977: Government's approval was received for increasing the capacity of Nylon Filament Yarn by 40% and that of Polyester filament yarn by 60% due to modernisation. As a result of this the annual licenced capacity of Nylon filament yarn increased to 5376 tonnes and that of Polyester Filament Yarn to 960 tonnes.

Letter of intent for the manufacture of 4000 MT per annum of DMT, 1000 MT per annum of Mono Ethylene Glycol (By Products) from Polyester waste and for substantial expansion of Polyester staple fibre to 6000 MT per annum were also received.

1978: Received industrial licence for manufacture of 4000 MT p.a. of DMT and 1000 MT p.a. of MEG and also for expansion of polyester staple fibre capacity from 900 tonnes p.a. to 3000 tonnes p.a. and that of Nylon Tyre-Cord Yarn from 1600 tonnes p.a. to 3000 tonnes p.a.

1979: Industrial licence for expansion of polyester staple fibre capacity from 3000 tonnes p.a. to 6000 tonnes p.a. was received and implementation work for this project was started.

Trial production of Acrylic Staple Fibre was commenced at the Company's Synthetic Fibre Complex at Kota.

Received letter of intent for expansion of Polyester staple fibre capacity from 6000 tonnes p.a. to 12,000 tonnes p.a. and nylon tyre yarn fabric from 800 tonnes p.a. to 2760 tonnes p.a.

1980: Received letter of intent for expansion of Polyester filament yarn capacity from 960 tonnes p.a. to 6960 tonnes p.a.

Received Government approval for foreign technical collaboration with M/s Zimmer AG, West Germany as well as capital goods clearance for the expansion of Polyester staple fibre capacity from 6000 tonnes to 12,000 tonnes per annum.

1981: Received approval for the import of capital goods for expansion of Polyester filament yarn capacity from 960 tonnes p.a. to 6960 tonnes p.a.

(viii) Modipon Limited

1965: Company was incorporated and industrial licence was received.

1967: Corner stone was laid.

1968: In March, commercial production was started.

1969: Dividend of 8% on equity share capital was recommended for the first year of production ending on February 28.

1970: The plant achieved its full production capacity.

Industrial licence for marginal expansion from 1800 tonnes to 2200 tonnes per annum was received.

1972: The capacity of original licence was enhanced from 1800 tonnes to 3000 tonnes per annum.

C.O.B. licence for the manufacture of 360 tonnes per annum of polyester filament yarn was received.

Expansion project of the Company was commissioned.

1973: In January, production of Polyester filament yarn was started.

1974: Issued bonus shares to the Equity Shareholders in the proportion of three bonus shares for every four equity shares in August/September.

1975: It was decided to set up an ophthalmic research centre at Modinagar in collaboration with the National Society for the Prevention of Blindness (India), New Delhi.

1976: In January, synthetic fabrics was exported.

1977: On 25th March, approval of the Government was obtained under the modernisation programme for increasing the annual manufacturing capacity of Nylon Filament Yarn by 1360 tonnes and Polyester Filament Yarn by 216 tonnes.

Capacity to produce higher tonnage of Polyester filament yarn as a result of shift in the average deniers from finer to Coarser denier, was also recognised by the Government on 29th December.

1978: Polyester chips plant was commissioned.

1979: Under diversification programme drawtexturing machine was installed using directly spun yarn for texturing, i.e. avoiding drawtwist stage.

1980: High speed drawtexturing machine was installed in R&D Cell.

Letter of intent was received for 2000 tonnes per annum for manufacture of Nylon Tyre Yarn.

(ix) National Rayon Corporation Limited

1946: The Company was incorporated at Bombay with authorised capital of Rs.10 crores dividend into equity of Rs.5 crores and Preference Shares of Rs.5 crores.

1951: Production of Rayon Textile Yarn was started.

1961: Production of Rayon Tyre Cord and Fabric was commenced.

1976: In April, the share capital was raised to Rs.12.5 crores comprising of equity of Rs.27.5 crores and preference shares of Rs.5 crores.

Commercial production of Nylon-6 Tyre cord was commenced.

In December, water pollution control plant phase-I was commissioned.

1978: Commercial conversion of Nylon-6 Tyre Yarn to Fibre was commenced and Water Pollution Control Plant Phase II was commissioned.

(x) Nirlon Synthetic Fibres & Chemicals Ltd.

1961: Nylon Textile Yarn Plant started production with an annual installed capacity of 720 tonnes.

1963: The Company was converted into Public Limited Company.

Commenced exports of synthetic fabrics.

1964: Declared maiden dividend.

1965: The annual licensed capacity of Nylon Textile Yarn was increased from 1872 tonnes to 2520 tonnes and the annual licensed capacity of Nylon Tyre Cord was increased from 576 tonnes to 1,440 tonnes.

1967: Research & Development Division developed know-how for manufacturing polyester filament yarn.

Commenced production of polyester filament yarn which was manufactured in India for the first time.

1968: The first phase of Nylon Textile Yarn expansion was completed. The annual production capacity of Nylon Textile Yarn was increased to 2160 tonnes.

Tariff Commission Inquiry into the price structure of nylon yarn was ordered by the Government.

1970: The annual production capacity of nylon yarn was increased to 2520 tonnes.

Machinery for setting up of the Tyrecord Plant was received at site.

The Company with other Nylon Spinners, entered into a voluntary agreement with Consumers Association for selling yarn at an agreed price, which were far less than the price ruling in the market.

1971: Nylon Tyrecord Plant commenced production. Nylon tyre cord was manufactured for the first time in India.

1972: Exported synthetic fabrics to Czechoslovakia for the first time.

1973: Annual licenced capacity for manufacturing polyester filament yarn was increased from 360 tonnes to 576 tonnes.

Polyester filament yarn was manufactured to full licensed capacity.

1974: Polycondensation plant was commissioned.

1975: Plant for the recovery of Glycol and Methanol was commissioned.

Commenced work on Depolymerisation plant for recovery of Caprolactum from waste.

Received industrial licence for the manufacture of the Conveyor Belting and Fan and V-Belts.

1976: Recognition of Research & Development Centre was renewed by the Government.

1977: Depolymerisation plant for recovery of caprolactum from waste was commissioned. Work on conveyer betting, Fan & V. Belts Project and installation of additional capacity due to modernisation of Nylon & Polyester Textile Yarn was also started.

Modernisation of Polyester Textile Yarn to achieve increased capacity of 922 MT was completed. The annual licenced capacity of Nylon Textile Yarn was also increased from 2520 tonnes to 3528 tonnes.

1978: Plant for manufacture of Conveyor Belt was commissioned.

Government's approval for Foreign Technical collaboration with B.T.R. Belting Ltd., U.K. for manufacture of Synthetic Fibre reinforced conveyer Belt was also received.

1979: Plant for manufacture of V-Belts/Fan Belt was commissioned.

Modernisation of Nylon Textile Yarn to achieve the increased licence capacity of 3528 tonnes was also completed.

1980: Recognition of Research and Development Centre was renewed by the Government.

1981: Production of Nylon conveyor Belting was started.

Export orders for V-Belt were received.

(xi) Shriram Fibres Limited

1966: In November, letter of intent for 4500 tonnes of Nylon Tyre Cord was received by Delhi Cloth & General Mills Co.Ltd.

1969: In July, the letter of intent was modified for two thousand tonnes of Nylon Tyre Cord in a plant to be set up at Madras.

1971: In May, MRTP clearance was obtained for participation of DCM in equity shares of Shriram Fibres Ltd.

In June, Certificate for Commencement of Business was obtained.

In July, Government approval for collaboration with M/s Chemtex and Unitika was obtained.

1973: Project office was set up at Madras.

1974: On 31st December, trial runs were commenced.

1975: On 1st April, commercial production was commenced.

1976: Facilities for fabric production were installed.

1977: On 13th January, permission for manufacture of 500 tonnes p.a. of Nylon chips and 600 tonnes p.a. of Nylon Industrial yarn was issued by the Government.

By September, technology for the manufacture of Nylon Chafer Yarn and OPD was successfully developed in R&D Laboratory of the Company.

1978: An industrial licence was issued for the manufacture of 500 MTs per annum of Nylon Moulding Powder with total capacity of 3000 MT per annum.

1979: On 31st December, letter of intent was issued by the Govt. for increasing the Fabric conversion capacity from 1000 MT to 2550 MT per annum.

1980: Government recognition for the R&D Centre of the Company was received.

Letter of intent for manufacture of 200 MT of Cha-fer Fibric was also received.

(xii) Stretch Fibre (India) Ltd.

1965: Incorporation on 19th June with authorised capital of Rs.150 lakhs dividend in 15 lakhs equity shares of Rs.10 each.

On 29th July, certificate for commencement of business was received.

1966: In January, production of Stretch Nylon Yarn was commenced.

1969: 1st plant for manufacture of knitting fabric was commissioned.

1973: Spinning plant for the manufacture of nylon was installed.

On 6th October, commercial production of nylon yarn was commenced.

1976: Permission for production of 135 MTA of Polyester Filament Yarn was obtained.

1977: Steps of erection of Polymerisation plant were started.

1978: In January, licence for substantial expansion of capacity for production of Nylon Yarn from 540 MT to 4200 MTPA was granted.

1979: Government's clearance for import of machinery for expansion scheme was obtained.

1980: LA for production of 135 MTPA Polyester Yarn was converted to Industrial Licence.

(xiii) Shree Synthetics Limited

1968: Shreeram Silk Mills Ltd., Calcutta, a unit of Hastings Mills with an authorised capital of Rs.5 crores was incorporated.

An Industrial licence was received for the manufacture of 1080 tons/annum of Nylon-6 filament yarn.

1969: The name of the Company was changed to Shree Synthetics Ltd.

1972: The plant for production of Nylon-6 and Polyester filament yarn was commissioned.

1975: Monomer Recovery Plant for recovering the caprolactum from wash water was commissioned.

1976: Industrial licence for expansion of nylon/polyester filament yarn capacity was received.

1978: Loans were sanctioned by the Financial Institutions for implementing Nylon Expansion Schemes.

1979: Industrial licence for 1740 M.T.P.A. of nylon 576 M.T.P.A. of Polyester Fibre were received.

Four draw texturising machines were commissioned for manufacture of textile yarn.

1980: First Phase of nylon expansion was completed and commercial production was started.

The authorised capital of the company was increased from Rs.5 crores to Rs.7 crores.

The company approached the Govt. of India for enhancement of its capacity of nylon yarn from 1740 tonnes to 6000 tonnes and polyester yarn from 576 tonnes to 1800 tonnes.

(xiv) Swadeshi Polytex Limited

1970: During September, collaboration agreement for polyester staple fibre plant was finalised with Zimmer A.G. West Germany.

In October, foundation stone for the plant was laid.

1971: In October, erection of plant and equipment was completed. Trial runs were commenced.

1973: In March, commercial production was commenced.

In August, normal 1.4 and 2.1 denier polyester fibre was introduced in India for the first time.

1974: In July, 0.9 denier Jailena polyester fibre was introduced for the first time in the world.

1975: Introduced low and high shrinkage fibre for the first time in India in March.

In June, process dyed fibre was commercialised.

In September, Research & Development activities were recognised by the Government of India.

1977: Jaileno polyester khadi (hand speen on Ambar Charkha and hand woven) was introduced.

During October to December had labour strike for 51 days.

1978: Sponsored Khadi & Village Industries Commission Research Project to optimise bend composition of Khadi fabrics.

In July, DMT Recovery Plant was commissioned.

1979: Labour strike from 7th September to 4th November resulting in stopage of plant.

(D) SYNTHETIC RUBBER

Synthetics and Chemicals Limited

1958: Chairman visited U.S.A. for foreign collaboration

1959: Agreement for setting up the Synthetic rubber plant complex based on earlier visits of Lummus Team, Goodyear and Firestone Teams for setting up a plant complex in India.

1960: Company was registered to manufacture styrene, butadiene, synthetic latices and rubbers with technical collaboration from M/s Firestone Tire & Rubber Co., U.S.A.

Government approval of the project and Firestone agreement received.

1961: Foundation stone laid at site at Bareilly.

1962: Technical Service Laboratory at Bombay was commissioned to help rubber consuming industries in the field of application of synthetic rubbers.

1963: All plants were commissioned and commercial production started.

1964: Imports of SBR manufactured by the company were banned by the Govt. of India.

1965: Explosition at Butadiene Plant causing temporary stoppage of production for about six months.

Production of self-reinforcing rubber 1958 started for the first time.

Developed other grades, i.e. S-1714, S-570 and S-1006.

1966: Plant rehabilitation work completed and plants recommissioned.

1967: Company was awarded the ICMA Award for outstanding example of a forward development of technology in the chemicals industry for the first time in India.

First public enquiry in the fair prices of synthetic rubber held.

1968: Developed emulsion polymerised polybutadiene rubber - EBR.

1969: Maiden dividend declared for share holders for this year.

Government applied for the first time statutory control under the Essential Commodities Act on the prices of Company's SYNAPRENT rubbers.

Developed new rebbers, S-1513.

1970: Excise duty levied by Government of India at the rate of Rs.300 per tonne of rubber for the first time.

1971: The company developed and marketed a special high solids and high bound styrene S-2000 latex for use in cord dipping operations.

A competent design engineering firm from Bombay prepared project for building our Research & Development Centre to be set up at Bareilly.

Two National Safety Awards won for the year 1971 from the Govt. of India, Department of Labour & Employment.

Developed oil extended EBR - OE rubbers.

Record production of synthetic rubber achieved at 33,010 MT for the year and also sales over 32900 MT.

1972: Letter of intent received for manufacture of 2000 MT/year of nitrile rubber.

Pilot plant completed for nitrile rubber.

Three National Safety Awards, viz. (i) Highest percentage reduction in accident frequency rate; (ii) Lower frequency rate in chemical industry; and (iii) Longest accident free period were received for the year 1971-72 for singular achievement of safety records.

Signed agreement with NCL/NRDC on Nitrile Rubber.

Also signed agreement with NRDC for ABS technology based on process know-how of Shri Ram Institute.

1973: Developed and produced low based styrene rubber, viz. S-0052 and S-0212 on experimental basis.

Letter of intent received for the manufacture of Steel Cord, Textile Reinforced and Solid PVC conveyor belting.

Two National Safety Awards viz. (i) Lowest accident frequency rate in the chemical industry; and (ii) Longest accident free period were received for the year 1973.

R&D Centre of the Company was recognised by Department of Science & Technology and NCST.

Chairman hosted International Synthetic Rubber Producers Board Meeting - Eastern Section.

1974: Developed and produced S-1552, S-1752, S-1941 and S-5812 based on low bound styrene.

Technical Collaboration with M/s Firestone Tire & Rubber Co. USA expired.

Tariff Commission held a second public enquiry to review the industry's price structure.

Exported SBR rubber for the first time.

Industrial licence for manufacture of 2000 MT/year nitrile rubber were received. Set up 1 ton/day pilot plant for nitrile rubber and produced nitrile rubber in tonnage quantities for the first time.

1975: Letter of intent received for manufacture of 200 MT/year Vinyl Pyridine Monomer and 800 MT/year Vinyl Pyridine Latex.

Also set up a pilot plant for ABS plastics resins for development of technology and commenced trial production in a few grades of ABS.

Award of Merit was received from National Safety Council of USA for operating plant for 1771 thousand manhours without disabling injury.

1976: Construction of Nitrile Rubber plant was completed.

Letter of intent for manufacture of 60 tonnes/p.a. of butadiene catalyst was received.

Foreign collaboration for V.P. Monomer with M/s Croda Synthetic Chemicals Ltd., U.K. and for V.P.Latex with M/s Uniroyal, USA was approved by the Government.

Letter of intent for manufacture of ABS resins and plastics was received.

Two National Safety Awards, 1975 were received based on Safety Records among Rubber and Plastics industries for the year 1974 for (i) lowest frequency rate; (ii) longest disabling injury free period.

Basic Trading Centre for practical training of apprentices started functioning.

1977: Regular commercial production of Nitrile Rubber was started.

Also developed and produced S-1511 on experimental basis.

Foreign collaboration agreement for Butadiene Catalyst Plant was surrendered to Government of India and it was decided to build up catalyst plant based on technology developed by the Company's R&D Laboratory.

Industrial licence for the manufacture of Butadiene Catalyst was received.

Commercial production of Butadiene Catalyst using spent catalyst (after regeneration and acid treatme-nt) as the base material was started.

Industrial licence was received for the manufacture of 2000 tonnes per annum of ABS Plastics and Resins.

Application for financial assistance for ABS Project was submitted to the Financial Institutions.

Two Awards received from National Safety Council of America, (i) Award of Honour for Longest Accident Free Period; (ii) Award for 20% or more reduction in injury rate.

1978: The Company was awarded (i) National Import Substitution Award (Silver shield) for indigenous development of Nitrile Rubber; (ii) Awards of Merit for achieving large accident free manhours and (iii) National Safety Awards for the 7th year in succession for the year 1977.

Financial Institutions expressed their inability to finance Company's ABS Project.

M/s Croda Synthetic withdrew their foreign collaboration proposals for VP Monomer as the terms & conditions laid down by the Govt. of India were not acceptable to them.

First charge of rejuvenated Butadiene Catalyst manufactured in the Batadiene Catalyst Plant was charged into Butadiene Converter.

A foreign collaboration proposal for the sale of manufacturing know-how for V.P.Latex was received from M/s Fir o-stone Tire & Rubber Company, U.S.A.

Production of Butadiene Catalyst using imported silica got from M/s W.R.Grace was started for the first time.

1979: Company received award of Honour for the second time from National Safety Council, U.S.A. for achieving 6.76 million disabling injury-free man-hours.

Company submitted industrial licence application for expansion of SBR manufacturing capacity to 60,000 MTPA - from the present licensed capacity of 30,000 MTPA, manufacture of Vinyl Pyridine Latex @ 800 MTPA (dry basis) and manufacture of 400 MTPA of Styrenated Phenol. An application for licence to set up alcohol distillery to produce 23 million litres per year of specially denatured spirit was submitted to the State Government in order to supplement alcohol supplies and ensure availability of certin minimum quantity of alcohol for production of rubber.

1979: (Contd) Based on the studies conducted by M/s National Environmental Engineering Research Institute, Nagpur & M/s Environmental Engineering Consultants on treatability and characterisation of waste water from the factory, M/s Environmental Engineering Consultants were appointed as consultants for detailed engineering of additional effluent treatment facilities which have been estimated to cost around Rs. 1.0 crore.

Industrial licence for the manufacture of 2000 MTPA of ABS Resins and Plastics was revalidated upto December, 1980.

A unit for the recovery of Ethylene from the by-product crude ethylene streams from our Butadiene Plant was erected and commissioned during the year.

Third Styrene Reactor alongwith its balancing equipment was installed.

A number of sophisticated analytical control instruments for polymer testing were added and a full fledged R&D facilities were commissioned.

1980: The validity of Industrial Licence granted for manufacture of 2000 MTPA of ABS Resins and Plastics was extended upto December, 1981.

1981: The Company received "ASSOCHAM" 1980 Award for import substitution through indigenous R&D for development and production of rejuvenated and fresh butadiene catalyst.

II. CAPACITY AND PRODUCTION

Annual Installed Capacity and Production of Petro-chemicals in India during the years 1970, 1975, 1979 and 1980.

(Tonnes)

Name of the Industry/ Items	1970			1975		
	No. of units	Installed capacity (p.a.)	Production	No. of units	Installed capacity (p.a.)	Production
Organic Heavy Chemicals						
Benzene	10	94000	49228	10	94000	70737
Butadiene	2	32400	18482	2	32400	15154
Butyl Acetate	3	6280	2529	4	7230	3781
Butyl Alcohol	3	12450	3445	4	15450	5582
Diacetone Alcohol	2	4800	2418	2	5800	2336
Diethylene Glycol	1	600	411	1	600	732
Dichloro Ethane	1	3000	634	1	50000	29361
Dripolene A+B	1	5000	4423	1	5000	3615
2-Ethyl Hexanol	2	9600	6380	2	9600	7822
Ethylene	2	75000	52068	2	75000	66326
Ethylene Oxide	1	12000	1403	1	12000	10340
Monoethylene Glycol	1	10000	4998	1	10000	7719
Methyl Isobutyl Ketone	1	3700	1131	1	3700	866
Isopropanol	1	1500	1594	1	1500	1352
Phthalic Anhydride	3	12300	7256	3	15300	5653
Polyethylene Glycol	1	1000	543	1	1000	860
Propylene	2	6000	5494	2	42000	33299
Styrene	-	-	-	3	33000	15961
Toluene	9	25755	7834	9	25755	13407
D.M.T.	-	-	-	1	24000	15553
Ortho-xylene	-	-	-	1	21000	3933
Para-xylene	-	-	-	1	17000	9919
Mixed-xylene	-	-	-	1	2500	3962
Vinyl Chloride	-	-	-	1	30000	16071
Caprolactum	-	-	-	1	20000	13832
Synthetic Fibres						
Nylon Staple Fibre	-	-	-	1	900	174
Nylon Filament yarn	5	8996	9797	8	15586	13581
Nylon Tyre Cord	2	360	68	3	5790	3813
Polyester Fil. Yarn	2	720	574	5	2166	2233
Polyester Staple Fibre	1	4550	5333	5	25300	14315
Synthetic Rubber						
Synthetic Rubber	1	30000	30339	1	30000	22958
Plastic Raw Material Thermosets						
M.F.Moulding Powder	2	550	83	3	1490	106
P.F. Moulding Powder	2	3200	3237	3	6200	3592
U.F.Moulding Powder	3	1680	1589	4	5150	1764
C.A.Moulding Powder	2	7200	1003	2	7200	1003
Thermo-Plastics						
Polyethylene H.D.	1	20000	18346	1	20000	22987
Polyethylene L.D.	2	19000	23215	2	25000	27835
Polystyrene	2	17500	8708	2	17500	9091
P.V.C. Resin	4	43700	38552	5	64700	42884

Note: Installed capacity as per D.G.T.D. records.

(Contd....)

Annual Installed Capacity and Production of Petro-chemicals in India during the years 1970, 1975, 1979 & 1980

(Tonnes)

Name of the Industry/ Item	1979 No. of Units	1979 Installed capacity (per annum)	1979 Production	1980 * No. of Units	1980 * Installed capacity (per annum)	1980 * Production
Organic Heavy Chemicals						
Benzene	11	131060	97751	11	139000	83030
Butadiene	3	54400	24030	3	54400	15061
Butyl Acetate	4	9280	3875	4	8730	3684
Butyl Alcohol	4	15450	8400	4	15440	8521
Diacetone Alcohol	2	5800	4398	2	5800	4167
Diethylene Glycol	1	600	502	1	600	241
Dichloro Ethane	1	30000	35019	1	30000	27079
Dripolene A+B	1	5000	3750	1	5000	4375
2-Ethyl Hexanol	2	12700	8700	2	10700	6891
Ethylene	3	210000	130453	3	210000	121330
Ethylene Oxide	1	12000	12410	2	17000	10482
Monoethylene Glycol	2	30000	11319	2	30000	9375
Methyl Isobutyl Ketone	1	3700	632	1	3700	495
Isopropanol	1	4000	2104	1	4000	2148
Phthalic Anhydride	5	27300	23292	5	27300	22605
Polyethylene Glycol	1	1000	1150	1	1000	870
Propylene	3	120000	67935	3	123300	62603
Styrene	3	35000	24391	3	35000	19976
Toluene	9	25755	23905	9	25755	21271
DMT	1	24000	26931	1	24000	25305
Ortho-xylene	1	21000	17334	1	21000	18379
Para-xylene	1	17000	13091	1	17000	14470
Mixed-xylene	1	2500	3193	1	2500	2497
Vinyl Chloride(M)	1	30000	20677	1	30000	14592
Caprolactum	1	20000	13930	1	20000	13945
Carbon Black Feedstock	1	17900	5839	1	17900	4515
Acrylonitrile	1	24000	4482	1	24000	6808
Linear Alkyl Benzene	1	30000	11398	1	30000	16772
Synthetic Fibres						
Nylon Acrylic Fibre	2	16000	2853	2	16000	7674
Nylon Filament Yarn	8	20956	18011	8	21976	19994
Nylon Indl.Yarn/Tyre Cord	4	10490	10812	4	10490	11113
Polyester Staple Fibre	5	32050	24857	5	32050	22664
Polyster Filament Yarn	8	8046	9404	8	8046	9246
Synthetic Rubber						
Styrene Butadiene Rubber	1	30000	23780	1	30000	16361
Polybutadiene Rubber	1	20000	9293	1	20000	6264
Plastic Raw Material & Thermosets						
CA Moulding Powder	2	7200	773	2	7200	256
MF Moulding Powder	4	1740	238	4	1740	221
PF Moulding Powder	3	5000	4568	3	5000	4657
UF Moulding Powder	5	5400	3080	6	5400	2891
Thermo-plastics						
Polyethylene L.D.	3	110000	72505	3	110000	77014
Polyethylene H.D.	1	30000	25990	1	30000	20943
Polystyrene	2	23500	13517	2	23500	10527
P.V.C. Resins	5	77900	59246	5	77900	37068
Polypropylene	1	30000	13997	1	30000	12074

* Capacity as on 1.4.1981.

Production of Petro-chemicals in India - 1970-71 to 1980-81.

