INDIAN
PETROLEUM & PETROCHEMICALS
STATISTICS

1976

ECONOMICS & STATISTICS DIVISION
MINISTRY OF PETROLEUM
GOVERNMENT OF INDIA
NEW DELHI

P R E F A C E

Petroleum & Petro-chemical industries today occupy a position of high economic and strategic significance in the overall economic and industrial development of the country. The economic importance of these industries has been particularly enhanced by traumatic changes in the international crude oil situation since 1973 and by increasing assumption, under public control, of almost the entire refining and marketing operations of oil industry in the country. Viewed against this background, the role of reliable and upto-date economic and statistical data pertaining to various aspects of petroleum and petro-chemical industries for meeting the requirements of planning and administration need hardly any emphasis. The Economics & Statistics Division of this Ministry, since 1967, has been bringing out annual publications containing basic economic & statistical data pertaining to petroleum, petro-chemicals and other allied industries in India and abroad. The present publication, which is a continuation of the work earlier undertaken by the Division in 1967, is the 11th in the annual series but which has assumed a separate entity as "Indian Petroleum & Petro-chemical Statistics" since 1974 because of growing importance of petroleum and petro-chemical industries in our country and the vast volume of data required to be presented on these industries.

The scope and coverage of the current issue - "Indian Petroleum & Petro-chemical Statistics, 1976" has been slightly enlarged. In addition to the usual items, it contains additional tables pertaining to plant-wise consumption of naphtha for fertilizers, availability and consumption of petroleum energy in terms of both coal equivalents and coal replacements, statistics of production, consumption, imports & exports on financial year basis since 1970-71, incidence of excise & customs duties on petroleum products, end-use analysis of selected organic intermediates, India's trade balance with OPEC countries, world oil supply and demand in perspective of 1985, etc. It is hoped that the data contained in this publication would continue to be of interest and value to various Ministries of the Government, Planning Commission, the management of various petroleum and petro-chemical undertakings, the Oil Coordination Committee and various research organisations.

In bringing out this publication, the staff and officers of the E & S Division consisting of S/Shri V.L.Nagar, S.Kumar, B.K.Verma, H.R.Chopra, D.C.Garg and Ashok Chopra have done very valuable work. I would like to express my sincere thanks to them. I would also like to express my grateful thanks for the extra efforts put in by S/Shri M.J.Kutty and Subhash Chander in stenciling this publication. While we have taken every possible care to ensure accuracy in presentation of data and various factual information contained in the publication, we would welcome the indulgence of our readers for rectification of any error or omission in the data for further improvement of the publication.

July, 1977.

(J.S. SINHA)
SENIOR RESEARCH OFFICER

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HIGH LIGHTS ON OIL INDUSTRY IN INDIA-1976.

1. On 24th January,1976, the Government acquired 100% shares of Burmah-Shell Refineries Ltd., and Indian assests and liabilities of Burmah-Shell Oil Storage and Distributing Co. of India Ltd.,
2. Indian Oil Corporation entered into an agreement for technical assistance and Cooperation with M/s Castrol of U.K.on 19th February, The agreement is valid for five years and will enable IOC to develop their own research and technology in the field of lubricants and specialities.
3. An agreement was signed on 1st March between Indian Oil Corporation and Petromin for the import of 1.1 million tonnes of Light Arabian crude oil during 1976 from Saudi Arabia.
4. The basic ceiling selling prices of Mineral Turpentine Oil Laws was increased by Rs. 81.55/KL w.e.f. 15th March.
5. The Oil Prices Committee set up by the Government on 16th March,1974 under the chairmanship of Dr.K.S.Krishnaswamy Deputy Governor of Reserve Bank of India, to examine and recommend general principles of pricing policy of petroleum products and on other connected matters, submitted its Final Report in November,1976. The Report is under consideration of the Government.
6. The following three Control Orders issued under Section 3 of the Essential Commodities Act, 1955 were extended to the State of Sikkim w.e.f. 1st day of April.
   a) The Kerosene(Fixation of Ceiling Prices)Order, 1970
   b) The Light Diesel Oil(Fixation of Ceiling Prices) Order, 1973.
   c) The Furnace Oil (Fixation of Ceiling Prices and Distribution) Order, 1974.
7. An agreement was signed between Iraq National Oil Co. and Indian Oil Corporation on 3rd May for the supply of 2.1 million tonnes of crude oil from Iraq to India between 1st May to 31st December, 1976.
8. Commercial production of crude oil from two development wells in Bombay High commenced from 21st May at the rate of 4300 barrerls per day which has been stepped up to 15000 barrerls per day by the end of the year.

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9. The basic ceiling selling prices of Furnace Oil used for manufacture of fertilizers was reduced by Rs.60/KL with effect from 1st June. The basic ceiling selling prices of Furnace Oil used otherwise than as feedstock in the manufacture of fertilizers was further reduced by Rs.60/KL with effect from 10th June.

10. On the recommendation of Oil Prices Committee, dealers commission on sale of MS & HSDO through retail outlets was revised on a sliding scale with effect from 1st July.

11. Oil was discovered at North Kathana in Gujarat during July, 1976.

12. Oil was struck in Bassein structure and presence of gas was also indicated in a well in South Bassein structure during 1976.

13. The rate of royalty on crude oil and casing-head per condensate was raised from Rs.15 per tonne to Rs. 42 per tonne w.e.f. 8th September.

14. Consequent upon the increase in the rate of royalty on indigenous onshore crude oil from Rs.15 per tonne to Rs.42 per tonne w.e.f. 8th September, it was decided to increase the price of indigenous onshore crude oil of 34° API gravity from Rs. 28.64 per barrel to Rs.33.30 per barrel excluding the cess of Rs. 60 per tonne from 8th September. The price of offshore crude oil for 34° API gravity has been fixed at Rs. 45 per barrel, excluding the cess of Rs.60 per tonne royalty and transportation charges from the field to shore installation w.e.f. 20th November, 1976. This increase would, however, have no impact on the selling prices of bulk refined petroleum products such as Motor, Spirit, Kerosene Oil, High Speed Diesel Oil etc.

15. Rudrasagar - Lakwa oil pipeline was commissioned on 12th May, 1976 and Geleki - Dikhu junction oil pipeline was commissioned in Assam on 11th September, 1976.

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16. A Sri Lanka delegation visited New Delhi in last week of September for discussions with Minister of Petroleum and others regarding exchange of stratigraphic geophysical and drilling data. Apart from exchange of data, it was agreed that ONGC would help to locate the supply of spares for the Russian rig available with the Ceylon Petroleum Corporation and that training facilities will be made available to about five technical personnel of that Corporation.

17. On 25th September, 1976, an agreement for take-over of the balance of 26% equity capital of Esso Eastern Inc. in Hindustan Petroleum Corporation Ltd., was signed between the Govt. of India and Esso Eastern Inc., and w.e.f. 1st October, 1976 the Hindustan Petroleum Corporation Ltd., became a 100% Government company.

18. Consequent upon review of the prices of Aviation Turbine Fuel in airports neighbouring India, it was decided to increase the present ad-hoc surcharge rate(applicable to bonded supplies) of Rs. 145.28/KL on ATF to Rs.200/KL with effect from 8th November.

19. A Norwegian Oil Industry Delegation visited India during 6th to 13th November and held discussions with the Ministry and Undertakings like ONGC and EIL regarding the scope of collaboration between the two countries in developing the Indian offshore oil industry.

20. The Rumanian work-over rig P-80-2 was commissioned in Assam during November, 1976.

21. In addition to " Sagar Samrat" and three other chartered hired rigs namely " Haakon Magnus", Dalmohay, Shenandoah," ONGC charter hired another rig " Gettysburg " during 1976.

22. The crude oil supply Agreement concluded under the Indo-ARE Trade Plan provides for import of 3.5 lakh tonnes of Belgium crude during first half of 1977. The payment is to be made in rupees.

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23. In terms of the Protocol signed between India and Soviet Union at the conclusion of the Indo-USSR Annual Trade Plan talks held in December, 1976 the Soviet side offered to deliver to India 1 million tonnes of crude oil in 1977 and 1.5 million tonnes annually during 1978-80. In pursuance of this, an Indian Delegation visited Moscow in February, 1977 to finalise the Indo-USSR crude Contract for 1977. This visit culiminated in the signing of a contract between Indian Oil Corporation and " SOJUZNEF-TEEXPORT" for the supply of 1 million tonnes of crude oil during the period April-to December , 1977.

24. Another agreement was signed on 22nd November, 1976, between Govt. of India and the principals of Caltex for purchase of 100% shares of Caltex Oil Refining (India) Ltd., and acquisition of assets and liabilities of Caltex (India) Ltd., in relation to its undertakings in India. This was made effective by promulgation of an Ordinance on 30th December, 1976 transferring 100% shares of Caltex Oil Refining (India) Limited and assets and liabilities of Caltex (India) Limited to a new Government company.

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Chronology of some important events
in the Petroleum Industry in India

(A) EXPLORATION AND PRODUCTION

(i) Assam Oil Company

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

1866: Mr. Goode nough, a member of the Calcutta firm of Mckilliop Steward & Co. took notice of oil shows 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 the 26th March Mr. Goodenough struck oil at Makum near Margherita at a depth of 118 ft. (36 meters).

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 meters). 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 interests 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.

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

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

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

1970: Secondary recovery techniques such as gas injection and water flooding were being used in the Digboi oil field while the feasibility to use thermal recovery method was being studied.

1971: The drilling of wells started in 1969 was completed with 14 wells in 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 participation and 33.1/3 per cent Government of India.

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, semismic 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.

The first two exploratory wells in the Dum Duma petroleum exploration licence area were spudded in.

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

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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 2 was completed as an oil producer in Dum Duma Area.

1970: Kusijan well 3 was completed as a gas producer in Dum Duma. Regular oil production commenced from Kusijan well 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 Me 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.

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.

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1974 (cond.) 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 initiated. In this technique, a special type of polymer chemical is added to the water that is used for flooding an oil reservoir. The chemical decreases the mobility of water (by increasing its viscosity) but does not affect the mobility of oil; thus it helps achieve a greater volumetric sweep efficiency and unit displacement efficiency of the reservoir and results in greater oil recoveries.

Reservoir engineering (log interpretation) 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 commenced.

Construction work started on the new 30 MW 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.

(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.

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1956: A number of experts visited India.

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

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

1957: In April Jwalamukhi well No.1 was spudded in.

1958: In May, gas was struck at Jwalamukhi.

In July, Cambay well No.1 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 Ankleshwarend drilling was commenced on Rudrasagar Structure.

1961: In January, oil was struck at Rudrasagar well No.1.

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: In February, an agreement was signed with the Soviet Union for the preparation of project reports and working drawing for the Gujarat Refinery.

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

In June, production from Ankleshwar oilfield was stepped up.

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

1963: The Ankleshwar crude oil production was progressively increased during the year. In January, offshore seismic surveys started in the Gulf of Cambay.

In March, drilling commenced on Nawagam structure in Gujarat.

In June, a contract was concluded with the C.G.G. of France for carrying out seismic exploration in Jaisalmer, oil was struck in Saund in Gujarat.

In July, oil was struck in Nawagan well No.1 in Gujarat.

In August, the first well on the Lakwa structure in Assam was spudded in.

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1963 (cond.) In December, a 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: Oil despatches from Ankleshwar were progressively stepped up during the year.

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 semismic surveys with the help of the specially equipped Soviet Ship Akademic Arkhangelskiy 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.

In September, the Soviet Ship started its operations.

In October, SNAM started drilling at Janauri well No.2 in Punjab.

In December, production and supply of non-associated gas from Cambay to the Dhuwaran Thermal Power Station was commenced.

1965: In February, oil was struck at Lakwa in Assam by the Commission.

By March, the ONGC completed drilling of 300 wells.

In May, drilling of first well on Kathana structure in Gujarat was commenced.

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

In October, drilling commenced on Baroach structure and Mehsana well No.1 in Gujarat. Oil was struck at Kathana well No.1 in Gujarat.

In November, drilling commenced on Surat, Jagadia and Jambusar structures in Gujarat.

1966: Oil production from Ankleswar was progressively stepped up further. Traces of oil and gas were found in Karaikal well No.1. During the first few months, first wells on Bakrol and Dholka structures in Gujarat were spudded in.

In August, Bodra well in West Bengal was spudded in.

1967: In January, drilling at Nagapattinam in Tamil Nadu State was started and supplies of crude oil from Kalol oil field in Gujarat were sent to the Gujarat Refinery.

.../-

1967 (Contd.) In March, the first phase of trial production at Nawagam oilfield in Gujarat was inaugurated.

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

By August, the ONGC completed drilling of 500 wells.

In September, drilling on the Dikhumukh structure in Assam was started.

In November, the ONGC completed the drilling of one million metres and the daily rate of production from the Ankleshwar oilfield and Kalol oilfield was stepped upto 7600 tonnes and 150 tonnes respectively.

1968: In January, trial production of crude from Kosamba field in Gujarat near Ankleshwar oil-field was started and drilling was commenced on Geleki structure in Assam.

In February, drilling on Detroj, a new structure 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 is one-sixth of the crude produced. Drilling was started at Ratanpur, North Kalol and Sobhashan in Gujarat.

In May, oil struck at Geleki, a new structure in Assam and trial production from Lakwa has started.

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

Drilling operations at Asjol and Paloj (new structures) in Gujarat and Tirupundi in Tamil Nadu were started.

In July, the 17.5 Kms. cross country crude oil pipeline connecting the Lakwa oilfield 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 the Kadi oil field in Gujarat started.

In August, the rate of production from the Kalol and Nawagam oilfields in Gujarat was stepped up. Drilling operations at Sisva in Gujarat and Nagnijan in Assam were started.

By September, ONGC completed the drilling of 600 wells. Drilling operations at Nazira structure in Assam were started.

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

.../-

1968 (Contd.) In November, trial production from Kathana oilfield in Gujarat and drilling at Hazira and Vaso (new structures) in Gujarat started.

In December, production of crude oil from Ankleshwar was stepped up.

1969: In January, the first well at Becharaji structure was spudded.

Oil production from Ankleswar has stepped up.

In March, the 15 kms. Kalol-Sabarmati pipeline was commissioned. Oil production from Ankleshwar-Kalol and Nawagam was stepped up further.

In May, the first well at Valod structure in Gujarat was spudded in.

By June, ONGC completed drilling of 700 wells.

Exploratory drilling on four new structures namely Borholla in Nagaland, Duma, Tharad and Vaso-east in Gujarat was commenced.

In August, production from the Rostam-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 would be based, was launched.)

In December, first exploratory well on Kawa structure in Gujarat was spudded in.

1970: In January, drilling on three new structures viz. Bagmara in Assam, Mehmadabad and/East in Gujarat were started./Scaru

In February, the first well on a new structure Balol in Gujarat was spudded in.

On 14th March, the first well at Surinsar a new structure in Jammu & Kashmir State was spudded in.

On 19th March, the first offshore well in the shallow waters of the Gulf of Cambay (Aliabet Island) was spudded in. This was the first venture of its kind in India.

Oil was struck at Berholla, a new structure in Assam.

In April, the first well on Dinoj, a new structure in Gujarat was spudded in. ONGC completed drilling of 800 well.

In May, drilling on three new structures namely, Chidambaram in the Cauvery Basin and Baad and Sinjiwa in Gujarat was commenced.

In June, the first well on wataman, a new structure in Gujarat was spudded in.

In July, drilling on three new structures namely Amguri in Assam and Dabka and Varsada in Gujarat was commenced.

In August, first well on Santhol, a new structure in Gujarat was spudded in.

.../-

1970 (Contd.) In October, gas was struck at Dabka, a new structure in Gujarat.

In November, first well on Kanwara, a new structure in Gujarat was spudded in.

In December, drilling on three new structures namely, Deodar and Baola in Gujarat and Banmali in Assam was commenced.

1971: In January, drilling was started on Rakanpur, a new structure in Gujarat. An agreement to supply associated gas from Kalol to M/s Mahendra Mills and M/s Navjivan Mills was finalised.

In February, drilling was started on four new structures viz., Delvada, Daswara, Amliala and Chaklasi in Gujarat. Drilling of India's first offshore well on shallow-waters was also completed during this month.

Sophisticated Digital seismic equipment and data processing system was put into operation in West Bengal.

A contract for procurement of a mobile self-elevating self propelled jack-up type platform was signed.

In March, drilling was started on two new structures viz. Kauka in Gujarat and Saliayamangalam in Cauvery. The first offshore well drilled at Aliabet, showed the presence of oil and 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. The rate of production of crude oil from Eastern Region was increased. An agreement for supply of associated gas from Kalol to M/s Metro Woods and Engineering Works was signed.

In June, drilling was started at a new structure Pandanallur in Tamil Nadu.

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

By July, ONGC completed drilling of 900 deep wells. Oil/gas was discovered in Amguri, a new structure in Assam. A high power committee headed by Shri K.D. Malviya, 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.

On 28th August, Kalol-Nawagam sector of the Kalol-Nawagam-Koyali pipeline was inaugurated.

.../-

1971 (Contd.) In September, drilling was started at Indrora, a new structure in Gujarat and 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 and drilling on Mathumannar-koil, a new structure in Tamil Nadu was commenced.

1972: In January, drilling was started at North Balol, a new structure in Gujarat; and oil was struck at Indrora well No.1 in Gujarat.

In February, drilling was started on two new structures viz., Devla and Linch in Gujarat and gas was struck in North Balol in North Gujarat and oil in Dabka structure in Broach district in Gujarat. A new oil Thermal Laboratory was commissioned at Lakwa Group Gathering Station for testing of oil samples.

In March, drilling was started on Atali West, a new structure in Gujarat. Supply of associated gas from Kalol field to M/s Navjeevan Mills was also commissioned.

In April, drilling was started at Dungri, a new structure in Gujarat.

In June, drilling was started at two new structures viz., Balutri and Banni (Kutch) in Gujarat.

In July, drilling was commenced at Baramura structure in Tripura. Petrographic and Geochemical Laboratories were commissioned at Madras. Oil was struck at Linch in Gujarat. Supply of associated gas to M/s Mahindra Mills from Kalol field and to Baroda Municipal Corporation from Ankleshwar field was commenced. Water injection in Horizon-XII in Lakwa was commissioned. A bronze 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 Dehradun.

In September, drilling was started at Anand, a new structure in Gujarat and supply of associated gas to three private firms, viz. M/s Metro Wood Works, M/s Melamino and Fibres and M/s Calico Printing Company from Kalol field was commenced.

In November, drilling was started at Vithalpur, a new structure in Gujarat.

In December, drilling was started at West Umave, a new structure in Gujarat.

.../-

1973: In January, drilling was started at Deragaon, a new structure in Assam. 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, Taxes, USA, for conducting about 2800 kms. of offshore seismic reflection work.

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

In March, drilling was started at Charali, a new structure in Assam. 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-Preisdent 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 May, drilling was started on Maraini, a new structure in Assam.

In June, drilling was started at Nirora, a new structure in Kutch area of Gujarat. 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, drilling was started at Mayavaram, a new structure in Tamil Nadu. The presence of oil was observed in a well on the Charali structure in Assam during an open hole drill stem test. About 71 indigenous items as replacement to imported spares for use in the cementing section at Nazira were developed and put to successful field-tests.

In August, drilling was started at Mindhola, a new structure in Gujarat.

In October, drilling was commenced on the first offshore deep well on Tarapur structure in the Arabian Sea adjoining the Gulf of Cambay, about 120 kms. north-west of Bombay with the help of the self-propelled, self-elevating jack up type mobile platform, named "Sagar Samrat". Trial production of oil started from Dabka (South Gujarat).

.../-

1973 (Contd.) In November, drilling was started at Galodra, a new structure in Gujarat. During drilling, indications of presence of gas were observed during open hole drill stem tests conducted in the well on the Tarapur structure in the Arabian sea adjoining the Gulf of Cambay.

For the first time in the history of oil exploration in India oil was discovered in commercial quantities in the basement rocks in Assam while testing the fifth well (Borholla-7) in Borholla area. This oil find was in addition to the earlier discovered oil reserves in the basal sandstone lying just above the Basement.

In December, drilling was started at two new structures namely Puna and Sanmas-Khurd in Gujarat.

One of ONGC's Diesel Mechanic working in Central Workshop at Baroda, was awarded Rs.3000/- as a National Award declared by the Government of India for developing valve lapping Machine for lapping the valve and of Internal Cambustion engines. It was the second highest award given to any invontor on the occasion of Independence Day.

1974: During January, Charali structure in Assam was proved to be oil bearing and computer programme, similar to schulumberger Cori-Band progremme, for well leg evaluation was developed.

In February, drilling was started with "Sagar Samart" on the first well of Bombay High (Main) structure in the Arabian Sea adjoining the Gulf of Cambay. Oil was struck while drilling at this well.

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.

In April, drilling operations were commenced at Wara, a new structure in Gujarat and well head installation at Indrora were commissioned.

During June, drilling operations were commenced at North Sarkhej, a new structure in Gujarat and a new structure viz., Asjol was declared as oil bearing. well head installation at Santhol-4 were also commissioned.

In July, ONGC completed drilling of 1100th well.

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

During September, drilling operations were started on Khambel, a new structure in Gujarat. Sanand GGS Kalol CTF oil-pipe line was commissioned and well head installation at Linch was commissioned.

.../-

1974 (Contd.) In October, precision gravity surveys were introduced for the first time. Seismic and Magnetic surveys for petroleum exploration in the Gulf of Kutch and in the Bay of Bengal by the foreign contractors were commenced.

In November, TNR-91 fast digital off-line plotter gas installed in Data Processing Centre for plotting of seismic sections.

In December, production from Dabka was resumed after isolating the gas producing horizons.

1975: In January, North Kadi GGS-cum-CTF was commissioned. Drilling was started on a new structure named Nandasan in Gujarat.

During February, Balol 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 Bhaba Atomic Research Centre was commenced. GGS-VI at Lakwa GGS-II Rudra Sagar and GGS at Geleki in Assam were commissioned.

New contracts of gas with M/s Hindustan Development Corporation and Deepak Nitrite were signed. GGS-cum-CTF at South field in Gujarat was inaugurated. Central workshop Baroda, completed manufacture of a prototype work over rig of 28-tonnes of capacity, which is hitherto imported.

During April, production from Geleki and Rudrasagar fields in Assam stepped up. Drilling of a well on Suthsukalan structure in J.K. was commenced.

In May, production from Mehsana in North Gujarat stepped up. GGS-III, at Nawagam in Gujarat was commissioned. During June, gas struck in Baramura well No.I in Tripura. New work over rig Azimmash was commissioned in Ahmedabad.

In July, drilling of a well commenced on a new structure namely Dhanduka in Gujarat. Gas supplies from Geleki oil field to Geleki Tea estate commenced.

During August, gas supplies from Geleki oil field to Sibbari Tea estate commenced. Drilling started in new structure namely Bhatlai in Gujarat.

During September, gas supplies from Geleki field to Barshilla Tea estate commenced. Two drilling ships spudded wells in Bombay High main offshore structure in the Arabian sea. Drilling was commenced in a new structure namely Jorhat in Assam.

.../-

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

In December, presence of oil was indicated in a well drilled on Nandasan structure in Gujarat. Drilling commenced in two new structure namely Gopirathkilla and Amguri Jorhat in Assam.

1976: In January, a new rig BU-80 spudded its first well at Karaikal structure in Pondicherry.

Gas supplies to M/s Gujarat Glass Factory from Kosamba field were commenced.

In February, drilling was commenced on four new structures, namely, Rampura in Gujarat; Bhuana in Rajasthan; North West-structure and Bassein structure in offshore area in the Arabian Sea.

Oil was struck in a well drilled on Bhandut structure in Gujarat.

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

In March, drilling was started on a new structure named Mitli in Gujarat.

'Shenandoah' a jack up drilling unit chartered by ONGC commenced drilling operations in offshore of the Arabian Sea.

In April, drilling was commenced on a new structure named Deeper Continental Shelf in the offshore area of the Arabian Sea.

In May, drilling was commenced on two new structures, namely, Dharnoj in Gujarat and Narabal in the Kashmir Valley.

Production was started from two wells of Bombay-High (main) Offshore structure, Arabian Sea at an initial rate of 4300 barrels per day.

Rudrasagar-Lakwa oil pipeline was commissioned.

In June, drilling was commenced on two new structures namely, Sampra in Gujarat and Demulgaon in Assam.

Drilling was started at Songo-Songo Island 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.

In October, drilling was commenced on a new structure, named Changara in Gujarat.

A new Rumanian workover rig P-80-1 was commissioned in Assam.

.../-

1976 (Contd.) The approval of 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 superviso actual field pilot tests, and also to render advice to operations personnel in reservoir engineering and related studies.

In November, drilling was started on a new structure, named Miyagam in Gujarat.

A new Rumanian rig 3DH-1spudded its first well on Lakwa structure in Assam.

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.

The second new Rumanian workover rig P-80-2 was commissioned in Assam.

In December, drilling was commenced on new structure, named Galsi in West Bengal.

(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 Copany, ONGC (India), PPCO (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.

First Rostam crude oil tanker containing our share was loaded in September 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 43 A(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.

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(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 venure 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 commission.
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.

.../-

1954 (Contd) Refinery was linked up with two pipelines for the receipt of crude oil and gas from Nahorkatiya oilfield.

1956: A newpipeline for the pumping of white oils to Tinsukia was installed; one of the old 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 old 4 Red oil line for pumping furnace oil from Digboi to Tinsukia was replaced by anew 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.

(ii) Burmah Shell Refineries Ltd./Bharat Refineries Ltd.

1903: The Asiatic Petroleum Company entered the Indian market.

1921: The Burmah Oil Company entered the Indian market.

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

1951: Towards the end of the year the Refinery Agreement was signed.

1953: In February, site development commenced.

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

In June, Bitumen production 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.

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

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

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

1963: Processed 3.75 million tonnes of crude during the year. 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.

Started use of special tank wagons for transportation of LPG.

1966: Annual crude throughput crossed the 4 million tonnes mark.

Commenced production of CBFS, Mineral Turpentine and Hexane.

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

In August, supply of Naphtha to NOCIL was commenced.

In November, supply of Hot Heavy Stock by pipeline to Tata Power Station was commenced.

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 fertilizers industries in the country.

1973: Processing of Government crude commenced.

1974: Crude processing capacity reached a rate of 6 million tonnes per annum.

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

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

1975: In August, the refinery completed 7 million manhours without lost-time accident which is a world record for petroleum refineries.

.../-

1976: The refinery company was taken over by the Government of India and the assets of Burmah-Shell in India merged with those of the nationalised company to form Bharat Refineries Limited.

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

Started processing Bombay High Crude. Processed ten different crudes, the highest in any year.

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

1951: In November, an agreement was signed between the 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: 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 Co. 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 petrochemical plant of Carbide Chemical 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 Limited 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 ICC crude was processed on refinery processing fee basis.

1974: In March, the Government 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.

In July, the fuel refinery completed 20 years. The foreign exchange saved from start up in 1954 has been more than Rs.175 crores.

1975: Commissioned for the first time in India lightering operations to better utilise the 87,000 DWT tankers in August.

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: Produced a trial batch of Heptance for IPCL.

Produced for the first time 'Insectol' /- Earlier, this was being brought in Bombay region from Assam Oil Refineries.

/- which is a Carrier for insecticides.

.../-

1976 (Contd) Set up a centre for technology (CENTECH) in collaboration with Bharat Refineries Ltd. to serve the interests of refineries in the allied fields Research and Development, Design and operations.

Facilities for VPS/Cat debottlenecking project being installed.

In view of Bombay High Crude processing at Bharat Refineries Ltd, facilities are being installed for integration of operations at HPCL and BRL.

(iv) Caltex Oil Refining (India) Ltd., Visakhapatnam.

1953: In March, an agreement was reached between the Government 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 Visakhapatnam. Exports of Mogas and Fuel oil were undertaken in the same year.

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

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, commenced processing crude of IOC on a processing fee basis.

1975: In June, commenced purchasing crude oil from IOC. The crude oil is brought by World Bank Tankers and transhipped into smaller vessels for disoharge into Refinery storage tanks.

1976: The first trial cargo of Bombay High crude was processed in November.

The Government of India acquired 100% shares of Caltex Oil Refining (India) Ltd. on 30th December.

.../-

(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 operation 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: During 1975-76, 2949 thousand tonnes of crude was processed in the refinery which is the highest annual throughput so far. Coking unit, kero treating unit and Coke Calcination Plant processed 717,339 and 59 thousand tonnes of feed stock respectively which is the highest throughputs achieved so far in these units.

20 thousand tonnes of LPG was produced in a year which is the highest production so far.

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.

.../-

(b) Gauhati Refinery, Gauhati, Assam.

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

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

1969: In November, production of A.T.F. was commenced.

1971: In March, production of LPG was started.

1975: Refinery achieved a record crude throughput of 827 thousand tonnes in the distillation unit during 1975-76. Refinery also processed 127 thousand tonnes of feedstock in Kerosene Refining unit during 1975-76 which is the highest achievement so far.

3112tonnes of LPG was produced during 1975-76 which is the highest production in a year so far.

1976: Naphtha production and off-take were started during April.

(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: Refinery processed 4107 thousand tonnes of crude during 1975-76 which is the highest annual throughput achieved so far.

90 thousand tonnes of LPG was produced during 1975-76 which is the highest annual production achived so far.

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

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1975 (Contd.) 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.

(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 Government 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 units and off-sites was commenced.

During October, instrumentation work for fuel part of the refinery was 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 & FO despatches were started.

In December, LPG, SK & ATF upliftments 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.

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1976: Vaccum 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.

(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 specialists 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 DPR Acceptance Protocol was signed between IOC & Neftechimpromexport.

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.

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1976 (Contd.) 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.

(vi) Cochin Refineries Ltd., Cochin, Kerala

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

1966: On 6th September, Cochin Refineries Ltd. was registered.

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.

1973: The expansion programme of the refinery was completed in August.

(vii) Madras Refineries Ltd, Manali, Madras.

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

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

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 arrived.

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

In September, the refinery was formally inaugurated.

1970: Naphtha was exported to Japan for the first time.

1971: Since February, the company has no expatriate employee.

1972: Achieved hundred per cent utilisation of installed capacity. Declared dividend for the first time.

Services of two experts were loaned to Ceylon Petroleum Corporation to train operating personnel.

Services of one expert were loaned to Syria under UNDIO Programme.

In September, New Oil Jetty for berthing tankers in fair weather was available.

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1973: Asphalt production increased to 243 thousand tonnes from 80 thousand tonnes(design) to meet demand by providing additional storage and filling facilities.

Received first prize under Shram Vir National Safety Awards for highest reduction in accident frequency rate 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 Bangaladesh 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: Services of one expert were loaned for serving in Syria under UNDIO.

Fuel consumption was reduced by 10% which resulted in annual saving of about one crore rupees. LPG production increased to 56 thousand tonnes from 20 thousand tonnes (design) by debottlenecking and decrease in fuel gas consumption.

1976: Throughput of 2.60 million tonnes achieved against (design) capacity of 2.5 million tonnes.

Production of LPG reached a record of 39,032 tonnes.

A dividend of 15% on equity share was declared and paid for 1975.76.

Supply of Axle oils to railways were continued resulting saving of Rs.12 million in Foreign Exchange.

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(vi) Bongaigaon Refinery & Petro-Chemicals Ltd.

1974: The Company was registered under companies Act, 1956, on 20th February in the state of Assam, with an authorised capital of Rs. 50 crores.

The work on various aspect of the refinery has been 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 Prehiminary work has been in progress.

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(C) MARKETING

(i) Burmah-Shell / Bharat Refineries Limited.

1907: The Asiatic Petroleum Company entered the Indian market.

1921: The Burmah Oil Company entered the Indian market.

1928: Burmah Shell came into existence on 6th January.

1956: Burmah Shell started the use of special tankwagons 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.

(ii) Esso Standard Eastern Inc./Hindustan Petroleum Corporation Limited.

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 Vaccum 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.

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 ESRC.

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

1974 : In 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 have been more than Rs.175 crores.

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

Started sale of Vijai De-luxe 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 : Govt. of India acquired 26% equity shares held by Esso and thus HPCL became a fully owned Government Company with effect from 1st October.

73 multi-purpose distribution centres/farm fuel centres were launched in rural areas.

Two Taluka Kerosene Depots at Chipulan and Lanje in Maharashtra were opened for efficient distribution of kerosene in rural interiors.

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

(iii) Caltex (India) Limited

1937 : Caltex started its operations in India by taking over the business of Taxas Company (India) Ltd.

1959 : In October, Caltex chartered an Indian Flag tanker Desh Deep for offshore movement of its products.

1964 : In April, Caltex chartered the Indian Flag tanker 'Desh Bandhu' for crude service.

1972 : In response to a request from Government of India 'Desh Bandhu' was initially surrendered by Caltex for a period of one year.

1973 : The release of 'Desh Bandhu' was extended.

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1974: The release of 'Desh Bandhu' was further extended to cover the balance period under charter to Caltex.

1976: On 22nd November, an agreement was signed between Govt. of India and the principals of Caltex for purchase of 100% shares of Caltex Oil Refining (India) Ltd. and acquisition of assets and liabilities of Caltex (India) Ltd. in relation to its undertakings in India. This was made effective by promulgation of an Ordinance on 30th December transferring 100% shares of CORIL and assets and liabilities of Caltex (India) Ltd. to a new Government Company.

(iv) Indian Oil Corporation Ltd. (Marketing Division)

1959: On the 30th June, the Indian Oil Company Ltd. was formed. Agreements were signed with Sojuenefteexport, the Soviet Oil Export Organisation for importing Kerosene and HSD.

1960: In July, first import tanker was received from USSR at Bombay installation.

1961: In October, first retail outlet at Cochin was commissioned.

1962: In February, first shipment of petroleum products to Bhutan was made.

In May, first inland installation at Siliguri to receive products directly from the Gauhati Refinery by product pipeline was commissioned.

1963: In April, first shipment of petroleum products to Nepal was made.

1964: On 1st September, the Indian Oil Corporation was formed with the merger of the Indian Refineries Ltd. and the Indian Oil Company.

In October, supplies to defence commenced.

1965: During May, bunker fuel oil supplies to the Indian Navy started.

During November, supplies to first civil customer in field of civil aviation were made.

On 22nd October, introduced LPG from Barauni Refinery under the trade name of INDANE in Calcutta market.

1967: On 6th January, exported Motor gasoline to Thailand.

During July, first INDANE distributorship was offered under rehabilitation programme for ex-servicemen.

1968: On 6th May, bitumen to Ceylon was exported for the first time.

In September, first LPG bottling plant at Shakurbasti was established.

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1968 (Contd) During October, first tanker at the new port of Haldia was loaded.

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 Bangladesh was made.

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

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1972 (Contd) During March, supplies of crude oil to the Chittagong Refinery of Bangla Desh were arranged and offlouding 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.

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 per orders of the Govt. 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 requirement of Axle Oils was met by indigenous production. Til 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.

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1976 (Contd) Comissioned a retail outlet at Leh at an altitude of (12,500), perhaps the highest located retail outlet in the world.

In February, IOC & 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 Nagland.

In November, Indian Oil International was dissolved.

Launched a unique one month crash programme at Jauldhed, Ahmednagar district for the training of twenty Gram Sevikas in First Aid, Family Planning, Immunisation, Safe Drinking Water Projects, Village Health Centre, Cattle breading, Safty precautions at homes (proper use of lanterns, stoves, deeyas) basic hygiene and sanitation, child care and nutrition and prohibition as a part of service to the rural population.

In December, pipeline facilities at Goa Port commissioned.

(D) LUBE PLANTS

(i) Lube India Ltd./Hindustan Petroleum Corporation Ltd.

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, 1969 to Esso and Indian Oil Corporation Ltd.

1970: On 12th February, Lube India Ltd. was formally inaugurated.

Company achieved production of 57% of design (volume) against target of 50% during the year.

1971: Company achieved production of 87% of design (volume) against target of 75% during the year.

1972: Company's production was 101% of design (volume) against target of 100% during the year.

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

CN CBFS licence was enhanced to 110 thousand tonnes.

Company made experimental batches of 150 turbine oil base stock. Production in 1973 was 106% of design (volume).

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

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

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

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

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

(ii) Lubrizol India Limited

1965: On 2nd December, the Formation Agreement was signed between the Government of India and the Lubrizol Corporation of USA.

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 28th 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.

(iii) Indian Oil Blending Ltd.

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 Co. 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.

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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.

1971: During the year 1971-72, the Company imported and installed at Bombay Laboratory one 900 Model Perkin-Elmer Gas Chromatograph and one 290-B Atomic Absorption Spectrophoto meter. Both these instruments are for research and development and are mainly to be used for import substitution programme.

1972: The licensed capacities were enhanced to 150 thousand kls. and 10 million pounds of grease for Bombay Plant and 100 thousand kls. of lubes for Calcutta plant.

1974: The collaboration agreements between Indian Oil Corporation Ltd and Mobil Petroleum Inc. of New York were terminated with effect from 19.7.1974 and the 50% of shareholdings of Mobil in Indian Oil Blending Ltd. were taken over by Indian Oil Corporation as a result of which Indian Oil Blending Ltd. became a wholly-owned subsidiary of Indian Oil Corporation Limited.

1975: A Clay Treatment Plant was put on trial runs at Calcutta to process critical bearing lubricants with high demulsibility characteristics for steel mills.

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(E) PIPELINES

Indian Oil Corporation Limited

(a) Gauhati-Siliguri Products Pipeline

1961: In April, Indian Refineries Ltd. requested Burmah Oil Company to prepare a preliminary study for product pipeline between Gauhati and Siliguri.

On December 1, Government approved appointments of M/s Bechtal Corporation of U.S.A. as Consultants for the preparation of the Project Report.

1962: In February, M/s Bechtel Corporation of USA submitted a Project Report for Gauhati-Siliguri Product Pipeline.