(Tonnes)

Products	Annual Installed Capacity as on 1.4.81	1970-71	1975-76	1978-79	1979-80	1980-81
Organic Chemicals						
Benzene	139000	53190	71224	96773	94801	79726
Butadiene	54400	18183	16323	19953	21766	18070
Butyl Acetate	8730	2691	3703	4061	3794	3860
Butyl Alcohol	15440	4231	5587	9011	8279	8844
Diacetone Alcohol	5800	2572	2351	3860	4483	4099
Diethylene Glycol	600	527	681	608	443	249
Dichloro Ethane	30000	642	24557	39064	33528	31150
Dripolene A+B	5000	4476	3730	3456	3922	4852
2-Ethyl Hexanol	10700	7938	8340	9301	8564	6610
Ethylene	219000	58668	64257	115779	126537	139846
Ethylene Oxide	17000	1513	9921	13396	12134	11787
Monoethylene Glycol	30000	4500	7287	8570	11782	11986
Methyl Isobutyl Ketone	3700	1236	960	544	584	465
Isopropanol	4000	1650	1346	2306	2034	2501
Phthalic Anhydride	27300	7984	6429	21202	23172	23085
Polyethylene Glycol	1000	563	872	1173	1043	1227
Propylene	123300	5663	32766	56048	66084	72697
Styrene	35000	-	16436	25476	22781	19528
Toluene	25755	8385	15292	24460	23888	19013
DMT	24000	-	19018	27071	27939	23136
Ortho-xylene	21000	-	7888	19131	18544	18053
Para-xylene	17000	-	12412	14933	14589	13222
Mixed xylene	2500	-	4336	2307	3472	2844
Vinyl Chloride(M)	30000	-	13812	23908	19249	16758
Caprolactum	20000	-	13270	14331	13477	13084
Carbon Black Feed stock	17900	-	-	5913	5197	5851
Acrylonitrile	24000	-	-	1824	3724	9332
Linear Alkyl Benzene	30000	-	-	4601	13993	17063
Synthetic Fibres						
Acrylic Fibre	16000	-	-	186	3470	10271
Nylon Filament Yarn	21976	9338	14037	18537	17686	20822
Nylon Indl.Yarn/Tyre cord	10490	440	4000	8618	11231	11766
Polyester staple fibre	32050	5423	16018	25349	23617	22388
Polyester Filament yarn	8046	602	2297	7210	9029	10700
Synthetic Rubber						
Styrene Butadiene Rubber	30000	29791	25195	23285	21596	18963
Polybutadiene Rubber	20000	-	-	-	8712	6465
Plastic Raw Materials & Thermoplastics						
U.A.Moulding Powder	7200	1084	1133	765	627	322
M.F.Moulding Powder	1740	78	120	178	245	214
P.F.Moulding Powder	5000	3286	3665	4236	4592	4794
U.F.Moulding Powder	5400	1735	1887	2497	3077	2845
Polyethylene L.D.	110000	24437	27635	56028	71275	87154
Polyethylene H.D.	30000	21153	20018	28073	25380	24293
Polystyrene	23500	8925	9203	14474	12036	10205
P.V.C. Resins	77900	41472	43818	62643	49891	42050
Polypropylene	30000	-	-	7127	13425	16729

III. SALES / CONSUMPTION.

Estimated/ Consumption of Selected Petro-chemicals.

(Qty. Tonnes)

PRODUCTS.	1970-71	1973-74	1975-76	1977-78	1978-79	1979-80
1.	2.	3.	4.	5.	6.	7.
Organic Intermodiates.						
Benzene	53209	69652	72412	91689	96773	95909
Butadiene	18183	14413	16323	16511	19953	21766
Diethylene Glyeol	527	776	681	656	608	411
Dichloroethene	642	33263	24557	34902	39064	33528
Ethylene	58668	71454	64257	69732	115779	125537
Ethylene Oxide	1513	10364	9921	12442	13396	12134
Ethylene Glycol	4805	9558	7444	6027	11534	13647
2-Ethyl Hexanol	7938	7376	8340	7980	9301	8564
Isopropanol	1650	1413	1346	1794	2306	2077
M.I. Ketone	1236	1309	960	969	1430	712
Phthalic Anhydride	13275	11330	12931	21930	23420	24047
Propylene	5663	36499	32766	37705	56048	66084
Polyethylene Glycol	563	717	872	1121	1173	1182
Styrene	-	23304	16436	24759	25476	22783
Toluene	8327	15591	15296	19915	24544	23894
Plastics Raw Materials.						
M.F. Moulding Powder	78	166	120	180	178	243
P.F. Moulding Powder	3367	5912	3661	4673	4287	4753
U.F. Moulding Powder	1663	2005	1939	2261	2506	3077
C.A. Moulding Powder	1170	1706	1465	1235	1093	689
Polyethylene L.D.	22988	33202	35012	53738	83770	73633
Polyethylene H.D.	13590	29029	21479	48574	54251	62708
Polystyrene	8189	14940	9610	14102	15531	12457
P.V.C. Resins	41452	48973	44223	67227	68736	81955
Synthetic Fibre.						
Acrylic Fibre	195	763	3163	8226	15330	5746
Nylon Filament Yarn	9338	10216	16890	17803	23651	19858
Nylon Industrial Yarn/ Tyre Cord.	440	1585	4000	6583	8560	11194
Nylon Polymides/Staple-Fibre	117	375	356	636	236	129
Polyester Filament Yarn	602	1812	4456	6280	14157	17783
Polyester Staple Fibre	14166	11068	16559	31418	32822	33059**
Synthetic Rubber*	21731	26666	31582	38515	42083**	47969

Note :- Estimated Consumption = Production + Imports - Exports.

* = Includes Imports and Exports of Natural & Reclaimed Rubber also.

**= Included Polybutadene Rubber from IPCL, Baroda also.

ESTIMATED END-USE SALES/CONSUMPTION OFU.F. AND M.F. MOULDING POWDER IN DIFFERENT INDUSTRIES

(Percentages)

END - USE	1972	1975	1977	1978	1979	1980
1. Button Moulders & Bottle Caps, etc.	28.3	30.1	19.0	17.9	12.2	14.0
2. Electrical Accessaries.	62.0	63.5	69.6	67.3	81.6	78.5
3. Tableware Croe	4.5	1.4	2.5	3.5	2.3	3.0
4. Switchgears	1.2	0.8	4.1	4.0	-	0.1
5. Miccellaneous (Includes Various Items like Ashtrays, handles pen, Stands, Toiler Sheets Novelty, etc.)	4.0	4.2	4.8	7.3	3.9	4.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Total Sales (Thousand Tonnes)	2	2	2	2	3	3

ESTIMATED END-USE SALES/CONSUMPTION OF C.A. MOULDING POWDER IN DIFFERENT INDUSTRIES

(Percentages)

END - USE	1972	1975	1977	1978	1979	1980
1. Optical & Frames	11.5	6.9	5.2	6.5	6.6	5.2
2. Bangles	45.2	59.9	53.8	39.0	33.4	7.0
3. Tool Brush Handles	18.9	4.4	9.2	8.9	14.6	24.7
4. Comb	6.4	7.8	9.5	12.0	18.0	20.6
5. Umbrella Handles	6.9	14.1	10.0	11.0	5.9	6.6
6. Fountain Pens	6.5	3.5	1.2	1.2	0.3	0.3
7. Tool Handles	3.3	2.6	9.9	20.2	21.0	35.2
8. Industrial Components	0.6	0.2	0.2	0.2	0.2	0.4
9. Sheetings	0.2	-	-	-	-	-
10. Toys, Keys, Tops	0.1	-	-	-	-	-
11. Miscellaneous	0.4	0.6	1.0	1.0	-	-
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Total Sales ('000' Tonnes)	5	3	1	1	1	1

ESTIMATED END-USE SALES/CONSUMPTION OF POLYETHYLENE L.D. IN DIFFERENT INDUSTRIES.

(Percentages)

END-USES	1972	1975	1977	1978	1979	1980
1.	2.	3.	4.	5.	6.	7.
Film & Coating	74.3	76.7	76.9	69.7	85.2	85.6
Moulding	*	*	13.8	12.5	7.8	8.3
wire & Pipes	8.0	7.5	7.2	7.4	2.8	1.7
Miscellaneous	17.7	15.8	2.1	10.4	4.2	4.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL SALES(000Tonnes)	29	28	25	22	66	77

* Included under the Miscellaneous Category.

ESTIMATED END-USE SALES/CONSUMPTION OF POLYETHYLENE H.D.IN DIFFERENT INDUSTRIES.

(Percentages)

APPLICATION	1972	1975	1977	1978	1979	1980
1.	2.	3.	4.	5.	6.	7.
A. Injection Moulding						
i) Household Articles	34.4	25.2	27.6	29.9	20.0	12.7
ii) Transport-cases	0.7	0.8	0.7	0.4	1.1	0.9
iii) Industrial	5.2	5.6	5.3	5.6	5.3	6.2
SUB-TOTAL	40.3	31.6	33.6	35.9	26.6	19.8
B. BLOW MOULDING						
i) Consumer Packaging	12.0	11.5	13.9	13.4	16.6	17.7
ii) Industrial Packaing	12.5	6.5	11.6	13.8	12.8	13.5
Iii) Miscellaneous	0.7	0.6	0.2	0.2	0.2	0.1
SUB-TOTAL	25.3	18.6	25.7	27.4	29.6	31.3
C. Extrusion						
i) Monofilament & Cane Stropping	9.6	17.6	11.6	12.3	10.4	8.3
ii) Films andsheets	2.9	4.1	3.7	2.5	3.0	3.1
iii) Pipes and Cables	2.6	6.1	6.7	7.7	10.2	18.1
iv) Stripes and Woven	19.3	22.0	18.7	14.1	20.2	19.4
SUB-TOTAL	34.4	49.8	40.7	36.7	43.8	48.9
GRAND TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Total sales (Thousand tonnes)	21	24	24	28	24	21

ESTIMATED END-USE SALES/CONSUMPTION OF POLYSTYRENE IN DIFFERENT INDUSTRIES.

(Percentage)

END-USES	1972	1975	1977	1978	1979	1980
1.	2.	3.	4.	5.	6.	7.
Appliances	2.3	1.4	7.6	7.4	9.9	8.3
Electronics & Industrial	20.9	29.1	25.5	24.9	28.7	33.3
Buildings	12.4	9.4	14.5	12.2	9.7	9.5
Packaging	18.6	19.0	16.4	19.9	17.6	15.3
House hold wares	28.2	28.7	19.8	18.7	15.8	16.0
Toys & Novelties	1.4	2.7	6.7	7.8	11.3	7.1
Defence	0.5	0.8	0.5	1.0	0.7	1.7
Miscellaneous	15.7	8.8	9.0	8.1	6.3	8.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL SALES (th. tonnes)	13	9	14	15	11	11

ESTIMATED END-USE SALES/CONSUMPTION OF PVC RESINS IN DIFFERENT INDUSTRIES

END-USES	1972	1975	1977	1978	1979	1980
1.	2.	3.	4.	5.	6.	7.
Wire Cables	30.5	28.8	24.2	20.3	32.6	26.1
Pipes, Fittings Condiuts	13.5	17.1	21.8	24.2	25.4	31.0
Leather Cloth & Sheet/Films	20.4	24.0	28.3	26.4	22.3	27.8
Footwear	17.4	11.6	10.0	7.3	9.2	4.2
Gramophone	0.5	0.8	0.7	0.9	Neg.	-
Vinyl Tiles	0.1	0.2	0.3	0.4	0.3	1.0
Conveyers Belting	0.1	0.3	0.1	0.1	0.1	-
Battery Separators	0.3	0.7	0.5	1.1	0.4	1.5
Transprant Blown Bottoms	-	0.2	0.3	0.4	0.1	-
Transporent Blown Films	-	0.1	-	0.6	0.1	-
Toys	10.1	0.1	0.1	0.1	Neg.	-
Compounders	10.7	7.9	7.2	10.1	2.3	0.2
Miscellaneous	6.4	8.2	6.5	8.1	7.2	8.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL SALES (Thousand tonnes)	46	42	51	54	56	37

ESTIMATED END-USE SALE/CONSUMPTION@ OF SELECTED ORGANIC CHEMICALS

(Percentages)

END - USE.	1976-77	1977-78	1978	1979	1980
1.	2.	3.	4.	5.	6.
	METHYL ISO BUTYL KETONE				
Pharamaceuticals	30	33	38	11	57
Paints/Suface. Coatings	46	34	41	40	27
Pesticides	17	22	13	29	10
Others	7	11	8	20	6
TOTAL	100	100	100	100	100
Total Sales(Thousand tonnes)	0.9	0.9	1.0	1.0	1.0
	MONO - ETHYLENE GLYOOL.				
Polyester	66	42	69	73	83
Explosive	24	35	22	17	12
Others	10	23	9	10	5
TOTAL	100	100	100	100	100
Total(Sales(Thousand Tonnes)	6	5	8	11	11
	ISOPROPANOL				
Pharmaceuticals	40	33	43	38	33
Paints/Suface/Coastings	11	11	12	10	16
Textile/Chemicals/Auxiliries:	16	11	13	16	10
Pesticides	10	11	9	12	11
Others	23	34	23	24	30
TOTAL	100	100	100	100	100
Total Sales(Thousand tonnes)	1.7	1.8	2	2	2
	ETHYLENE OXIDE				
Glycols	57	48	57	42	40
Textile/Auxiliaries	27	40	33	42	42
Ethanolawines	8	-	-	-	-
Others	5	12	10	16	17
TOTAL	100	100	100	100	100
Total Sales(Thousand Tonnes)	10	12	6	7	7

@ = Excluding Captive Consumption.

ESTIMATED END - USE SALES/CONSUMPTION* OF SELECTED ORGANIC CHEMICALS.

(Percentages)

END - USE	1974	1975	1976	1978	1979	1980
1	2	3	4	5	6	7
D.M.T.						
Fibre	83.4	77.1	84.7	84.3	89.3	84.7
Filament	11.8	19.8	13.3	15.1	9.5	12.3
Resins	47.8	3.0	1.6	0.6	0.4	-
Wire Enament & Others	neg.	0.1	0.4	-	0.8	3.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Total Sales(Thousand Tonnes)	10	18	21	33	20	22
ORTHO - XYLENE						
Phthalic Anhydride	98.8	91.9	72.8	78.0	67.7	72.7
Paints	0.2	1.2	4.8	10.6	10.8	14.7
Pesticides	neg.	1.2	0.6	-	3.7	6.0
Dyestuffs & Dyes-Intermediates	0.5	0.8	1.2	11.4	3.0	1.9
Wire Enamels/Painting ink.	-	1.1	1.1	-	1.9	1.4
Exports	-	-	13.0	-	-	-
Others	0.5	3.8	6.5	-	12.9	3.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Total Sales Thousand Tonnes)	6	6	19	19	17	19
MIXED XYLENE						
Paints	23.8	49.4	61.8	22.3	37.0	54.0
Pesticides	24.5	32.0	15.4	55.4	51.3	24.1
Dyestuffs & Dye-Intermediates	41.5	3.4	5.1	-	3.1	7.0
Wire Enaments & Resins/Painting ink.	0.4	1.2	5.0	22.3	-	5.0
Others	9.8	14.0	12.7	-	8.6	9.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Total Sales (Thousand Tonnes)	2	4	2	2	3	3

*=Excluding Captive Consumption.

SALES/CONSUMPTION OF S.B.R. BY END PRODUCTS.

(Qty. Tonnes)

End Product	1975	1976	1977	1978	1979	1980
1.	2.	3.	4.	5.	6.	7.
A. Auto Tyre Units.						
1. Firestone(Bombay Tyre)	3008	2556	2363	2343	1637	1903
2. Ceat	2473	3308	3306	2980	2003	2906
3. Dunlop	5634	4051	2746	2867	2152	2978
4. Inchek	261	50	48	23	19	56
5. Goodyear	1311	2665	2772	2684	1350	1847
6. M. R. F.	1092	1280	1161	1073	711	740
7. Premier	466	248	248	279	246	65
8. Modi	626	1115	1373	1169	580	610
9. J.K. Industries	-	25	721	552	650	540
10. Apollo Tyres	-	23	304	312	417	233
11. Vikrant Tyres Ltd.	-	-	-	-	8	473
Sub - Total	14871	15321	15042	14282	9673	12351
B. O T H E R S.						
1. Footwear	5700	5900	6500	7700	8000	8200
2. Cycle Tyres & Tubes	50	900	1000	1200	1100	1175
3. Retreading Material	1200	1000	800	500	300	315
4. Industrial Rubber Products	850	950	800	1050	1100	1200
5. Others	1719	1889	1478	1574	1578	1597
Subj - Total	10319	10639	10578	12024	12078	12487
GRAND TOTAL	25190	25960	25620	26306	21751	24838

Source :- M/s Synthetic & Chemicals Limited, Bombay.

IV. PRICES

TREND IN EX-FACTORY PRICES OF CAPROLACTAM, DMT & MONO-ETHYLENE GLYCOL

(Rs./Tonnes)

Year		Ex-factory Prices (Exclusive of Duties & Taxes				
		Caprolactam		DMT	Mono-ethylene Glycol	
		used for filament upto 225 Deniers	Used for Tyre Cord & Nylon Yarn(above 225 Deniers		Bulk	Packed
1.		2.	3.	4.	5.	6.
1970	January	-	-	-	4000	4450
	April	-	-	-	4200	4800
	June	-	-	-	4700	5300
1973	April	-	-	6000	-	-
	August	-	-	7000	-	-
	December	-	-	-	4950	5550
1974	January	-	-	12000	-	-
	February	-	-	-	5700	6300
	March	-	-	-	7100	7700
	August	26000	26000	7000	-	-
	December	22750	22750	-	7100	7900
1975	January	-	-	16000	-	-
	April	22000	22000	-	-	-
	December	21334	21334	-	-	-
1976	January	-	-	-	7550	8350
1977	January	-	-	12000	-	-
	April	-	-	11000	-	-
	October	17147	17147	-	-	-
1978	January	16000	16000	-	-	-
	March	-	-	-	7650	8450
	September	-	13500	-	-	-
1979	April	17000	16000	-	-	-
	May	21334	20026	15000	-	-
	June	-	-	-	7650-7750	8750
	August	22174	20813	16000	10900-11000	11900-12000
	August 17th	23900	22431	-	-	-
1980	January	25900	25900	-	-	-
	April	26480	26480	-	10900-11000	12300
	June	-	-	-	12000-12700	13400-14100
	August 5th	22000	22000	-	-	-
1981	January	-	-	-	12800-13300	14100-14700

Source: Handbook of Statistics on Man-made/Synthetic Fibre/yarn Industry brought out by ASFI.

EX-WORKS PRICES (BULK, EXCLUDING EXCISE DUTY) OF SELECTED PETROCHEMICALS

(Rs./MT)

Item	Manufactures	1.1.71	1.1.72	1.1.73	1.1.74	1.1.75
1.	2.	3.	4.	5.	6.	7.
1. Polyethylene LD	UCI	5130	5400	5400	6140	9425
	ACCI	4792	4792	4798	5122	8087
2. Polyethylene HD (Natural Colour)	Polyolefins India Ltd.	4212	4329	4346	4671	7744
3. Styrene Monomer	Polychem Ltd.	3331	3293	3807	4060	9340
4. Polystyrene (Generalpurpose)	Hindustan Polymers Ltd.	4250	-	-	-	9100
5. PVC (Resin)	NOCIL	3100	3100	3100	3800	6000
	Chemicals & Plastics India Ltd.	2900	3050	3350	4200	6000
	CalicoLtd.	2825	2825	2825	2750	5300
6. Dioctyl Phthalate	UCI Ltd.	7300	6000	6250	13000	11700
	IOC Ltd.	7150	4650	4300	11650	8600
	HCL	7400	5612	5798	9458	10800
7. 2-Ethylene Hexanol	NOCIL	5200	5200	4900	5200	8300
	UCILtd.	5300	4900	5300	7700	8000
8. Ethylene Glycol	NOCIL	4700	4300	4300	4550	6800
9. Ethylene Oxide	NOCIL	8050	6100	6100	6350	8750
10. Synthetic rubber (Prices ex-Bombay)	Synthetic &Chem.Ltd.					
S-1500/502		4400	4400	4400	4400	4950
S-1712		3900	3900	3900	3900	4450
S-1958		6800	6800	6800	6800	7400
11. Di Butyl Phthalate	IOC	7000	5900	6150	16150	15550

Note:- UCI stands for Union Carbide India Ltd., NOCIL for National Organic Chem. Industries Ltd., HCL for Herdillia Chemicals Ltd. Ltd., IOC for Indian Organic Chem. Ltd., ACCI for Alkalies & Chem. Corpn. of India Limited,
- = Not available.

EX-WORKS PRICES (BULK EXCLUDING EXCISE DUTY) OF SELECTED PETROCHEMICALS

(Rs./MT)

Item	Manufactures	1.1.76	1.1.77	1.1.78	1.1.79	1.1.80	1.4.81
8.	9.	10.	11.	12	13.	14.	15.
1. Polyethylene* LD	UCI	14703	13195	13195	14041	20300	22000
	ACCI	8087	8087	13195*	13500*	19469*	22000*
2. Polyethylene HD (Natural colour)	Polyolfins Inds. Ltd.	7613	7613	7613	7900	13300	15078
3. Styrene Monomer	Polychem Ltd.	8230	10090	9225	8985	20420**	22680**
4. Polystyrene (General-Purpose)	Hindustan PolymersLtd.	9100	9100	9100	13500**	24800**	26300**
5. PVC(Resin)	NOCIL	6000	6000	6000	6300	9000	10500
	Chemicals& Plastics India Ltd.	5150	5700	6150	6450	11400**	15500**
	Calico Ltd.	5300	5900	6200	6800	7200	9400
6. Dioctyl Phthalate	IOC LTD.	8100	10700	9920	10230	17310	1788
	HCL	10000	11600	11600	11800	20550	209
7. 2-Ethyle Hexanol	NOCIL	8750	8750	8750	8900	14700	17
	UCILtd.	8650	8650	9650	9250	13700	19
8. Ethyelene Glycol	NOCIL	7250	7550	7550	7650	10900	13
9. Ethylene Oxide	NOCIL	9300	9550	9550	9725	13950	17
10. Synthetic Rubber (Price ex-Bombay)	Synthetic & Chem. Ltd.						
-S-1500/502		5050	8750	8800	9550	13500	17
-S- 1712		4550	8250	8300	9050	12500	15
-S-1958(B)		7600	14500	14450	14750	18700	21
11. Di Butyl Phthalate	IOC	10600	11050	10160	10900	15210	20

NOTE :- Prices shown against NOCIL include Market charges.
*= Selling Price. **= Inclusive of Excise duty.

AVERAGE DOMESTIC MARKET PRICE QUOTATION OF SYNTHETIC FIBRE / YARN

Rs. / Kg.

DENIER	1975	1976	1977	1978	1979	1980	1981 (Jan-March)
1.	2	3	4	5	6	7	8
1. NYLON FILAMENT YARN.							
12-1-0	139.76	123.15	132.47	147.32	151.52	166.73	154.61
20-1-0	134.24	119.43	124.84	132.38	133.05	146.07	146.35
40.10-0 SD	124.77	109.32	110.36	114.03	121.49	134.50	140.76
111-24-0	102.19	90.19	89.75	85.30	95.78	107.87	114.32
2. POLYESTER FILAMENT YARN.							
76-24-0	197.53	153.34	144.84	135.35	150.35	142.65	162.90
76-34-0-	-	-	147.14	137.64	152.79	141.85	163.70
76-36-0	194.61	169.97	148.84	140.02	154.36	143.30	165.15
3. POLYESTER STAPLE FIBRE.							
1.2.D	74.55	91.12	65.40	63.07	76.11	77.37	79.36
1.5.D	74.27	89.81	64.21	60.58	74.48	76.12	78.44
2.0.D.	72.33	87.81	63.11	61.27	74.15	75.42	77.64

Source:- Handbook of statistics of Man-Made Synthetic Fibres/ Yarn Industry brought out by Associations of Synthetic Fibres Industry.

V. EXCISE AND CUSTOM DUTIES

Realisation of Excise & Customs duties on Petrochemicals during the year 1977-78, 1978-79, 1979-80 R.E. for 1980-81 and B.E. for 1981-82.

(Rs./Crores)

PRODUCTS	ACTUAL			1980-81 (R.E.)	1981-82 (B.E.)
	1977-78	1978-79	1979-80		
A. EXCISE DUTIES					
1. Plastic Materials and Synthetic Resins	63	92	110	123	136
2. Synthetic Organic Dyestuff	38	42	42	41	47
3. Carbon balck	3	4	7	11	12
4. Man made Fabrics	1	3	5	5	6
5. Man made Fibre & Man made Filament Yarn	283	329	363	408	438
6. Synthetic Rubber	1	2	2	4	5
TOTAL EXCISE DUTY(A)	389	472	529	592	639
B. CUSTOMS DUTIES					
7. Artificial resins, Plastic materials & articles there of	90	90	108	135	165
8. Yarn of man made Fibre	33	79	98	155	165
9. Man made Fibre & Filament tow	77	88	97	105	120
TOTAL CUSTOMS DUTY(B)	200	257	303	395	450
GRAND TOTAL (A+B)	589	729	832	987	1089

Figures rounded to nearest crore.

Source: - Budget papers of the Central Government.

RATES OF EXCISE DUTIES ON SYNTHETIC FIBRES/ YARN AND RAW MATERIALS EFFECTIVE 1-3-1981.