On October 5, Government of India sanctioned the Gauhati-Siliguri Pipeline Project and approved Indian Refineries Limited's proposal to award the contract for design, engineering and management of the Project to M/s Bechtel Corporation of USA.

1963: On January 15, construction contract of Gauhati-Siliguri Pipeline Project awarded to M/s SNAM-Saipen (of ENI group).

On March 1, construction of Gauhati-Siliguri Pipeline started.

1964: On August 31, construction work of Gauhati-Siliguri Pipeline completed.

On October 24, Gauhati-Siliguri Product Pipeline commissioned.

1966: In November, movement of Light Diesel Oil commenced in Gauhati-Siliguri Pipeline.

1969: On February 26, Bongaigaon Booster Pumping Station commissioned.

1976: On April 21, SRN introduced for the first time.

(b) Koyali-Ahmedabad Products Pipeline

1963: On May 6, contract was signed between Oil & Natural Gas Commission and ENI of Italy for construction of the Gujarat Pipelines system including Koyali-Ahmedanad Product Pipeline.

1965: On January 16, work started on construction of Koyali-Ahmedabad Product Pipeline.

On November 30, construction work of Koyali-Ahmedabad Pipeline completed.

1966: In April, Koyali-Ahmedabad Product Pipeline was commissioned and taken over by Indian Oil Corpn.(Pipelines) from the Oil & Natural Gas Commission.

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1967: On October 29, movement of Aviation Turbine Fuel (ATF) commenced in Koyali-Ahmedabad Product Pipeline.

1969: On October 12, movement of Light Diesel Oil (component) in Koyali-Ahmedabad Pipeline commenced.

(c) Haldia-Barauni-Kanpur Products Pipeline

1961: On November 20, M/s SNAM-Progetti (a subsidiary of ENI) submitted an offer for preparing the Executive Project Report of Barauni-Delhi and Barauni-Calcutta Pipelines.

1962: On January 15, Govt. of India approved acceptance of the above offer by Indian Refineries Ltd.

1963: In January, Govt. of India reappraised the oil position and decided, in principle, to lay an oil pipeline from Haldia/Calcutta to Barauni.

On July 31, Government's approval received for laying of the Haldia-Barauni-Kanpur Pipeline and the construction contract was signed with M/s SNAM-Saipem.

1964: In March, construction of Haldia-Barauni Pipeline commenced, and two separate contracts were signed with M/s Bechtel International Corporation and Bechtel International Limited for certain overseas services connected with the Haldia-Barauni-Kanpur Pipeline.

In June, contract was signed with M/s Bechtel Asain Corporation Limited for Engineering Management of Haldia-Barauni-Kanpur Pipelines.

1965: On June 30, agreements with M/s Bechtel expired.

On July 1, Engineering Management of Haldia-Barauni-Kanpur Pipeline Project taken over by Indian Oil Corporation Ltd. (Pipelines) Engineers.

1966: In January, construction of 33000 KL floating-roof at Haldia started.

In May, mainline construction work of Barauni-Haldia Pipeline completed.

On August 17, mainline construction work of Barauni-Kanpur Pipeline completed.

On September 26, Barauni-Kanpur Pipeline commissioned upto Patna (Bihar).

1967: On March 31, Barauni-Kanpur Pipeline commissioned fully upto Kanpur.

On September 23, Barauni-Baradabar-Mourigram section of Barauni-Haldia Pipeline commissioned.

1968: In August, Baradabar-Haldia portion of Barauni-Haldia pipeline commissioned.

On August 4, first floating-roof tank at Haldia commissioned.

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1968 (Contd) On August 12, oil jetty at Haldia commissioned and first tanker was loaded at Haldia.

On November 10, second floating-roof tank commissioned at Haldia.

1969: In August, movement of naphtha commenced for the first time in Barauni-Kanpur Pipeline.

1971: In April, movement of light diesel oil commenced in Barauni-Kanpur Pipeline.

1972: In July, Project Report on Ultra High Frequency Telecommunication system for Haldia-Barauni-Kanpur Pipelines submitted to Government.

On July 31, global bids received and opened for installing Ultra High Frequency Telecommunicating system on Haldia-Barauni-Kanpur Pipelines.

In October, imported crude received at Haldia.

In November, movement of crude oil by pipeline from Haldia towards Barauni commenced.

1973: On March 21, government sanctioned installation of Ultra High Frequency Telecommunication system for Haldia-Barauni-Kanpur Pipelines.

On April 10, work of installing Ultra High Frequency Telecommunication system for Haldia-Barauni-Kanpur Pipeline awarded to M/s Bharat Electronics Ltd, Ghaziabad.

1974: On November 11, pump station inaugurated at Allahabad making it a pump station-cum-delivery point to augment Barauni-Kanpur Pipeline capacity.

1975: On March 30, Haldia-Barauni Pipeline converted from crude oil to products service.

On April 7, Patna pump station in inaugurated making it a pump station-cum-delivery point, making the completion of Barauni-Kanpur pipeline expansion from 1.51 to 1.80 million metric tons per annum.

(d) Haldia-Rajbandh Pipeline Project

1970: On December 21, Indian Oil Corporation submitted a feasibility report to Government of India on processing of imported crude in the Barauni Refinery which, inter alia, included laying of a separate products pipeline from Haldia to Rajbandh to free the Haldia-Barauni mainline for crude oil service.

1971: On June 9, government sanctioned the scheme of processing imported crude in the Barauni Refinery, including laying of a products Pipeline (Durgapur-WB).

1972: On February 10, contract for mainline construction work of Haldia-Rajbandh Pipeline awarded.

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1972 (Contd) On February 18, construction work of Haldia Baradabar section of Haldia-Rajbandh Product Pipeline started.

In July, mainline construction work of Haldia-Baradabar section completed.

On August 16, the Haldia-Baradabar-Mourigram section of Haldia-Rajbandh Pipeline commissioned.

On November 11, new product pumping station at Haldia commissioned.

On November 18, construction work of Mourigram-Rajbandh section of Haldia-Rajbahdh Pipeline started.

1974: On February 4, construction work of Mourigram-Rajbandh Pipeline completed.

On February 17, Mourigram-Rajbandh section of Haldia-Rajbandh Pipeline commissioned with products, marking completion of the mainline job of Haldia-Rajbandh Product Pipeline Project.

1975: On January 1, movement of aviation turbine fuel commenced from Haldia to Mourigram by pipeline.

1976: On January 16, movement of mineral turpentine oil (MTO) commenced from Haldia to Mourigram by pipeline.

(e) Salaya-Koyali-Mathura Crude Oil Pipeline

1971: Feasbility Report of Salaya-Koyali-Mathura crude oil pipeline submitted to Government in May.

1972: On November 12, preliminary field reconnaissance survey work of Salaya-Viramgam-Koyali crude oil pipeline commenced.

1973: In February, revised feasibility study of Salaya-Koyali-Mathura pipeline submitted to Government.

In June, field office established at Rajkot for detailed engineering survey of Salaya-Viramgam-Koyali section.

On August 25, government sanctioned the Salaya-Koyali-Mathura crude oil pipeline project (including offshore facilities in the Gulf of Kutch).

1974: On June 15, Government approved appointment of M/s Pipeline Technologists (Netherland) B.V. of Holland as Design Consultants to Indian Oil Corporation Ltd. (Pipelines) for the Salaya-Koyali-Mathura crude oil pipeline project.

1975: On April 4, Government of India approved the agreement dated 7.3.1975 between IOC & IMPC for deep boring work in the gulf of Kutch.

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1975 (contd) On October 10, contract signed with M/s BSC (Tubes) Exports Ltd., U.K. for supply of steel pipes (Approx. 39,000 MTs).

The purchase is to be met out of the U.K./India Mixed Project Grant 1975.

1976: On March 3, letter of intent for the construction of Viramgam-Koyali mainline issued in favour of M/s Dodsal (P) Ltd. Cost Rs.4,49,66,500/-.

On March 21, first ship carrying imported pipes from the U.K. arrived at Kandla.

On April 1, construction of pipe line of Viramgam-Koyali Sector started.

On April 28, letter of intent issued awarding the work of UHF Telecom Installation on Salaya-Viramgam-Koyali Section to M/s Bharat Electronics Ltd.

On July 16, letter of intent for the construction of Salaya-Viramgam mainline issued in favour of M/s Dodsal (P) Ltd.

GENERAL

1961: On August 29, agreement was signed between Govt. of India and ENI of Italy for establishing petroleum pipeline projects in India.

1962: On December 7, Petroleum Pipelines (Acquisition of Right of User in Land) Act, 1962, was passed by the Parliament.

1964: On September 1, Indian Refineries Limited and Indian Oil Company were merged to form the Indian Oil Corporation Limited.

1965: On March 11, Pipeline Projects Cell separated from the Refineries Division and made full fledged Pipelines Division of Indian Oil Corporation Ltd.

1968: On February 23, Pipelines Division was merged with the Refineries Division of Indian Oil Corporation Ltd.

(F) RESEARCH AND DEVELOPMENT

(i) Indian Institute of Petroleum, Dehra Dun.

1959: In October, the Council of Scientific & Industrial Research took a decision to set up a Central Petroleum Research Institute.

1960: In June, an agreement for collaboration (5 years) was finalised with the Institute Francais du Petrole, France.

In September the Institute started functioning in temporary laboratories in the Central Road Research Institute, New Delhi.

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1961: In September, land was acquired at Mohkampur, Dehradun, for construction of Institute's premises.

1963: During April-June, the first laboratory building viz. the Technology Block at Dehradun was completed and occupied.

1964: In June, approval of United Nations Special Fund's Project for strengthening the Refinery Division and creating a petro-chemistry Division was obtained.

In August, first special post-graduate training courses in Petroleum Refining, and uitlisation of petroleum products in engines were started.

1965: In June, agreement of collaboration with the Institute Francais du Petrolo, France was extended by six months, i.e. upto December, 1965.

1966: In January, IIP's scientists got Republic Day Award for developing a process on Reforming of Iomax and the Agreement of collaboration with the institute Francais du Petrole, France was extended for another three years.

In May, an agreement was signed with the Institute Francais du Petrole, France for the manufacture of proteins from Hydrocarbon cuts.

In July, United Nations Special Fund's Project for strengthening, the Refining Division and creating a petro-chemistry Division became effective.

1967: In June, a pilot plant for producing proteins from petroleum was received as a gift from Institute Francais du Petrole, France.

In October, an agreement was signed with the Institute Francais du Petrole, France, for IIP-IFP process for Hydrodesulphurisation and Hydrogenation of petroleum cuts.

1968: In January, IIP's scientists got Republic Day Award for development of a simple reflux splitter.

In July, a patent on "A wick stove to improve the non-smoking illumination when burning oil in a cylinderical wick lamp" was sealed.

In October, a patent on "a process for the production of pure aromatics such as benzene, toluene, xylenes, naphthlene, etc. from pure and mixed alkyl aromatic feeds with or without saturates" was sealed.

In November, a patent on "A process for the production of hydrous or anhydrous lanolin from wool grease" was sealed.

In December, pilot plant for proteins from petroleum was shifted to Gujarat Refinery.

Process on re-refining of used I.C.Engines crank case oils was released to six parties.

.../-

1969: In January, agreement of collaboration with the Institute Francais du Petrole, France, was extended for another three years, i.e. upto December, 1971.

In February, IIP-IFP Hydrodesulphurisation process was released to Madras Refineries Ltd, Madras.

1970: In March, IIP-IFP Hydrodesulphurisation process was released to Zuari Agrochemicals, Goa.

In April, a patent on "High altitude fuel regulator for diesels" was sealed.

In November, IIP's process on re-refining of used I.C. engine crank case oil was released to M/s Petroleum Oil Regenerating Industries, Bhilai.

1971: In January, patents on "High altitude mixture corrector" and "A process for separation of pure aromatics for olefins" were sealed.

In May, patent on "Process for Preparation of Alkyl Nitrate esters for use as cetane improver additive" was sealed.

In June, patents on "New support material for gas chromategraphy from attapulgite", "An improved process for the preparation of alkyl nitrate esters from glycol ethers", "An improved process for preparation of alkyl nitrate esters from alliphatic alcohols", and "An improved process for preparation of alkyl nitrate esters from alicyclic alcohols", were sealed.

In August, IIP's process on re-refining of used I.C. engine crank case oil was released to Shri T.K.Nagraj, Madras.

An agreement with Hindustan Liver Ltd. was signed for collaboration work on the scale up studies for production of synthetic fatty acids.

A copy right for gas chromatography column selector aid was accepted.

1972: In January, IIP's scientists got Republic Day Award (import substitution) for developing a process for Flouresent Indicator Analysis grade silica Gel. During the same month, IIP's process for the production of hydrous or anhydrous lanolin from wool grease was released to M/s Kapoor Industries, Bombay.

In February, IIP's process for the production of white oils was released to M/s. Petroleum Products Manufacturing & Marketing Society, Ahmedabad.

In March, IIP-IFP hydrodesulphurization process and Catalytic Reforming process were released to Indian Oil Corporation Ltd. (Haldia Refinery).

IIP's Process on re-refining of used I.C.Engine crank case oil was released to three parties.

IIP-IFP process for hydrogenation of pyrolysis gasoline was released to Indian Petrochemicals Corporation Ltd.

.../-

1973: In January, Padamshri award was given to Dr.M.O.Krishna, Director, IIP.

IIP's process on re-refining of used I.C. engine crank case oil was released to eleven parties.

IIP-IFP Hydrodesulphurisation process was released to Southern Petrochemicals Industries Corporation, Tuticorin.

During April-May, training in petroleum refining and petrochemicals was provided to two trainees from Pertimina (Indonesia) under the Technical Cooperation Scheme of the Colombo Plan and special assistance plan (SCAAP).

1974: IIP's process on re-refining of used I.C. engine crank case oil was released to six parties.

Training was provided to two candidates from Tanzanian Petroleum Developments Corporation, Tanzania, in the field of petroleum refining.

IIP-IFP Hydrodesulphurization and Catalytic reforming process released to Mathura Refinery.

In September, approval of United Nations Special Fund was obtained for strengthening the Petroleum Products Application Division.

1975: Addition of purification unit (centrifugal solvent extractor, spray dryer) to protein pilot plant. This completes the total production capacity for 50 Kg/day of purified dried protein concentrate.

The knowhow for hurricane lanterns with modified design for optimum performance was released to M/s Modi Lantern and Torch Works, Modinagar, for commercialisation.

A smoke meter fit for quick road side checking of emissions of diesel vehicles was developed.

A modified kerosene wick stove, having thermal efficiency higher by 15% than that of conventional types, was developed.

After successful bench scale trials, the process for the preparation of butylated hydroxy toluene, an important antioxidant additive, was licensed to M/s Amar Dye Chem Ltd., Bombay, for scale up.

Process for re-refining of used,i.e. engine crank case oils was released to Oil & Natural Gas Commission, Dehra Dun.

Start up of hydrodesulphurisation unit by the licencee Southern Petrochemicals Industries Corporation, Tuticorin.

Start up of pre treating and catalytic reforming of naphtha and kerosene hydrodesulphurisation units by the licencee Haldia Refinery.

In March, training course was organised on Industrial Lubrication for Ordnance Factory engineers.

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1976: Catalyst Bulk Preparation Laboratory was commissioned. Start of Phase-II of UNDP Assistance Programme mainly in the area of application of petroleum products with a total assistance of about $ 1.1 million; 1976 being the first year of the programme.

Completion of the Extension of Engines Laboratory Building for this programme.

Developed an on-line pH meter with a set point accuracy of 0.01 pH and a Driving Cycle -analyzer for road studies on Vehicles.

Start up of semi-commercial plant for the production of butylated hydrosey toluene by the licence Amar Dye Chem, Bombay.

In November, the process for FIA grade Silica gel was released to National Chemical Industries, Ghaiabad Three Training Courses were organised during the year.

(ii) Institute of Petroleum Exploration

1962-1963: Government of India decided to set up R.T.I. (now called IPE) as a part of ONGC with the assistance of U.N. Special Fund. First phase started. Indigenous equipment was made available. International experts arrived and started working.

Dr. Hari Narain was appointed as first Director of Institute.

1964: Training courses for new entrants were started from 19th August.

1965: The second phase of UNDP assistance was started.

1966: On 1st January, United Nations Special Fund was expanded programme of technical assistance of United Nations were merged into UNDP.

1967: The first foreign trainee from Phillipines attended Petroleum Geology Course. More United Nation experts joined for strengthening and supervising various branches of oil exploration and exploitation in the Institute.

1968: UNDP evaluation mission visited the Institute to evaluate for further assistance to Institute. The tectonic map of India was prepared. Honeywell-400 digital computer was installed in the Institute.

1969: UNDP came to end on 30th June. The R.T.I. was named as I.P.E. The Tectonic Map of India was fianlised and printed. The Book on 'Selected lectures in Petroleum Geology' was published. Fabrication of cable fault detector unit, casing collar locator was completed.

Technological development scheme for Sanand, Dholka, Kalol was completed. Book on 'Control of threatened blow out was published.

.../-

1970: For the first time computer course in Automath Language was arranged by I.P.E.

Ferro-chrome legno sulphonate, imported at present was synthesized in laboratory, using indigenous raw material. Preparation of oil and gas map of ESCAFE region was taken up.

1971: Designing fabrication and testing of Gamma-Gamma device was completed.

The hydrocarbon prospect analysis of Andaman Islands was completed. Artifical lift studies of Kathana, Dholka, Lakwa oil fields were completed.

1972: The Tectonic Map of India was discussed in Kualalumpur in March 1972, Delegation from Nigeria visited Institute to discuss training facilities to their country.

A cement clinker, comparable to API class E cement was developed. Fabrication of sequential firing blaster and high and low cut filters for seismic unit was done.

1973: A batch of 19 Nigerian trainees underwent training in Petroleum Geology, Petroleum Engineering and oil well drilling.

The Institute prepared technical dossiers of various off-shore blocks of India which were sold prospective foreign oil companies. A team of Russian experts arrived for assessing prognostic reserves of various basins in India.

Fabrication of apparatus for demulsification and desalting of Nawagam oil crude is in progress.

The Additional Director, IPE was elected Vice-Chairman of Regional Committee on stratigraphic correlation in ESCAFE region.

The NCST report on Land and Marine resources was submitted.

1974: Non-solid work over fluids for improving productivity of oil wells of North of Gujarat have been developed.

Chrome lignite and sulphonated asphalts are being developed. Work is still in progress.

Brakish to marine paleosalinity conditions have been estimated in Gondwana sediments (Kota-Maleri Limestone) of Pranhita-Godavari basin utilising trace element technique.

1975: The Institute was re-organised and strengthened.

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(iii) Research & Development Centre, Indian Oil Corporation Limited.

1970: On 21st December, the feasibility report was submitted.

1971: On 3rd September, land for the centre was acquired at Faridabad.

On 23rd September, the feasibility report was approved by the Government.

1972: In November, foundation stone for a temporary laboratory was laid.

1973: The temporary laboratory was commissioned during June.

1974: In April, the erection of Technical Block was commenced.

1975: In July, started giving formulation know-how for blending premium lubricants.

Two stroke engine oil was developed and was introduced by the IOC.

The first issue of monthly technical journal Oil Quest & Digest was published in November.

National convention on Recycling of used lubricating oils was organised.

1976: In January, developed a kerosene stove with 10% to 15% more thermal efficiency which will save a foreign exchange of Rs.30 crores per annum in terms of Kerosene imports and will save time and money for users.

On February 19, IOC signed a 5 years Technical Assistance and Collaboration Agreement with Castrol, U.K.

In December, foundation stone of main complex was laid.

Marine engine oils for marketing on international basis were approved for introduction in December.

13 Lubricants developed under the indigenisation programme to replace imported products were accepted by the defence services.

Premium quality engine oils developed to U.K. and U.S. defence specifications were approved for use by Indian Navy after extensive field trials.

GROWTH OF PETROLEUM INDUSTRY IN INDIA

Year	Prodn. of crude oil ('000' Tonnes)	Refineries crude charged ('000 'Tonnes)	Production of petroleum Products ('000 'Tonnes)	Imports (Rs. Million) Crude	Products	Total	Exports/Re-exports (Rs. million)	Consumption ('000' tonnes)
1.	2.	3.	4.	5.	6.	7.	8.	9.
1960	451	6091	5747	405.7	410.2	815.9	46.1	7964
1961	513	6440	6090	393.1	476.1	869.2	37.6	8570
1962	1078	7003	6584	387.3	514.6	901.9	38.5	9536
1963	1652	8138	7650	417.8	548.1	965.9	55.0	10387
1964	2212	8932	8428	425.9	537.8	963.7	48.4	11478
1965	3022	9754	9113	403.8	447.3	851.1	39.2	12356
1966	4647	12030	11283	561.0	520.2	1081.2	87.6	12990
1967	5667	14430	13452	795.9	390.1	1186.0	142.3	14133
1968	5853	16096	14923	938.8	407.4	1346.2	82.5	15871
1969	6723	17495	16239	940.1	382.4	1322.5	107.7	17371
1970	6009	18459	17177	1023.6	305.3	1328.9	57.2	18816
1971	7185	19588	18229	1398.8	434.9	1833.7	25.5	20706
1972	7373	19672	18204	1442.5	566.9	2009.4	89.4	22675
1973	7198	20518	19125	2445.6	880.3	3325.9	57.7	23726
1974	7490	20783	19303	8993.6	2099.0	11092.6	193.7	23023
1975	8283	21835	20438	9792.1	1992.6	11785.7*	121.3	23541
1976	8659	22762	21261	11436.9	2240.0	13676.9*	76.0	24910

@@ Including Refinery Fuel (1960 onwards).

* Provisional

FINANCIAL YEAR-WISE STATISTICS OF PETROLEUM OIL INDUSTRY IN INDIA

Qty.: '000' Tonnes

Year	Crude Oil				Petroleum Products			
	Prodn.	Imports	T'put	Exports	Ref. Prodn.	Imports	Exports	Consumption
1970-71	6,822	11,683	18,379	-	17,116	1,084	332	19,135
1971-72	7,299	12,951	20,042	-	18,640	2,147	136	21,299
1972-73	7,321	12,084	19,328	-	17,838	3,525	126	22,977
1973-74	7,189	13,874	20,957	18@	19,563	3,548	161	23,574
1974-75	7,684	13,993	21,094	-	19,618	2,648	175	23,302
1975-76	8,448	13,932*	22,282	-	21,040	2,154*	170	23,682*
1976-77	8,898	13,921*	22,995	-	21,389	2,678*	74	23,373*

@ Reexports of crude oil for Calender Year, 1973

* Provisional

PETROLEUM ENERGY IN INDIA: 1972 to 1976

Products	AVAILABILITY					CONSUMPTION				
	1972	1973	1974	1975	1976 (Prov.)	1972	1973	1974	1975	1976 (Prov.)
I. Kerosene	3.58	3.52	2.90	3.01	3.30	3.51	3.45	2.85	3.03	3.28
ATF/JetA-1	0.80	0.85	0.81	0.91	0.97	0.80	0.80	0.80	0.89	0.94
H.S.D.	4.70	5.33	6.31	6.78	6.79	4.62	5.19	6.23	6.59	6.95
L.D.O.	1.43	1.38	1.18	0.89	1.09	1.38	1.36	1.14	0.87	1.02
F.O.(Regular)	4.07	4.51	4.37	4.45	4.21	4.16	4.54	4.30	4.29	4.24
LSHS/HHS	1.38	1.36	1.36	1.58	1.40	1.39	1.39	1.41	1.51	1.40
Other(incl. Refy.fuel)	3.14	3.21	2.83	2.80	3.01	3.18	3.18	2.79	2.86	2.99
Total	19.10	20.16	19.76	20.42	20.77	19.04	19.91	19.52	20.04	20.82
II. Kerosene	7.16	7.04	5.80	6.02	6.60	7.02	6.90	5.70	6.06	6.56
ATF/Jet A-1	1.60	1.70	1.62	1.82	1.94	1.60	1.60	1.60	1.78	1.88
H.S.D.	9.40	10.66	12.62	13.56	13.58	9.24	10.38	12.46	13.18	13.90
L.D.O.	2.86	2.76	2.36	1.78	2.18	2.76	2.72	2.28	1.74	2.04
F.O.(Regular)	8.14	9.02	8.74	8.90	8.42	8.32	9.08	8.60	8.58	8.48
LSHS/HHS	2.76	2.72	2.72	3.16	2.80	2.78	2.78	2.82	3.02	2.80
Others(incl. Refy.fuel)	6.28	6.42	5.66	5.60	6.02	6.36	6.36	5.58	5.72	5.98
Total	38.20	40.32	39.52	40.84	41.54	38.08	39.82	39.04	40.08	41.64
III. Kerosene	29.71	29.22	24.08	24.98	27.39	29.13	28.64	23.66	25.15	27.23
ATF/Jet A-1	6.00	6.38	6.08	6.83	7.28	6.00	6.00	6.00	6.68	[illegible]
H.S.D.	42.30	47.97	56.79	61.02	61.11	41.58	46.71	56.07	59.31	62.54
L.D.O.	12.87	12.42	10.62	8.01	9.81	12.42	12.24	10.26	7.83	9.20
F.O.(Regular)	8.14	9.02	8.74	8.90	8.42	8.32	9.08	8.60	8.58	8.47
LSHS/HHS	2.76	2.72	2.72	3.16	2.80	2.78	2.78	2.82	3.02	2.80
Other(incl. Refy.fuel)	16.60	17.33	14.73	14.53	15.69	16.87	17.07	14.47	14.89	15.61
Total	118.38	125.06	123.76	127.43	132.50	117.10	122.52	121.88	125.46	132.91

I. In original units (Mn. Tonnes).

II. In Million tonnes of coal equivalent.

III. In Million tonnes of coal replacement.

RESERVES OF CRUDE OIL & NATURAL GAS IN INDIA*

Year	Gujarat		Assam		Total	
	Crude oil in million tonnes	Natural Gas in billion Cu.Metres	Crude oil in million tonnes	Natural Gas in billion Cu.Metres	Crude Oil in million tonnes	Natural gas in billion Cu.Metres
1966	62.73	23.09	90.27	40.06	153.00	63.15
1967	65.83	24.65	88.96	42.60	154.84	67.25
1968	64.92	21.80	76.08	41.54	141.00	63.34
1969	59.80	22.90	72.51	42.70	132.31	65.60
1970	56.38	19.66	71.46	42.82	127.84	62.48
1971	51.08	18.84	62.70	43.45	113.78	62.29
1972	52.28	16.88	72.90	45.25	125.18	62.51**
1973	49.45	16.35	77.87	49.71	127.32	66.44**
1974	48.45	16.18	76.05	51.30	124.50	67.86**
1975	45.72	15.72	84.41	65.24	157.67***	93.95@@
1976	NOT AVAILABLE					

** Including reserves of 0.38 billion Cu.Metres in the Rajasthan State.
* Proved and indicated balance recoverable reserves.
*** Including 13.77 million tonnes of crude oil off-shore reserves.
@@ Including 0.43 billion cubic metres in Rajasthan State and 6.28 billion cubic metres off-shore reserves.

ONGC :- Figures are as on 1st October of each year upto 1973.

ONGC, OIL & AOC :- Figures are as on 1st January of each year.

Number of Deep Drilling Rigs in the Country.

As on 31st December of each year	ONGC	OIL	AOC	Total
1.	2.	3.	4.	5.
1960	10	4	-	14
1961	23	4	-	27
1962	31	4	-	35
1963	43	4	-	47
1964	43	4	-	47
1965	46	4	-	50
1966	50	4	-	54
1967	50	4	-	54
1968	50	4	-	54
1969	50	4	1	55
1970	55	4	1	60
1971	55	4	1	60
1972	55	4	1	60
1973	56	4	-	60
1974	56	4	-	60
1975	59*	4	-	63
1976	62**	3***	-	65

* - Including two drill ships working for ONGC in Bombay High.

**- Including five drill ships working for ONGC in Bombay High but excluding New rigs, Yet to be Commissioned and excluding two rigs deployed in IRAQ & TANZANIA.

*** - One steam rig was retired in June, 1976.

STATUS OF WELLS @

(Number of Wells)

Company Year	Oil	Gas	Dry	Under Test	Inje-ction	Others *	Total
1.	2.	3.	4.	5.	6.	7.	8.
1. Oil India Ltd.							
1967	127	10	24	28	3	-	262
1968	206	11	28	25	3	-	273
1969	215	12	28	22	7	-	284
1970	224	13	29	23	9	-	298
1971	231	15	31	23	13	-	313
1972	240	17	31	24	14	-	326
1973	244	18	33	24	18	-	337
1974	249	18	34	26	20	-	347
1975	252	19	33	28	24	-	356
1976	250	20	35	35	26	-	366
2. Oil & Natural Gas Commission							
1967	265	44	115	85	18	-	527
1968	345	52	153	79	18	-	647
1969	430	63	182	68	18	-	761
1970	478	66	214	83	21	-	862
1971	504	70	252	82	22	-	930
1972	528	74	268	102	26	-	998
1973	548	77	284	114	28	-	1051
1974	590	79	312	134	28	-	1143
1975	674	86	332	137	29	-	1257
1976	745	89	366	154	29	-	1383
3. Assam Oil Co.							
1967	379	18	-	-	8	592	987
1968	373	18	-	-	8	598	987
1969	380	19	-	-	10	588	987
1970	377	7	-	-	8	606	998
1971	381	7	-	-	4	609	1001
1972	367	7	-	-	5	622	1001
1973	370	7	-	-	5	619	1001
1974	377	7	-	-	5	612	1001
1975	380	6	-	-	5	610	1001
1976	404	8	-	-	6	583	1001
TOTAL(1+2+3)							
1967	841	62	139	113	29	592	1776
1968	924	71	181	104	29	598	1907
1969	1025	84	210	90	35	588	2032
1970	1079	86	243	106	38	606	2158
1971	1116	92	283	105	39	609	2244
1972	1135	98	299	126	45	622	2325
1973	1162	102	317	138	51	619	2389
1974	1216	104	346	160	53	612	2491
1975	1306	110	365	165	58	610	2614
1976	1399	117	401	189	61	583	2750

@ As at the end of each year.

* Includes abodoned and shut in wells.

STATE WISE ACHIEVEMENT OF GEOLOGICAL FIELD PARTIES SINCE INCEPTION UPTO DECEMBER 1976.*

GEOLOGICAL SURVEYS

State	Detailed (Sq. Kms.)	Semi-detailed (Sq. Kms.)	Traversing (line Kms.)	Reconnaissance (Sq. Kms.)	Special studies (Sq. Kms.)	Neotectonic/Geomorphological (Sq. Kms.)	Reconnaissance traversing Line Kms.)
1.	2.	3.	4.	5.	6.	7.	8.
Andhra Pradesh (including Tamil Nadu & Kerala)	3741	20089	1746	21744	-	310535	3300
Andaman& Nicobar	608	2482	531	1891	-	-	-
Assam(Including Tripura,Mizoram, Arimachal Pradesh & Meghalay)	7592	15380	7993	4282	-	-	650
Gujarat(including Kutch/Maharashtra and M.P.)	8258	41955	2952	13048	2926	-	-
Bihar	-	1259	64	-	-	-	-
H.P.	Included in Punjab						
J & K	1749	7029	1363	6513	70	-	-
Orissa,	-	-	-	-	-	-	-
Punjab(including Himachal Pradesh	9710	9149	4863	4568	1489	-	382
U.P.	4658	10727	2054	613	4170	-	-
West Bengal	912	1062	187	802	-	5400	-
Rajasthan	3584	22154	1432	4030	-	-	-
Nepal	194	8446	1087	-	-	-	-
Pondicherry	-	-	-	-	-	-	-
Kerala	included in Andhra Pradesh						
Nagaland	25	345	449	-	-	-	167
Bhutan	-	1536	95	290	-	-	-
Total O.N.G.C.	41031	141688	24301	57781	8655	311435	4499

1. In case of OIL no geological Surveys were undertaken.

* Provisional

STATE WISE ACHIEVEMENT OF GEOPHYSICAL FIELD PARTIES SINCE INECPTION UPTO DECEMBER, 1976.

(Provisional)

State	GEOPHYSICAL SURVEYS		
	DEPARTMENTAL Line Kms.	Contract Line Kms.	Total Line kms.
1.	2.	3.	4.
A. ON LAND			
1. Andhra Pradesh	5545	-	5545
2. Andaman & Nicobar	-	-	-
3. Assam (including, Tripura Mizoram, Arunachal Pradesh & Meghalaya),	@ 12303	(270E)	12303
4. Gujarat (including Kutch Maharashtra & M.P.)	40945	-	40845
5. Bihar	* 1711	-	1711
6. Himachal Pradesh	included in Punjab		
7. Jammu & Kashmir	1937	-	1937
8. Tamil Nadu	9054	-	9054
9. Orissa	1631	-	1631
10. Punjab(including H.P)	5106	-	5106
11. Uttar Pradesh	11106	-	11106
12. West Bengal	11383	-	11383
13. Rajasthan	3208	2106	5314
14. Nepal	-	-	-
15. Pondicherry	-	-	-
16. Kerala	-	-	-
17. Nagaland	-	-	-
18. Bhutan	-	-	-
Total On Land(ONGC)	103829	2106 (2708)	105935
B. OFFSHORE			
1. Gujarat/Saurashtra/Corromandal Coast, Bombay High/Ratnagiri Bassain/Mangalore-Cochin	18332	31882	50214
Total Offshore (ONGC)	18332	31882	50214
Total (A +B)	122161	33988 line kms. (2708)	156149

Figures in Parenthesis belongs to Oil India Ltd. Geophysical seismic contract surveys.

Total does not includes the figures of Oil India Ltd.

STATE-WISE ACHIEVEMENT OF DRILLING SINCE INCEPTION TO DECEMBER- 1976.

(Provisional)

State	Drilling '000' Tonnes			
	Departmental		Contract	
	Wells	Meterage	Wells	Meterage
1.	2.	3.	4.	5.
Andhra Pradesh(including Tamil Nadu & Kerala)	-	-	-	-
Andaman & Nicobar				
Assam(including Tripura, Mizoram, Arunachal Pradesh and Meghalaya)	280 (+366)	948 (+)1202	-	-
Gujarat(including Kutch/ Maharashtra& Madhya Pradesh	1019	1706	-	-
Bihar	1	3	-1	5
H.P.(included in Punjab)	-	-	-	-
Tamil Nadu & Pondicheery	18	41	-	-
Jammu & Kashmir	3	7	-	-
Orissa	-	-	-	-
Punjab(Including H.P.)	5	18	2	10
Uttar Pradesh	2	4	1	5
West Bengal	2	8	-	-
Rajasthan	9	13	6	11
Nepal	-	-	-	-
Kerala	-	-	-	-
Bhutan	-	-	-	-
Offshore(Bombay High)	35	72	-	-
Aliabet West	-	-	-	-
Others				
Off the Coromandal Coast Palk Strait	-	-	-	-
Gulf of Cambay& Kutch off/the Arabian Sea-Mouth of Ganges and Mahanadi	-	-	-	-
Gulf of Mannar/off the Kerala Coast	-	-	-	-
Total O.N.G.C.	1344 (+ 366)	2820 (+1202)	10	31

Figures in Parenthesis belongs to OIL.

Companywise Production of Crude Oil In India

('000' Tonnes)

Year	AOC	OIL	ONGC	TOTAL	Cummulative
Up to 1947	5826	-	-	5826	5826
1948	255	-	-	255	6081
1949	258	-	-	258	6339
1950	259	-	-	259	6598
1951	269	-	-	269	6867
1952	263	-	-	263	7130
1953	269	3	-	272	7402
1954	278	30	-	308	7710
1955	272	75	-	347	8057
1956	307	89	-	396	8453
1957	277	163	-	440	8893
1958	214	226	-	440	9333
1959	202	248	-	450	9783
1960	179	272	-	451	10234
1961	184	319	10	513	10747
1962	188	556	334	1078	11825
1963	184	805	663	1652	13477
1964	170	1274	768	2212	15689
1965	158	1742	1122	3022	18711
1966	149	2143	2355	4647	23358
1967	134	2752	2781	5667	29025
1968	117	2771	2965	5853	34878
1969	112	3074	3537	6723	41601
1970	107	3070	3632	6809	48410
1971	98	3146	3941	7185	55595
1972	93	3183	4097	7373	62968
1973	84	3102	4012	7198	70166
1974	72	3080	4338	7490	77656
1975	68	3087	5128	8283	85939
1976	63	3092	5504	8659	94598

Growth :-	I Plan	(1951-55)	6.0%
	II Plan	(1956-60)	5.5%
	III Plan	(1961-65)	46.1%
		(1966-68)	24.7%
	IV Plan	(1969-73)	19.8%

PRODUCTION AND STATE-WISE UTILISATION OF NATURAL GAS IN INDIA

(Mn.Cu.Metres)

Year	Production	UTILISATION ASSAM			
		Internal Use*	A.G.C.	Others	Total
1961	171.88	169.20		0.20	169.40
1962	209.64	186.30		0.22	186.52
1963	240.90	171.13		0.20	171.33
1964	430.71	179.36		2.71	182.07
1965	736.63	181.68	21.38	5.81	208.87
1966	803.16	208.45	39.20	6.86	254.51
1967	1221.50	210.71	43.63	8.24	262.58
1968	1316.71	212.22	95.06	9.83	317.11
1969	1383.55	210.36	141.98	15.06	367.40
1970	1424.17	188.76	156.79	14.50	360.05
1971	1509.00	192.92	171.28	17.07	381.27
1972	1564.55	290.94	189.41	16.60	496.95
1973	1674.20	297.97	198.57	19.05	515.59
1974	1917.51	293.05	221.09	24.57	538.71
1975	2310.24	339.08	254.09	27.85	621.03
1976(P)	2409.85	372.33	444.05	29.35	845.73

Year	UTILISATION GUJARAT					Grand Total
	U.P.H.	D.P.H.	GSFC& BI	Others	Total	
1961	-	-	-	-	-	169.40
1962	-	-	-	-	-	186.52
1963	-	-	-	-	-	171.33
1964	-	0.65	-	-	0.65	182.72
1965	9.83	127.02	-		136.85	345.72
1966	65.79	51.21	-	-	117.00	371.51
1967	102.08	52.48	48.36	-	202.92	465.50
1968	106.55	68.88	111.94	-	287.37	604.48
1969	102.37	108.04	152.03	-	362.44	729.84
1970	84.69	57.82	173.89	-	316.40	676.45
1971	92.41	88.09	184.31	17.52	383.33	763.60
1972	125.18	88.62	189.51	26.72	430.03	926.98
1973	110.90	77.08	179.56	29.83	397.37	912.96
1974	114.58	83.25	178.36	94.88	471.07	1009.78
1975	112.88	89.54	192.67	236.43	631.52	1252.55
1976(P)	82.84	88.40	221.57	274.24	667.05	1512.78

* Including the gas returned to natural reservoirs and gas used by OIL and AOC for field operation etc.