ITEM / DENIER	Unit.	Basic Duty.	Special Duty	Additional Duty.	T O T A L
1. RAW MATERIALS.					
1. Caprolactam		28.5%	1.425%*	-	29.925%
2. D. M. T.		NIL	NIL	NIL	NIL
2. SYNTHETIC STAPLE FIBRES.					
1. Polyester Staple Fibre	Rs/kg.	36.00	3.60	5.40	45.00
2. Acrylic Staple Fibre	Rs./Kg.	10.00	1.00	1.50	12.50
3. POLYMIDE(NYLON FILAMENT YARN)					
1. Below 35D	Rs./Kg.	58.80	5.88	8.82	73.50
2. 35D & above but below 80D	,,	51.80	5.18	7.77	64.75
3. 80D & above but below 110D	,,	44.80	4.48	6.72	56.00
4. 110D & above but a below 150D	,,	37.80	3.78	5.67	47.25
5. 150D & above but not above 750D	,,	19.60	1.96	2.94	24.50
6. Above 750D	,,	6.50	0.65	0.975	8.125
4. POLYESTER FILAMENT YARN.					
1. Below 30D	Rs./Kg.	77.00	7.70	11.55	96.25
2. 30D & above but below 75D	,,	70.00	7.00	10.50	87.50
3. 75D & above but below 100D	,,	63.00	6.30	9.45	78.75
4. 100D & above but not above 750D	,,	49.00	4.90	7.35	61.25
5. Above 750D	,,	15.00	1.50	2.25	18.75

* @ 5%

RETES OF IMPORT DUTIES (STANDARD) ON MAN-MADE FIBRES/YARN & RAW MATERIALS EFFECTIVE 1-3-81.

I T E M	Coustoms Duty.	Auxiliary Duty	T O T A L
1.	2.	3.	4.
Nylon Filament Yarn	100%	25%	125%
Polyester Filament Yarn	200%	5%	205%
Acrylic Yarn	100%+Rs. 30/- per Kg.	10%	110%+ Rs. 30/-per Kg.
Polyester Staple Fibre	140%	25%	165%
Nylon Tyre Yarn	100%+Rs. 11/- per Kg.	10%	110%+ Rs. 11/-per Kg.
Caprolactam	25%	NIL	25%
D. M. T.	100%	25%	125%

NOTE :- On all above items, countervailing duty equal toexcise duty is al

VI IMPORTS/EXPORTS

IMPORTS OF SELECTED PETRO-CHEMICALS

Qty. = Tonnes: Value in Rs. Lakhs.

Products.	1970-71		1975-76		1978-79		1979-80	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
1.	2.	3.	4.	5.	6.	7.	8.	9.
ORGANIC CHEMICALS.								
Acrylonitrile	-	-	-	-	166	12	231	22
Benzene	19	7.0	1191	48.2	-	-	1108	139
Butyl Alcohol(Butanol)	24	1.0	28	2.7	15	2	42	5
Butyl Acetate	13	0.4	161	14.5	19	2	135	15
D. M. T.	237	7.9	248	13.0	320	11	7726	617
Epsilon Caprolactum	1867	72.8	1985	200.2	8290	651	11836	1616
Ethylene Glycol	305	9.0	157	13.7	2964	154	1865	205
Ethy Alcohol Undenatured	10493	100.0	neg.	0.1	-	-	12	2
Ethy Alchol denatured	23	2.0	1	0.3	-	-	39	7
Methyl Isobutyl Ketone	-	-	-	-	886	72	128	12
Phthalic Anhydride	5291	85.0	6502	207.8	2218	81	869	63
Toluene	2	2.0	4	0.3	84	8	6	3
PLASTIC RAW MATERIALS.								
CA Moulding Powder	86	6.0	332	30.0	328	14	62	5
P.F. Moulding Powder	81	5.0	1	0.5	81	5	165	12
Polyethylene L.D.	37	2.0	7376	311.9	27742	1291	2365	173
Polyethylene H.D.	310	10.0	1512	84.0	26178	1378	37361	2435
Polystyrene Moulding Powder	175	5.0	416	27.4	1062	63	424	28
P.V.C. Resins	180	10.0	405	26.9	6093	340	32062	2460
U.F. Moulding Powder	0.3	neg	83	3.9	10	2	-	-
SYNTHETIC FIBRES.								
Acrylic Fibre	195	16.0	3163	380.2	15330	1655	2378	272
Nylon Filament Yarn	-	-	2853	587.0	5183	1093	2181	413
Polymide Fibre	117	11.0	356	60.9	236	35	129	21
Polyester Filament Yarn	-	-	2159	274.0	6947	1265	8754	1911
Syn. & Regenerate Fibre	-	-	-	-	15843	17402	67316	8892
Polyster Fibre	3098	227.0	541	66.9	7508	721	9422	1174
SYNTHETIC RUBBER.								
Crude & Syn. Rubber	7787	385.0	6391	651.6	13525	1407	17661	1894

neg:- Negligible. Source:- Directorate General of Commercial Intelligence and Statistics, Calcutta.

EXPORT OF SELECTED PETRO-CHEMICALS

Qty. Tonnes: Value in Rs. Lakhs.

PRODUCT.	1970-71		1975-76		1978-79		1979-80	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
1.	2.	3.	4.	5.	6.	7.	8.	9.
ORGANIC CHEMICALS.								
Benzene	-	-	3	0.1	-	-	-	-
Butyl Alcohol	500	5.0	-	-	-	-	-	-
Ethyl Alcohol undenatured	5750	3.0	-	-	8090	145	13900	243
PLASTIC/RAW MATERIALS.								
P.F.Moulding Powder	-	-	5	0.3	30	2	4	1
Polyethylene L.D.	1486	25.92	-	-	-	-	5	1
Polyethylene H.D.	7873	205.13	51	5.6	-	-	35	10
Polystyrene Moulding Powder	911	20.0	9	2.8	5	2	3	1
P. V. C. Resin	200	3.0	-	-	-	-	-	-
U.F.Moulding Powder	72	2.0	31	1.6	-	-	-	-
SYNTHETIC FIBRES.								
Nylon Tyre Cord	-	-	-	-	58	10	37	7
Nylon Filament Yarn	-	-	-	-	69	9	9	6
Polyester Fibres	-	-	-	-	35	5	-	-
Syn. & Regenerated Fibre.	353	7.0	15	0.6	52	4	35	2
SYNTHETIC RUBBER								
Crude & Syn. Rubber	273	4.0	4	0.3	20	2	-	-

VI INTERNATIONAL STATISTICS

World Production Of Textile Fibres.

('000 Tonnes)

Year	MAN - MADE FIBRES			TOTAL							
	Yarn	Staple	Cellu-losic	Yarn	Staple	Synthetic	Man-Made Fibres	Raw Cotton	Raw Wool	Raw Silk	Grand Total
1950	874	738	1612	54	15	69	1681	6647	1057	19(-)	9404
1955	1042	1236	2278	184	82	266	2544	9492	1265	29(-)	13330
1960	1131	1476	2607	417	285	702	3309	10113	1463	31(-)	14916
1970	1393	2043	3436	2363	2337	4700	8136	11782	1602	41(-)	21561
1971	1401	2054	3455	2867	2742	5609	9064	13008	1566	41(-)	23679
1972	1342	2217	3559	3213	3164	6377	9936	13669	1457	42(-)	25104
1973	1363	2298	3661	3833	3807	7640	11301	13718	1432	43(-)	26494
1974	1302	2230	3532	3785	3702	7487	11019	14036	1531	45(-)	26631
1975	1136	1823	2959	3763	3590	7353	10312	11759	1527	47(-)	23645
1976	1138	2022	3210	4128	4473	8601	11811	12471	1458	48(-)	25788
1977	1172	2109	3281	4312	4837	9149	12430	13905	1459	49(-)	27843
1978	1167	2151	3318	4603	5429	10032	13350	13043	1486	51(-)	27930
1979	1176	2204	3380	4907	5707	10614	13994	14268	1518	53(-)	29833
1980 Prodn. Capacity	1371	2471	3842	6142	7100	13242	17084	-	-	-	-
1981 Prod. Capacity	1353	2639	3992	6665	7837	14502	18494	-	-	-	-

Source:- Hand book of Statistics on Man Made Synthetic Fibre/Yarn Industry.

Production of Plastics & Resins in Selected Countries of the World- 1971 - 77.

('000 'Metric tons)

Country or Area and Product.	1971	1972	1973	1974	1975	1976	1977*
Australia (Total)	255.6	290.4	378.0	402.0	362.4	406.8	464.4
Belgium							
Condensation	40.6	19.9	26.9	31.2	42.0	50.0	-
Polymerization	410.4	584.4	726.0	778.8	615.6	762.0	-
Others	21.1	21.1	20.2	25.0	20.9	20.9	-
Czechoslovakia(Total)	270.0	300.0	355.2	390.0	428.4	579.6	736.8
Condensation	14.0	16 .2	24.6	24.6	25.2	25.1	26.7
Alkyd Resins							
Amino Plastics	2.3	2.1	2.1	2.2	2.0	2.3	2.2
Phenoplasts	15.6	16.9	17.8	17.6	18.5	18.5	18.0
Polyemerization							
Polyethylene	29.4	30.3	30.9	28.4	30.6	60.5	112.2
Polypropylene	-	-	16.2	24.2	31.3	89.1	100.1
Polystyrene	25.7	32.6	43.4	42.1	42.6	43.1	47.0
Polyvinyl Chloride	43.4	45.8	52.5	64.7	82.9	140.3	-
Others							
Regen. Cellulose	17.0	17.4	17.1	17.0	17.7	17.9	18.5
Canada(Total)	387.0	504.0	805.2	796.8	722.4	-	-
Condensation							
Alkyd Resins	-	-	-	-	-	-	-
Polymerization							
Polyethylene	179.7	203.7	246.2	247.3	246.1	300.9	345.0
Polystyrene	60.4	79.4	82.0	67.1	59.3	75.9	85.2
Polyvinyl Chloride	78.0	98.6	112.5	114.2	69.9	96.7	99.7
France.							
Condensation	372.0	466.8	544.8	553.2	480.0	544.0	-
Alkyd Resins	28.5	31.5	33.8	29.9	38.4	43.8	46.4
Amino Plastics	91.9	114.8	154.6	209.5	203.9	207.4	194.8
Phenoplasts	46.2	53.5	67 .0	66.8	61.1	73.9	65.4
Polymerization	1327.2	1572.0	1908.0	2006.4	1479.0	2078.0	-
Polyethylene	503.5	607.2	784.7	899.9	622.6	913.8	954.5
Polystyrene	149.3	181.6	190.8	189.4	160.6	238.7	233.3
Polyvinyl Chloride	457.6	538.7	655.8	622.5	473.6	616.4	645.2
Others	69.6	74.4	79.2	79.2	57.0	66.0	-
Germany Dem. Rep.							
T O T A L	420.0	458.4	489.6	517.2	604.8	679.2	734.4

Source :- U. N. Statistical Year Book - 1978.

* -:- Provisional.

(Contd.)

Production of Plastics & Resins in Selected Countries of the World - 1971 - 1977.

('000' Metric Tons)

Country of area and Product.	1971	1972	1973	1974	1975	1976	1977*
Germany Fed. Rep.							
Condensation	1502.4	1730.4	2073.6	1892.4	1611.6	1952.4	1888.8
Alkyd Resins	111.9	113.1	115.9	93.9	88.7	101.6	99.0
Amino Plastic	644.3	791.9	930.9	827.5	717.2	833.2	814.8
Polymerization	3102.0	3558.0	4165.2	4178.4	3278.4	4310.4	4173.6
Polyethylene	928.2	1051.9	1368.2	1501.7	1068.4	1469.8	1433.6
Polyvinyl Chloride	846.4	930.7	1033.8	1037.0	833.3	965.1	897.4
Others	175.2	182.4	195.6	200.4	156.0	181.2	177.6
India (Total)	103.2	106.8	104.4	86.4	82.8	87.6	103.6
Polyethylene	51.5	47.1	51.8	51.4	50.8	49.4	47.0
Polystyrene	11.0	12.8	13.8	9.8	9.1	12.3	14.7
Italy							
Condensation	234.0	259.2	300.4	266.4	208.8	224.4	231.6
Alkyd Resins	29.1	29.8	37.0	35.4	27.5	30.5	28.5
Phenoplastic	39.4	40.5	46.7	43.1	31.8	38.4	37.4
Polymerization	1602.0	1882.8	2149.2	2163.6	1816.8	2013.6	2277.6
Polyethylene	515.8	602.5	692.0	696.4	626.0	831.4	779.7
Polystyrene	181.9	196.3	234.0	240.4	211.0	267.3	262.3
Polyvinyl Chloride	483.2	535.1	708.3	705.5	555.2	713.8	685.4
Others	35.2	33.7	39.2	38.4	27.0	27.8	28.8
Japan							
Condensation	1128.0	1238.4	1442.4	1324.8	1014.0	1246.8	1240.8
Alkyd Resins	220.6	262.1	319.6	235.7	217.3	265.2	246.8
Amino Plastics	647.0	683.4	775.7	637.6	573.7	665.3	665.8
Phenoplasts	217.6	250.9	312.1	238.8	195.6	253.8	246.2
Polymerization	4033.2	4334.4	4950.0	5307.6	3358.8	3705.6	3736.8
Polyethylene	1340.0	1480.2	1671.7	1897.0	1290.6	1392.5	1466.7
Polypropylene	627.2	617.6	693.3	791.7	594.5	660.0	607.8
Polystyrene	694.9	795.8	855.0	853.4	690.0	875.1	900.3
Polyvinyl Chloride	1034.5	1079.7	1318.3	1466.9	1125.4	1044.0	1030.8
Netherlands.							
Condensation	302.4	321.6	396.0	442.8	397.2	482.4	530.4
Alkyd Resins	49.3	55.1	61.0	50.8	52.5	61.2	60.3
Polymerization	574.8	718.8	876.0	1154.4	913.2	1196.4	1209.6
Others	37.2	39.6	42.0	46.6	39.7	44.0	42.6
Poland (Total)	256.8	293.8	427.2	394.8	538.8	559.2	583.2

Source :- U. N. Statistical Year Book - 1978.

* - :- Provisional.

(Contd.)

Production of Plastics & Resins in Selected Countries of the World- 1971 - 1977.

('000 'Metric Tons)

Country of area and product.	1971	1972	1973	1974	1975	1976	1977*
Poland							
Condensation							
Amino plastic	4.1	3.8	4.8	6.2	7.4	8.5	10.2
Phenoplasts	18.8	20.5	20.6	20.6	19.6	19.1	16.6
Polymerization							
Polyethylene	18.9	33.4	43.2	46.5	47.8	48.5	47.8
Polystyrene	22.1	19.9	22.2	30.6	32.0	32.5	33.8
Polyvinyl Chloride	93.8	102.1	108.5	110.5	124.4	124.9	122.2
Sweden.							
Condensation	106.8	135.6	159.6	175.2	162.0	190.0	-
Alkyd resins	27.7	33.0	34.8	34.2	31.2	32.6	-
Amino plastic	74.7	95.0	115.2	128.7	106.4	121.4	-
Phenoplasts	38.4	45.5	52.8	52.5	48.2	54.7	-
Polymerization	187.2	254.4	332.4	337.2	275.0	350.0	-
Polyethylene	104.0	144.7	193.3	206.6	147.6	204.4	-
Polystyrene	16.1	17.7	18.3	15.6	12.7	16.0	-
Polyvinyl Chloride	79.8	105.6	131.9	127.6	96.0	116.0	-
Others	10.8	11.9	12.5	14.6	13.0	13.0	-
U.S.S.R. Total	1860.0	2040.0	2304.0	2496.0	2844.0	3216.0	3300.0
United Kingdom							
Condensation	327.6	333.6	848.4	796.8	710.4	862.8	873.6
Alkyd resins	71.0	61.0	104.2	104.3	112.2	125.9	136.9
Amino plastics	138.0	143.0	143.8	140.4	121.9	172.1	178.5
Phenoplasts	55.0	55.0	73.1	59.3	46.7	53.3	59.4
Polymerization	1059.6	1203.6	1540.8	1488.0	1238.4	1581.6	1561.2
Polyethylene	378.4	435.6	534.3	491.0	382.9	474.4	490.6
Polypropylene	92.0	118.0	166.7	210.9	169.7	250.7	247.4
Polystyrene	161.0	184.0	239.4	224.2	184.6	240.6	223.7
Polyvinyl Chloride	314.0	340.0	400.1	367.0	334.0	417.2	386.4
Others	93.6	93.6	130.3	134.4	108.0	111.6	109.2
Regen. Cellulose	-	-	92.3	91.2	64.6	81.4	77.7
United States.							
Condensation	1130.4	1363.2	1868.4	1761.6	799.2	1610.4	769.2
Alkyd resins	248.2	288.4	332.9	329.3	305.7	319.6	341.7
Amino plastic	340.1	421.2	653.9	560.5	479.4	-	-
Phenoplasts	535.5	653.3	747.3	724.9	578.2	708.0	815.2
Polymerization	6890.0	8434.8	9436.8	9651.6	7618.8	9470.4	8133.6
Polystyrene	1809.7	2217.8	2338.3	2294.6	1757.3	1685.0	2360.2
Polyethylene	2894.0	3472.2	3892.0	4002.9	3302.1	4056.0	4581.3
Polyvinyl Chloride	1558.9	1960.1	2083.6	2151.5	1634.5	2133.0	2389.2
Others	1873.2	2247.6	2401.2	2350.8	1788.0	2180.4	2329.2
Regen. Cellulose	631.7	632.4	615.5	543.7	339.8	-	-
Polypropylene	607.4	785.0	981.7	1019.8	863.2	466.0	1227.3

Source :- U. N. Statistical Year Book- 1978. * = Provisional.

Production of Synthetic and Reclaimed Rubber 1971-1977.

('000' Metric tons)

Country or area.	1971	1972	1973	1974	1975	1976	1977*
A. SYNTHETIC RUBBER							
World Total	5230	5580	6370	6035	5205	6265	6595
of which							
Argentina*	42.5	47.5	57.5	50.0	40.0	45.0	36.0
Australia	43.4	41.7	42.8	45.0	37.6	42.2	43.5
Belgium*	60.0	60.0	65.0	65.0	65.0	115.0	125.0
Brazil	78.2	94.6	125.6	155.2	128.8	164.4	188.1
Bulgaria	11.9	11.7	17.8	18.5	18.9	21.0	25.0
Canada	197.4	195.5	229.8	208.8	173.3	209.9	237.9
Czechoslovakia	52.2	51. 3	54.8	51.2	56.7	52.0	58.8
France	323.1	368.1	457.7	462.7	350.4	437.0	479.0
Germany Dem. Rep	129.3	132.7	133.5	139.4	143.9	145.5	150.0
Germany Fed. Rep.	306.4	300.0	392.9	371.8	315.9	372.6	414.3
India	33.0	27.8	21.0	17.9	23.0	23.4	27.1
Italy*	160.0	186.0	230.0	240.0	200.0	250.0	240.0
Japan	779.8	819.4	967.5	857.9	788.7	941.3	971.0
Mexico	48.7	53.3	54.3	65.5	60.0	69.4	78.0
Netherlands	191.0	186.4	262.8	245.3	215.9	246.6	240.0
Poland	66.2	78.1	93.8	100.5	107.9	116.9	119.4
Romania	71.0	73.3	83.0	92.3	98.9	95.2	135.0
South Africa	29.7	30.0	28.4	32.0	31.8	34.6	27.2
Spain	45.4	50.4	67.9	68.1	66.1	78.9	77.1
United Kingdom	285.4	316.6	364.4	335.8	260.8	320.4	329.2
United States	2277.0	2455.4	2607.4	2396.2	1989.5	2425.5	2527.9
B. RECLAIMED RUBBER							
World Total	555	545	570	510	460	465	465
of which							
Australia	9.0	8.5	9.3	9.2	5.8	4.2	1.1
Brazil	22.0	23.7	27.8	29.4	28.5	31.6	31.6
Bulgaria	2.8	2.5	3.2	3.0	2.0	..	..
Canada	13.6	14.0	8.0	7.7	3.9	4.6	3.4
Czechoslovakia	14.7	15.0	15.3	15.3	15.1	15.4	16.0
France	24.7	21.7	20.6	21.5	22.4	21.5	21.0
Germany Fed.Rep.	14.9	10.0	13.7	14.5	10.8	14.1	13.3
Hungary	2.7	2.8	2.2	2.5	1.7	1.5	0.1
Japan	59.5	59.2	67.3	59.3	47.8	58.1	56.7
Korea Rep. of	4.1	4.3	4.0	4.8	3.7	..	..
Sweden	8.3	8.0	8.4	8.3	5.9	3.9	..
U.S.S.R.	134.5	142.4	145.9	..	..	..	..
Bye-lorussian SSR	(24.1)	(24.5)	(24.5)	(25.2)	(25.4)	(..)	(..)
United Kingdom	30.0	25.7	26.0	26.5	24.6	24.3	23.0
United States	202.4	197.6	204.9	139.7	119.7	110.7	121.1
Yugoslavia	6.0	5.1	7.2	7.1	6.4	6.5	6.1

* Provisional, .. Not available

Source:- U.N. Statistical Year Book, 1978.

Production of Basic Organic Chemicals in Selected Countries of the World - 1971 - 1977.

('000' Metric Tons)

Country or area and product.	1971	1972	1973	1974	1975	1976	1977*
Bulgaria							
Ethylene	53.0	61.2	71.9	71.8	75.8	75.4	78.4
Propylene	45.6	50.4	54.4	54.5	59.2	60.5	62.2
Acetylene	7.3	11.9	11.8	11.8	14.7	12.7	12.2
Benzene	41.8	36.0	35.5	48.6	54.4	57.4	61.4
Toluene	44.5	41.1	37.3	48.2	52.1	55.1	48.0
Xylenes	30.4	30.5	27.0	33.0	34.7	34.5	30.9
Methyl Alcohol	26.1	27.2	28.2	28.2	27.5	27.2	27.3
Ethylene Oxide	7.4	8.8	9.7	8.7	9.6	9.8	10.4
Canada							
Ethylene	421.0	453.4	494.7	484.4	429.5	508.9	567.3
Acetylene	8.7	9.1	8.6	9.0	8.6	8.3	8.0
Benzene	263.9	304.4	313.2	320.6	247.7	411.3	435.0
Tolune	132.8	167.7	179.2	157.1	53.5	182.4	-
Xylenes	51.1	83.9	87.6	82.0	75.7	161.8	-
Ethyl Alcohol	396	471	265	258	233	245	-
Czechoslovakia							
Ethylene	127.8	129.4	132.2	101.7	75.4	92.8	201.4
Propylene	62.9	71.3	71.9	51.3	36.3	46.5	98.8
Acetylene	14.1	14.9	15.2	15.1	15.7	15.8	16.1
Benzene	114.5	120.0	138.6	147.8	151.7	167.9	195.4
Tolune	40.8	40.5	43.4	40.7	38.8	46.0	48.5
Xylenes	20.8	40.2	56.8	73.8	87.7	106.0	96.8
Methyl Alcohol	83.9	97.5	86.5	86.9	92.8	99.4	102.0
Ethyl Alcohol	1729	1751	1773	1330	1330	1528	1189
Ethylene Oxide	5.9	6.0	7.0	6.7	7.7	8.5	11.1
France							
Propylene	567.0	632.0	-	852.0	647.0	874.0	-
Acetylene	114.0	78.0	-	70.0	-	-	-
Benzene	371.7	383.4	396.9	422.3	295.1	456.6	493.8
Toluene	90.5	95.4	110.9	93.5	57.6	73.9	70.5
Xylenes	49.4	52.8	89.9	82.5	47.1	75.0	72.5
Methyl Alcohol	225.2	236.6	284.4	373.3	287.1	345.2	375.7
Ethyl Alcohol	70.0	-	-	94.0	-	-	-
Ethylene Oxide	91.0	101.0	199.0	221.0	153.0	-	-
German Dem. Rep.							
Methyl Alcohol	172.4	176.0	176.2	206.7	240.1	243.5	240.1
Ethyl Alcohol	359	379	387	412	358	336	315

Source:- U. N. Statistical Year Book - 1978. *= Provisional.

(Contd.)

Production of Basic Organic Chemicals in Selected Countries of the World - 1971 - 1977.