A.G.C.-Assam Gas Co. U.P.H.- Uttaran Power House

D.P.H.-Dhuwaran Power House, GSFC,= Gujarat State Fert.Co.

BI = Baroda Industries. (P) Provisional

PETROLEUM REFINING CAPACITY IN INDIA

Refinery	Capacity as on 1.1.77 in terms of Throughout mn.tonnes	Expansion under implementation	Likely date for completion
1.	2.	3.	4.
Refineries under operation	25.35	3.00	- -
Public Sector			
1. B.R.L. Bombay	5.25	-	
2. C.R.L. Cochin	3.30	-	
3. H.P.C.L. Bombay	3.50	-	
4. I.O.C., Barauni	3.00	-	
5. I.O.C., Gauhati	0.80	-	
6. I.O.C., Haldia	2.50	-	
7. I.O.C., Koyali	4.30	3.00	1977
8. M.R.L., Madras	2.70	-	
Private Sector	2.05	-	
9. A.O.C. Digboi	0.50	-	
10. Caltex Oil Refining India Ltd.	1.55	-	
Total Capacity	27.40	3.00	

Refineries under construction	Capacity MN.Tonnes	Likely date for completion.
1.Bongaigaon Refinery	1.00	1977-78
2.Mathura Refinery	6.00	1980-81

REFINERY CRUDE THROUGHPUT AND PRODUCTION OF PETROLEUM PRODUCTS

('000' Tonnes)

Year	Crude throughout			Production		
	Public Sector	Pvt. sector	Total	Pub. sector	Pvt. sector	Total
1.	2.	3.	4.	5.	6.	7.
1948	-	253	253	-	185	185
1949	-	255	255	-	218	218
1950	-	251	251	-	211	211
1951	-	265	265	-	249	249
1952	-	258	258	-	235	255
1953	-	263	263	-	246	246
1954	-	699	699	-	655	655
1955	-	3335	3335	-	3024	3024
1956	-	4212	4212	-	3890	3890
1957	-	4830	4830	-	4447	4447
1958	-	5134	5134	-	4772	4772
1959	-	5436	5436	-	5152	5152
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	10137	7040	17177
1971	11198	8390	19588	10297	7932	18229
1972	11838	7834	19672	10842	7362	18204
1973	11484	9034	20518	10557	8568	19125
1974	15107	5676	20783	13997	5306	19303
1975	16723	5112	21835	15671	4767	20438
1976	21163	1599	22762	19743	1519	21262
% Growth						
I Plan		+67.8			+70.3	
II Plan		+12.8			+13.7	
III Plan		+ 9.9			+ 9.7	
1966-68		+18.2			+17.9	
IV Plan		+ 5.2			+ 5.3	
V Plan 1974-76		+ 3.5			+ 1.9	

REFINERY WISE CRUDE CHARGED & TOTAL PRODUCTION OF POL PRODUCTS

('000 'Tonnes)

	AOC	BSR/ BRL	ESRC/ HPCL	CORIL	GAUHATI	BARAUNI
1.	2.	3.	4.	5.	6.	7.
1960						
Total Production	419	2661	1822	845	-	-
Crude Run	449	2815	1948	879	-	-
1965						
Total Production	483	3790	2482	1030	708	489
Crude Run	493	3996	2600	1116	793	611
1970						
Total Production	463	3235	2259	1083	628	2009
Crude Run	490	3448	2350	1178	700	2197
1973						
Total Production	491	4282	2781	1013	693	2429
Crude Run	528	4481	2912	1113	771	2659
1974						
Total Production	491	3759	2963	1056	684	2574
Crude Run	533	3988	3153	1155	752	2817
1975						
Total Production	489	3310	2559	967	726	2672
Crude Run	533	3528	2722	1052	802	2838
1976						
Total Production	506	3544	2636	1013	743	2607
Crude Run.	530	3750	2820	1069	823	2835

contd.....2/-

REFINERY-WISE CRUDE CHARGED & TOTAL PRODUCTION OF POL PRODUCTS

('000' Tonnes)

continued from pre-page.

	Gujarat 8.	Haldia 9.	Cochin 10.	Madras 11.	Total 12.
1960					
Total Production	-	-	-	-	5747
Crude Run	-	-	-	-	6091
1965					
Total Production	131	-	-	-	9113
Crude Run	145	-	-	-	9754
1970					
Total Production	3189	-	2439	1872	17177
Crude Run	3439	-	2592	2065	18459
1973					
Total Production	3365	-	1845	2226	19125
Crude Run	3581	-	1968	2505	20518
1974					
Total Production	3447	-	2243	2086	19303
Crude Run	3715	-	2345	2325	20783
1975					
Total Production	3868	1092	2310	2445	20438
Crude Run	4036	1125	2442	2697	21835
1976					
Total Production	3946	1624	2301	2342	21262
Crude Run	4123	1825	2384	2603	22762

REFINERY PRODUCTION -1973 to 1976

('000'Tonnes)

Products	Production				% Variation	
	1973	1974	1975	1976	1975/1974	1976/1975
1. Light Distillates	3404	3339	3572	3873	+ 7.0	+ 8.4
of which						
L.P.Gas	259	278	320	354	+15.1	+10.6
Naphtha	1368	1649	1915	2082	+16.1	+ 8.7
Mogas	1647	1290	1222	1314	- 5.3	+ 7.5
SBP Spirits/Hexane	67	50	49	50	- 2.0	+ 2.0
2. Middle Distillates	9805	10159	10522	11066	+ 3.6	+ 5.2
of which						
Kerosenes	2631	2052	2323	2607	+13.2	+12.2
M.T.O.	106	79	63	81	-20.3	+28.6
H.S.D.	5039	6034	6242	6214	+ 3.4	- 0.4
L.D.O.	1079	1084	888	1094	-18.1	+23.2
J.B.O.	75	73	73	83	-	+13.7
3. Heavy Ends	5916	5805	6438	6322	+10.9	- 1.8
Of which						
F.O.	2571	2884	3490	3380	+21.0	- 3.2
LSHS	1044	1046	1331	1372	+27.2	+ 3.1
H.H.S.	316	313	158	30	-49.5	-81.0
Total Fuel Oil	3931	4243	4979	4782	+17.3	- 3.0
Lubes Oils	289*	389	355	340	- 8.7	- 4.2
Bitumen	1167	873	708	884	-18.9	+24.9
Pet.Coke	131	132	157	151	+18.9	- 3.8
Wax	48	46	45	48	- 2.2	+ 6.7
4. Total Production	19125	19303	20438	21261	+ 6.4	+ 3.6
5. Crude Run	20518	20783	21835	22762	+ 5.1	+ 4.2

* Excludes production of lube oil by LIL 181

Pattern of Refinery Production in India

Percentages

Products	1960	1965	1970	1974	1975	1976
Light Distillates@	17.2	17.0	16.4	16.1	16.4	17.0
Middle Distillates	42.4	42.2	46.2	48.9	48.2	48.6
Heavy Fuel Oils	27.0	26.8	23.0	20.4	22.8	21.0
Bitumens	6.6	5.6	4.1	4.2	3.2	3.9
Lubes	0.4	0.4	1.3	1.9	1.6	1.5
Others	0.8	1.4	2.1	1.4	1.4	1.3
Total Production	94.4	93.4	93.1	92.9	93.6	93.3
RBF&Losses/Inventories	5.6	6.6	6.9	7.1	6.4	6.7
Crude Throughput	100	100	100	100	100	100
@ Includes Gases	0.1	1.1	1.0	1.4	1.5	1.6

ALL INDIA* TOTAL CONSUMPTION OF PETROLEUM PRODUCTS FROM 1948 to 1976.

(In '000' Tonnes)

Year	Total Consumption@	% Growth	Year	Total consumption@	% Growth
1948	2657	- 2.9	1962	9536	+11.3
1949	3125	+17.6	1963	10387	+ 8.9
1950	3319	+ 6.2	1964	11478	+10.5
1951	3888	+17.1	1965	12356	+ 7.6
1952	3741	- 3.8	1966	12990	+ 5.1
1953	3916	+ 4.7	1967	14133	+ 8.8
1954	4089	+ 4.4	1968	15871	+12.3
1955	4817	+17.8	1969	17371	+ 9.5
1956	5229	+ 8.6	1970	18816	+ 8.3
1957	5819	+11.3	1971	20706	+10.0
1958	6117	+ 5.1	1972	22675	+ 9.5
1959	6812	+11.4	1973	23726	+ 4.6
1960	7964	+16.9	1974	23023	- 3.0
1961	8570	+ 7.6	1975**	23541	+ 2.2
			1976**	24910	+ 5.8

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

* Includes Sales to Nepal, Sikkim, Bhutan and International/Coastal Bunkers and International Airlines.

@ Figures represent despatches from depots.

** Excludes sales to Nepal.

CONSUMPTION OF PETROLEUM PRODUCTS DURING THE YEAR, 1974,1975 and 1976

Qty: '000'Tonnes

Products	1974	1975	1976*	% Variation 1975/1974	% Variation 1976/1975
1. Light Distillates	3323.0	3548.9	3990.2	+ 6.7	+12.4
L.P.Gas	281.3	325.7	356.3	+15.8	+ 9.4
Naphtha	1624.2	1813.7	2165.6	+11.7	+19.4
Mogas	1257.1	1259.1	1308.3	+ 0.2	+ 3.9
SBP/Hexane	50.4	47.4	51.9	- 6.0	+ 9.5
Others	110.0	103.0	108.1	- 6.4	+ 5.0
2.Middle Distillates	11200.7	11545.6	12373.8	+ 3.1	+ 7.2
Kerosenes	2849.2	3031.0	3280.6	+ 6.4	+ 8.2
H.S.D.	6228.8	6585.2	4948.7	+ 5.7	+ 5.5
LDO/MDO	1141.9	873.9	1021.5	-23.5	+16.9
J.B.O.	69.1	67.1	75.8	- 2.7	+13.0
M.T.O.	77.1	67.5	76.0	-12.5	+12.6
Others	834.6	920.8	971.2	+10.3	+ 5.5
3. Heavy Ends	7303.9	7230.8	7271.7	- 1.0	+ 0.6
(a) Fuel Oils	5705.2	5804.3	5665.3	+ 1.7	- 2.4
F.O./ T.D.O.	4296.0	4290.5	4236.8	- 0.1	- 1.2
L.S.H.S.	1168.2	1367.9	1401.2	+17.1	+ 2.4
H.H.S.	241.0	145.9	27.3	-39.5	-81.3
(b)Lubes & Greases	488.9	453.8	452.4	- 7.2	- 0.3
(c)Bitumen/Asphalt	857.5	706.6	833.1	-17.6	+17.9
(d)Petroleum Coke	102.6	132.3	172.3	+28.9	+30.2
(e)Wax	44.9	46.7	46.1	+ 4.0	- 1.3
(f) Others	104.8	87.1	102.5	-16.9	+17.7
Total(1+2+3)	21827.6	22325.3	23635.7	+ 2.3	+ 5.9
Refinery fuel@	1195.0	1215.8	1274.1	+ 1.7	+ 4.8
Grand Total	23022.6	23541.1	24909.8	+ 2.2	+ 5.8

* Provisional

@ RBF & TPS fuel.

SALES/CONSUMPTION AND MARKET PARTICIPATION OF OIL COMPANIES FROM 1960 to 1976.

Qty:- 000 Tonnes

Year		IOC	B/Shell BRL	ESSO/ HPCL	Caltex/ CORIL	Others	Total
1960	S/C	10	3638	2224	1237	560	7669
	%	0.2	47.4	29.0	16.1	7.3	100
1961	S/C	120	3645	2332	1284	875	8256
	%	1.5	44.1	28.3	15.6	10.5	100
1962	S/C	396	4095	2626	1447	626	9188
	%	4.3	44.5	28.6	15.8	6.8	100
1963	S/C	844	4231	2770	1546	608	9998
	%	8.4	42.3	27.7	15.5	6.1	100
1964	S/C	1301	4498	3024	1573	636	11032
	%	11.8	40.8	27.4	14.3	5.7	100
1965	S/C	2499	4368	2866	1469	666	11868
	%	21.0	36.8	24.2	12.4	5.6	100
1966	S/C	3823	4095	2737	1197	524	12376
	%	30.9	33.1	22.1	9.7	4.2	100
1967	S/C	4888	3948	2701	1281	530	13348
	%	36.6	29.6	20.2	9.6	4.0	100
1968	S/C	6377	4006	2639	1432	553	15007
	%	42.5	26.7	17.6	9.5	3.7	100
1969	S/C	7880	4026	2568	1286	582	16342
	%	48.2	24.6	15.7	7.9	3.6	100
1970	S/C	8958	4191	2544	1243	652	17588
	%	50.9	23.8	14.5	7.1	3.7	100
1971	S/C	10556	4116	2651	1312	844	19489
	%	54.2	21.1	13.6	6.7	4.4	100
1972	S/C	12265	4140	2721	1261	1017	21404
	%	57.3	19.3	12.7	5.9	4.8	100
1973	S/C	13689	4134	2440	1119	1101	22483
	%	60.9	18.4	10.8	5.0	4.9	100
1974	S/C	14081	3307	2387	967	1086	21828
	%	64.5	15.2	11.9	4.4	5.0	100
1975	S/C	14504	3056	2663	931	1172	22325
	%	65.0	13.7	11.9	4.2	5.2	100
1976	S/C	15101	3626	2756	961	1192	23636
	%	63.9	15.3	11.7	4.1	5.0	100

S/C = Sales/Consumption
% = Percentage

DELIVERIES MADE TO INTERNATIONAL/ COASTAL BUNKERS FROM 1965 to 1976

	Products	1965	1966	1967	1968	1969	1970
Shipping							
International Bunkers	F.O.	357.3	394.0	440.0	379.8	260.1	217.4
	H.S.D.	3.1	1.9	4.8	4.4	5.1	5.7
	L.D.O.	17.4	15.4	23.1	26.4	19.9	21.4
	TOTAL	377.8	411.3	467.9	410.6	285.1	244.5
Coastal Bunkers	F.O.	241.5	226.9	242.8	239.1	260.0	199.1
	H.S.D.	13.1	13.9	11.2	11.2	14.9	21.4
	L.D.O.	10.7	12.5	17.3	20.2	20.6	21.1
	TOTAL	265.3	253.3	271.3	270.5	295.5	241.6
Total Bunkers	F.O.	598.8	620.9	682.7	619.0	520.1	416.5
	H.S.D.	16.2	15.8	16.1	15.5	20.0	27.1
	L.D.O.	28.1	27.9	40.4	46.6	40.5	42.5
	TOTAL	643.1	664.6	739.2	681.1	580.6	486.1

contd.

	Products	1971	1972	1973	1974	1975	1976
Shipping							
International Bunkers	F.O.	204.6	148.7	202.7	113.5	137.0	151.5
	H.S.D.	5.3	3.8	5.0	4.1	9.6	18.9
	L.D.O.	20.5	23.1	25.9	20.7	37.7	46.1
	TOTAL	230.4	175.6	233.6	136.3	184.3	216.5
Coastal Bunkers	F.O.	238.7	181.2	148.7	130.0	170.4	165.4
	H.S.D	33.9	20.4	23.1	25.6	25.5	33.6
	L.D.O.	25.9	23.4	18.6	22.6	27.5	26.7
	TOTAL	298.5	225.0	190.4	178.2	221.4	225.7
Total Bunkers	F.O.	443.3	329.9	351.4	241.5	307.4	316.9
	H.S.D.	39.2	24.2	28.1	29.7	33.1	52.5
	L.D.O.	46.4	46.5	44.5	43.3	65.2	72.8
	TOTAL	528.9	400.6	424.0	314.5	405.7	442.2

N.B.Excluded from above sales to foreign Bunkers on KNPC account by IOS.