('000' Metric Tons)

Country or area and Product.	1971	1972	1973	1974	1975	1976	1977*
Germany, Fed.Rep.							
Ethylene	2004.7	2183.9	2760.6	3106.7	2140.1	2786.7	2988.9
Propylene	903.2	1063.0	1499.1	1369.6	1091.0	1431.6	1535.9
Acetylene	335.1	352.1	374.0	346.0	260.2	251.5	203.8
Benzene	814.5	827.3	1015.7	1009.5	691.2	818.4	824.4
Toluene	181.2	203.7	250.5	212.1	176.2	232.8	243.1
Xylenes	278.9	431.3	524.3	464.9	349.4	474.2	455.8
Methyl Alcohol	876.7	1005.4	1108.6	1170.4	771.0	1052.3	887.2
Ethyl Alcohol	2189	1921	2137	2432	1829	2146	2116
Ethylene Oxide	232.8	249.5	272.0	355.0	271.4	300.5	295.1
Italy.							
Ethylene	1016.3	1217.6	1378.3	1379.5	1128.1	1442.8	1414.0
Propylene	617.5	694.5	803.5	830.6	704.2	868.6	830.2
Acetylene	203.7	178.9	175.8	177.1	157.7	188.2	164.5
Benzene	481.3	508.8	647.2	635.4	466.7	592.8	593.5
Toluene	388.4	428.9	522.6	516.9	374.7	466.0	424.9
Xylenes	335.0	426.3	470.5	445.5	322.0	371.7	342.4
Methyl Alcohol	277.9	287.8	321.5	292.0	230.5	294.1	232.7
Ethyl Alcohol	1851	1487	1790	238.5	234.6	-	-
Ethylene Oxide	69.3	75.1	72. 9	76.0	75.3	82.9	78.6
Japan.							
Ethylene	3536.8	3851.2	4170.7	4175.8	3399.1	3802.9	3978.6
Propylene	2455.3	2653.2	2824.8	2729.5	2314.2	2635.5	2716.4
Acetylene	73.5	79.1	76.0	71.1	61.8	58.1	53.7
Benzene	1689.0	1852.1	1995.3	1997.4	1608.2	1878.6	1951.1
Toluene	790.5	832.9	918.5	899.9	657.0	878.2	891.3
Xylene	855.6	929.3	1058.2	1142.2	894.8	1169.2	1212.5
Methyl Alcohol	1010.7	1084.6	1221.1	1058.5	719.0	951.2	762.0
Ethyl Alcohol	2289	2288	2403	2366	2080	2216	2219
Ethylene Oxide	333.8	360.7	402.6	414.7	509.1	546.8	537.6
Mexico.							
Ethylene	68.7	85.6	116.1	177.7	213.0	227.9	229.1
Propylene	70.6	83.3	95.4	92.3	93.1	113.7	93.4
Benzene	74.6	61.8	81.9	97.1	90.0	99.2	74.5
Toluene	92.9	83.6	100.7	118.5	116.0	122.3	113.0
Xylenes	58.5	53.8	63.3	74.5	66.2	-	-
Methyl Alcohol	17.4	22.5	26.5	30.0	31.6	32.2	33.1
Ethyl Alcohol	596	543	549	580	586	528	763
Ethylene Oxide	-	4.9	13.9	22.6	27.3	25.5	26.8
Netherlands.							
Ethylene	-	1265	1554	1750	1406	1884	1780
Propylene	-	-	833.1	906.0	764.0	980.0	905.0
Benzene	280.2	451.0	789.0	745.0	729.0	456.0	-
Toluene	105.6	94.0	254.0	100.0	56.0	81.0	-
Xylenes	147.6	182.2	-	-	192.0	-	-
Ethyl Alcohol	1074	1120	1267	1400	1351	1410	-
Ethylene Oxide	89.0	151.0	190.0	-	-	-	-

Source :- U.N. Statistical Year Book - 1978. * - Provisional.

Production of Basic Organic Chemicals in Selected Countries of the World 1971-1977.

('000' Metric Tons)

Country or area and product.	1971	1972	1973	1974	1975	1976	1977*
Poland							
Ethylene	35.3	62.0	76.6	91.5	95.0	94.6	96.5
Propylene	25.3	27.2	36.7	42.5	58.6	50.9	83.7
Acetylene	11.7	12.0	12.4	16.8	14.0	16.6	16.8
Methyl alcohol	86.3	84.7	106.6	115.7	148.6	197.5	193.5
Ethyl Alcohol	1851	1810	2485	2497	2265	2622	3297
Romania							
Ethylene	-	-	-	-	-	-	-
Propylene	-	-	-	-	-	-	-
Benzene	109.0	132.0	126.0	118.0	125.0	159.0	162.0
Tolune	125.0	124.0	135.0	122.0	117.0	148.0	157.0
Xylenes	137.0	144.0	142.0	124.0	180.0	221.0	221.0
Methyl Alcohol	93.9	90.8	98.2	103.0	107.0	124.3	227.9
Ethyl Alcohol	608	654	685	655	810	784	820
Ethylene Oxide	-	-	-	-	-	-	-
Spain							
Ethylene	110.3	137.7	197,6	243.8	231.9	282.5	-
Propylene	65.7	78.1	102.4	129.6	121.0	148.9	-
Acetylene	31.3	37.7	35.6	37.3	32.4	24.9	-
Benzene	151.9	190.1	194.8	216.3	197.4	136.1	-
Tolune	90.2	78.1	49.7	35.1	37.1	51.2	-
Xylenes	115.6	61.7	55.2	41.5	21.9	-	-
Methyl Alcohol	41.0	7.2	1.4	2.8	2.8	5.8	-
Ethyl Alcohol	1593	1600	1300	1553	1594	-	-
Ethylene Oxide	16.5	20.4	20.4	22.8	23.1	23.8	-
United Kingdom.							
Ethylene	1040.0	1122.0	1246.8	1274.7	958.9	1286.1	1137.5
Propylene	506.0	552.0	642.0	662.0	565.6	747.5	659.6
Benzene	550.0	556.0	768.1	695.6	581.8	927.7	844.6
Tolune	263.0	322.0	293.0	252.0	183.8	-	-
Ethyl Alcohol	1672	1556	1862	2953	1982	2489	2717
Ethylene Oxide	192.0	198.0	211.0	-	-	-	-
United States.							
Ethylene	8367.2	9456.8	10126.7	10835.1	8971.4	9991.0	11533.0
Propylene	3125.3	3842.0	4482.0	4750.5	3445.6	4426.0	-
Acetylene	386.2	361.8	131.4	147.6	102.4	109.7	91.3
Benzene	3562.0	4146.4	4811.2	4927.1	3459.4	4795.0	-
Tolune	2861.3	2990.6	3128.8	3010.5	2649.0	3708.0	-
Xylenes	2027.2	2447.7	2599.3	2655.5	2330.5	3298.0	-
Methyl Alcohol	2244.9	2955.0	3205.8	3119.4	2347.9	2830.0	-
Ethyl Alcohol	21575	21540	25728	24505	21993	18910	18860
Ethylene Oxide	1631.5	1796.7	1889.8	1765.3	1785.8	1852.0	-

Source :- U. N. Statistical Year Book - 1978. *= Provisional.

PART - III

PLAN STATISTICS

Sixth Plan Outlay For Petroleum, Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum.

(Rs./Crores)

S.No.	Organisation/Project/Scheme.	Sixth Plan (1980-85 Outlay)
1.	2.	3.
A.	Petroleum Sector.	
	I. Exploration and Production	2873.58
	Oil & Natural Gas Commission Oil India Ltd. - Operations	2853.58
	II. Oil & Natural Gas Commission- R & D.	20.00
	Refining & Marketing	1426.42
	i. Operations	1408.89
	ii. R & D	17.53
	III. Indian Oil Corporation (IOC):	
	i. Refineries & Pipelines Division	
	a. Continuning Schemes.	
1.	Mathura Refinery Project	63.19
2.	Gujarat Refinery Expansion Project	0.40
3.	Gujarat Refinery Secondary Processing Project.	36.95
4.	Salaya-Viramgam-Koyali-Mathura Pipeline (SVMK)	46.00
5.	U.H.F. Telecommunication System	0.27
6.	Mathura-Delhi-Ambala-Jullundur Pipeline	49.80
7.	Additional Coker at Barauni Refinery	38.38
8.	Gauhati-Siliguri Pipeline expansion	2.63
9.	Effluent disposal line and Cooling Towers at Gauhati Refinery	3.35
10.	Office Accommodation at New Delhi	2.56
11.	Haldia Refinery Project	0.21
12.	Lube-expansion (Cylinder-Oils) at Haldia Refinery	2.90
13.	Additional Redial well at Gujarat Refinery	1.70
14.	Naptha-Splitter facility at Gauhati Refinery	3.15
15.	Additional 8MW TG set at Gauhati Refinery	3.32
16.	Additional Facilities	27.00
	Sub - Total (a)	281.81

Cont. ;../-

Sixth Plan Outlay For Petroleum, Petro-Chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum.

2.	3.
b. New Schemes	
1. Haldia Refinery Expansion with Lube - unit & F.C.C. ...	80.10
2. L.P.G. Bottling and bulk-loading facilities at Gujarat Refinery	4.67
3. Additional 12.5 MV TG set with boiler at Haldia Refinery	15.00
4. Micro-crystalline Wax production facilities at Haldia Refinery	1.00
5. Replacement of 3 furnaces in distillation units of Gujarat Refinery	7.25
6. Replacement of 3 furnaces in distillation units of Barauni Refinery	7.25
7. Mandatory Crude Tanks	
(i) Phase - I	13.83
(II) Phase - II	12.00
8. Rajkot Pump Station (SVK expansion)	4.55
9. Additional tanks at Viramgam	4.90
10. Barauni-Kanpur Pipeline Modernization	1.50
11. Spare SBM at Salaya	25.00
Sub Total (b)	177.05
Total(a+b)-R & P Division	458.86
(ii) Marketing Division	
a. Continuing Schemes.	
1. Fuel Hydrant facilities at Bombay: Phase I	5.79
2. L.P.G. Marketing facilities: Phase I	32.42
3. Installations at Delhi, Ambala and Jullundur	15.86
4. Office accommodation at Madras, Bombay and Calcutta	8.39
5. Residential accommodation	3.74
6. Other Minor schemes such as provision of retail-outlets, consumer depots, consumer pumps and Kerosene depots in hilly and far-flung areas, development of infrastructures, residential accommodation (other than at Bombay) and office accommodation (other than at Bombay, Madras and Calcutta) etc.	80.00
	146.20

Cont. ..../-

Sixth Plan Outlay For Petroleum, Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum

(Rs. Crores)

1.	2.
b. New Schemes.	
1. L.P.G. Marketing facilities - Phase II	8.50
2. Facilities for marketing OIL's LPG	22.90
3. Fuel hydrant at Bombay - Phase II & III	3.15
4. Pipelime connecting Bijwasan and AFS Delhi	1.58
5. Marketing facilities for L.P.G. from additional B.H. Gas	02.25
6. Mandatory tankages at (i) Installation	13.02
(ii) Depots	8.16
Sub - Total (b)	89.56
Total (a + b):Marketing Divn.	235.76
C. R & D Centre:	
a. Continuing Schemes:	
1. R & D Centre Project	1.04
b. New Schemes.	
1. Additional facilities	5.85
Total (a+ b) R & D Centre	6.89
d. Indian Oil Blending Limited (IOBL)	
1. Expansion of blending facilities	4.20
2. Additional facilities	1.23
Total (d) - IOBL	5.43
Grand Total (a+b+c+d) IOC	706.94
IV. Bharat Petroleum Corporation Ltd.(BPCL)	
a. Continuing Schemes.	
1. Installation of facilities for processing neat BH crude at a level of 4.6. mtpa.	0.86
2. Installation of facilities between HPCL and BPCL for Inter-Refinery Optimisation of Yields and usage of capacity (HPCL's share only)	0.08
3. Debottlenecking of Distiller and Installation of Additional Secondary Processing facilities.	35.44
4. Marketing of Incremental LPG - Phase I	3.57

Cont. ...../-

Sixth Plan Outlay For Petroleum, Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum

(Rs. Crores)

1.	2.	3.
	5. R & D Project for Lubricants, Greases & Specialities.	0.40
	6. Construction of Staff Quarters (Marketing-Division) at Bombay.	0.59
	7. Construction of Staff Quarters at Upcountry locations and Bombay	0.83
	8. Installation of Sulphur Recovery Plant at B.P.C.L.	3.19
	9. Other Renewals, Replacements and Minor Additions	47.30
	Sub - Total (a)	97.26
b.	New Schemes.	
	1. Marketing of Incremental LPG - Phase II	22.20
	2. Construction of Staff Quarters	3.00
	3. Crude Tankage -Three Tanks of 75000 tonnes capacity each	7.10
	4. Product Tankage for a total storage capacity of 662000 tonnes	17.00
	5. New Computer system & auxilliaries	1.30
	Sub - Total (b)	50.60
	Total (a + b): BPCL	147.86
V.	Hindustan Petroleum Corporation Ltd.(HPCL)	
a.	Continuing Schemes.	
	1. Marketing of LPG from BH Gas -Phase I	12.25
	2. Lube Refinery Expansion	12.07
	3. Computer	0.85
	4. Lube Oil Pipeline	1.80
	5. A.T.F. Pipeline	1.04
	6. Visakh Refinery Expansion	65.85
	7. Crude Oil Discharge Pipeline	6.85
	8. Residential Units	0.73
	9. Crude Desalting facilities, Bombay	0.85
	10. Waste Heat Boiler, Visakh	0.65
	11. Additional Tank-Trucks	0.54
	12. Bulk Asphalt	0.99
	13. Crude Furnace, Bombay	2.20

Cont. ...../-

Sixth Plan Outlay For Petroleum, Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum.

(Rs. Crores)

1.	2.	3.
	14. Hexane Maximisation	1.80
	15. Replacements & Minor Additions	7.00
	Sub - Total (a)	115.47
b.	New Schemes.	
	1. Sulphur Recovery Project	2.70
	2. Bombay-Pune Product Pipeline	21.70
	3. Marketing of LPG from NH Gas - Phase II	13.61
	4. Tank- Trucks	0.60
	5. R & D facilities	0.50
	6. Residential Units	2.00
	7. Aviation facilities	1.00
	8. Product Tankage & Associated facilities	7.00
	9. Mandatory Crude Tankage - Bombay	3.00
	10. Second Mandatory Crude Tankage - Visakh	2.50
	11. Tap-off Terminal at Vashi	3.25
	12. Black Oil Pipeline from Refinery to Vashi and Terminal at Vashi	1.00
	13. Manufacture of Bright Stock/Cylinder Oils	5.10
	14. Replacement of Boiler at Visakh	3.00
	15. Lube Refinery Expansion	10.00
	16. Replacement/Minor Additions	16.90
	Sub - Total (b)	93.31
	Total (a + b): HPCL	208.81
VI.	Madrass Refineries Ltd. (MRL)	
a.	Continuing Schemes.	
	1. Paraffin Wax Project	13.48
	2. Additional Crude Tank (105)	0.96
	3. Expansion of the Refinery from 2.8 to 5.6 mtpa.	54.78
	4. L.P.G. Sphere	0.60
	Sub - Total (a)	69.82

Cont. .../-

Sixth Plan Outlay For Petroleum,Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum.

(Rs. Crores)

1.	2.	3.
b.	New Schemes.	
	1. Additional Mandatory Crude Tanks(106 and 107)	6.00
	2. Lube Plant (50000 tonnes HVI)	10.00
	Sub - Total (b)	16.00
	Total (a + b): MRL	85.82
VII.	Cochin Refineries Ltd. (CRL)	
a.	Continuing Schemes.	
	1. RC-I Compressor	0.20
	2. Stripper	0.24
	3. Secondary Processing facilities	48.70
	4. Replacements & Additions	2.50
	Sub - Total	51.64
b.	New Schemes.	
	1. Strategic Crude Tanks	5.60
	2. Expansion of Refining Capacity to 4.5 mtpa.	4.90
	Sub - Total (b)	10.50
	Total (a + b): CRL	62.14
VIII.	Bongaigaon Refinery & Petrochemicals Ltd.(BRPL)	
a.	Continuing Schemes.	
	1. Crude Distillation Unit (CDU)	0.29
	2. Kerosene Treating Unit (KTU)	0.37
	3. Delayed Coker Unit (DCU)	2.39
	4. Coke Calcination Unit (CCU)	1.64
	5. Captive Power Plant (CPP)	7.38
	6. Offsites - Phase - I	2.02
	Sub-Total:(BRPL)	14.50
IX.	Lubrizol India Ltd. (LIL).	
a.	Continuing Schemes.	
	1. Continuing Schemes	1.25
	2. R & D Schemes	1.55
	Sub - Total	2.80

Cont./-

Sixth Plan Outlay For Petroleum, Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum.

(Rs. Crores)

1.	2.	3.
	b. New Schemes	
	1. Sulphuric Acid Manufacture	1.10
	2. Calcium Phenate Unit	0.03
	3. Cold flow and Viscosity Index Improper	3.32
	Sub - Total (b)	4.72
	Total (a + b): LIL	7.52
X.	Engineers India Ltd. (EIL)	
	a. Continuing Schemes	
	1. EIL's own office Building	3.56
	b. R & D Schemes	3.64
	Total (a + b)	7.20
XI.	Indian Institute of Petroleum (IIP)	
	a. Continuing Schemes.	2.50
	b. New Schemes	
	1. Modernisation of Equipment	0.50
	2. Establishment of Pilot Plant Centre for Refinery Processes and Catalyst Development (to be set up at Baroda)	4.00
	Sub - Total (b)	4.50
	Total (a + b): IIP	7.00
XII.	Department of Petroleum.	
	1. Fuel Hydrant System at Palam	17.85
	2. Lube Blending facilities at Shakurbasti	0.70
	3. New Refineries	150.00
	4. Manufacturing facilities for Aviation Gas	10.00
	Total: Department of Petroleum	178.55
	Grand Total (A) (I to XII) Petroleum Sector.	4300.00

Cont.../--

Sixth Plan Outlay For Petroleum, Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum.

(Rs. Crores)

1.	2.	3.
B.	Petrochemicals, Explosives and Engineering Units.	
I.	Indian Petro-Chemicals Corporation Ltd.	
a.	Continuing Schemes.	
1.	Olefin Complex	16.32
2.	P.V.C.	50.30
3.	Acrylates	15.92
4.	D.M.T. Expansion	5.24
5.	Petroleum Resin	4.85
	Sub - Total (a)	92.63
b.	Replacement and renewals.	40.00
c.	New Schemes	
1.	L.A.B. Expansion	5.00
2.	Naphtha Prefractionation	2.50
3.	Kerocene Prefractionation	5.00
4.	Others	10.00
	Sub - Total (c)	22.50
d.	S & T Programmes	5.00
	Total(IPCL) (a+b+c+d)	160.13
II.	Bongaigaon Refinery & Petro-Chemicals Corporation Ltd. (Petro-chemicals).	
a.	Continuing Schemes.	
1.	Xylenes	48.65
2.	D. M. T.	48.31
3.	Offsites II	21.85
4.	Polyester Fibres	47.74
	Sub - Total (a)	166.56
III.	Petrofils Cooperative Ltd. (Polyester - Staple-Fibre/PFY - New Schemes)	1.00
IV.	Bharat Petroleum Corporation(Aromatic Complex Phase I - Continuing Scheme)	13.12
V.	Central Institute of Plastics Engg. & Tools.	
a.	Continuing Schemes.	
1.	Product testing centre Phese I	0.05

Cont. ../-

Sixth Plan Outlay For Petroleum, Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum.

(Rs. Crores)

1.	2.	3.
	b. New Schemes	
	1. Product Testing Centre Phase II Extension Centre at Gujarat etc.	2.23
	Total (a + b)	2.28
VI.	New Petro-chemicals Schemes Under the Department of Petroleum.	
	1. Gas Cracker Complex including downstream units.	385.00
	2. Aromatics Recovery Unit - I	50.00
	3. Aromatic Recovery Unit - II	50.00
	4. Aromatic Recovery Unit - III	24.00
	5. D.M.T. / T. P. A.	40.00
		549.00
VII.	Indo-Burmah Petroleum Co. Ltd.,	
	a. Continuing Schemes.	
	1. Oil Division	2.85
	2. Engineering Division(Cryo Containers, Freeze Driers etc.)	1.06
	3. Chemicals Division(Explosives Plants etc.)	3.77
	Sub - Total (a)	7.68
	b. New Schemes.	
	1. Engineering Division (Drum Closuree etc.)	1.10
	2. Chemicals Division (Explosives Detonmators)	5.75
	Sub - Total (b)	6.85
	Total (a + b)	14.53
VIII.	Balmor Lowrie and Co. Ltd.	
	a. Continuing Scheme (Marine freight containers modernisation etc.).	4.22
	b. New Schemes	9.91
	Total : (a + b)	14.13
IX.	Biacco Lawrie Ltd.	
	a. Continuing Schemes	2.26
	b. Replacement and renewals	0.40
	c. New Schemes	1.24
	Total (a+b+c)	3.90

Cont.../-

Sixth Plan Outlay for Petroleum, Petro-chemicals Explosives and Engineering Units Under the Purview of Department of Petroleum

(Rs. Crores)

1.	2.	3.
X.	Bridge and Roof Co.	
	a. Continuing Schemes (Marine freight containers etc)	1.40
	b. Replacement and renewals	2.57
	c. New Schemes	6.38
	Total (a + b + c)	10.35
	Total B. (I to X) ((for Petrochemicals Explosives and Engineering Units).	935.00
	Grand Total (A + B) (Petroleum, Petrochemical, Explosives and Engineering Units)	5235.00

Sector-wise Sixth Plan Outlay for Petroleum & Petro-chemicals Industries

Rs./Crores

Sector	Sixth Five Year Plan Outlay 1980-81.
1. Exploration & Production	2873.58
2. Refining & Marketing	1455.13
3. Petrochemicals	889.81
4. Engineering Services	7.20
O T H E R S	9.28
T O T A L	5235.00

Undertaking-wise Sixth Five Year Plan Outlay for the Petroleum and Petrochemicals Industries

(Rs./Crores)

Undertakings	Continuing Schemes	New Schemes	Total
1.	2.	3.	4.
Exploration & Production	**2853.58**	**20.00**	**2873.58**
ONGC	2853.58	20.00*	2873.58
OIL			
Refining & Marketing	**801.62**	**653.51**	**1455.13**
IOC	434.48	272.46	706.94
BPCL	97.26	50.60	147.86
HPCL	115.47	93.33	208.80
CRL	51.64	10.50	62.14
MRL	69.82	16.00	85.82
BRPL	14.59	-	14.59
LIL	2.80	4.72	7.52
IBP	7.68	6.85	14.53
Balmer Lawrie	4.22	9.91	14.13
Bridge & Roof	1.40	8.95	10.35
Biecco Lawrie	2.26	1.64**	3.90
Deptt. of Petroleum	-	178.55	178.55
Petrochemicals	**272.31**	**617.50**	**889.81**
IPCL	92.63	67.50***	160.13
PCL	-	1.00	1.00
BRPL	166.56	-	166.56
BPCL	13.12	-	13.12
Deptt. of Petroleum	-	549.00	549.00
Engineering	**3.56**	**3.64**	**7.20**
EIL	3.56	3.64*	7.20
CIPET	0.05	2.23	2.28
IIP	2.50	4.50	7.00
TOTAL	3933.62	1301.38	5235.00

* Relates to R&D Schemes.

** Includes replacement and renewals.

*** Includes replacement and renewals, S&T programme.

Actual/Anticipated Plan Expenditure of the Undertaking Under the Purview of the Department of Petroleum

(Rs./Crores)

Name of the Undertaking	Actual Expenditure				1980-81		1981-82
	1976-77	1977-78	1978-79	1979-80	B.E.	R.E.	B.E.
1.	2.	3.	4.	5.	6.	7.	8.
Exploration & Production	269.41	337.44	253.03	312.63	520.67	522.40	710.18
1. O.N.G.C.	266.44	302.66	228.67	292.54	490.57	490.57	670.18
2. O.I.L.	42.97	34.78	24.36	20.09	30.10	31.83	40.00
Refining & Marketing.	95.20	108.13	130.38	164.82	225.77	239.99	286.72
1. I.O.C.	86.84	98.53	112.50	140.19	155.61	168.41	168.35
2. H.P.C.L.	5.08	4.23	9.33	10.68	19.96	22.22	28.88
3. B.P.C.L.	1.45	2.69	5.40	7.45	18.12	17.64	28.05
4. I.B.P. @	0.84	2.68	2.19	4.38	7.38	10.39	10.47
5. M. R. L.	-	-	0.67	1.21	5.97	7.33	17.80
6. C. R. L.	-	-	0.29	0.91	6.89	12.16	22.22
7. H.P.C. (Vizag)	-	-	-	-	-	-	-
8. L.I.L./Others	1.02	-	-	-	1.84	1.84	0.95
Petro-chemicals	107.09	86.73	59.60	33.93	56.30	51.15	63.36
1. I.P.C.L.	82.22	60.04	28.57	13.01	22.64	26.05	23.67
2. B.R.P.L.	16.26	26.68	26.64	20.82	33.56	25.00	39.59
3. P.C.L./Others	8.61	0.01	4.39	0.10	0.10	0.10	0.10
Consultancy & Engg. Service.	0.18	0.20	2.16	0.76	4.03	4.00	1.87
1. E.I.L.	0.18	0.15	1.88	0.35	3.40	3.40	1.36
2. I. I. P.	-	-	0.24	0.38	0.53	0.54	-*
3. C.I.P.E.T.	____	0.05	0.04	0.03	0.10	0.06	0.51
Grand Total	471.88	532.50	445.17	512.14	836.92 @@	817.54	1077.13 @@

@= Including subsidiaries.

*= Since transferred to CSIR.

@@ = Including Rs.30.15 Crores allocated to Deptt. of Petroleum during 1980-81 and Rs.15.00 Crores during 1981-82.

CAPACITY AND PRODUCTION ESTIMATES FOR PETROLEUM AND SELECTED PETRO-CHEMICALS FOR 1984 - 85.

INDUSTRY	UNIT	1979-80 Actual/Anticipated		1984-85 Proposed Targets	
		Capacity	Production	Capacity	Production
1.	2.	3.	4.	5.	6.
1. Petroleum Products	M. Tonnes-		25.79	-	35.34
2. Thermo Plastics & Synthetic Rubber.					
1. L.D. Polyethylene	'000 T.	112	71.3	112	100
2. H.D. Polyethylene	,,	30	25.4	30	27
3. Polyvinyl Chloride	,,	77.9	49.9	173	128
4. Polypropylene	,,	30	13.4	30	27
5. Polystyrene	,,	23.5	12.0	28.5	20
6. Synthetic Rubbers Styrene Butadiene Rubber	,,	30	21.6	30	27
Polybutadiene Rubber	,,	20	8.7	20	18
3. Petro-chemical Intermediates.					
1. Acrylonitrile	,,	24	3.7	24	20
2. D. M. T.	,,	24	27.9	66	56
3. Caprolactam	,,	20	13.5	20	18
4. Man-Made Fibres.					
1. Nylon Filament Yarn	,,	21	17.7	31.4	28
2. Nylon Tyre Cord & Indl. Yarns	,,	12.1	11.2	13.5	13.5
3. Polyster Staple Fibre	,,	30.4	23.6	58.6	55
4. Polyester Filament Yarn	,,	8	9.0	18	18
5. Acrylic Fibre	,,	16	3.4	16	14

Source :- Sixth Five Year Plan 1980 - 85.

Plan Targets of Domestic Crude Productions

(In Million Tonnes)

	1980-81 Actual	1981-82	1982-83	1983-84	1984-85
ONSHORE					
IN EASTERN REGION					
O.N.G.C.	3.8	3.2	3.1	3.0	2.3
EASTERN REGION					
O.N.G.C.	0.4	2.1	2.6	2.8	3.0
O.I.L.	1.2	3.2	3.0	2.8	2.6
Total	1.6	5.3	5.6	5.6	5.6
Total Onshore	5.5*	8.5	8.7	8.6	8.4
OFFSHORE	5.0	8.4	11.8	12.7	13.2
Grand Total:	10.5	16.9	20.5	21.3	21.6

*Including A.O.C.

Material Balance Crude Petroleum

1979-80/1984-85 (MMT)

	1979-80	1984-85
a) Installed Refining capacity	31.80	45.55
b) Production of Pol. products	25.79	35.34
c) Crude Throughput	27.47	38.00
d) Crude Production	11.77	21.60
e) Crude Imports	16.12*	16.40

*Provisional

Material Balance : Petroleum Products 1979-80/1984-85

Product Category	1979-80 Produ.	Imports*	Exp.& Re.Exp.	Cons-umn	1984-85(Projection) Prod.	Imp-orts	Export	Dem-and
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
a) Light Distilates	4.459	0.131	0.088	4.460	7.690	-	0.640	7.05
b) Middle Distillates	13.080	3.504	-	16.321	19.430	6.490	-	25.92
c) Heavy Ends	8.255	0.843	-	9.102	8.220	4.310	-	12.53
Total :	25.794	4.478	0.088	29.883	35.340	10.800	0.640	45.50

*Provisional

PART-IV

FINANCIAL PERFORMANCE/STRUCTURES

Financial Review/Structure of Public Sector Undertakings under the purview of Department of Petroleum - 1979-80 and Quick Review - 1980-81.

The Financial Structure of the Public Sector Undertakings as per their Annual published accounts/data submitted by them for the three years ending 1979-80 has been given in the attached statements. The glossary of the terms used has been given at the end. The public sector undertakings under the Department of Petroleum as in earlier years have been divided into four broad categories, viz.,(A) Oil Exploration & Production; (B) Refining & Marketing; (C) Petro-chemicals & Other down-stream units; and (D) Engineering Services. All the oil companies are now under public/joint sector. In the review that follows, consolidated financial position of all the public/joint sector undertakings has been analysed first, followed by an analysis of consolidated position under each of the above categories.

Over-all Financial Position

2. A consolidated picture of overall financial structure and performance of public sector oil industry during the three years 1977-78 to 1979-80 is provided in tables 1 to 3. The following is the summary results :-

(Rs./Crores)

	1977-78	1978-79*	1979-80
1. Equity	708.63	725.01	830.21
2. Loans	620.90	696.87	1133.59
3. Reserves & surpluses	530.22	667.31	805.66
4. Capital employed	988.68	1499.54	2188.35
5. Working capital	259.24	334.51	674.22
6. Sales turnover	5591.58 @	6662.89	8435.86
7. Gross profit(Adj.)	293.10 @	345.86	391.62
8. Net profit(Adj.)	150.48 @	182.96	152.91
9. Dividends declared	32.83 @	40.67	43.00

@ Annualised. * Excludes BRPL which was then under construction.

3. An analysis of individual items is briefly given below :-

Capital investment : The capital investment defined as sum total of paid-up capital and loans both long-term and short-term, registered an increase of 38.1% from Rs.1421.88 crores in 1978-79 to Rs.1963.80 crores in 1979-80. The corresponding increase in the preceding year was of the order of 7.0%. The increase in capital investment during 1979-80 over 1978-79 was mainly on account of increase in the quantum of loans from Rs.696.87 crores to Rs.1133.59 crores. An increase in paid-up capital and loans took place in O.N.G.C. where the two magnitudes respectively */from Rs.332.35 crores in 1978-79 to Rs.337.35 crores in 1979-80 and from 305.05 crores in 1978-79 to Rs.390.98 crores in 1979-80. In the case of I.O.C., loans have increased by 241.6% from Rs.110.21 crores to Rs.376.52 crores.

*/increased

.../-

There were also increases in the total quantum of loans in the under-noted oil companies as indicated below :-

(Rs./Crores)

Name of the Oil Company	Loans in 1978-79	Loans in 1979-80	Percentage increase
1. BPCL	3.38	7.73	128.7%
2. HPCL	15.71	67.86	331.9%
3. CRL	14.33	18.02	25.7%
4. Balmer Lawrie	3.11	5.79	86.2%

In the case of ONGC, foreign loans increased from Rs.39.66 crores in 1978-79 to Rs.41.31 crores (4.2%) in 1979-80. With these major changes/increases in equity & loans, the equity/loans ratio declined from 1.04 in 1978-79 to 0.73 in 1979-80.

ii) Capital Employed : Capital employed as the sum of net fixed assets and working capital of the public sector undertakings went up by 45.9% from Rs.1499.54 crores in 1978-79 to Rs.2188.35 crores in 1979-80. The corresponding increase in the preceding year was of the order of 51.7%. The break-up of the figures has revealed that increase in 1979-80 over 1978-79 was mainly on account of increase in net fixed assets, particularly of ONGC and HPCL which put together accounted for 76.6% of the total increase in net fixed assets and 15.4% of the total increase in working capital.

iii) Sales Trunover : The sales turnover of all the oil companies taken together increased from Rs.6662.89 crores in 1978-79 to Rs.8435.86 crores in the year 1979-80, i.e. by 26.61% during the year. The corresponding increase in the preceding year was of the order of 19.2%. Despite the increase in sales turnover gross profit expressed as a percentage of sales stood at 4.7% in 1979-80 as against 5.2% in the year 1978-79.

iv) Profitability : A rising trend is perceptible in the overall profitability of the public sector undertakings under the purview of Department of Petroleum. The adjusted gross profit improved from Rs.345.86 crores in 1978-79 to Rs.391.62 crores in 1979-80, thereby registering a growth of 13.23% during the year under review. The corresponding growth during the preceding year was of the order of 17.8%. On the other hand, the adjusted net profit declined from Rs.182.96 crores in 1978-79 to Rs.152.91 crores in 1979-80. The adjusted net profit expressed as a proportion of equity and of net worth went down to 18.4 and 9.8 in 1979-80 as compared to 25.2 and 13.7 respectively in 1978-79. The return on capital employed measured in terms of gross profit before interest and taxation during the year has registered a declining trend from 29.6% in 1977-78 to 23.1% in 1978-79 and 18.1% in 1979-80 mainly on account of deterioration in sales performance in relation to capital employed. The ratio of sales to capital employed declined from 5.65:1 in 1977-78 to 4.44:1 in 1978-79 and further to 3.85:1 in 1979-80.

.../-

v) Dividends : There has been a steady increase in the quantum of dividends in respect of public sector undertakings over the last three years. It has been continuously increasing from Rs.32.83 crores in 1977-78 to Rs.40.67 crores in 1978-79 and to Rs.43.06 crores in 1979-80. The highest dividend declared in absolute terms during 1979-80 was in respect of ONGC at Rs.19.95 crores, followed by IOC at Rs.9.86 crores and OIL at Rs.4.11 crores. These three undertakings accounted for 78.9% of the total dividend declared during 1979-80. Biecco Lawrie, Bridge & Roof Co., IPCL, PCL, BRPL and HIL, however, did not declare any dividend during 1979-80.

I. Exploration & Production
(Refer Table No. 4)

This category includes the following companies :

i) Oil & Natural Gas Commission (ONGC)
ii) Hydro-carbons India Limited (HIL)
iii) Oil India Limited (OIL)

Summary of results of the undertakings under this category for the last three years is as under :-

	1977-78	1978-79	1979-80
1. Equity	373.80	385.35	390.35
2. Loans	344.96	377.64	462.44
3. Capital employed	411.81	633.94	906.56
4. Sales turnover	405.77	512.93	545.08
5. Gross profit(adjusted)	116.86	160.62	171.51
6. Net profit(adjusted)	69.03	92.40	69.14
7. Dividend declared	16.91	22.21	24.06
Percentage of :			
a) Net profit to equity	18.5	24.0	17.7
b) Net profit to net worth	14.4	16.6	11.5
c) Profit to capital employed	28.4	25.3	18.9
d) Sales to capital employed	98.5	80.9	60.1
e) Equity loan ratio	1.08	1.02	0.84

Salient points of the analysis are given as under :-

i) Capital Investment : There has been an increase in the capital investment under this category from Rs.762.99 crores in 1978-79 to Rs.852.79 crores in 1979-80, thereby registering a growth of 11.7%. The corresponding growth during the preceding year (1978-79) was of the order of 6.2%. The increase during 1979-80 was on account of increase in equity and loans of ONGC. As a result of changes in both equity and loans, the equity/loans ratio came down from 1.02 in 1978-79 to 0.84 in 1979-80. Over the last three years there has been a declining trend in equity/loan ratio.

.../-

ii) Capital Employed : The capital employed increased during the year from Rs.633.94 crores to Rs.906.56 crores, i.e. by 43%. (The corresponding increase during the preceding year was of the order of 53.9%). This increase was made up of increase in net fixed assets, resulting from additions on account of pipelines, production equipment, drilling rigs of ONGC and increase in the working capital of OIL to the tune of Rs.4.59 crores. There was, however, an overall decrease of Rs.4.22 crores in the working capital under this category in 1979-80.

iii) Sales Turnover : The sales turnover under this category increased by about 6.27% from Rs.512.93 crores in 1978-79 to Rs.545.08 crores in 1979-80. The corresponding growth during the preceding year was of the order of 26%. As a result of increase in sales turnover, gross profit expressed as a percentage of sales turnover increased from 31.3% in 1978-79 to 31.5% in 1979-80. There has infact been a rising trend in this percentage over the last three years.

iv) Profitability : There was an improvement in the profitability under this category during the year 1979-80. The adjusted gross profit increased by 6.78% from Rs.160.62 crores in 1978-79 to Rs.171.51 crores in 1979-80. But the adjusted net profit showed a declining trend from Rs.92.40 crores in 1978-79 to Rs.69.14 crores in 1979-80, the decline being of the order of 25.17%. The profitability in relation to equity and net worth has declined in the period under review. The return on capital employed has considerably gone down from 25.3% in 1978-79 to 18.9% in 1979-80.

v) Dividends : There was a further improvement in dividends declared under this category from Rs.22.21 crores in 1978-79 tp Rs.24.06 crores in 1979-80. The improvement has been mainly on account of increase in dividends declared by ONGC from Rs.18.10 crores in 1978-79 to Rs.19.95 crores in 1979-80. The dividend declared by OIL stood at Rs.4.11 crores(provisional). HIL, however, did not declare any dividend during the last three years.

II. Refining & Marketing

(Refer Table No. 8)

Financial structure and performances of individual companies during the period 1977-78 to 1979-80 have been given in table Nos. 9 to 20, while consolidated summary of the refining & marketing companies taken together has been given in table No.8.

Summary of results of the undertakings under this category for the last three years is as under :-

.../-

(Rs./Crores)

	1977-78	1978-79	1979-80
1. Equity	136.27	138.71	140.44
2. Loans	127.54	165.14	495.24
3. Capital employed	372.11	495.62	775.13
4. Sales turnover	5115.44	5995.57	7638.98
5. Gross profit (adjusted)	162.97	172.23	193.16
6. Not profit(adjusted)	78.40	93.09	72.64
7. Dividend	15.89	18.42	18.90

Salient points of analysis are given as under :-

i) Capital Investment : Capital investment under this category increased from Rs.303.85 crores in 1978-79 to Rs.635.68 crores in 1979-80 thereby registering an increase of 109.21%. The corresponding growth in the preceding year was in the vicinity of 15.5%. The increase during 1979-80 was on account of increase in the equity capital of Biecco Lawrie and Bridge & Roof to the extent of 78 lakhs and Rs.94 lakhs respectively and loans of IOC and HPCL. Foreign loans, however, declined from Rs.4.93 crores in 1978-79 to Rs.2.59 crores in 1979-80, thereby maintaining the declining trend of the previous years. As a result of changes in the equity/loans, the ratio of two has gone down from 0.84 in 1978-79 to 0.28 in 1979-80.

ii) Capital Employed : Capital employed by the refining & marketing category at the end of 1979-80 amounted to Rs.775.13 crores being represented by Rs.383.49 crores as net fixed assets and Rs.391.64 crores as the working capital respectively. Capital employed rose by 56.3% during 1979-80 as compared with 1978-79 of which the major share of 75.3% was accounted for by IOC alone. It was during 1979-80 that IOC capitalised about Rs.21 crores of its capital work in progress mostly under plant and machinery.

iii) Sales Turnover : The combined sales turnover of the undertakings under this category increased from Rs.5995.57 crores in 1978-79 to Rs.7638.98 crores in 1979-80 representing an increase of 27.4%. The corresponding increase in the preceding year was of the order of 17.2%. Inspite of increase in sales turnover have gross profit expressed as a percentage of sales remained as the same level, i.e. 2.9% in 1979-80.

iv) Profitability : There was an improvement in the profitability of this category. The gross profits increased from Rs.172.23 crores in 1978-79 to Rs.193.16 crores in 1979-80, i.e. by 12.15%. The corresponding increase in the preceding year was to the tune of 5.29%. The adjusted net profits, however, declined from Rs.93.09 crores in 1978-79 to Rs.72.64 crores in the 1979-80. In other words, the adjusted net profits went down by 21.9%. The percentage of net profit to equity and net worth was lower in the year 1979-80 when compared to the year 1978-79. The return on capital employed further dwindled down from 34.8% in 1978-79 to 25.4% in 1979-80. The decline in return during 1979-80 was attributable to reduced margins on account of higher operating expenses and reduction in sales in relation to capital employed.

.../-

v) Dividends :- During the year 1979-80, the companies declared dividend to the extent of Rs.18.90 crores as against Rs.18.42 crores in the year 1978-79 which constituted an improvement of 2.61% in the preceding year. In the quantum of dividend IOC ranked at top while as a percentage of equity, Lubrizol declared the highest dividend at 88.33%. In the case of other companies it ranged from 11.97% to 34.29% of equity. Biecco Lawrie and Bridge & Roof, however, did not declare any dividend during 1979-80.

III. Petro-chemicals and Other Downstream Units

(Refer Table No. 21)

There are three companies under this category, viz. Indian Petrochemicals Corporation Ltd.(IPCL), Petrofils Cooperative Ltd. (PCL) and Bongaigaon Refinery & Petrochemicals Ltd. (BRPL). It was during 1977-78 that PCL started production and therefore has been included in the review from 1977-78, BRPL started production in February, 1979 and as such has been included in the review from 1979-80 only. The combined financial structure of the three undertakings under this category for the three years has been given in table No.21, while those of the individual companies in tables 22 to 24.

Summary of results of the undertakings under this category for the last three years is as under :-

(Rs./Crores)

	1977-78	1978-79	1979-80
1. Equity	198.31	200.70	299.17
2. Loans	148.40	153.91	175.91
3. Capital employed	199.05	361.95	496.95
4.Sales turnover	49.86	139.19	238.41
5. Gross profit (adjusted)	10.55	- 9.16	24.89
6. Net profit (adjusted)	1.54	(-)4.81	9.09
7. Dividend declared	-	-	-

Salient points of the analysis are given below :-

i) Capital Investment : An upward trend in the growth of capital investment continued during 1979-80. The total capital investment of the two undertakings, viz. IPCL & PCL was Rs.354.61 crores in 1978-79 when BRPL has been included in 1979-80 review it has gone upto Rs.475.08 crores in 1979-80, thereby registering an increase of 34%. The corresponding increase in the preceding year was 2.30%. As a result of changes/increase in equity and loans under this category equity/loan ratio rose from 1.30 in 1978-79 to 1.70 in 1979-80. However, the equity loan ratio had declined from 1.34 in 1977-78 to 1.30 in 1979-80.

.../-

ii) Capital Employed : The capital employed by the two undertakings, viz. IPCL & PCL in 1978-79 amounted to Rs.361.95 crores. BRPL went into production in 1979, as such this undertaking has been included in the review from 1979-80 and/its inclusion the capital / with employed by all the three undertakings stood at Rs.496.95 crores in 1979-80. Thus, the share of capital employed/contributed by BRPL in 1979-80 was Rs.106.84 crores.

iii) Sales Turnover : Sales turnover of the three undertakings was Rs.238.41 crores in 1979-80 while that of two undertakings, viz. IPCL & PCL was Rs.139.19 crores in 1978-79. In fact the sales turnover of IPCL was Rs.172.63 crores at the close of 1979-80 as against the sales turnover of Rs.92.94 crores in 1978-79 thereby registering a rapid increase of 85.74%. In the case of Petrofils, there was a slight decline in sales turnover from Rs.46.25 crores in 1978-79 to Rs.45.09 crores in 1979-80.

iv) Profitability : The profitability of two undertakings, viz. IPCL and PCL at the end of 1979-80 increased to Rs.25.56 crores from Rs.9.16 crores, thereby registering a growth of 179%. With the inclusion of BRPL in 1979-80, the profitability declined to Rs.24.89 crores as BRPL incurred a loss of Rs.67 lakhs in 1979-80. The adjusted net loss of Rs.4.81 crores in 1978-79 became a net profit of Rs.9.09 crores as IPCL which was in the red with a loss of Rs.9.99 crores in 1978-79, turned the corner and its adjusted net profits were Rs.4.65 crores in 1979-80.

v) Dividend : No dividend has been declared by the undertakings under this category during 1979-80 or during the preceding two years.

IV. Engineering Services

(Refer Table No. 25)

There is only one company under this category, viz. Engineers India Ltd. (EIL). The financial structure of the company for the three years ending 1979-80 has been given in table No.25.

Summary of result of this undertaking for the last three years is as under :-

(Rs./Crores)

	1977-78	1978-79	1979-80
1. Equity	0.25	0.25	0.25
2. Loans	-	0.18	-
3. Capital employed	5.71	8.03	9.71
4. Income from services rendered	20.51	15.20	13.39
5. Gross profit(adjusted)	2.72	3.85	2.06
6. Net profit(adjusted)	1.51	2.28	2.04
7. Dividend declared	0.03	0.04	0.04

.../-

From the figures tabulated above, it would imply that the income of EIL has been successively going down from Rs.20.51 crores in 1977-78 to Rs.15.20 crores in 1978-79 and to Rs.13.39 crores in 1979-80. The fall was 11.9% in the year 1979-80 when compared with 1978-79. The corresponding decline in income in the preceding year was 25.9%. Despite the fall in income there was a significant improvement in profits of EIL during 1978-79 as compared with 1977-78 which again declined in 1979-80. There was decline in profitability in relation to equity and net worth. Return on the capital employed declined from 47.9% in 1978-79 to 21.2% in 1979-80. There was also a decline in the adjusted gross profit and net profit in the year 1979-80 in comparison to 1978-79. The dividend declared in 1979-80 was the same as in 1978-79, i.e. Rs.4 lakhs.

QUICK REVIEW OF FINANCIAL PERFORMANCE - 1980-81

During 1980-81, there were altogether 18 running enterprises under the purview of Department of Petroleum, 3 under the category "Exploration & Production", 11 under the category "Refining & Marketing", 3 under "Petrochemicals" and one under "Engineering Services". This includes Petrofils which is in the Cooperative Sector.

2. According to provisional figures on the financial position/performance of these enterprises available to E&S Division for the year 1980-81, the 18 running enterprises together employed a total capital of Rs.2871.29 crores and had a paid-up capital of Rs.841.66 crores as per details of enterprise-wise financial performance in Annexure. During 1980-81, these enterprises had an annual sales turnover of Rs.10806.79 crores and they earned gross profit of Rs.335.78 crores, the corresponding figures for the year 1979-80 being Rs.8435.86 crores and Rs.420.15 crores respectively. The net profit after tax worked out to Rs.159.90 crores as against Rs.183.78 crores in 1979-80. The ratio of net profit to net worth and of gross profit to capital employed worked out to 9.3% and 11.7% respectively. This compares somewhat unfavourably with the figures of 11.8% and 19.2% achieved during the last year, i.e. 1979-80.

The overall financial results for the year 1980-81 under each of the above mentioned four categories are summarised below :-

.../-

(Rs./Crores)

	Exploration & Production	Refining & Marketing	Petrochemicals & Other down stream units	Engineering Service	TOTAL
1. Equity	395.85	146.06	299.25	0.50	841.66
2. Loans	661.89	294.86	189.68	-	1146.43
3. Net worth	609.05	734.35	359.79	15.97	1719.16
4. Capital employed	883.75	1377.36	595.64	14.54	2871.29
5. Sales/operating income	490.86	9980.50	314.93	20.50	10806.79
6. Gross profit	53.52	227.60	50.96	3.70	335.78
7. Net profit	5.39	120.99	31.12	2.40	159.90
Percentages of :					
i) Net profit to equity	1.4	82.8	10.4	480.0	19.0
ii) Net profit to net worth	0.9	16.5	8.6	15.0	9.3
iii) Profit to capital employed	6.1	16.5	8.6	25.4	11.7
iv) Sales to capital employed	55.5	724.6	52.9	141.0	376.4
v) Equity/loan ratio	0.60	0.50	1.58	-.	0.73

It will be seen from the Annexure that with the exception of four companies, viz. HIL, Biecco Lawrie, Bridge & Roof and BRPL, all the companies under the Department of Petroleum have made profits. Indian Oil Corporation(IOC) earned the highest gross profit of Rs.144.01 crores with ONGC standing at close second at Rs.90.12 crores. Likewise, IOC earned the maximum net profit of Rs.92.85 crores followed by ONGC which earned a net profit of Rs.41.99 crores during the year 1980-81. The third in line of succession in respect of net profit was IPCL which earned a net profit of Rs.34.08 crores.

-o-o-o-o-o-o-o-o-

Financial performance/profitability of Enterprises under the purview of Department of Petroleum during 1980-81(Provisional)

(Rs./Lakhs)

Name of the Company.	Paid up capital	Loans	Net worth	Capital employed	Sales/ operating income	Gross profit	Net profit	Percentage of Gross Profit to capital employed	Percentage of Net profit to paid up capital	Percentage of Net profit to net worth
I. Exploration & Production	39585	66189	60905	88375	49086	5352	539	6.06%	1.36%	0.88%
i) ONGC	34285	59265	56001	81872	45999	9012	4199	11.01	12.25	7.50
ii) HIL	2500	-	2413	2413	-	- 19	- 19	Neg.	Neg.	Neg.
iii) OIL	2800	6924	2491	4090	3087	-3641	-3641	Neg.	Neg.	Neg.
II. Refining & Marktg.	14606	29486	73435	137736	998050	22760	12099	16.16	82.55	16.48
i) IOC	8218	25083	51970	91885	560300	14401	9285	15.67	112.98	17.87
ii) HPCL	1520	1298	9099	20196	157896	3343	1167	16.55	76.78	12.83
iii) BPCL	1454	-	6458	11884	121413	2687	1041	22.60	71.64	16.12
iv) CRL	700	986	1209	7725	56034	800	214	10.35	30.57	17.70
v) MRL	1287	178	2774	2114	60444	539	246	25.50	19.12	8.88
vi) IEP	160	440	694	415	29720	210	134	50.60	63.81	19.31
vii) Lubrizol	480	-	1169	1144	3819	501	193	43.79	40.22	16.52
viii) Biecco Lawrie	134	709	-531	232	500	- 32	-153	Neg.	Neg.	Neg.
ix) Bridge & Roof	424	485	-153	530	2962	- 17	-124	Neg.	Neg.	Neg.
x) Balmer Lawrie	189	278	589	1436	4771	325	95	22.63	50.25	16.13
xi) Indian Oil Blend.	40	29	157	175	191	3	1	1.71	2.50	0.64
III. Petrochemicals & Other downstream Units	29925	18968	35979	59564	31493	5096	3112	8.56	10.40	8.65
i) IPCL	18600	14616	24220	40855	28073	5081	3408	12.44	18.32	14.07
ii) BRPL	9850	3328	8863	15218	595	-770	-963	-	-	-
iii) Petrofils	1475	1024	2896	3491	2825	785	667	22.49	45.22	23.03
IV. Engineering Services	50	-	1597	1454	2050	370	240	25.45	480.00	15.03
i) EIL	50	-	1597	1454	2050	370	240	25.45	480.00	15.03
GRAND TOTAL	84166	114643	171916	287129	1080679	33578	15990	11.69	19.00	9.30

Table No. 1.