STATE-WISE SALES OF SELECTED PETROLEUM PRODUCTS DURING -1975.(Excl.International Bunkers)

(in '000' Tonnes)

State/Union Territories	ATF	M.S.	Kero.	HSD	LDO	F.O. (Regular)
1.Andhra Pradesh	24.1	57.0	219.5	568.5	32.7	180.9
2.Assam	22.9	34.7	105.7	112.7	15.8	107.2
3. Bihar	3.6	57.7	153.6	313.7	42.4	176.4
4. Gujarat	19.5	91.3	267.0	474.9	253.7	378.1
5. Haryana	17.7	24.2	49.5	184.3	38.3	53.0
6. Himachal Pradesh	0.1	4.0	10.5	32.3	0.7	2.3
7. J & K	5.7	9.0	20.6	55.5	7.0	-
8. Karanataka	19.6	81.6	156.2	384.0	14.1	146.1
9. Kerala	4.8	64.6	104.0	224.5	9.0	242.0
10. Madhya Pradesh	2.3	45.2	141.3	410.6	6.1	71.8
11. Maharashtra	325.7	230.3	605.2	806.2	109.2	1220.8
12. Manipur	-	3.8	6.2	9.3	1.5	neg
13. Meghalaya	neg	6.0	6.0	7.1	0.1	0.1
14. Nagaland	-	5.2	3.2	6.9	neg	-
15. Orissa	4.2	20.7	61.5	125.4	1.7	109.2
16. Punjab	46.2	60.6	92.9	443.7	52.3	41.3
17. Rajasthan	27.0	31.4	79.0	310.7	31.7	54.4
18. Sikkim	-	2.3	2.9	1.4	-	-
19. Tamil Nadu	29.8	111.3	276.4	645.6	27.6	638.1
20. Tripura	0.6	3.4	8.8	8.9	0.5	neg
21. Uttar Pradesh	51.0	90.8	293.9	754.8	102.0	229.8
22. West Bengal	79.2	106.6	268.2	399.8	74.5	316.0
Total (A)	684.0	1141.7	2932.1	6280.8	820.9	3967.5

Contd...../-

State/Union Territories	LSHS/ HHS	Total fuel oil	Bitumen Asphalt	LPG	Naphtha	Total
A. STATE						
1.Andhra Pradesh	-	180.9	38.2	21.5	58.9	1201.3
2.Assam	-	107.2	47.5	2.1	-	448.6
3. Bihar	105.4	281.8	37.3	6.4	24.4	920.9
4. Gujarat	791.9	1170.0	30.2	27.6	198.1	2532.3
5. Haryana	-	53.0	34.5	4.6	-	406.1
6. Himachal Pradesh	-	2.3	4.5	0.3	-	54.7
7. J& K	-	-	2.2	1.3	-	101.3
8. Karnataka	-	146.1	22.8	8.7	10.0	843.1
9. Kerala	-	242.0	34.6	7.0	168.2	858.7
10. Madhya Pradesh	-	71.8	20.8	9.2	20.7	728.0
11. Maharashtra	435.5	1656.3	108.7	130.2	365.5	4337.3
12. Manipur	-	neg	5.6	neg	-	26.4
12. Meghalaya	-	0.1	3.6	0.2	-	23.1
14. Nagaland	-	-	6.6	-	-	21.9
15. Orissa	-	109.2	18.5	1.4	52.6	395.2
16. Punjab	-	41.3	27.7	4.7	-	769.4
17. Rajasthan	-	54.4	62.9	3.9	122.2	723.2
18. Sikkim	-	-	0.5	neg	-	7.1
19. Tamil Nadu	-	638.1	39.6	27.4	321.7	2117.5
20. Tripura	-	neg	1.5	-	-	23.7
21. Uttar Pradesh	-	229.8	26.0	20.7	249.6	1818.6
22. West Bengal	181.0	497.0	90.1	12.1	68.7	1596.2
Total (A)	1513.8	5481.3	663.9	289.3	1660.6	19954.6

STATE-WISE SALES OF SELECTED PETROLEUM PRODUCTS DURING -1975.(Excl. International Bunkers)

(in '000 Tonnes)

States/ Territories	ATF	M.S.	Kero.	H.S.D.	L.D.O.	F.O. (Regular)
B. U-Territories						
1. Andaman & Nicobar	0.8	0.6	0.6	6.7	0.6	-
2. Arunachal Proadesh	0.1	0.9	0.6	3.0	-	-
3. Chandigarh	19.8	7.0	6.7	16.8	3.6	3.6
4. Delhi	174.9	99.7	75.0	205.4	20.5	87.7
5. Goa	6.1	7.1	9.4	51.9	0.9	98.5
6. Mizoram	-	1.0	1.3	2.0	-	-
7. Pondicherry	-	1.9	5.3	8.8	1.2	1.5
Total	201.7	118.2	98.9	294.6	26.8	191.3
Grand Total(A+B)	885.7	1259.9	3031.0	6575.4	847.7	4158.8
C. Other Territories						
1. Bhutan	-	1.4	0.6	2.8	neg	-
Total(A+B+C)	885.7	1261.3	3031.6	6578.2	847.7	4158.8
D. International Bunkers	-	-	-	9.6	37.7	131.6
Adjustment @	(+)0.1	(-) 2.2	(-)0.6	(-) 2.6	(-) 11.4*	(+)0.1
Grand total	885.8	1259.1	3031.0	6585.2	874.0	4290.5

contd...../-

States/ Territories	LSHS HHS	Total fuel oil	Bitumen/ Asphalt	LPG	Naphtha	Total
B. U-Territories						
1. Andaman & Nicobar	-	-	0.7	-	-	10.0
2. Arunchal Pradesh	-	-	0.7	-	-	5.3
3. Chandigarh	-	3.6	13.2	1.9	-	72.6
4. Delhi	-	87.7	20.8	33.8	-	717.8
5. Goa	-	98.5	5.0	0.4	133.0	332.3
6. Mizoram	-	-	1.0	-	-	5.3
7. Pondicherry	-	1.5	1.1	0.2	-	20.0
Total(B)	-	191.3	42.5	36.3	133.0	1163.3
Total (A+B)	1513.8	5672.6	706.4	325.6	1813.6	21117.9
C. Other Territories						
Bhutan	-	-	-	neg	-	4.8
Total(A+B+C)	1513.8	5672.6	706.4	325.6	1813.6	21122.7
D. International Bunkers	-	131.6	-	-	-	178.9
Adjustment@	-	+ 0.1	+ 0.2	+ 0.1	+ 0.1	- 16.2
Grand Total	1513.8	5804.3	706.6	325.7	1813.7	21285.4

N.B.:- Figures represent despatches from depots situated in various states.

@ Adjustment to bring in line with Ministry's data.

* Indian Oil Corporation's M.L.O.

STATE-WISE PER CAPITA SALES/CONSUMPTION OF MAJOR POL PRODUCTS (EXCL. INTERNATIONAL BUNKER)*

(Kgs.)

State	1971	1972	1973	1974	1975	Compound growth rate 1975/1971
Andhra Pradesh	23.9	25.1	24.7	23.7	25.8	+ 1.9
Assam**	31.3	30.0	30.7	24.9	27.5	- 3.2
Bihar	16.1	18.8	18.0	15.8	15.1	- 1.6
Gujarat	83.2	94.7	100.8	97.6	87.1	+ 1.2
Haryana	34.2	30.5	39.6	40.3	37.3	+ 2.2
Himachal Pradesh	10.9	12.8	14.8	15.6	14.7	+ 7.8
J & K	17.4	19.2	18.8	19.9	20.3	+ 3.9
Kerala	33.1	32.6	34.1	33.8	37.2	+ 3.0
Madhya Pradesh	14.7	15.4	16.6	16.7	16.1	+ 2.3
Maharashtra	81.9	82.3	82.1	78.9	79.2	- 0.8
Meghalaya	22.5	24.9	24.3	22.1	21.6	- 1.0
Mysore(Karnataka)	25.3	26.8	30.3	25.2	26.7	+ 1.4
Nagaland	34.5	37.9	38.2	36.1	37.4	+ 2.1
Orissa	14.9	17.3	18.0	16.8	16.6	+ 2.8
Punjab	51.5	55.7	56.7	59.8	52.9	+ 0.7
Rajasthan	22.7	23.4	24.5	23.7	25.8	+ 3.3
Tamil Nadu (Excl.Pondichery)	37.4	42.2	45.2	42.2	47.7	+ 6.3
Uttar Pradesh	16.9	19.0	18.3	19.6	19.1	+ 3.1
West Bengal	29.4	33.0	32.9	30.5	33.0	+ 3.0
Delhi	144.3	161.0	149.8	140.4	140.7	- 0.6
All India@	37.2	40.0	40.9	39.1	39.4	+ 1.4

N.B. Based on:(i) Depot-wise sales/consumption
(ii) International Institute of population Studies, Bombay-Population projections for states.
(iii) Registrar General, population projection for Delhi.

@ = All India actual consumption of all products including Refy.Fuel but excl. International Bunkers

* = Include Mogas,Kero., ATF, HSD, LDO, Fuel oils, LPG, Naphtha and Bitumen.

** = Exclude sales of Manipur, Tripura and Mizoram

ESTIMATED SECTOR-WISE CONSUMPTION OF FUEL OILS @

Sector	1973 Consumption ('000' Tonnes)	1973 % to total	1974 Consumption ('000' Tonnes)	1974 % to total	1975 Consumption ('000' Tonnes)	1975 % to total
1. Road Transport	3	neg.	4	neg.	3	0.1
2. Railways	61	1.0	52	0.9	53	0.9
3. Waterways	354	6.0	242	4.3	307	5.3
(a) Coastal & Inland Bunkers	205	3.5	130	2.3	170	2.9
b) International Bunkers	149	2.5	112	2.0	137	2.4
Total Transport	417	7.0	296	5.2	363	6.3
4. Agriculture/ Plantation	222	3.7	172	3.0	144	2.5
5. Power Generation	1648	27.8	1724	30.2	1853	31.9
6. Iron & Steel	439	7.4	448	7.9	324	5.6
7. Textile &Fibre	650	11.0	560	9.8	590	10.2
8. Cement	204	3.4	141	2.5	74	1.3
9. Ceramics & Glass	219	3.7	205	3.6	171	2.9
10. Chemicals & Allied Industries	795	13.4	715	12.5	796	13.7
11. Fertilizers	266	4.5	287	5.0	356	6.1
12. Aluminium	110	1.9	96	1.7	115	2.0
13. Sugar	59	1.0	52	0.9	46	0.8
14. Mining & Querrying	35	0.6	125	2.2	181	3.1
15. Engineering	361	6.1	320	5.6	295	5.1
16. Others (Incl.D[illegible]&D)	507	8.5	564	9.9	497	8.5
17. Total	5932	100	5705	100	5805	100

@ = F.O.includes T.D.O., L.S.H.S.and H.H.S.

ESTIMATED SECTOR-WISE CONSUMPTION OF L.P.G.

Sector	1973 Consumption ('000' Tonnes)	1973 % to total	1974 Consumption ('000' Tonnes)	1974 % to total	1975 Consumption ('000' Tonnes)	1975 % to total
1. Domestic	209	79.4	225	80.1	257	78.8
2. Commercial	12	4.6	13	4.6	16	4.9
3. Industry	42	16.0	43	15.3	45	13.8
4. Others	-	neg	-	-	8	2.5
5. Total	263	100	281	100	326	100
Estimated Sector-wise consumption of Refinery Gas						
1. Industry	21	95.5	25	100.0	20	100
2. Power Generation	1	4.5	-	-	-	-
3. Others	-	-	-	-	-	-
4. Total	22	100	25	100	20	100
Estimated Sector-wise consumption of Naphtha						
1. Fertilisers	1044	71.8	1166	71.8	1446	79.7
2. Petro-Chemicals	313	21.5	437	26.9	347	19.1
3. Others	97	6.7	21	1.3	21	1.2
4. Total	1454	100	1624	100	1814	100

ESTIMATED SECTOR-WISE CONSUMPTION OF H.S.D.

Sector	1973 Consumption ('000' Tonnes	1973 % to total	1974 Consumption ('000' Tonnes	1974 % to total	1975 Consumption ('000' Tonnes	1975 % to total
1.State Transport) (incl.Municipal) Transport)	599	11.5	661	10.6	731	11.1
2. Other Road Transport (incl.agriculture Retail Trade)	3359	64.7	4382	70.3	4625	70.2
3. Railways	581	11.2	581	9.3	670	10.2
4. Bunkers	28	0.5	29	0.5	33	0.5
5. Miscellaneous	626	12.1	576	9.3	526	8.0
Total	5193	100	6229	100	6585	100
Estimated sector-wise consumption of L.D.O.						
1.Power	158	11.7	124	10.8	71	8.1
2. Bunkers	45	3.3	43	3.8	65	7.4
3. Rest(incl.Agr.& small scale Industries)	1145	85.0	975	85.4	738	84.5
Total	1348	100	1142	100	874	100
Gradewise consumption /sales of Lubes.						
(a) Total Lube Oils ('000'Tonnes)						
1.Automotive Oils	237	38.7	208	44.3	230	52.6
HVI	192	31.3	171	36.4	200	45.7
MVI	[illegible]	[illegible]	23	4.9	16	3.7
LVI	20	3.3	14	3.0	14	3.2
2.Industrial Oils	376	61.3	262	55.7	207	47.4
Total	613	100	470	100	437	100
(b) Industrial Oils ('000' Tonnes)						
1. Spindle Oil	32	8.5	13	5.0	7	3.4
2. TransformerOil	23	6.1	15	5.7	10	4.8
3. Rly/Other Axle oil	16	4.2	15	5.7	19	9.2
4. Cylinder oil	13	3.5	12	4.6	12	5.8
5. Turbine/Hydraulic Oil	27	7.2	26	9.9	29	14.0
6. Other Spl.Oil	212	56.4	130	49.6	87	42.0
7.Miscellneous Grade	53	14.1	51	19.5	43	20.8
Total	376	100	262	100	207	100

ESTIMATED SECTORWISE CONSUMPTION OF WAX DURING 1973 -1975

	1973		1974		1975	
	Consumption ('000' Tonnes)	% to total	Consumption ('000' Tonnes)	% to total	Consumption ('000' Tonnes)	% to total
1. Candle Manufacturing	18	38.3	19	41.3	20	42.6
2. Water Proofing	6	12.8	7	15.2	5	10.6
3. Match Industry	2	4.2	6	13.1	5	10.6
4. Paper waxing	6	12.8	4	8.7	4	8.5
5. Hard Board	neg	-	neg	neg	neg	neg
6. Misc	15	31.9	10	21.7	13	27.7
Total	47	100	46	100	47	100

CONSUMPTION OF DIESEL OIL IN INDIAN RAILWAYS DURING 1960-61 to 1975-76

Year	No.of diesel locomotives	Consumption of diesel oil (in kls.)	Consumption per diesel locomotive (in kls.)
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

Source :- For Col. 2 & 3 Indian Railways Report and Accounts- 1975-76.

PLANT-WISE CONSUMPTION OF NAPHTHA

Qty:-in '000 'MT

Category & Plant	Consu-ption 1974	% to total 1974	Consu-ption 1975	% to total 1975	Consu-ption 1976(Prov.)	% to total 1976(Prov.)
I. Fertilizer Plants						
1. Madras Fert. Ltd.	134.6	8.3	215.4	11.9	198.2	9.2
2. FCI-Durgapur	50.6	3.1	68.6	3.8	65.7	3.0
3. FCI-Gorakhpur	65.3	4.0	65.7	3.6	110.4	5.1
4. FCI-Sindri	23.0	1.4	21.2	1.2	14.4	0.7
5. FCI-Barauni	2.1	0.1	3.3	0.2	63.4	2.9
6. SFC-Kota	102.6	6.3	122.2	6.7	136.9	6.3
7. IEL-Kanpur	189.4	11.7	183.9	10.1	209.7	9.7
8. HSL-Rourkela	59.0	3.6	52.6	2.9	76.9	3.5
9. GSEC-Baroda	100.1	6.2	113.7	6.3	87.4	4.0
10. FACT-Cochin	57.5	3.5	102.0	5.6	110.1	5.1
11. FACT-IV-Alwaye	-	-	-	-	10.0	0.5
12. ZAC-Goa	163.5	10.1	153.1	8.4	174.3	8.0
13. IFFCO-Kalol	14.9	0.9	43.1	2.4	53.4	2.5
14. Mangalore Fert. Ltd.	-	-	10.0	0.6	88.0	4.1
15. SPIC-Tuticorin	9.4	0.6	83.9	4.6	163.1	7.5
16. EID Parry Ltd. Madras	12.2	0.8	14.7	0.8	11.7	0.5
17. FACT-Alwaye	57.0	3.5	66.1	3.6	60.6	2.8
18. FCI-Bombay	68.7	4.2	67.1	3.7	79.9	3.7
19. Coromandal Fert. Vizag	56.4	3.5	59.0	3.3	71.0	3.3
Sub. Total Fertilizers	1166.4	71.8	1445.6	79.7	1785.1	82.4
II. Petrochem. Plant						
1. PRC, Sahpuram	8.3	0.5	7.7	0.4	3.8	0.2
2. HOC, Rasayani	1.8	0.1	1.8	0.1	2.2	0.1
3. IPCL, Baroda	93.4	5.7	41.3	2.3	48.7	2.2
4. NOCIL, Bombay	174.1	10.7	159.7	8.8	175.6	8.1
5. FCI, Trombay(Methanol)	122.0	1.4	10.7	0.6	6.7	0.3
6. FCI, Bombay(Methanol)	15.8	1.0	18.7	1.0	30.8	1.4
7. UCIL, Bombay	74.8	4.6	64.8	3.6	72.7	3.4
8. NOCIL, Bombay	46.3	2.9	50.1	2.8	25.8	1.2
Sub. Total Petrochemcals	436.5	26.9	346.8	19.1	366.3	16.9
III. Others.						
1. HSL- Bhilai	19.1	1.2	20.7	1.2	14.2	0.7
2. Wyman Gardens, Bombay	2.2	0.1	0.6	neg	-	-
Sub. Total Others	21.3	1.3	21.3	1.2	14.2	0.7
Grand Total(I+II+III)	1624.2	100	1813.7	100	2165.6	100

FUEL CONSUMPTION IN GAS TURBINE & DIESEL POWER STATIONS IN INDIA - 1974-75.

State/Union Territory	Oil consumption kls	Power consumption Million kwh	Av. Oil consumption litre/ Kwh generated
1. Andhra Pradesh	617(1)	1.12	0.55
2. Assam	5180(2)	311.71(3)	0.41
3. Bihar	816	2.45	0.33
4. Gujarat	250(4)	135.45(5)	0.40
5. Haryana	216	0.67	0.32
6. Himachal Pradesh	75	0.18	0.42
7. Jammu & Kashmir	1250	5.28	0.24
8. Karnataka	-	nil	-
9. Kerala	20	0.01	2.00
10. Madhya Pradesh	162	0.13	1.24
11. Maharashtra	155	0.36	0.43
12. Manipur	3373	11.42	0.30
13. Nagaland	170	0.30	0.56
14. Orissa	22	0.04	0.55
15. Punjab	17816	59.02	0.30
16. Rajasthan	3483	9.81	0.36
17. Tamil Nadu	-	-	-
18. Tripura	1915	5.55	0.34
19. Uttar Pradesh	6188(6)	14.93(7)	0.43
20. West Bengal	2615	5.87	0.45
21 D.V.C.	-	-	-
22. C.Govt.Project	-	-	-
Union Territories			
a) A & N Island	1365	3.66	0.37
b) Arunachal Pradesh	325	1.01	0.32
c) Chandigarh	100	0.11	0.90
d) D & N Haveli	-	-	-
e) Delhi	309	1.02	0.30
f) Goa Daman& Dieu	-	-	-
g) Lakshadweep	247	0.44	0.56
h) Pondicherry	-	-	-
All India Total	46669	570.54*	0.38

Note:- 1. All Diesel oil used by Gas Turbine Plant.
2. The gas turbine at Naharkatia consume N/Gas.
3. Includes 299.15 M.Kwh generated by gas turbine at Naharkatia.
4. The gas turbine at Dhuvaran consume N/Gas.
5. Includes 134.83 M.kwh generated by gas turbine at Dhuvaran
6. Includes diesel oil consumed by gas turbine.
7. Includes 14.17 M.kwh generated by gas turbine at Muradnagar.

* Includes 449.27 m.kwh energy generated by gas turbine consuming N/Gas.