CONSOLIDATED FINANCIAL STRUCTURE - 1979-80
ALL UNDERTAKINGS

Rs./ Lakhs

I T E M.	Exploration & Production	Refining & Marketing	Petro-Chemicals	Engineering.	TOTAL
1.	2.	3.	4.	5.	6.
1. Authorised Capital	8000*	24295	32000	200	64495
2.i) Equity Capital	39035	14044	29917	25	83021
ii) Preference Capital	-	50	-	-	50
iii) Reserves & Surpluses	26105	50441	3041	979	80566
3. Loans a) Total	46244	49524	17591	-	113359
b) Foreign	4173	259	294	-	4726
4. Net Worth.	59914	63037	32218	1004	156173
5. Capital Employed	90656	77513	49695	971	218835
i) Net Fixed Assets.	75123	38349	37563	378	151413
ii) Working Capital	15533	39164	12132	593	67422
6. Sales	54508	763898	23841	1339	843586
7. Adjusted Gross Profit	17151	19716	2189	206	39132
8. Adjusted Net Profit	6914	7264	1085	204	15291
9. Dividends Declared	2406	1890	-	4	4300
Percentage of :-					
a) Net Profit to equity	17.7	51.7	3.6	816.0	18.4
b) Net Profit to Net Worth	11.5	11.5	3.4	20.3	9.8
c) Profit to Cap. Emp.	18.9	25.4	5.0	21.2	18.1
d) Sales to Cap. Emp.	60.1	985.5	48.0	137.9	385.5
e) Profit to Sales	31.5	2.9	10.4	15.4	4.7
f) Equity Loan Ratio	0.84	0.28	1.70	-	0.73

* - There is no authorised capital fixed in respect of ONGC.

Source:- Annual Reports of the Companies.

TABLE No.-2.

CONSOLIDATED FINANCIAL STRUCTURE 1978-79
ALL UNDERTAKINGS

Rs./Lakhs

ITEM.	Exploration & Prodn.	Refining & Marketing	Petrochemicals.	Engineering.	TOTAL.
1.	2.	3.	4.	5.	6.
1. Authorised Capital	8000@	23890	22000	200	54090
2.i) Equity Capital	38535	13871	20070	25	72501
ii) Preference Capital	-	50	-	-	50
iii) Reserves & Surpluses	21924	41918	2113	776	66731
3. LOAN. a) Total	37764	16514	15391	18	69687
b) Foreign	4016	493	3671	-	4879
4. Net Worth	55626	54999	22080	801	133506
5. Capital Employed	63394	49562	36195	803	149954
i) Net Fixed Assets	47439	39438	29282	344	116503
ii) Working Capital	15955	10124	6913	459	33451
6. Sales	51293	599557	13919	1520	666289
7. Adjusted Gross Profit	16062	17223	916	385	34586
8. Adjusted Net Profit	9240	9309	-481	228	18296
9. Dividends Declared	2221	1842	-	4	4067
PERCENTAGE OF :-					
a) Net Profit to Equity	24.0	67.1	-	912.0	25.2
b) Net Profit to Net Worth	16.6	16.9	-	28.5	13.7
c) Profit to Cap. Emp.	25.3	34.8	2.5	47.9	23.1
d) Sales to Cap. Emp.	80.9	1209.7	38.5	189.3	444.3
e) Profit to Sales	31.3	2.9	6.6	25.3	5.2
f) Equity Loan Ratio	1.02	0.84	1.30	1.39	1.04

Source :- Annual Reports of the Companies.

@ - No authorised Capital has been fixed in in respect of O.N.G.C.

Table No.- 3.

CONSOLIDATED FINANCIAL STRUCTURE - 1977-78.
ALL UNDERTAKINGS.

Rs. Lakhs.

ITEM	Exploration & Prodn.	Refining & Marketing	Petro-Chemicals	Engineering.	TOTAL
1.	2.	3.	4.	5.	6.
1. Authorised Capital	8000	23490	21500	200	51390
2. i) Equity Capital	37380	13267	19831	25	70863
ii) Preference Capital	-	50	-	-	50
iii) Reserves & Surpluses	14988	34134	3353	547	53023
3. LOANS a) Total	34496	12754	14810	-	62090
b) Foreign	1164	828	583	-	2575
4. Net Worth	47799	47123	22623	572	118117
5. Capital Employed	41181	37211	19905	571	98868
6 i) Net Fixed Assets.	30185	28156	14420	183	72944
ii) Working Capital	10996	9055	5485	388	25924
6. Sales	40577	511544	4986	2051	559158
7. Adjusted Gross Profit	11686	16297	1055	272	29310
8. Adjusted Net Profit	6903	7840	154	151	15048
9. Dividends Declared	1691	1589	-	3	3283
PERCENTAGE OF :-					
a) Net Profit to Equity	18.5	59.1	0.8	604.0	21.2
b) Net Profit to Net Worth	14.4	16.6	0.7	26.4	12.7
c) Profit to Cap. Emp.	28.4	43.8	5.3	47.6	29.6
d) Sales to Cap. Emp.	98.5	1374.7	25.0	359.2	565.6
e) Profit to Sales	28.8	3.2	21.2	13.3	5.2
f) Equity Loan Ratio	1.08	1.04	1.34	-	1.14

Source :- Annual Reports of the Companies.

Table No.-4.

CONSOLIDATED FINANCIAL STRUCTURE EXPLORATION AND PRODUCTION

Rs./Lakhs

ITEM	1977 - 78	1978 - 79	1979 - 80
1.	2.	3.	4.
1. Authorised Capital*	8000	8000	8000
2. i) Equity Capital	37380	38535	39035
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	14088	21924	26105
3. LONNS:- a) Total	34496	37764	46244
b) Foreign	1164	4016	4173
4. Net Worth	47700	55626	59914
5. Capital Employed	41181	63394	90656
i) Net Fixed Assets.	30185	47439	75123
ii) Working Capital	10996	15955	15533
6. Sales	40577	51293	54508
7. Adjusted Gross Profit	11686	16062	17151
8. Adjusted Net Profit	6903	9240	6914
9. Dividends Declared	1691	2221	2406
PERCENTAGE OF :-			
a) Net Profit to Equity	18.5	24.0	17.7
b) Net Profit to Net Worth	14.4	16.6	11.5
c) Profit to Capital Emp.	28.4	25.3	18.9
d) Sales to Cap. Emp.	98.5	80.9	60.1
e) Profit to Sales	29.8	31.3	31.5
f) Equity Loan Ratio	1.08	1.02	0.84

* = No authorised Capital has been fixed for O.N.G.C.

Source :- Annual Reports of the Company.

Table No.-5.

FINANCIAL STRUCTURE

NAME OF THE UNDERTAKING :- Oil & Natural Gas Commission.

Rs./Lakhs.

I T E M.	1977 - 78	1978 - 79	1979-80
1.	2.	3.	4.
1. Authorised Capital@	-	-	-
2. i) Equity Capital	32080	33235	33735
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses.	13085	18527	22055
3. LOANS:- a) Total	27425	30505	39098
b) Foreign.	1063	3966	4131
4. Net Worth.	41588	48118	52658
5. Capital Employed	31706	52182	77539
i) Net fixed Assets//-	22787	39872	66265
ii) Working Capital	8919	12310	11274
6. Sales	28919	37757	43150
7. Adjusted Gross Profit	7411	10425	13327
8. Adjusted Net Profit	5122	7366	5586
9. Dividends Declared	1280	1810	1995
PERCENTAGE OF :-			
a) Net Profit to Equity	16.0	22.2	16.5
b) Net Profit to Net Worth	12.3	15.3	10.6
c) Profit to Capital Emp.	23.4	20.0	17.1
d) Sales to Cap. Emp.	91.2	72.4	55.6
e) Profit to Sales	25.6	27.6	30.8
f) Equity Loan Ratio	1.17	1.09	0.86

@= No authorised Capital has been fixed for the Commission.
//-= Net Fixed assets includes producting properties.
Source:- Annual Reports of the Company.

Table No.-6.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- Hydro-carbons India Ltd.

Rs./Lakhs.

I T E M	1977 - 78	1978 - 79	1979 - 80.
1.	2.	3.	4.
1. Authorised Capital	3000	3000	3000
2. i) Equity Capital	2500	2500	2500
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	162	598	401
3. LOANS :- a) Total	-	-	-
b) Foreign	-	-	-
4. Net Worth	2662	3098	2331
5. Capital Employed	1169	1760	2331
i) Net Fixed Assets	1	1	417
ii) Working Capital	1168	1759	1914
6. Sales	3826	2039	no sales
7. Adjusted Gross Profit	2429	1898	-106
8. Adjusted Net Profit	410	405	-106
9. Dividend Declared	-	-	-
PERCENTAGES:-			
a) Net Profit to Equity	16.4	16.2	-
b) Net Profit to Net Worth	15.4	13.1	-
c) Profit to Cap. Emp.	207.8	107.8	-
d) Sales to Capital Emp.	327.3	167.0	-
e) Profit to Sales	63.5	64.6	-
f) Equity Loan Ratio	-	-	-

Source :- Annual Reports of the Company.

Table No.-7.

FINANCIAL STRUCTURE

NAME OF THE UNDERTAKING :- OIL INDIA LIMITED.

Rs./Lakhs

I T E M	1977	1978	1979 Estimate/Prov.
1. Authorised Capital	5000	5000	5000
2.i) Equity Capital	2800	2800	2800
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	1741	2799	3559
3. LOANS :- a) Total	7071	7259	7146
b) Foreign	101	50	42
4. Net Worth	3549	4410	5025
5. Capital Employed	8306	9452	10786
i) Net Fixed Assets	7397	7566	8441
ii) Working Capital	909	1886	2345
6. Sales	7832	10597	11358
7. Gross Profit	1846	3739	3930
8. Net Profit	1371	1469	1434
9. Dividends Declared	411	411	411
PERCENTAGE OF :-			
a) Net Profit to Equity	49.0	52.5	51.2
b) Net Profit to Net Worth	38.6	33.3	28.5
c) Profit to Capital Emp.	22.2	39.6	36.4
d) Sales to Capital Employed	94.3	112.1	105.3
e) Profit to Sales	23.6	35.3	34.6
f) Equity Loan Ratio	0.40	0.39	0.39

N.B. In the absence of Annual Reports of the Company data recieved from the company has been adopted for the year 1979 without any modification/adjustment.

Table No.-8.

CONSOLIDATED FINANCIAL STRUCTURE

NAME OF THE UNDERTAKINGS:- REFINING & MARKETING.

Rs./Lakhs

I T E M.	1977-78 1.	1977-78 2.	1978-79	1979-80
1. Authorised Capital	23490		23890	24295
2.i) Equity Capital	13627		13871	14044
ii) Preference Capital	50		50	50
iii) Reserves & Surpluses	34134		41918	50441
3. LOANS :- a) Total	12754		16574	49524
b) Foreign	828		493	259
4. Net Worth	47123		54999	63037
5. Capital Employed	37211		49562	77513
i) Net Fixed Assets	28156		39438	38349
ii) Working Capital	9055		10124	39164
6. Sales	530348	511544	599557	763808
7. Adjusted Gross Profit	16744	16297	17223	19316
8. Adjusted Net Profit	7968	7840	9309	7264
9. Dividends Declared	1498	1589	1842	1890
PERCENTAGE OF :-				
a) Net Profit to Equity	58.5	57.5	67.1	51.7
b) Net Profit to Net Worth	16.9	16.6	16.9	11.5
c) Profit to Capital Emp.	45.0	43.8	34.8	25.4
d) Sales to Cap. Emp.	1425,2	1374.7	1209.7	985.5
e) Profit to Sales	3.2	3.2	2.9	2.9
f) Equity Loan Ratio	1.07	1.07	0.84	0.28

1. As per differing Accounting periods.

2. Annualised Pro-rata figures for 12 months.

SOURCE:- Annual Reports of the Company.

Table No.-9.

FINANCIAL STRUCTURE

NAME OF THE UNDERTAKINGS:- Indian Oil Corporation Limited.

Rs./Lakhs

I T E M.	1977 - 78	1978 - 79	1979 - 80
1. Authorised Capital	15000	15000	15000
2.i) Equity Capital	8218	8218	8218
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	23162	29096	35452
3. LOANS: a) Total	7529	11021	37652
b) Foreign	486	357	230
4. Net Worth	31380	37314	43670
5. Capital Employed	16958	28556	49603
i) Net Fixed Assets	17693	28685	27280
ii) Working Capital	-735	-129	22323
6. Sales/Operating Income	299963	356399	447635
7. Adjusted Gross Profit	11065	9889	12047
8. Adjusted Net Profit	5720	6466	5317
9. Dividends Declared	822	986	986
PERCENTAGE OF ;-			
a) Net Profit to Equity	69.6	78.7	64.7
b) Net Profit to Net Worth	18.2	17.3	12.2
c) Profit to Capital Emp.	65.2	34.6	25.1
d) Sales to Capital Emp.	1768.9	1248.1	902.4
e) Profit to Sales	3.7	2.8	2.8
f) Equity Loan Ratio	1.09	0.75	0.22

SOURCE :- Annual Reports of the Company.

Table No.- 10.

FINANCIAL STRUCTURE

NAME OF THE UNDERTAKING :- Bharat Petroleum Corporation Limited.

Rs./Lakhs

I T E M.	1977 - 78 1.	1977 - 78 2.	1978 - 79	1979 - 80
1. Authorised Capital	2500		2500	2500
2i) Equity Capital	1454		1454	1454
ii) Preference Capital	-		-	-
iii) Reserves & Surpluses	2500		3191	4105
3. LOANS:- a) Total	2124		338	773
b) Foreign	-		-	-
4. Net Worth	3954		4645	5559
5. Capital Employed	5869		4316	5109
i) Net Fixed Assets	2148		2060	2329
ii) Working Capital	3721		2256	2780
6. Sales	79068	63254	77712	93618
7. Adjusted Gross Profit	2133	1690	2494	2383
8. Adjusted Net Profit	688	550	877	832
9. Dividends Declared	182	146	174	174
PERCENTAGE OF :-				
a) Net Profit to Equity	47.3	37.8	60.3	57.3
b) Net Profit to Net Worth	17.4	13.9	18.9	15.0
c) Profit to Capital Emp.	36.0	28.8	57.8	46.6
d) Sales to Cap. Emp.	1347.2	1077.8	1800.6	1832.4
e) Profit to Sales	2.7	2.7	3.2	2.6
f) Equity Loan Ratio	0.68	0.68	4.20	1.88

1. For the period 1-1-77 to 31-3-1978 (15 month)

2. For the Pro-rata period of 12 months.

Source :- Annual Reports of the Company.

Table No.- 11.

FINANCIAL STRUCTURE

NAME OF THE UNDERTAKING :- Hindustan Petroleum Corporation Ltd.

Rs./ Lakhs.

	1977 - 78 1.	1977 - 78 2.	1978 - 79	1979 - 80
1. Authorised Capital	1075		2075	2075
2. i) Equity Capital	1000		1520	1520
ii) Preference Capital	-		-	-
iii) Reserves & Surpluses	3252		6075	7054
3. LOANS:- a) Total	764		1571	6786
b) Foreign	76		49	Nil
4. Net Worth	4252		7595	8114
5. Capital Employed	4830		8513	14080
i) Net Fixed Assets.	3241		5470	5801
ii) Working Capital	1589		3043	8279
6. Sales	69993	55994	88365	110367
7. Adjusted Gross Profit	1505	1204	2674	2623
8. Adjusted Net Profit	703	562	1339	719
9. Dividends Declared	135	108	182	182
PERCENTAGE OF :-				
a) Net Profit to Equity	70.3	56.2	88.1	47.3
b) Net Profit to Net Worth	16.5	13.2	17.6	8.9
c) Profit to Capital Emp.	31.2	24.9	31.4	18.6
d) Sales to Capital Emp.	1449.1	1159.3	1038.0	783.9
e) Profit to Sales	2.2	2.2	3.0	2.4
f) Equity Loan Ratio	1.31	1.31	0.97	0.22

1. For the period 1-1-77 to 31-3-1978 (15 months)

2. For the Pro-rata period of 12 months.

SOURCE :- Annual Reports of the Company.

TABLE NO.-12.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING :- CALTEX OIL REFINERING (INDIA) LTD.

Rs/Lakhs.

ITEM	1977 - 78 P	
	1.	2.
1.	2.	3.
1. Authorised Capital	600	
2.i) Equity Capital	450	
ii) Preference Capital	-	
iii) Reserves & Surpluses	1879	
3. LOANS :- a) Total	41	
b) Foreign.	-	
4. Net Worth	2329	
5. Capital Employed	2445	
i) Net Fixed Assets	1370	
ii) Working Capital	1075	
6. Sales	24906	18392
7. Adjusted Gross Profit	478	353
8. Adjusted Net Profit	194	143
9. Dividends Declared	-	-
PERCENTAGE OF :-		
a) Net Profit to Equity	43.1	31.8
b) Net Profit to Net Worth	8.3	6.1
c) Profit to Capital Emp.	19.6	14.4
d) Sales to Capital Emp.	1018.7	752.2.
e) Profit to Sales	1.9	1.9
f) Equity Loan Ratio	10.98	10.98

P = PROVISIONAL. 1. For the period 1.1. to 8-5-78(16¼ Months)
2. For the Pro-rata period of 12 months. 3. CORIL was merged with HPCL on 9-8-1978.

TABLE No.-13.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- COCHIN REFINERIES LIMITED.

Rs./Lakhs.

ITEM	1977 - 78 (1)	1977 - 78 (2)	1978-79	1979-80
1.	2.	3.	4.	5.
1. Authorised Capital	1500		1500	1500
2.i) Equity Capital	700		700	700
ii) Preference Capital	-		-	-
iii) Reserves & Surpluses	622		566	509
3. LOANS:- a) Total	373		1433	1802
b) Foreign	146		87	29
4. Net Worth	1322		1266	1209
5. Capital Employed	1655		2616	2824
i) Net Fixed Assets	1326		1186	1002
ii) Working Capital	329		1430	1822
6. Sales	14977	25675	25445	38538
7. Adjusted Gross Profit	322	552	603	628
8. Adjusted Net Profit	96	165	188	6
9. Dividends Declared	140	240	240	240
PERCENTAGE OF :-				
a) Net Profit to Equity	13.7	23.6	26.9	0.9
b) Net Profit to Net Worth	7.3	12.5	14.8	0.5
c) Profit to Capital Emp.	19.5	33.4	23.1	22.2
d) Sales to Capital Emp.	905.0	1551.4	972.7	1364.7
e) Profit to Sales	2.1	2.1	2.4	1.6
f) Equity Loan Ratio	1.88	1.88	0.49	0.39

1. For the period 1-9-1977 to 31-3-1978 (7 months).
2. For the pro-rata period (12 months)

Source:- Annual Reports of the Company.

TABLE No.-14.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING :- MADRAS REFINERIES LIMITED.

Rs./Lakhs.

ITEM	1977 - 78 * (1)	(2)	1978-79	1979-80
1.	2.	3.	4.	5.
1. Authorise Capital	1350		1350	1350
2.i) Equity Capital	1287		1287	1288
ii) Preference Capital	-		-	-
iii) Reserves & Surpluses	1413		1431	1491
3. LOANS:- a) Total	144		14	59
b) Foreign.	120		-	-
4. Net Worth	2670		2694	2755
5. Capital Employed	2800		2591	2578
i) Net Fixed Assets	1340		1004	738
ii) Working Capital	1460		1587	1840
6. Sales	20475	27300	26481	43455
7. Adjusted Gross Profit	515	687	777	843
8. Adjusted Net Profit	399	532	287	244
9. Dividends Declared	161	215	193	193
PERCENTAGE OF:-				
a) Net Profit to Equity	31.0	41.3	22.3	18.9
b) Net Profit to Net Worth	14.9	19.9	10.7	8.9
c) Profit to Capital Emp.	18.4	24.5	30.0	32.7
d) Sales to Capital Emp.	731.3	975.0	1022.0	1685.6
e) Profit to Sales	2.5	2.5	2.9	1.9
f) Equity Loan Ratio	8.94	8.94	91.93	21.83

* = 1. For the period 1-7-1977 to 31-3-78 (9 months)
2. For the pro-rata period of 12 months

Source = Annual Reports of the Company.

TABLE No.-15.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- Indo Burma Petroleum Company.

Rs./Lakhs.

I T E M.	1977-78	1978-79	1979-80.
1.	2.	3.	4.
1. Authorised Capital	300	300	300
2.i) Equity Capital	160	160	160
ii) Preference Capital	50	50	50
iii) Reserves & Surpluses	294	294	379
3. LOANS:- a) Total	269	558	458
b) Foreign	-	-	-
4. Net Worth	504	504	589
5. Capital Employed	485	493	277
i) Net Fixed Assets	346	351	401
ii) Working Capital	139	142	-124
6. Sales	13981	16335	20636
7. Adjusted Gross Profit	60	77	134
8. Adjusted Net Profit	36	19	66
9. Dividends Declared	22	24	28
PERCENTAGE OF:-			
a) Net Profit to Equity	20.6	11.9	40.6
b) Net Profit to Net Worth	7.1	3.8	11.0
c) Profit to Capital Emp.	12.4	15.6	48.3
d) Sales to Capital Emp.	2882.7	3313.4	7449.8
e) Profit to Sales	0.4	0.5	0.7
f) Equity Loan Ratio	0.59	0.29	0.35

SOURCE:- Annual Report of the Company.

TABLE No.- 16.

FINANCIAL STRUCTURE

NAME OF THE UNDERTAKING:- LUBRIZOL INDIA LIMITED.

Rs./Lakh

ITEM.	1977-78	1978-79	1979-80.
1.	2.	3.	4.
1: Aughorised Capital	75	75	480
2.i) Equity Capital	60	60	60
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	692	864	969
3. LOANS :- a) Total	78	-	-
b) Foreign	-	-	-
4. Net Worth	752	924	1029
5. Capital Employed	827	924	1014
i) Net Fixed Assets	304	278	272
ii) Working Capital	523	646	742
6. Sales	2171	2368	2829
7. Adjusted Gross Profit	458	421	571
8. Adjusted Net Profit	178	171	160
9. Dividend Declared	9	11	5
PERCENTAGE OF :-			
a) Net Profit to Equity	296.7	285.0	266.7
b) Net Profit to Net Worth	23.7	18.5	15.5
c) Profit to Capital Emp.	55.4	45.6	36,6
d) Sales to Capital Emp,	262.5	256.3	279.0
e) Profit to Sales	21.1	17.8	13.1
f) Equity Loan Ratio	0.77	-	-

SOURCE:- Annual Reports of the Company.

TABLE No.-17

FINANCIAL STRUCTURE

NAME OF THE UNDERTAKING :- BALMER LAWRIE & Co. LIMITED.

Rs./Lakhs.

I T E M	1977 - 78	1978 - 79	1979 - 80
1.	2.	3.	4.
1. Authorised Capital	300	300	300
2.i) Equity Capital	189	189	189
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	217	262	336
3. LOANS :- a) Total	197	311	579
b) Foreign	-	-	-
4. Net Worth	406	451	525
5. Capital Employed	556	686	1014
i) Net Fixed Assets	157	171	247
ii) Working Capital	399	515	767
6. Sales	2576	3510	3851
7. Adjusted Gross Profit	169	212	291
8. Adjusted Net Profit	67	80	105
9. Dividend Declared	23	28	30
PERCENTAG OF :-			
a) Net Profit to Equity	35.4	42.3	56.1
b) Net Profit to Net Worth	16.5	17.7	20.2
c) Profit to Capital Emp.	30.4	30.9	28.7
d) Sales to Capital Emp,	463.3	511.7	379.8
e) Profit to Sales	6.6	6.0	7.6
f) Equity Loan Ratio	0.96	0.61	0.33

SOURCE :- Annual Report of the Company.

TABLE No.- 18.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING :- BIECCO LAWRIE LIMITED.

Rs./Lakhs

I T E M.	1977-78	1978-79	1979-80
1.	2.	3.	4.
1. Authorised Capital	250	250	250
2.i) Equity Capital	33	33	111
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	5	5	5
3. LOANS: a) Total	416	555	673
b) Foreign	-	-	-
4. Net Worth	- 202	- 360	- 425
5. Capital Employed	214	197	269
i) Net Fixed Assets	40	39	41
ii) Working Capital	174	158	228
6. Sales	328	337	392
7. Adjusted Gross Profit	- 80	- 89	- 57
8. Adjusted Net Profit	-131	-157	-140
9. Dividend Declared	-	-	-
PERCENTAGE OF:-			
a) Net Profit to Equity	-	-	-
b) Net Profit to Net Worth	-	-	-
c) Profit to Capital Emp.	-	-	-
d) Sales to Capital Emp.	153.3	177.1	145.7
e) Profit to Sales	-	-	-
f) Equity Loan Ratio	0.08	0.08	0.06

SOURCE :- Annual Report of the Company.

Table No.-19.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING: BRIDGE & ROOF CO. LIMITED.

Rs./Lakhs

I T E M.	1977-78	1978-79	1979-80 *
1.	2.	3.	4.
1. Authori ed Capital	500	500	500
2.i) Equity Capital	36	210	304
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	3	18	20
3. T LOANS :-a) Total	819	713	729
b) Foreign	-	-	-
4. Net Worth	-379	-190	-148
5. Capital Employed	441	521	580
i) Net Fixed Assets	100	93	120
ii) Working Capital	341	428	460
6. Sales	1734	2417	2394
7. Adjusted Gross Profit	84	111	38
8. Adjusted Net Profit	- 4	14	- 54
9. Dividends Declared	-	-	-
PERCENTAGE OF :-			
a) Net Profit to Equity	-	6.7	-
b) Net Profit to Net Worth	-	-	-
c) Profit to Capital Emp.	19.0	4.6	6.6
d) Sales to Capital Emp.	393. 2	463.9	412.8
e) Profit to Sales	4.8	4.6	1.6
f) Equity Loan Ratio	0.04	0.29	0.42

*= Provisional/ Annual Report of the Company has not been recieved.

NOTE:- The data recieved for the year 1979-80 has been shown without any adjustment/ modification. The Figurs for the year 1978-79 have also undergone change and hence adopted accordingly.

Table No.-20.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- Indian Oil Blending Limited.

Rs./Lakhs.

I T E M	1977-78	1978-79	1979-80
1.	2.	3.	4.
1. Authorised Capital	40	40	40
2.i) Equity Capital	40	40	40
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	95	116	120
3. LOANS:- a) Total	-	-	18
b) Foreign	-	-	-
4. Net Worth	135	156	160
5. Capital Employed	131	149	165
i) Net Fixed Assets	91	101	118
ii) Working Capital	40	48	47
6. Sales	176	188	183
7. Adjusted Gross Profit	55	54	15
8. Adjusted Net Profit	22	25	9
9. Dividends Declared	4	4	4
PERCENTAGE OF:-			
a) Net Profit to Equity	55.0	62.5	22.5
b) Net Profit to Net Worth	16.3	16.0	5.6
c) Profit to Capital emp.	42.0	36.2	9.1
d) Sales to Cap. Emp.	134.4	126.2	110.9
e) Profit to Sales	31.3	28.7	8.2
f) Equity Loan Ratio	-	-	2.22

SOURCE :- Annual Reports of the Company.

TABLE NO.-21.

CONSOLIDATED FINANCIAL STRUCTURE.

PETROCHEMICALS & OTHER DOWN STREAM UNITS.

Rs./Lakhs.

I T E M	1977-78	1978-79	1979-80
1.	2.	3.	4.
1. Authorised Capital	21500	22000	32000
2i) Equity Capital	19831	20070	29917
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	3353	2113	3041
3. LOANS:- a) Total	14840	15391	17591
b) Foreign	583	367	294
4. Net Worth	22623	22080	32218
5. Capital Employed	19905	36195	49695
i) Net Fixed Assets	14420	29282	37563
ii) Working Capital	5485	6913	12132
6. Sales	4986	13919	23841
7. Adjusted Gross Profit	1055	916	2489
8. Adjusted Net Profit	154	- 481	909
9. Dividends Declared	-	-	-
PERCENTAGE OF:-			
a) Net Profit to Equity	0.8	-	3.0
b) Net Profit to Net Worth	0.7	-	2.8
c) Profit to Capital Emp.	5.3	2.5	5.0
d) Sales to Capital Emp.	25.0	38.5	48.0
e) Profit to Sales	21.2	6.6	10.4
f) Equity Loan Ratio	1.34	1.30	1.70

SOURCE:- Annual Reports of the Company.

TABLE No.-22.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- INDIAN PETRO-CHEMICALS CORPN. LTD.

Rs./Lakhs.

I T E M.	1977-78	1978-79	1979-80
1.	2.	3.	4.
1. Authorised Capital	20000	20000	20000
2.i) Equity Capital	18600	18600	18600
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	2053	1643	2213
3. LOANS :- a) Total	12949	13861	15320
b) Foreign	583	367	294
4. Net Worth	21548	20243	20813
5. Capital Employed	17723	33463	36028
i) Net Fixed Assets	12286	26995	24935
ii) Working Capital	5437	6468	11093
6. Sales	4570	9294	17263
7. Adjusted Gross Profit	1093	213	1882
8. Adjusted Net Profit	304	- 999	465
9. Dividends Declared	-	-	-
PERCENTAGE OF :-			
a) Net Profit to Equity	1.6	-	2.5
b) Net Profit to Net Worth	1.4	-	2.2
c) Profit to Capital Emp.	6.2	0.6	5.2
d) Sales to Capital Emp.	25.8	27.8	47.9
e) Profit to Sales	23.9	2.3	10.9
f) Equity Loan Ratio	1.44	1.34	1.21

SOURCE:- Annual Reports of the Company.

TABLE No.-23.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- PETROFILS COOPERATIVE LTD.

Rs./Lakhs

I T E M	1977-78 a	1978 -79	1979-80
1.	2.	3.	4.
1. Authorised Capital	1500	2000	2000
2. i)Equity Capital	1231	1470	1467
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	400	470	828
3. LOANS:- a) Total	1891	1530	1422
b) Foreign	-	-	-
4. Net Worth	1075	1837	1658
5. Capital Employed	2182	2732	2983
i) Net Fixed Assets	2134	2287	2128
ii) Working Capital	48	445	855
6. Sales	416	4625	4509
7. Adjusted Gross Profit	- 38	703	674
8. Adjusted Net Profit	-150	518	532
9. Dividends Declared	-	-	-
PERCENTAGE OF :-			
a) Net Profit to Equity	-	35.2	36.3
b) Net profit to Net Worth	-	28.2	32.1
c) Profit to Capital Emp.	-	25.7	22.6
d) Sales to Capital Emp.	19.1	169.3	151.2
e) Profit to Sales	-	15.2	15.0
f) Equity Loan Ratio	0.65	0.96	1.03

a) = Results relate to seven months of operation of the Plant during the first operating year of the Society.

Source:- Annual Reports of the Company.

TABLE No.-24.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- Bongaigaon Refining & Petrochemicals Limited.

Rs./ Lakhs.

I T E M.	1977-78	1978-79	1979-80.
1.	2.	3.	4.
1. Authorised Capital	-	-	10,000
2.i) Equity Capital	-	-	9850
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	-	-	-
3. LOANS :- a) Total	-	-	849
b) Foreign	-	-	-
4. Net Worth	-	-	9747
5. Capital Employed	-	-	10684
i) Net Fixed Assets	-	-	10500
ii) Working Capital	-	-	184
6. Sales	-	-	2069
7. Gross Profit	-	-	- 67
8. Net Profit	-	-	- 88
9. Dividends Declared	-	-	-
PERCENTAGES:-			
a) Net Profit to Equity	-	-	-
b) Net Profit to Net Worth	-	-	-
c) Profit to Capital Emp.	-	-	-
d) Sales to Capital Emp.	-	-	19.4
e) Profit to Sales	-	-	-
f) Equity Loan Ratio	-	-	11.60

@ = Provisional.

NOTE = In the absence of the Published accounts, figures as advised by B.C.P.L. have been adopted without any modification/ adjustement.

TABLE No.-25.

FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- ENGINEERS INDIA LIMITED.

Rs./Lakhs.

I T E M	1977-78	1978-79	1979-80.
1.	2.	3.	4.
1. Authorised Capital	200	200	200
2. i) Equity Capital	25	25	25
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses.	547	776	979
3. LOANS :- a) Total	-	18	-
b) Foreign	-	-	-
4. Net Worth	572	801	1004
5. Capital Employed	571	803	971
i) Net Fixed Assets	133	344	378
ii) Working Capital	388	459	593
6. Sales	2052	1520	1339
7. Adjusted Gross Profit	272	385	206
8. Adjusted Net Profit	151	228	204
9 Dividends Declared	3	4	4
PERCENTAGE OF:-			
a) Net Profit to Equity	604.0	912.0	816.0
b) Net Profit to Net Worth	26.4	28.5	20.3
c) Profit to Capital Emp.	47.6	47.9	21.2
d) Sales to Capital Emp.	359.2	189.2	137.9
e) Profit to Sales	13.3	25.3	15.4
f) Equity Loan Ratio	-	1.30	-

Source:- Annual Reports of the Company.

TABLE NO.-26.

CONSOLIDATED FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- Petrochemicals All Categories. (Private Sector)

Rs./Crores.

I T E M.	1977-78	1978-79	1979-80
1.	2.	3.	4.
No. of Undertakings	30	30	30
1. Authorised Capital	334.7	346.7	356.1
2.i) Equity Capital	178.0	185.7	192.8
ii) Preference Capital	15.1	15.1	15.6
iii) Reserves & Surpluses	220.2	256.6	297.0
3. TOTAL LOANS	155.6	166.9	270.6
(of which) Foreign	21.2	16.7	19.9
4. Cash Credits/Advances from Banks/others	169.2	161.2	197.4
5. Net Worth	374.1	419.6	483.8
6. Capital Employed	674.1	724.9	835.9
i) Net Fixed Assets.	370.3	400.2	442.4
ii) Working Capital	303.8	324.7	393.5
7. Sales/Operating Income	1202.8	1379.1	1611.1
8. Value of Production	948.9	1071.4	1272.2
9. Net Value Added	412.0	483.3	552.6
10. Gross Profit	120.5	154.6	151.7
11. Net Profit	47.8	69.6	66.4
12. Dividends Declared	22.8	26.9	28.9
PERCENTAGE OF :-			
a) Net Profit to Equity	26.9	37.5	34.6
b) Net Profit to Net Worth	12.8	16.6	13.8
c) Gross Profit to Cap. Emp.	17.9	21.3	18.1
d) Sales to Capital Emp.	178.4	190.2	192.7
e) Gross Profit to Sales	10.0	11.2	9.4
f) Equity Loan Ratio	1.14	1.11	0.71

N.B.:- The consolidation is on the basis of lateral summation of data of undertakings having different accounting years.

TABLE No.-27.

CONSOLIDATED FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- SYNTHETIC FIBRE (Private Sector).

Rs./Lakhs.

I T E M.	1977-78	1978-79	1979-80.
1.	2.	3.	4.
No. of undertakings	14	14	14
1. Authorised Capital	12531	13631	14242
2.i) Equity Capital	7031	7223	7845
ii) Preference Capital	746	745	847
iii) Reserves & Surpluses	10567	12606	15063
3. TOTAL LOANS	6001	7797	11879
(of which) Foreign	974	821	976
4. Cash Credits/Advances from Banks/ others	5284	5203	5896
5. Net Worth	17547	19996	23050
6. Capital Employed	28667	32422	37947
i) Net Fixed Assets	16929	19523	21894
ii) Working Capital	11738	12899	16053
7. Sales/Operating Income	50583	57836	68215
8. Value of Production	32306	35691	45277
9. Net Value Added	16115	18125	22892
10. Gross Profit	5815	7837	7520
11. Net Profit	2650	3909	3654
12. Dividends Declared	974	1239	1384
PERCENTAGES OF :-			
a) Net Profit to Equity	37.7	54.1	46.6
b) Net Profit to Net Worth	15.1	19.5	15.9
c) Gross Profit to Cap. Emp.	20.3	22.6	19.8
d) Sales to Capital Emp.	176.5	178.4	179.8
e) Gross Profit to Sales	11.5	12.7	11.0
f) Equity Loan Ratio	1.02	0.93	0.66

NOTE :- The Consolidation is on the basis of lateral summation of data of undertakings/different accounting years.
Having

TABLE No.-28.

CONSOLIDATED FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- PLASTICS (PRIVATE SECTOR)

Rs./Lakhs

ITEM	1977-78	1978-79	1979-80
1.	2.	3.	4.
No. of Undertakings	13	13	13
1. Authorised Capital	9762	9762	9738
2.i) Equity Capital	4645	4631	4613
ii) Preference Capital	442	441	391
iii) Reserves & Surpluses	5230	5911	6322
3. TOTAL LOANS	4900	5424	10175
(of which) Foreign	295	269	203
4. Cash Credits/Advances from Banks /others	7867	7209	9663
5. Net Worth	8377	8922	9860
6. Capital Employed	20775	21335	23000
i) Net Fixed Assets	10759	10832	11514
ii) Working Capital	10016	10503	11486
7. Sales/Operating Income	38408	45206	50297
8. Value of Production	34959	40978	44029
9; Net Value Added	13380	17514	17415
10. Gross Profit	2733	3801	2162
11. Net Profit	633	1140	624
12. Dividends Declared	477	523	557
PERCENTAGE OF :-			
a) Net Profit to Equity	13.6	24.6	13.6
b) Net Profit to Net Worth	7.6	12.8	6.3
c) Gross Profit to Cap. Emp.	13.2	17.8	9.4
d) Sales to Capital Emp.	184.9	211.9	218.7
e) Gross Profit to Sales	7.1	8.4	4.3
f) Equity Loan Ratio	0.95	0.85	0.45

N.B.:- The consolidation is on the basis of lateral summation of data of undertakings having different accounting years.

TABLE NO.-29.

CONSOLIDATED FINANCIAL STRUCTURE.

NAME OF THE UNDERTAKING:- CHEMICALS (PRIVATE SECTOR).

Rs./Lakhs

I T E M.	1977-78	1978-79	1979-80
1.	2.	3.	4.
No. of Undertakings	11	11	11
1. Authorised Capital	9680	9780	10130
2.i) Equity Capital	5553	6127	6180
ii) Preference Capital	326	326	326
iii) Reserves & Surpluses	5669	6592	7751
3. TOTAL LOANS	3696	3416	4910
(of which) Foreign	834	569	798
4. Cash Credits/Advances from Banks/others	3494	3461	3670
5. Net Worth	10391	11920	14280
6. Capital Employed	16578	17357	20923
7.i) Net Fixed Assets	9830	9114	10136
ii) Working Capital	7748	8243	10787
7. Sales/Operating Income	28606	31928	39867
8. Value of Production	24822	27624	34653
9. Net value Added	10846	11710	13683
10. Gross Profit	3193	4045	5204
11. Net Profit	1347	1793	2200
12. Dividends Declared	740	839	880
PERCENTAGE OF:-			
a) Net Profit to Equity	24.3	29.3	35.6
b) Net profit to Net Worth	13.0	15.0	15.4
c) Gross Profit to Cap. Emp.	19.3	23.3	24.9
d) Sales to Cap. Emp.	172.6	183.9	190.5
e) Gross Profit to Sales	11.2	12.7	13.1
f) Equity/Loan Ratio	1.50	1.79	1.25

N.B. :- The consolidation is on the basis of lateral summation of data of undertakings having different accounting years.

TABLE No.-30.

FINANCIAL STRUCTURE OF SYNTHETIC RUBBER.

NAME OF THE UNDERTAKING:- Synthetics & Chemicals Limited.

Rs./Lakhs.

I T E M.	1977-78	1978-79	1979-80@
1.	2.	3.	4.
1. Authorised Capital	1500	1500	1500
2.i) Equity Capital	575	575	575
ii) Preference Capital	-	-	-
iii) Reserves & Surpluses	517	547	562
3. TOTAL a) Loans	65	55	93
(of which) b) Foreign	15	15	8
4. Cash Credits/Advances from Banks/Others	270	249	508
5. Net Worth	1092	1122	1137
6. Capital Employed	1390	1373	1720
i) Net Fixed Assets	511	546	694
iii) Working Capital	879	827	1026
8. Sales/Operating Income	2681	2944	2733
8. Value of Production	2709	2843	3259
9. Net Value Added	860	978	1256
10. Gross Profit	305	275	282
11. Net Profit	153	117	167
12. Dividends Declared	86	86	69
PERCENTAGES OF:-			
a) Net Profit to Equity	26.6	20.3	29.0
b) Net Profit to Net Worth	14.0	10.4	14.7
c) Gross Profit to Cap. Emp.	21.9	20.0	16.4
d) Sales to Capital Emp.	192.9	214,4	158.9
e) Gross Profit to Sales	11.4	9.3	10.3
f) Equity/Loan Ratio	8.85	10.45	6.18

@= For the year ended 31.12.1979.

CAPITAL INVESTMENT IN PUBLIC/JOINT SECTOR UNDERTAKINGS AS ON 1.4.1981.

(Rs./Crores)

Name of the Undertakings.	PAID UP CAPITAL			LONG TERM LOAN			TOTAL		RELATIVE % OF SHARE	
	Total	of which Govt.	%age of Govt.	Total	of which Govt.	%of Govt.	Total	of which Govt.	Govt.	Non Govt.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Exploration & Production.	395.9	356.9	90.2	675.6	135.3	20.0	1071.5	492.2	46.0	54.0
1. ONGC	342.9	342.9	100.0	592.2	56.0	9.5	935.1	398.9	42.7	57.3
2. HIL	25.0	-	-	-	-	-	25.0	-	-	100.0
3. OIL	28.0	14.0	50.0	83.4	79.3	95.1	111.4	93.3	83.7	16.3
2. REFINING & MARKETING.	146.5	134.9	92.0	283.6	147.5	52.0	430.1	282.4	65.7	34.3
1. IOC	82.2	82.2	100.0	251.0	121.0	48.2	333.2	203.2	61.0	39.0
2. BPCL	14.5	14.5	100.0	-	-	-	14.5	14.5	100.0	-
3. HPCL	15.2	15.2	100.0	12.2	11.1	91.0	27.4	26.3	96.0	4.0
4. CRL	7.0	4.2	60.0	9.9	6.5	65.6	16.9	10.7	63.3	36.7
5. MRL	12.9	9.5	73.6	1.8	1.8	100.0	14.7	11.3	76.8	23.2
6. IBP	2.1	1.1	52.4	-	-	-	2.1	1.1	52.4	47.6
7. Biecco Lawrie	1.3	1.0	77.0	2.2	2.2	100.0	3.5	3.2	91.4	8.6
8. Balmer Lawrie	1.9	-	-	1.6	-	-	3.5	-	-	100.0
9. Bridge & Roof	4.2	3.9	92.2	4.9	4.9	100.0	9.1	8.8	96.7	3.3
10. Lubrizol	4.8	2.9	60.0	-	-	-	4.8	2.9	60.4	39.6
11. Indian Oil Blending	0.4	0.4	100.0	-	-	-	0.4	0.4	100.0	-
3. PETROCHEMICAL OTHER DOWN STREAM UNITS.	299.2	297.7	99.5	178.9	126.5	70.7	478.1	424.2	88.7	11.3
1. IPCL	186.0	186.0	100.0	135.4	101.3	74.8	321.4	287.3	89.4	10.6
2. Petrofils	14.7	13.2	89.8	10.2	-	-	24.9	13.2	53.0	47.0
3. BHPL	98.5	98.5	100.0	33.3	25.2	76.0	131.8	123.7	94.0	6.0
4. ENGINEERING SERVICES.	0.5	0.5	100.0	-	-	-	0.5	0.5	100.0	-
1. EIL	0.5	0.5	100.0	-	-	-	0.5	0.5	100.0	-
GRAND TOTAL	842.1	790.0	(93.8%)	1138.1	409.3	(35.9%)	1980.2	1199.3	(60.5%)	39.5

Figures in bracket indicate the percentage share of Governments.

CAPITAL INVESTENT IN PUBLIC/JOINT SECTOR UNDERTAKINGS AS ON 1ST APRIL, 1979, 1980 & 1981.

(Rs./Crores.)

Name of the Undertakings.	AS ON 1-4-1979. Equity	LT Loan	Total	Govt. Share	AS ON 1-4-1980. Equity	LT Loan	Total	Govt. Share	AS ON 1-4-1981. Equity	LT Loan	Total	Govt. Share
1. Exploration & Prodn.	360.4	378.0	738.4	515.0	365.4	460.5	825.9	560.2	395.9	675.6	1071.5	492.2
1. ONGC	332.4	305.8	638.2	433.3	337.4	390.8	728.2	480.7	342.9	592.2	935.1	398.9
2. HIL	-	-	-	-	-	-	-	-	25.0	-	25.0	-
3. OIL	28.0	72.2	100.2	81.7	28.0	69.7	97.7	79.5	28.0	83.4	111.4	93.3
2. REFINING & MARKTG.	137.0	124.8	261.8	223.1	139.3	191.8	331.1	229.2	146.5	283.6	430.1	282.4
1. IOC	82.2	105.7	187.9	167.5	82.2	168.7	250.9	159.8	82.2	251.0	333.2	203.2
2. BPCL	14.5	-	14.5	14.5	14.5	-	14.5	14.5	14.5	-	14.5	14.5
3. HPCL	15.2	8.4	23.6	15.2	15.2	10.6	25.8	24.8	15.2	12.2	27.4	26.3
4. CRL	7.0	2.5	9.5	5.8	7.0	2.4	9.4	5.3	7.0	9.9	16.9	10.7
5. MRL	12.9	0.1	13.0	9.5	12.9	0.6	13.5	10.1	12.9	1.8	14.7	11.3
6. IBP	4.6	8.1	12.7@	10.3	2.8	-	2.8@	1.1	2.1	-	2.1	1.1
7. Bieco Lawrie	-	-	-	-	1.1	4.7	5.8	5.4	1.3	2.2	3.5	3.2
8. Balmer Lawrie	-	-	-	-	-	-	-	-	1.9	1.6	3.5	-
9. Bridge & Roof	-	-	-	-	3.0	4.8	7.8	7.8	4.2	4.9	9.1	8.8
10. Lubrizol	0.6	-	0.6	0.3	0.6	-	0.6	0.4	4.8	-	4.8	2.9
11. Indian Oil Blendg.	-	-	-	-	-	-	-	-	0.4	-	0.4	0.4
3. PETROCHEMICALS & OTHER DOWN STREAM UNITS.	289.5	147.0	436.5	411.8	298.7	173.7	472.4	408.4	399.2	178.9	478.1	424.2
1. IPCL	186.0	131.1	317.1	308.9	186.0	150.2	336.2	294.8	186.0	135.4	321.4	287.3
2. Petrofils	13.8	15.0	28.8	13.2	14.2	15.0	29.2	13.2	14.7	10.2	24.9	13.2
3. BPL	89.7	0.9	90.6	89.7	98.5	8.5	107.0	100.4	98.5	33.3	131.8	123.7
4. ENGINEERING SERVICE	0.3	-	0.3	0.3	0.3	-	0.3	0.3	0.5	-	0.5	0.5
1. EIL	0.3	-	0.3	0.3	0.3	-	0.3	0.3	0.5	-	0.5	0.5
GRAND TOTAL	787.2	649.8	1437.0	1150.2 (80.0%)	803.7	826.0	1629.7	1198.1 (73.6%)	842.1	1138.1	1980.2	1199.3 (60.5%)

NOTE:- 1. Figures in brackets indicate %age share of the Government.
@ Represents not investment in IBP and subsidiaries after exclusion of inter Company holding.

GLOSSARY OF TERMS USED IN THE "ANNUAL REPORT ANALYSIS".

1. Loans : These include both secured and unsecured loans but exclude interest accrued, if any included in the loans.

2. Net Worth : This represents paid-up capital plus free reserves less accumulated losses (deficit) and deferred revenue expenditure remaining unamortised.

3. Capital Employed : This mean gross block less accumulated depreciation thereon plus working capital, but excluding capital works in progress.

4. Working Capital : Mean all current assets, loans & advances, deposits, investments (other than trade investments) less current liabilities and provisions excluding cash credit & bank overdrafts and provision for gratuity.

5. Sales : Means net sales turnover i.e. after excluding trade discounts and products used for internal consumption.

6. Adjusted Gross Profit. : Represents excess of Income over expenditure after providing for depreciation but before providing for interest on loans, taxes, appropriation to reserves, charges pertaining to previous years, bad debts, Donations, exchange fluctuations Loss on disposal of Assets, Dividends etc.

7. Adjusted net Profit : Represents the figure arrived at after deducting from the adjusted gross profit interest on loans and taxes but before appropriation to reserves.

8. Dividend Declared : Includes preference dividend, if any.

****

PART - V

LATE ADDITIONS

HIGHLIGHTS

LATE ADDITIONS - HIGHLIGHTS

1. The rate of royalty payable on indigenously produced crude oil was increased by the Government from Rs.42/M.T. to Rs.61/M.T. with effect from 1st April, 1981.

2. The Government accepted the recommendations of the Site-Selection Committee made in its Report (March, 1981) for setting up of three Aromatics plants one each at Cochin (Kerala), Usar (Maharashtra) and at Saleempur (Uttar Pradesh). The recommendations of the Committee that a large petro-chemicals project can be erected in Bihar was also accepted by the Government.

3. The price of indigenous crude oil was raised to Rs.1182 by the Government from 11.7.1981 inclusive of royalty @ Rs.61/M.T. and Oil Development Cess @ Rs.100/M.T. from the level of Rs.325.41/M.T. for onshore crude and Rs.458.50/M.T. for offshore crude.

4. In view of the steeply rising costs of greatly expanded oil exploration and development programme, the continuing strain on the balance of payments and the need to moderate the growth of demand for petroleum products and to promote their economic and efficient use, the Government announced the increase in the prices of various petroleum products with effect from 11.7.1981. The increase made in the prices of individual products are detailed in the statement on page 286.

5. Consequent upon the revision in ceiling selling prices of various petroleum products announced by the Government effective from 11.7.1981, the retail selling prices of major petroleum products in the metropolitan cities/towns were revised as follows :

Retail selling prices as on 11.7.1981

City	M.S. (Rs/litre)	H.S.D.O. (Rs/litre)	S.K.O. (Rs/litre)	L.D.O. (Rs./KL)	F.O. (Rs/KL)	L.P.G. (Rs/15 Kg cyl.)	A.T.F. (Rs/KL) Domestic Airlines	A.T.F. (Rs/KL) International Airlines
Bombay	6.15	2.96	1.66	2620.25@	2540.23@	43.52*	4045.55	3465.87
Calcutta	6.13	3.01	1.76	2767.04@	2631.05@	54.84	4918.10	3470.56
Delhi	6.07	3.02	1.81	2880.00@	2789.60@	50.78	4346.77	3618.44
Madras	6.17	3.05	1.84	-	2681.58@	48.74	4203.46	3471.73
Kanpur	6.19	3.11	1.90	-	-	51.66	-	-

@ No retail sale. * Relates to 14.2 Kg cylinder.

.../-

6. The Government decided, as an interim measure, to increase dealer's commission on Motor Spirit(Petrol) and HSDO with effect from 16th August, 1981 as per details given below :-

(Rs./K.L.)