N/Gas = Natural Gas

Fuel Consumption in Steam Power Stations - 1974-75

State/Union Territory	Steam Power Stations				Gross generation MKWH	Average heat input in K-Cal/KWH generated
	Coal tonnes	F.O. (KL)	Natural & other gaseous fuel (Cu.mts. M.tons	Heat input (K.Cal) X 10^9		
1.	2.	3.	4.	5.	6.	7.
1. Andhra Pradesh	1941206	27623(a)	-	8321.06	2708.03	3073
2. Assam	-	12045	-	120.45	35.56	3387
3. Bihar	1219612	171439	(M.Cub.M)	7809.28	2144.64	3641
4. Gujarat	971282	887223	113.406	16184.22	4945.03	3273
5. Haryana	92675	4443(b)	-	596.33	120.01	4969
6. Himachal Pradesh	-	-	-	-	-	-
7. Jammu & Kashmir	21548	-	-	133.60	18.45	7241
8. Karnataka	-	-	-	-	-	-
9. Kerala	-	-	-	-	-	-
10. Madya Pradesh	2414608	16106	-	11540.90	3410.31	3384
11. Maharashtra	2762520	432585(c)	-	16867.76	5619.79	3001
12. Manipur	-	-	-	-	-	-
13. Nagaland	-	-	-	-	-	-
14. Orissa	599727	1338	-	3232.84	861.20	3754
15. Punjab	88462	12405(d)	-	535.72	152.52	3512
16. Rajasthan	6414	-	-	39.23	3.26	12034
17. Tamil Nadu	856411	46153(e)	-	4428.98	1249.64	3544
18. Tripura	-	-	-	-	-	-
19. Uttar Pradesh	3766662	54303(f)	-	19574.10	4598.83	4256
20. West Bengal	2894250	63311(g)	-	16722.02	4385.27	3813
21. D.V.C.	2317499	27950	-	11796.28	4168.94	2830
22. Central Govt. Projects	3080911	**18402(h)	-	10798.34	3307.23	3265
Union Territories						
1. A&N Islands	15105 *	-	-	39.42	1.39	28360
2. Arunachal Pradesh	-	-	-	-	-	-
3. Chandigarh	-	-	-	-	-	-
4. D & N Haveli	-	-	-	-	-	-
5. Delhi	1088302	43834	-	6360.16	1808.64	3517
6. Goa, Daman & Diu	-	-	-	-	-	-
7. Lakshadweep	-	-	-	-	-	-
8. Pondicherry	-	-	-	-	-	-
ALL INDIA TOTAL	24137194	1919160	113.406	135100.69	39538.74	3417

(a) Includes 3723 diesel oil used in steam power stations.
(b) " 3577 " " "
(c) " 62471 " " "
(d) " 945 " " "
(e) " 2432 " " "
(f) " 18100 " " "
(g) " 11957 " " "
(h) " 100000 diesel oil used in Neyveli Lignite Power Stations.

** Includes 244600 MT of Lignite used in Neyveli Lignite Power Stations.

* Wood fuel.

CRUDE OIL AND PETROLEUM PRODUCTS IMPORTED DURING 1948 to 1976.

Q:-('000 Tonnes)

V:-(Rs.Million)

Year	Products		Crude		Total	
	Qty.	Value	Qty.	Value	Qty.	Value
1948	2269				2269	
1949	2833				2833	
1950	2986				2986	
1951	3492				3492	
1952	3513				3513	
1953	3610				3610	
1954	3635		504	41.2	4139	
1955	2071		3052	243.1	5123	
1956	1807		3769	300.6	5576	
1957	1869		4438	381.2	6307	
1958	1824		4682	394.9	6506	
1959	1984		5006	389.6	6990	
1960	2032	410.2	5723	405.7	7755	815.9
1961	2481	476.1	5968	393.1	8449	869.2
1962	2984	514.6	6022	387.3	9006	901.9
1963	2900	548.1	6519	417.8	9419	965.9
1964	2956	537.8	6791	425.9	9747	963.7
1965	2880	447.3	6811	403.8	9691	851.1
1966	2207	520.2	7457	561.0	9664	1081.2
1967	951	390.1	8704	795.9	9655	1186.0
1968	1933	407.4	10450	938.8	11383	1346.2
1969	1052	382.4	10702	940.1	11754	1322.5
1970	970	305.3	11665	1023.6	12635	1328.9
1971	1932	434.9	12688	1398.8	14620	1833.7
1972	3257	566.9	12310	1442.5	15567	2009.4
1973	3735	880.3	13443	2445.6	17178	3325.9
1974	2949	2099.0	13973	8993.6	16922	11092.6
1975	2516	1994.5	13669	9792.0	15560	11786.5
1976*	2303	2240.0	13790	11240.0	16093	13480.0

* Provisional

N.B.:- Imports of ATF from 1952 to 1955, Bitumen from 1948 to 1953 and Lubricants from 1951 to 1955 are not available and have not been included in the total imports. Value data for POL products prior to 1960 are also not available .

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS DURING 1973-76

Qty:- ('000 Tonnes)
Value :- Rs. Million

Item	1973 Qty.	1973 Value	1974 Qty.	1974 Value
A. Crude Oil	13443	2445.57	13973	8993.58
B. Petroleum Products				
1. Light Distillates	217	80.71	87	65.94
1. Naphtha	172	54.31	50	16.88
2. Others	45	26.40	37	49.06
II. Middle Distillates	1478	470.40	1224	1040.09
1. Kerosene Superior	886	312.56	852	727.44
2. H.S.D.	291	87.17	268	227.92
3. L.D.O.	301	70.67	104	84.73
III. Heavy Ends	2040	329.23	1638	992.94
1. Furnace Oil	1943	254.86	1533	828.74
2. Lubes	96	74.37	105	164.20
Total (B)	3735	880.34	2949	2098.97
Grand Total(A+B)	17178	3325.91	16922	11092.55

Contd...../-

Item	1975 Qty.	1975 Value	1976 * Qty.	1976 * Value
A. Crude Oil	13669	9792.05	14032	11436.91
B. Petroleum Products				
1. Light Distillates	34	61.32	164	220.26
1. Naphtha	-	-	128	149.91
2. Others	34	61.32	36	70.35
II. Middle Distillates	1223	1225.48	1264	1391.01
1. Kerosene Superior	679	739.90	687	806.82
2. H.S.D.	543	485,58	577	584.19
III. Heavy Ends	1034	707.79	875	628.67
1. Furnace Oil	955	559.62	825	531.61
2. Lubes	79	148.17	50	97.06
Total (B)	2291	1994.59	2303	2239.94
Grand Total(A+B)	15960	11786.64	16335	13676.85

* Provisional

TOTAL EXPORTS OF PETROLEUM PRODUCTS SINCE-1954

Year	Quantity (Tonnes)	Value (Rs. Million)
1954	17586	12.73
1955	215967	35.49
1956	375694	51.24
1957	444821	69.37
1958	400952	63.24
1959	196371	43.20
1960	225061	46.13
1961	211254	37.64
1962	227169	38.50
1963	376249	54.99
1964	375158	40.37
1965	344680	39.16
1966	729703	87.56
1967	1057000	142.26
1968	558166	82.53
1969	738867	107.72
1970	412209	37.22
1971	151631	25.54
1972	109313	89.39
1973	154990	53.50
1974	202409	193.67
1975	165669	121.35
1976	81764	75.97

EXPORT/RE-EXPORTS OF PETROLEUM PRODUCTS
FOR THE YEAR 1972 to 1976(EXCL. SUPPLIES TO SRAL)

Qty: '000'Tonnes
Value: Rs.Million

Products	1972 Q	1972 V	1973 Q	1973 V
Light Ends	4.0	8.44	13.6	5.50
Naphtha	-	-	4.5	1.90
Gasolines	4.0	8.44	9.1	3.60
Middle Distillates	89.2	67.32	140.8	46.72
Kerosene	49.1	32.73	56.1	18.78
A.T.F.	2.0	1.74	3.8	1.31
H.S.D.	25.3	26.34	68.8	23.26
L.D.O.	12.8	6.51	12.1	3.37
Others	16.1	13.63	0.6	1.28
F.O.	2.7	0.89	-	-
Asphalt/Bitumen	9.4	5.15	-	0.17
Lubes/Greases	0.6	1.74	0.1	0.39@
Base Oil	3.4	5.85	-	-
Wax	-	-	0.5	0.72
Total POL Products	109.3	89.39	155.0	53.50
Crude Oil	-	-	18.3	4.16
Grand Total	109.3	89.39	173.3	57.66

contd..../-

Products	1974 Q.	1974 V.	1975 Q.	1975 V.	1976 Q.	1976 V.
Light Ends	130.7	127.00	92.6	57.91	-	-
Naphtha	123.7	120.90	90.9	55.47	-	-
Gasolines	6.0	6.10	1.7	2.44	-	-
Middle Distillates	56.5	49.50	29.9	27.84	-	-
Kerosene	38.6	33.50	13.6	12.82	-	-
A.T.F.	-	-	-	-	-	-
H.S.D.	11.9	10.30	7.9	7.23	-	-
L.D.O.	6.0	5.70	8.4	7.79	-	-
Others	15.2	17.17	43.2	35.60	-	-
F.O.	-	-	-	-	-	-
Asphalt/Bitumen	9.4	7.30	33.2	21.13	78.8	69.3
Lubes/Greases	3.1	4.50	9.9	14.25	-	-
Base Oil	-	-	-	-	-	-
Wax	2.7	5.37	0.1	0.22	3.0	6.7
Total POL Products	202.4	193.67	165.7	121.35	81.8	76.0
Crude Oil	-	-	-	-	-	-
Grand Total	202.4	193.67	165.7	121.35	81.8	76.0

@ = Recoveries of river freight /sales tax.

EXPORT EARNINGS DURING 1975-76 and 1976-77

Qty:- Tonnes
Value:- Rs./lacs

Category/ Products	1975-76 Qty.	1975-76 Value	1976-77 Qty.	1976-77 Value
1. Sales to Bunkers:				
(a) Shipping Bunkers				
International Foreign Flag	74647	601.65	100216	896.58
,, Indian ,,	113914	927.94	138157	1212.70
Coastal Foreign Flag	11275	98.06	4312	45.30
,, Indian ,,	219778	1606.84	205433	1996.09
Total(a)	419614	3234.49	448118*	4150.67*
(b) International Airlines (Excl.Air India)	327249	4880.46	389212	5902.92
(c) C.C.P. Bunkers	6583	29.96	4185	20.93
Total (1)	753446	8144.91	841515	10074.52
2. Exports of POL Products				
(a) Export to Bangla Desh	43317	407.02	18495	149.89
(b) Export to other countries:				
Export of Naphtha	90856	554.73	-	-
,, ,, Bitumen	34581	239.80	53071	494.63
,, ,, Wax	1062	24.15	2016	44.49
,, ,, 93 Oct.	-	-	-	-
Total(b)	131691	875.84	55087	539.12
Total(2)	169816	1225.70	73582	689.01
Grand Total(1+ 2)	923262	9370.61	915097	10763.53

* Provisional

B-INDIA'S REVENUES FROM HIPL CRUDE

	Qty.Tonnes	Value Rs.lacs.
1974	654272	3858.91
1975	567345	4195.98
1976	410254	3214.15

Trend in India's overall trade balance and trade balance with OPEC Countries

	India's overall trade (Rs/crores)					India's trade with OPEC countries (Rs/crore)					% of India's trade with OPEC to India's total trade (%)	
	Exports	Imports	Balance of trade	% variation over preceding year Exports	Imports	Exports	Imports	Balance of trade	% variation over preceding year Exports	Imports	Exports	Imports
									(Percentage)			
1970-71	1535	1634	- 99	8.6	3.3	99	126	- 27	-	-	6.4	7.7
1971-72	1608	1825	-217	4.8	11.7	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	-1190	31.9	52.9	498	1088	-590	166.3	104.5	15.0	24.1
1975-76	4043	5265	-1222	21.4	16.5	612	1150	-538	22.9	5.7	15.1	21.8
1976-77 (April-December)	3547	3592	- 45	31.0*	-8.3*	434	894	- 469	7.8*	4.7*	12.2	24.9

* % of variation over the corresponding period in the preceding year.

MANPOWER EMPLOYED IN THE PETROLEUM INDUSTRY IN INDIA

(Numbers)

Category	1972	1973	1974	1975	1976
1. Exploration & Prodn.	25898	25593	26102	27067	28177
2. Refining*	11619	11594	12093	12327	12597
3. Marketing	19415	19322	19239	19072	18922
4. Others:-					
1. IOC (Pipeline)	574	620	620	724	870
2. ONGC (Pipeline	286	278	228	233	492
3. OIL (Pipeline)	434	429	425	431	440
4. I.I.P.	621	603	644	676	652
5. E.I.L.	1162	1394	1641	1940	2363
Total	3077	3324	3558	4004	4817
Grand Total	60009	59833	60992	62470	64513

CATEGORY-WISE MANPOWER EMPLOYED IN THE PETROLEUM INDUSTRY IN INDIA

(Numbers)

Category	1972	1973	1974	1975	1976
1. Executive/Managerial	4992	6024	6488	6461	6859
2. Supervisory	6770	6148	6071	6659	6973
3. Clerical	11499	11282	12705	11723	11643
4. Workmen	36716	36359	35709	37611	39023
5. Total	59977	59813	60973	62454	64498
6. Expatriates/Foreign experts	32	20	19	16	15
Grand Total	60009	59833	60992	62470	64513

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 EXPLORATION AND PRODUCTION OF PETROLEUM/INDUSTRY IN INDIA. /-

(Numbers)

Category	1972	1973	1974	1975	1976
1. Executive/Managerial	1813	1838	1857	1967	2260
2. Supervisory	3074	3148	3281	3538	3459
3. Clerical	3477	3351	3490	3538	3458
4. Workmen	17522	17247	17463	18013	18988
5. Total	25886	25584	26091	27056	28165
6. Expatriates/Foreign Experts	12	9	11	11	12
Grand Total	25898	25593	26102	27067	28177

* CATEGORY-WISE MANPOWER EMPLOYED IN THE PETROLEUM REFINING IN INDIA @

1. Executive/Managerial	563	640	899	818	1192
2. Supervisory	1180	1196	1102	1313	1148
3. Clerical	1334	1389	1430	1568	1453
4. Workmen	8531	8363	8657	8626	8803
5. Total	11628	11588	12088	12325	12596
6. Expatriates/ Foreign experts	11	6	5	2	1
Grand Total	11619	11594	12093	12327	12597

CATEGORY-WISE MANPOWER EMPLOYED IN MARKETING COMPANIES OF PETROLEUM IN INDIA @

1. Expecutive/Managerial	2461	3288	3586	3519	3047
2. Supervisory	1946	1198	892	910	1418
3. Clerical	6021	5943	7124	5870	5812
4. Workmen	8978	8888	7634	8770	8643
5. Total	19406	19317	19236	19069	18920
6. Expatriates/Foreign Exports	9	5	3	3	2
Grand Total	19415	19322	19239	19072	18922

@ Manpower employed by companies directly.

N.B.:- 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.

INDEX NUMBER OF WHOLE SALE PRICES OF SELECTED PETROLEUM PRODUCTS IN INDIA

Year	Aviation spirit	Petrol	Light Diesel Oil	Kero-sene	Lubricating Oil
1961-62	100	100	100	100	100
1962-63	97.1	101.9	102.1	101.9	99.5
1963-64	111.8	120.2	128.9	135.6	96.0
1964-65	111.9	120.6	129.3	135.2	95.8
1965-66	117.4	127.0	110.9	146.6	103.4
1966-67	120.9	131.5	119.3	154.5	115.9
1967-68	132.0	144.5	119.3	154.9	123.3
1968-69	138.1	148.6	121.7	157.8	125.3
1969-70	147.8	160.0	122.8	172.1	133.1
1970-71	160.9	175.5	121.3	176.6	141.9
1971-72	194.9	204.5	128.9	186.0	139.7
1972-73	201.6	213.1	130.5	202.9	140.5
1973-74	279.8	313.9	159.7	235.2	193.4
1974-75	464.0	477.2	315.2	331.7	438.8
1975-76	477.0	495.8	324.2	370.4	448.0
1976-77					
April-1976	478.0	496.7	324.2	405.8	448.9
May 1976	478.0	496.7	324.2	405.8	448.9
June 1976	478.0	496.7	324.2	405.8	448.9
July 1976	478.0	500.1	324.2	405.8	448.9
August 1976	478.0	500.8	324.2	405.8	448.9
Sept. 1976	478.0	500.8	324.2	405.8	448.9
Oct. 1976	478.0	500.8	324.2	405.8	448.9
Nov. 1976	478.0	500.8	324.2	405.8	448.9
Dec. 1976	478.0	500.8	324.2	405.8	448.9

Source :- Indices compiled by the Economic Adviser Ministry of Industries & Civil Supplies, Govt. of India.

BASIC CEILING SELLING PRICES (EX-STORAGE) OF PETROLEUM PRODUCTS AS ON 1.1.1977

Rs./Kl.

Products	Bombay	Cochin	Madras	Vizag	Barauni/ Digboi Haldia Gauhati	Calcutta	Kandla	Okha	Goa
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
T.Av.Gas 100/130 octane	3381.80	–	3398.44	–	3408.02	3408.02	3378.71	–	3376.83
Av.Gas 115/145 octane	3470.93	–	3487.76	–	3496.84	3496.84	–	–	3465.75
Av. Gas 73 octane	3247.84	3244.34	3254.69	3247.29	3269.91	3269.91	3246.55	–	–
A.T.F.	1267.13	–	1286.49	1279.92	1285.32	1285.32	1264.73	1269.76	1266.99
Motor Spirit 83	2944.88	2941.90	2953.71	2946.28	2967.92	2967.92	2944.18	–	2939.93
H.S. 93	3099.92	3096.80	3108.71	3101.28	3123.38	3123.38	3099.07	–	3094.89
H.S.D.O.	1094.89	1094.27	1106.32	1100.03	1107.09	1129.02	1133.75	1144.18	1127.92
S.K.	1084.24	1086.76	1094.66	1092.04	1098.82	1119.63	1118.62	1131.04	1114.80
L.D.O.	879.64	879.00	894.13	884.86	892.24	892.24	880.91	–	878.21
F. O.**	763.68	762.95	778.40	770.01	777.43	801.74	805.78	818.49	800.99
Bitumen St.Gde(Bulk)@	670.60	670.60	670.60	670.60	670.60	695.60	–	–	–
Bitumen St.Gde(Packed)@	951.91	951.91	951.91	951.91	951.91	979.41	951.91	951.91	951.91
*Naphtha for non-Fert@	1012.00	1012.00	1012.00	1012.00	1012.00	1054.22	1065.87	1074.13	1072.47
*Naphtha for Fert.	596.31	595.11	612.48	602.63	611.36	653.58	650.92	658.83	654.57
* J.B.O.@	789.42	789.42	789.42	789.42	789.42	815.68	–	–	–
* SBP/Spirit 55/115@	935.56	935.56	935.56	935.56	935.56	964.72	972.38	978.48	967.51
* SBP/Spirit 64/69@	1136.36	1111.36	1111.36	1111.36	1111.36	1139.40	1146.76	1152.62	1142.07
* Solvent/1425	935.56	935.56	935.56	935.56	935.56	964.72	972.38	978.48	967.51
* Hexane	1111.36	1111.36	1111.36	1111.36	1111.36	1139.40	1146.76	1152.62	1142.08
* M.T.O. 140/205	762.26	762.26	762.26	762.26	762.26	782.42	796.17	808.42	792.40
M.T.O. Laws	762.41	762.41	762.41	762.41	762.41	782.58	796.34	808.60	792.57
L.P.G.Domestic use@	1482.65	1486.15	1496.83	1493.47	1501.67	–	–	–	–
L.P.G.Industrial use@	1776.98	1776.98	1776.98	1776.98	1776.98	–	–	–	–

@ Price Rs./MT.

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

** Effective on 10.6.1976.

EXCISE AND CUSTOM DUTIES IN THE BASIC CEILING SELLING PRICES (BCSP) EX-STORAGE POINT EFFECTIVE- 1.1.1977.