Annual volume of sales (KL)	Dealer's commission Pre-16.8.81 rate	Post 16.8.81 rate	Annual volume of sales(KL)	Dealer's commission Pre-16.8.81 rate	Post 16.8.81 rate
MOTOR SPIRIT			H.S.D.O.		
0 - 480	107	114	0 - 600	58	60
481 - 1080	75	82	601 - 1200	33	35
Over 1080	55	61	Over 1200	28	30

7. The development in the lowest posted prices of petroleum products at Bandar Mahashar since January, 1981 are as follows :-

(U.S.¢ / U.S.Gallon)

Price as on	M.S. Octane 83	Turbine Fuel 58 F	Kerosene	Diesel Index 53-57	Medium Fuel ($/BBL)
1.1.81	102.5	110.0	107.5	102.0	30.25
16.1.81	102.5	110.0	109.0	104.0	30.25
26.1.81	108.0	117.5	113.0	107.5	30.70
15.6.81	106.0	112.5	110.0	104.5	32.20

Ceiling Selling Prices ex-storage Point(Bombay) w.e.f. 11.7.81 and increase thereof.

(Rs./Selling Unit)

Products	Selling Unit	Price prior to11.7.81	Increase w.e.f. 11.7.81	Celling selling price w.e.f. 11.7.81
ATF	KL	3536.85	335.00	3871.85
MS 83	KL	4908.07	530.00	5438.07
MS 93	KL	5063.48	530.00	5593.48
HSDO	KL	2329.55	320.00	2649.55
SKO	KL	1394.93	150.00	1544.93
LDO	KL	2226.97	279.00	2505.97
MLO	KL	2388.49	279.00	2667.49
FO for Non-ferts use	KL	2189.06	235.00	2424.06
FO for ferts.use	KL	1039.06	235.00	1274.06
Bitumen St. Gd. Bulk	MT	2060.85	262.00	2322.85
Bitumen Packed	MT	2345.91	262.00	2607.91
Naphtha for non Fert. use.	MT	2792.00	NIL	2792.00
Naphtha for Fert. use.	MT	1371.31	352.00	1723.31
J.B.O.	MT	1999.42	359.00	2358.42
SBP s 55/115	KL	3155.56	298.00	3453.56
Solevant 1425	KL	3155.56	298.00	3453.56
SBP s 64/61	KL	3331.36	298.00	3629.36
Hexane	KL	3331.36	298.00	3629.36
MTO 140/205	KL	2044.26	304.00	2348.26
MTO Laws	KL	2125.96	304.00	2429.96
LPG Packed(Domestic)	MT	2300.98	333.00	2633.98
LPG Packed(Industrial)	MT	2777.81	333.00	3110.81
LPG Bulk(Industrial)	MT	2595.31	333.00	2928.31

APPENDIX

ABBREVIATIONS

(i) Companies/Organisations

ACCI	:	Alkali & Chemicals Corporation of India Limited
AOC	:	Assam Oil Company
BPCL	:	Bharat Petroleum Corporation Limited
BRPL	:	Bongaigaon Refinery & Petrochemicals Limited
B/Shell/BSM	:	Burmah Shell Oil Storage & Distributing Co. Ltd.
BSR	:	Burmah Shell Refineries Limited
Caltex/CIL	:	Caltex (India) Limited
CORIL	:	Caltex Oil Refining (India) Limited
CRL	:	Cochin Refineries Limited
EIL	:	Engineers India Limited
ESSO	:	Esso Standard Eastern Inc.
ESRC	:	Esso Standard Refining Company of India Ltd.
HCL	:	Herdillia Chemicals Limited
HPCL	:	Hindustan Petroleum Corporation Limited
HIL	:	Hydrocarbons India Limited
IBPC	:	Indo-Burma Petroleum Company Limited
IPCL	:	Indian Petrochemicals Corporation Limited
IIP	:	Indian Institute of Petroleum
IPE	:	Institute of Petroleum Exploration
IOBL	:	Indian Oil Blending Limited
IOC	:	Indian Oil Corporation Limited
LIL	:	Lube India Limited
Lubrizol	:	Lubrizol India Limited
MRL	:	Madras Refineries Limited
OIL	:	Oil India Limited
ONGC	:	Oil & Natural Gas Commission
OPEC	:	Organisation of Petroleum Exporting Countries
TWOC	:	Tide Water Oil Company
PCL	:	Petrofils Cooperative Limited
NOCIL	:	National Organic Chemical Industries Limited
TIPCO	:	The Industrial Plastics Corporation Pvt. Ltd.
WIODC	:	Western India Oil Distributing Company Ltd.

(ii) Petroleum Products

ATF	:	Aviation Turbine Fuel
AVGAS	:	Aviation Gasoline/Spirit
CBFS	:	Carbon Black Feed Stock
HHS	:	Hot Heavy Stock
HSDO	:	High Speed Diesel Oil
JBO	:	Jute Batching Oil
LDO	:	Light Diesel Oil
LSHS	:	Low Sulphur Heavy Stock
LPG	:	Liquified Petroleum Gas
MS/MOGAS	:	Motor Spirit/Motor Gasoline
FO	:	Furnace Oil
MTO	:	Mineral Turpentine Oil
Pet-coke	:	Petroleum Coke
SBP-Spirit	:	Special Boiling Point Spirit
SKO	:	Superior Kerosene Oil
TDO	:	Tea Drier Oil

LIGHT DISTILLATES(including Gases): Gasolines, Naphtha, SBP Spirit/ Solvent Oils, Hexane, Benzene, Toluene, L.P.G., Refinery Gas and W.D.Mixture.

MIDDLE DISTILLATES: Kerosene, ATF/Jet A-1, Vaporising Oil, Aromex-Iomex, H.S.D.O.,L.D.O./M.L.O. and J.D.O. Mineral Turpentine Oil, Chemisperse & LABFS.

(iii) Petrochemicals Products

CAMP	:	Cellulose Acetate Moulding Powder
CBFS	:	Carbon Black Feed-stock
DMT	:	Dimethyl Teraph Thalate
HDPE	:	Polythylene Resins & Componds Low Pressure(High Density)
LAB	:	Linear Alkyl Benzene
LDPE	:	Polyethylene Resins & Compounds High Pressure(Low Density)
MEG	:	Mono- Ethylene Glycol
MI Ketone	:	Methyl Isobutyl Ketone
MF MP	:	Malamine Formaldehyde Moulding Powder
NSF	:	Nylon Staple Fibre
NFY	:	Nylon Filament Yarn
PSF	:	Polyester Staple Fibre
PFY	:	Polyester Filament Yarn
PF MP	:	Phenol Formaldehyde Moulding Powder
PS	:	Polystyrene
PP	:	Polypropylene
PBR	:	Polybutadiene Rubber
PVC	:	Polyvinyl Chloride
SBR	:	Styrene Butadiene Rubber
UFMP	:	Urea Formaldehyde Moulding Powder

(iv) PREFIXES USED IN METRIC TABLES

Prefix	Meaning	
Milli	One thousandth	(1/1000 = .001)
Centi	One hundredth	(1/100 = .01)
Deci	One tenth	(1/10 = . 1)
Unit	One	(1)
Deka	Ten	(10)
Hecto	One hundred	(100)
Kilo	One thousand	(1,000)
Mega	One Million	(1000,000)

(v) Others

API	:	American Petroleum Institute
AFRA	:	Average Freight Rate Assessment
CIF	:	Cost, Insurance and Freight
Crores	:	10 million/100 lakhs
DWT	:	Dead Weight Tonnage
FOB	:	Free on Board
GP	:	General Purpose (16,500-24,999 dwt)
HV	:	High Viscosity
HVI	:	High Viscosity Index
KL	:	Kilolitre
KM	:	Kilometre
LR I	:	Large Range I (45,000-79,999 dwt)
LR II	:	Large Range II (80,000-1,59,999 dwt)
LV	:	Low Viscosity
LVI	:	Low Viscosity Index
MR	:	Medium Range (25,000-49,999 dwt)
MT	:	Metric Ton
MTPA	:	Million tonnes per annum
MV	:	Medium Viscosity
MVI	:	Medium Viscosity Index
R&D	:	Research and Development
ULCC	:	Ultra Large Crude Carrier(320,000-549,999 dwt)
VLCC	:	Very Large Crude Carrier (1,60,000 dwt and more)
NA	:	Not Available
-	:	Nil
Neg	:	Negligible
Billion	:	10^9 or One thousand Million
Trillion	:	10^{12} or One million million.
*	:	Provisional

METRIC UNITS

LINEER

10	millimetres	= 1	Centimetre
10	Centimetres	= 1	decimetre
10	Decimetres	= 1	Metre
10	Metres	= 1	decametre
10	Dacametres	= 1	hectametre
10	Hectametres	= 1	Kilometre

AREA

100	sq. millimetres	= 1	sq. centimetres
100	sq. centimetres	= 1	sq. decimetre
100	sq. decimetres	= 1	sq. Metre
100	sq. metres	= 1	sq. dectare
		= 1	Area.
100	areas	= 1	sq. ares
		= 1	hectare
100	Hectares	= 1	sq. hectometre
		= 1	sq. kilometre

WEIGHTS.

10	milligrams	= 1	centigram
10	centigrams	= 1	decigram
10	decigrams	= 1	gram
10	grams	= 1	decagram
10	decagrams	= 1	hectogram
10	hectograms	= 1	kilogram
100	kilograms	= 1	quintal
1000	kilograms	= 1	metric tonne

CAPACITY

10	millilitres	= 1	centilitre
10	centilitres	= 1	decilitre
10	decilitres	= 1	litre
10	litres	= 1	decalitre
10	decalitres	= 1	hectolitre
10	hectolitres	= 1	kilolitre

VOLUME.

1000	cubic millimetres	= 1	cubic centimetre
1000	cubic centimetres	= 1	cubic decimetre
1000	cubic decimetres	= 1	cubic metre.

CONVERSION FACTORS USED IN THE OIL TRADE LINEAR AND SQUARE MEASURES.

L E N G T H

1 inch	=	25.4 millimetres (mm)
	=	0.0254 metre
1 foot	=	12 inches
	=	0.333333 yard
	=	0.3048 metre (m)
1 yard	=	36 inches
	=	3 feet
	=	0.9144 metre (m)
1 metre	=	39.3701 inches
	=	3.28084 feet
	=	1.09361 yards
	=	0.001 kilometre (km)
1 kilometre	=	1000 metres (m)
	=	0.621371 mile
1 mile	=	1760 yards
	=	1.60934 kilometres (km)
1 international nautical mile	=	6076.12 feet
	=	1.852 kilometres (km)
	=	1.15078 miles

A R E A.

1 square inch	=	645.16 square millimetres(mm^2)
1 square foot	=	0.0929030 square metre(mm^2)
1 square yard	=	9 square feet
	=	0.836127 square metre (m^2)
1 square metre	=	10.7639 square feet
	=	1.19599 square yards
1 acre	=	4840 square yards
	=	4046.86 square metres (m^2)
	=	0.404686 hectares
1 hectare	=	10000 square metres (m^2)
	=	2.47105 acres
	=	0.01 square kilometre(km^2)
1 square kilometre	=	100 hectares
	=	0.386102 square mile
1 square mile	=	640 acres
	=	258.999 hectares
	=	2,58999 square kilometres(km^2)

MASS. WEIGHTS

1 ounce	= 28.3495 grams (g)
1 pound	= 0.453592 kilogram (kg)
	= 0.00892857 hundred weight)
1 kilogram	= 2.20462 pounds
	= 0.01 quintal
	= 0.001 tonne
1 hundreweight (cwt)	= 112 pounds
	= 50.8023 kilograms (kg)
1 American (short) ton	= 2000 pounds
	= 0.907185 tonne
	= 0.892857 long ton
1 tonne (metric ton)	= 2204.62 pounds
	= 1000 kilograms (kg)
	= 1.10231 short tons
	= 0.984207 long ton
1 Imperial (long) ton	= 2240 pounds
	= 1.12 short tons
	= 1.01605 tonnes

ENERGY AND POWER

1 international table(IT) calorie	= 4.1868 Joules (J)
115°C calorie	= 4.1855 joules (J)
1 themochemical caloric	= 4.184 joules (J)
1 kilocalorie (IT)	= 1000 calories
	= 3.96832 British thermal units
	= 1.163 watt hours
	= 0.001 thermie
1 kilowatt hour	= 3412.14 British thermal units
	= 859.845 kilocalories (IT)
	= 3.6 megajoules (MJ)
	= 1.34102 horse power hours
1 therm	= 100000 British thermal units(BTU)
	= 105.506 megajoules (MJ)
	= 29.3071 kilowatt hours
	= 25.1996 thermies
	= 25.1996 kilocalories
1 metric horsepower (Pferdestaerke or cheval vapeur)	= 735.499 watts (W)
	= 542.476 foot pounds force/second
	= 0.986320 Imperial horsepower
1 Imperial horsepower	= 745.700 watts(W)
	= 550 foot pounds force/second
	= 1.01387 metric horse power
1 kilowatt	= 737.562 foot pounds force/second
	= 1.35962 metric horsepower
	= 1.34102 Imperial horsepower
	= 1000 watts.

CUBIC MEASURES

VOLUME

1 cubic inch	=	16.3871 cubic centimetres(cm^3)
1 pint	=	0.568261 cubic decimetres(dm^3)
1 litre	=	1000 cubic centimetres
	=	61.024 cubic inches
	=	1.75975 pints
	=	1 cubic decimetre(dm^3)
	=	0.264172 American gallons
	=	0.219968 imperial gallons
	=	0.0353147 cubic foot.
1 hectolitre	=	100 cubic decimetres(dm^3) or
	=	100 litres
1 American gallon	=	231 cubic inches
	=	3.78541 cubic decimetres or litres
	=	0.832674 Imperial gallon
	=	0.133681 cubic foot
	=	0.0238095 American barrel
	=	0.00378541 cubic metre (m^3)
1 Imperial gallon	=	277.420 cubic inches
	=	4.54609 cubic decimetres(dm^3) or-
	=	1.20095 American gallon -litres
	=	0.160544 cubic foot
	=	0.028594 American barrel
	=	0.00454609 cubic metre (m^3)
1 cubic foot	=	28.3168 cubic decimetres(dm^3) or
	=	7.48052 American gallons letres
	=	6.22883 Imperial gallons
	=	0.17811 American barrel
	=	0.028317 cubic metre (m^3)
1 American barrel	=	9702 cubic inches
	=	158.987 cubic decimetres(dm^3) or
	=	42 American gallons litres
	=	34.9726 Imperial gallons
	=	5.6146 cubic feet
	=	0.158987 cubic metre (m^3)
1 cubic metre	=	1000 litres
	=	264.172 American gallons
	=	219.969 Imperial gallons
	=	35.3147 cubic feet
	=	6.28981 American barrels.
1 Kilolitre	=	1000 cubic decimetres(dm^3) or
	=	6.28981 American barrels -litres
1 gross ton (shipping)	=	2.83168 cubic metres or 100 cubic feet of permanently enclosed space.
1 ton of liquified methane	=	approx. 16 barrels
	=	approx. 1400 cubic metres of natural gas depending upon methane content.

PRODUCT CONVERSION FACTOR

(Conversion Factor from Volume to tonnes at Natural temp.)

PRODUCTS	Litres to Metric Tonnes	Tonnes Per K. L.	American barrels to Metric tonnes.
1.	2.	3.	4.
Aviation Spirit 100/130	1421	0.7034	8.94
Aviation Spirit 114/145	1449	0.6901	9.11
Aviation Spirit 73 ON U/L.	1432	0.6983	9.01
Motor Spirit 79 R	1427	0.7008	8.98
Motor Spirit 80 MT	1427	0.7008	8.98
Motor Spirit 93 R	1386	0.7215	8.72
Motor Spirit 95 ON	1359	0.7358	8.55
Motor Spirit 83 ON	1411	0.7087	
JP-4	1384	0.7225	8.71
JP-5	1273	0.7855	8.01
Aviation Turbine Fuel	1288	0.7764	8.10
Naphtha	1467	0.6817	9.23
Power Alcohol	1286	0.7776	8.09
Benzol	1154	0.8666	7.26
SBP/Spirit/Hexane	1457	0.6863	9.16
Mineral Turpentine(Laws & 140/205)	1302	0.7680	8.19
Liquified Petroleum Gas	1785	0.5602	11.23
Superior Kerosene	1285	0.7782	8.03
Inferior Kerosene	1265	0.7905	7.96
Power Kerosene(Vap. Oil)	1251	0.7994	7.87
High Speed Diesel	1210	0.8263	7.61
Light Diesel Oil	1172	0.8532	7.37
Malarial Oil	1172	0.8532	7.37
Special Larvicides	1175	0.8511	7.39
Furnace Oil	1071	0.9337	6.74
Tea Drier Oil	1071	0.9337	6.74
Hot Heavy Stock/LSHS	1017	0.9833	6.40
Refinery Gas/Ref. Boiler Fuel	1071	0.9337	6.74
Lubricants/ Greases	1114	0.8977	7.01
Jute Batching Oil/Wash Oils	1167	0.8569	7.34
Bitumen	1002	0.9980	6.30
HPP/Alcohol Mixture	1414	0.7072	8.89
Methanol Mixture	1106	0.9042	6.96
Carbon Black Feed Stock	1134	0.8818	7.13
Carburettor Testing Fluid	1388	0.7205	8.73
Benzene	1121	0.8921	7.05
Toluene	1143	0.8749	7.19
Demineralised Water	1002	0.9930	6.30
Shell Glass Kleanzit	1003	0.9970	6.31
Miscellaneous	1114	0.8977	7.01
Wax/Aromex/P.Coke/Chemicals	1114	0.8977	7.01

VOLUME PER METRIC TON OF PETROLEUM PRODUCTS

Products	Kilolitre-M^3	Imperial Gallon	U.S. Gallon	Barrel
	2.	3.	4.	5.
Liquified Pet. Gas.	1.8519	407.365	489.213	11.648
Aviation Spirit	1.3699	301.332	361.873	8.613
Natural Gasolines	1.3514	297.265	356.990	8.496
Motor Spirit	1.3514	297.265	356.990	8.496
Kerosene	1.2346	271.569	326.137	7.764
Jet Fuel	1.2346	271.569	326.137	7.764
Distillates Fuel Oil	1.1494	252.415	293.522	6.988
Lubricating Oil	1.1111	252.845	303.647	7.231
Fuel Oils N.O.S.	1.0989	241.727	290.301	6.911
Residuel Fuel Oils	1.0526	231.551	278.071	6.623
Asphalt and Bitumen	0.9615	211.515	254.013	6.050
Crude Oil	1.1856	260.910	313.340	7.441

CONVERSION FACTORS FOR VOLUME REDUCTION FROM. 15^C TO 29.5^C

1. Aviation Spirit 100/130	0.9827
2. Aviation Spirit 115/145	0.9820
3. Aviation Spirit 73 Clear	0.9824
4. Aviation Turbine Fuel	0.9862
5. Motor Spirit 83	0.9830
6. Motor Spirit 93	0.9836
7. H.S.D.C.	0.9879
8. Kerosene	0.9864
9. Light Diesel Oil	0.9887
10. Furnace Oil	0.9899
11. Special Boiling Point Spirit 55/115	0.9820
12. Special Boiling Point Spirit 64/69	0.9806
13. Solvent 1425	0.9820
14. Hexane	0.9806

PETROLEUM SPECIFIC GRAVITIES

DEGREES A. P. I.	Specific gravity	Barrels per tonne*	Long ton*
25	0.904	6.98	7.09
26	0.898	7.02	7.13
27	0.893	7.06	7.18
28	0.887	7.10	7.22
29	0.882	7.15	7.27
30	0.876	7.19	7.31
31	0.871	7.24	7.36
32	0.865	7.28	7.40
33	0.860	7.33	7.45
34	0.855	7.37	7.49
35	0.850	7.42	7.54
36	0.845	7.46	7.58
37	0.840	7.51	7.63
38	0.835	7.55	7.67
39	0.830	7.60	7.72
40	0.825	7.64	7.76
41	0.820	7.69	7.81
42	0.816	7.73	7.85

* Approximate figures at 15.6°C or 60°F.

PRODUCT SPECIFIC GRAVITY RANGES.

PRODUCTS	Specific gravity	Barrels per tonne
Crude Oils	0.80–0.97	8.0–6.6
Aviation gasolines	0.70–0.78	9.1–8.2
Motor gasolines	0.71–0.79	9.0–8.1
Kerosines	0.78–0.84	8.2–7.6
Gas Oils	0.82–0.90	7.8–7.1
Diesel Oils	0.82–0.92	7.8–6.9
Lubricating Oils	0.85–0.95	7.5–6.7
Fuel Oils	0.92–0.99	6.9–6.5
Asphaltic bitumens	1.00–1.10	6.4–5.8

HEAT ENERGY CONTENT OF FUELS
(Calorific Value of Fuels)

Approximate Value	MJ/Kg.	Btu/lb
Crude Oils	42.6–45.4	18300–19500
Gasolines	47.7	20500
Kerosines	46.1	19800
Benzole	42.1	18100
Ethanol	27.0	11600
Gas Oils	44.7	19200
Fuel Oils(bunker)	42.6	18300
Coal(bituminous)	23.7– 34.0	10200– 14600
LNG	51.9	22300

APPROXIMATE CALORIFIC VALUES

1. Kg. of	K. Cals.	Kg. of or Hard Coal	Kg. of or Crude Oil
1.	2.	3.	4.
Hard Coal	7,000	1	0.7
Lignite	2,000	0.28	0.2
Crude Oil	10.000	1.43	1
Fuel Oil	9.800	1.40	0.98
Natural Gas	7,700	1.10	0.77
1 Kw-hr Electricity	2.800	0.40	0.28

CRUDE OIL CONVERSIONS@

To Convert these into these.	Metric tons	Barrels	Kilo Litres	1,000 Imp. Gallons	1,000 U.S. Gallons
1.	2.	3.	4.	5.	6.
Metric Tons	1	7.33	1.16	0.256	0.308
Barrels	0.136	1	0.159	0.035	0.042
Kilolitres	0.863	6.29	1	0.220	0.264
1,000 Imp. Gallons.	3.91	28.6	4.55	1	1.201
1,000 U.S. Gallons.	3.25	23.8	3.79	0.833	1

@ = Based on World average gravity (excluding Natural Gas Liquids)

COAL REPLACEMENT AND EQUIVALENTS OF DIFFERENT FUELS

FUELS	Unit Coal equivalent in m.tonnes (mtce.)		Coal replacement in m. tonnes (mtcw)
Coal (Coking 6640 Kcal/kg; Non-coking coal used in steam generation 5000 (Kcal/ Kg)	1 mt	1.0	1.0
Hard Coke	1 mt	1.3	1.3
Soft Coke	1 mt	1.5	1.5
Firewood (4750 Kcal/Kg)	1 mt	0.95	0.95
Charcoal (6900 Kcal/Kg)	1 mt	1.0	1.0
OIL PRODUCTS: 10.000 Kcal/Kg.			
Black products (i.e. fuel oil; F.O.; Refinery Fuel, LSHS HHS).	1 mt	2.0	2.0
Kerosene & LPG	1 mt	2.0	8.0
HSDO & LDO	1 mt	2.0	9.0
Motor Spirit & Jet Fuel	1 mt	2.0	7.5
Natural Gas (9000 Kcal/Kg	10^9 x 3	1.8	3.6
Electricity	10^9 kwh	1.0	1.0

M = Million.

MT = Million Tonnes.

CONVERSION FACTOR

UNITS.	1,000 metric tons oil.	1,000 bbl oil*	b/d*	Billion B.T.U.	Billion kilo-calories	Million kw-hr input basis	Million kw-hr input basis	1,000 metric tons hard coal equivlant	Million cum natural gas.
* 1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1000 metric tons oil*	-	7.300	20.0	42.705	10762	12.516	3.868	1.479	1.169
1000 bbl oil*	0.137	-	2.740	5.850	1.474	1.715	0.530	0.203	0.160
B/d Oil	0.050	0.365	-	2.135	0.538	0.626	0.193	0.074	0.058
1,000 U.S.gallons Oil*	0.003	0.024	0.065	0.139	0.035	0.043	0.015	0.005	0.004
Billion B.T.U.	0.024	0.172	0.472	-	0.252	0.293	0.906	0.035	0.027
Billion kilocalories	0.094	0.684	1.874	3.968	-	1.163	0.359	0.137	0.109
Million kw-hr-out put basis	0.081	0.588	1.611	3.412	0.860	-	-	0.118	0.093
Million kw-hr-input basis	0.261	1.903	5.215	11.040	2.782	-	-	0.382	0.302
1,000 metric tons HCE	0.682	4.980	13.642	28.881	7.278	8.465	2.616	-	0.790
1,000 metric tons lignite	0.455	3.321	9.100	19.264	4.855	5.646	1.745	0.667	0.527
Million cum-natural gas	0.847	6.250	17.125	36.546	9.216	10.699	3.319	1.271	-
MM of natural gas ±	0.024	0.177	0.485	1.035	0.261	0.303	0.094	0.036	0.028
Natural Gas ±	0.309	2.281	6.251	13.339	3.364	3.905	1.211	0.464	0.365
M³d Natural Gas ±	0.009	0.065	0.177	0.376	0.095	0.111	0.034	0.013	0.010

* Crude and products- 5,850,000 B.T.U./bbl. + @30.9% efficiency-11,040 B.T.U./kw-hr
1,035 B.T.U/cuft.

-- Million cum -/Day.