Product	Selling Unit	BCSP @ including duties (Rs.)	Duties included in BCSP (Rs.)	Duties as % of BCSP
1. AV. Gas 100/130	KL	3381.80	2109.42	62.4
2. AV. Gas 115/145	"	3470.93	2107.92	60.7
3. AV. Gas 73 Octane	KL	3247.84	2108.77	64.9
4. MO-Gas 83 Octane	KL	2944.88	2110.06	71.7
5. MO-Gas 93 Octane	KL	3099.92	2111.34	68.1
6. L.P.G.(Domestic use)	MT	1482.65	250.00	16.9
7. L.P.G.(Indl. Use)	MT	1776.98	250.00	14.1
8. SBP Spirits 55/115	KL	935.56	-	-
9. SBP Spirits 84/69	KL	1111.36	-	-
10. Hexane	KL	1111.36	-	-
11. Naphtha non-Fert.	MT	1012.00	-	-
12. Naphtha Fert. use	MT	596.31	-	-
13. Kerosene Superior	KL	1084.24	383.46	35.4
14. A.T.F. (-58 F)	KL	1267.13	383.38	30.3
15. H.S.D.(53/57 Diesel Index)	KL	1094.89	380.14	34.7
16. L.D.O.(Indl.Diesel)	KL	879.64	146.62	16.7
17. J.B.O.	MT	789.42	-	-
18. Furnace Oil (Light fuel)	KL	883.07	119.83	13.6
19. Bitumen St.Grade (Bulk)	MT	670.60	105.05	15.7
20. Bitumen St.Grade (Packed)	MT	951.91	150.05	15.8

Bombay

@ Ex-storage point/prices.

STATEMENT SHOWING THE RETAIL PRICES OF MS. HSD, SKO, LDO, ATF, FO AT BOMBAY AS ON 1.1.1977

Rs./Kl.

	M.S.	H.S.D	S.K.O	L.D.O.	ATF	FO
Ex-storage point	2944.88	1094.89	1084.24	879.64	1267.13	883.07
Surcharge	23.00	20.00	-	-	-	-
Bombay Surcharge	28.50	18.50	13.50	13.50	13.50	18.47
Railway Freight	-	-	-	-	-	-
Delivery charges with in FDZ	11.36	7.27	-	-	-	-
Octroi/Local tax	-	-	-	-	-	-
Nett rate excl. of S.T. and Dealers Commission	3007.74	1140.66	1097.74	893.14	1305.07	901.54
Sales Tax	330.85	102.66	32.93	44.66	300.17	45.08
Dealers Comm.	42.00	20.00	7.70	-	-	-
Handling/leakage etc. Cartage services charges/Airfield charges	-	-	25.00	-	24.44	-
Wholesale Selling rate	3380.59	1263.32	1163.37	937.80	1605.24	946.62
Retailer's margin	-	-	43.00	-	-	-
Retail selling rate	3380.59	1263.32	1206.37	not sold		
per lit.	3.39	1.27	1.21	*	-	-

* Posted airfield price.

STATEMENT SHOWING THE RETAIL SELLING PRICES OF MS/HSD/SK/LDO/ATF/FO/AT CALCUTTA AS ON 1.1-1977

Rs./kl.

	M.S.	H.S.D.	S.K.	L.D.O.	ATF	FO
1. Ex.M.I.Rate	2967.92	1107.09	1098.82	892.24	1285.32	896.82
2. Transportation/ Airfield charges	-	21.93	28.80	20.00	24.44	24.32
3. Delivery charges within free delivery Zone	11.36	7.27	-	-	-	-
4. Delivery charges beyond FDZ	2.88	2.88	-	-	-	-
5. State Surcharge	10.00	1.00	-	-	-	-
6. Entry Tax	20.00	20.00	-	20.00	20.00	20.00
7. R.P.O.Surcharge	23.00	20.00	-	-	-	-
8. Total Rs./KL	3035.16	1180.17	1119.63	932.24	1329.76	941.13
9. Sales Tax	300.48	153.42	55.98	118.59	332.44	56.47
10. Dealers Commission	42.00	20.00	7.70	-	-	-
11. Barrel Depreciation	-	-	3.30	30.00	-	-
12. Handling/Leakage & Godown charges etc.	-	-	6.60	-	-	-
13. Retail Selling price Rs/kl.	3377.64	1353.59	1201.20	1080.83	1662.20*	997.60
14. Retail Selling price Rs./lit.	3.38	1.36	1.24	1.08	-	-

* Post Airfield price.

STATEMENT SHOWING RETAIL PRICE OF MS,HSD,SK,LDO,ATF,FO,AT NEW DELHI AS ON 1.1.1977

Rs. in kl.

	M.S.	H.S.D.	S.K.O.	L.D.O.	A.T.F.	F.O.
Ex-Storage Point Rate (Koyali)	2944.88	1094.89	1084.24	879.64	1267.13	883.07
RPO Surcharge	23.00	20.00	-	-	-	-
Railway Freight	141.77	103.36	98.07	106.52	97.03	114.53
Delivery Charges within free delivery zone	11.36	7.27	-	-	-	-
Transportation charges	-	-	12.00	14.00	-	-
Octroi/Local tax	-	4.68	12.50	4.82	12.50	5.18
Nett delivered rate exclusive of sales tax and dealers comm.	3121.01	1230.20	1206.81	1004.98	1376.66	1002.78
Sales Tax	218.47	86.10	35.84	69.37	98.08	70.19
Dealers Commission	42.00	20.00	7.70	6.60	-	-
Handling charges/ Airfield charges	-	-	-	3.75	24.44	-
Transportation charges	-	-	-	10.60	-	-
Leakage/B.D.A.	-	-	-	4.95	-	-
Profit for dealers	-	-	50.00	-	-	-
Retail Selling prices Rs./kl	3381.48	1336.30	1300.35	1100.25	1499.18*	1072.97
Retail Selling in Rs./lit	3.39	1.34	1.30	1.00	-	-

*Posted Airfield price inclusive of sales tax.

STATEMENT SHOWING THE RETAIL SELLING PRICES OF MS/HSD, SK,FO, ATF, AT MADRAS AS ON 1/1/77

Rs./kl.

	M.S.	H.S.D.	S.K.	F.O.	A.T.F.
Ex.Storage Point	2953.71	1106.32	1094.66	897.79	1286.49
State Surcharge	35.00	35.00	35.00	35.00	-
Railway Freight	-	-	-	-	-
R.P.O.Surcharge	23.00	20.00	-	-	-
Octroi	-	-	-	-	-
Delivery charges within free delivery zone	11.36	7.27	-	-	-
R.P.O.Nett rate	3023.07	1168.59	1129.66	932.79	1310.93
Sales Tax	210.00	150.00	96.02	78.35	220.50
Surcharge on sales tax	10.50	7.50	4.80	-	-
Dealers commission	42.00	20.00	7.70	-	-
Leakage	-	-	12.30	-	-
Handling/Loading/unloading airfield charges	-	-	2.00	38.10	24.44
B.D.A./Godown	-	-	2.00	-	-
Transportation	-	-	10.00	-	-
Retailer's margin	-	-	42.50	12.95	-
Gross RPO Price Rs./kl	3285.57	1346.09	1306.98	1062.19	1531.43*
Retail selling price Rs/lit.	3.29	1.35	1.31	-	-

* Posted Airfield price.

STATEMENT SHOWING THE RETAIL SELLING PRICES OF MS/HSD/SK/LDO/ATF/FO AT KANPUR AS ON 1.1.1977.

Rs./KL

---	MS	HSD	SK	LDO	ATF	FO
Ex.M.I.Rates	2944.88	1107.09	1098.82	879.64	1267.13	896.82
Railway freight Ex M.I.to Depot.	147.65	49.59@	46.69@	110.99	103.74	88.73
State Surcharge	25.00	-	-	-	-	-
Octroi/Local tax	30.00	20.00	10.00	20.00	10.00	20.00
Dealer's Commission	42.00	20.00	7.70	6.60	-	-
Delivery Charges within FDZ	11.36	7.27	-	-	-	-
R.P.O. Surcharge	23.00	20.00	-	-	-	-
Net R.P.O.Price	3181.89	1203.95	-	-	-	-
Net delivered price excel.sales tax.	-	-	1163.21	1017.23	1380.87	1005.87
Transportation/Handling	-	-				-
BDA/Airfield charges/ Leakages as allowed by State Authorities	-	-	23.05	23.05	41.94	-
Whole sale selling price	-	-	1186.26	1040.28	1422.81	-
Cartage from whole sellers to Retailers shop.	-	-	10.00	10.00	-	-
Retailers Profit	-	-	50.00	50.00	-	-
Retail selling price excl. sales tax/TOT.	-	-	1246.26	1100.28	-	-
ST/TO tax	250.00	100.00	90.00	100.00	250.00	40.22
Retail selling price inclusive of ST. Rs./kl	3473.89	1323.95	1336.26	1200.28	1672.81*	1045.77
Retail selling price inclusive of ST. Rs./Litre	3.48	1.33	1.34	1.21	-	-

* Posted Air field price.

@ Pipeline transport.

REALIZATION OF EXCISE & CUSTOMS DUTIES FROM CRUDE OIL AND PETROLEUM PRODUCTS

(Rs. Lakhs)

Products	ACTUALS 1973-74	1974-75	1975-76	1976-77 R.E.	1977-78 B.E.
A. Excise Duties					
1. Mogas	30723	38866	40408	41500	42500
2. Kerosene Oil	14112	13949	16089	16700	17400
3. Refined Diesel Oils&Vap.Oil	29102	30962	29961	31500	34650
4. Diesel(oil)Nos.	2304	2258	2049	2300	2460
5. Furnace Oil	3001	3265	4936	4550	5415
6. Asphalt/Tar	1602	1502	1118	1400	1500
7. Petroleum Products (Others)	4684	5130	4585	5500	5800
8. Blended or compounded lubes & Greases	1737	4901	4458	4700	4900
9. Calcined Petroleum Coke	120	224	347	350	400
Total(A)	87385	101057	103951	108500	115025
B. Custom Duties					
1. Petroleum Crude	-	-	1288	1330	1280
2. Mogas	764	1135	908	900	875
3. Kerosene Oil	3349	4253	3761	3750	3800
4. Batching Lubricating &Other Mineral Oils	1525	1430	2063	1620	1450
5. HSD & Vap Oil	1778	1368	2577	2840	2660
6. Indl.Fuel Oil	2187	1400	952	1440	1372
Total(B)	9603	9586	11549	11880	11437
Grand Total	96988	110643	115500	120380	126462

Source :- Explanatory Memorandum on the Budget of the Central Government for 1977-78.

CENTRAL EXCISE DUTY AS ON 1-3-1977

(Figures in Rs.)

Products	UNIT	Excise Duty at 15° C Additional			Devalu-ation	Total 3 to 6	Excise duty at 29.5°C additional			Devalu-ation	Total 8 to 11
		Basic	WGOP	OPC			Basic	WGOP	OPC		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Avgas 100/130	KL	2100.00	41.80	4.75	35.00	2181.55	2063.67	41.08	4.67	34.39	2143.81
2. ,, 115/145	,,	2100.00	41.80	4.75	35.00	2181.55	2062.20	41.05	4.67	34.37	2142.29
3. ,, 73	,,	2100.00	41.80	4.75	35.00	2181.55	2063.04	41.06	4.67	34.38	2143.15
4. Motor Sprit 83	,,	2100.00	41.80	4.75	35.00	2181.55	2064.30	41.09	4.67	34.41	2144.47
5. ,, ,, 93	,,	2100.00	41.80	4.75	35.00	2181.55	2065.56	41.11	4.67	34.43	2145.77
6. Aviation Turbine Fuel	,,	365.00	21.70	2.05	44.70	433.45	359.96	21.40	2.02	44.08	427.46
7. Kerosene Superior	,,	365.00	21.70	2.05	44.70	433.45	360.04	21.40	2.02	44.09	427.55
8. ,, Inferior	,,	50.90	55.85	0.10	31.75	138.60	50.28	55,17	0.10	31.36	136.91
9. High Speed Diesel Oil	,,	361.05	22.90	0.85	33.70	418.50	356.68	22.62	0.84	33.29	413.43
10. Light Diesel Oil	,,	95.55	51.95	0.80	31.05	180.35	94.47	51.36	0.79	31.49	178.11
11. Furnace Oil	,,	100.00	21.05	-	17.70	138.75	98.99	20.84	-	17.52	137.35
12. Bitumen St.Gr.(Bulk)	MT	30.00	40.30	34.75	20.45	125.50					
13. ,, ,, ,,(Packed)	"	75.00	40.30	,,	20.45	170.50					
14. ,,Cutbacks(BS/RC)	"	75.00	27.00	47.80	25.20	175.00					
15. L.P.Gas	"	250.00	-	-	-	250.00					

SALES

STATEMENT SHOWING TAX RATES APPLICABLE ON PETROLEUM PRODUCTS IN DIFFERENT STATES AS ON 1.1.1977.

Sr. No.	Products	Andhra Pradesh	Assam	Bihar	Chandigarh	Delhi	Goa Daman & Deu	Gujarat	Haryana
1.	Aviation Spirit	13.96%	30Ps/Ltr.	15%	9Ps./ltr.	7%	12%	9% Duty paid 20% Bonded	12 Ps/Ltr.
2.	Aviation Turbine fuel	11.43%	30 "	15%	9PPL	7%	12%	20%	7%
3.	Motor Spirit	12.68%	30 "	7%	9Ps./Ltr.	7%	12%	12%	12 Ps./Ltr.
4.	High Speed Diesel Oil	11.43%	11 "	15%	7 "	7%	12%	12%	12 "
5.	Light Diesel Oil	11.43%	11 "	12%	6%	7%	12%	5%	7%
6.	Mosquito Larvicidal Oil	11.43%	7%	5%	6%	7%	6%	5%	7%
7.	Superior Kerosene	4.46%	3Ps/Ltr.	5%	6%	3%	4%	3%	7%
8.	Inferior Kerosene	4.46%	2 "	5%	6%	3%	4%	3%	7%
9.	Furnace Oil	4.46%	7%	7%	6%	7%	6%	4%	7%
10.	Mineral Turpentine Oil	4.46%	7%	7%	6%	7%	-	5%	7%
11.	Lube Oils	6.67%	10.Ps/Ltr.	7%	6%	7%	6%	4%	7%
12.	Grease	6.67%	11Ps/Kg.	7%	6%	7%	6%	4%	7%
13.	Petroleum Naphtha	6.67%	7%	7%	6%	7%	6%	5%	7%
14.	Bitumen	4.46%	7%	5%	6%	7%	6%	5%	7%
15.	Petroleum Coke	4%	4%	4%	3%	4%	4%	4%	4%
16.	Indane (Liquified Petroleum Gas)	*5.56%	7%	7%	6%	5%	-	12%	7%
17.	Transformer Oil	4.46%	7%	7%	6%	7%	-	5%	7%
18.	Tins & Containers	4.46%	6%	7%	6%	7%	-	4%	7%
19.	H.B.Fluid	4.46%	10 PPL	7%	6%	-	-	8%	7%

* (LPG in Containers - 5.56%
LPG in Bulk 4.46%

1.95

STATEMENT SHOWING SALES TAX RATES APPLICABLE ON PETROLEUM PRODUCTS IN DIFFERENT STATES AS ON 1.1.1977.

Sr. No.	Products	Himachal Pradesh	Jammu & Kashmir	Kerala	Madhya Pradesh	Maharashtra	Karnataka	Manipur	Nagaland
1.	Aviation Spirit	7Ps/Ltr.	8%	12%	8.93%	23% (Bonded) 9% duty paid	12%	-	8PPL
2.	Aviation Turbine Fuel	7%	8%	8%	8.93%	30% bonded 23% duty paid	14%	-	8PPL
3.	Motor Spirit	7Ps/Ltr.	12Ps/Ltr	15%	11.33%	11%	12%	20Ps/Ltr.	8PPL
4.	High Speed Diesel Oil	7 "	10 "	20%	10.16%	9%	14%	15 "	7PPL
5.	Light Diesel Oil	7%	8%	20%	13.99%	5%	14%	15 "	7PPL
6.	Mosquito Larvicidal	7%	8%	4%	8.93%	5%	4%	6%	5%
7.	Superior Kerosene	7%	2%	4%	7.62%	3%	4%	3%	3PPL
8.	Inferior Kerosene	7%	2%	4%	7.62%	3%	4%	3%	2PPL
9.	Furnace Oil	7%	8%	5%	8.93%	5%	8%	6%	5%
10.	Mineral Turpentine Oil	7%	8%	4%	8.93%	5%	-	-	-
11.	Lube Oils	7%	8%	7%	8.93%	5%	8%	15Ps/Ltr	9PPL
12.	H.B.Fluid	7%	8%	7%	8.93%	8%	8%	-	-
13.	Greases	7%	8%	7%	8.93%	5%	8%	15Ps/Ltr	9PPL
14.	Petroleum Naphtha	7%	5%	5%	8.93%	5%	4%	-	-
15.	Bitumen	7%	5%	4%	8.93%	5%	8%	-	5%
16.	Petroleum Coke	4%	4%	4%	4%	4%	4%	4%	4%
17.	Indane (Liquified Petroleum Gas)	7%	Exempted	15%	8.93%	5%	8%	-	5%
18.	Transformer Oil	7%	8%	7%	8.93%	5%	8%	-	-
19.	Tins/Containers	7%	8%	4%	8.93%	8%	4%	-	5%

STATEMENT SHOWING SALES TAX RATES APPLICABLE ON PETROLEUM PRODUCTS IN DIFFERENT STATES AS ON 1.1.1977.

Sr. No.	Products	Orissa	Pondicherry	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal
1.	Aviation Spirit	8Ps/Ltr	3%	15Ps./ltr.	12%	21Ps/Ltr.	25 PPL	9%
2.	Aviation Turbine fuel	6%	3%	6%	12%	21Ps./Ltr.	25 PPL	25%
3.	Motor Spirit	15Ps/Ltr	3%	15Ps/Ltr.	15%	21Ps/Ltr.	25 PPL	9.9%
4.	High Speed Diesel Oil	12Ps/Ltr	3%	10 "	12½%	15Ps/Ltr.	10 PPL	13%
5.	Light Diesel Oil	12 "	3%	6%	12½%	15 "	10 PPL	13%
6.	Mosquito Larvicidal Oil	6%	2½%	6%	7%	8%	4%	6.66%
7.	Superior Kerosene	6%	Exemp.	6%	7%	8½%	8%	5%
8.	Inferior Kerosene	exempted	Exemp.	6%	7%	8½%	8%	exempted
9.	Furnace Oil	6%	2½%	6%	7%	8%	4%	6%
10.	Mineral Turpentine Oil	6%	-	6%	12%	-	4%	6.66%
11.	Lube Oils	10%	3%	6%	7%	8%	8%	6.66%
12.	H.B.Fluid	-	-	6%	7%	8%	8%	6.66%
13.	Greases	10%	3%	6%	7%	8%	8%	6.66%
14.	Petroleum Naphtha	6%	-	6%	7%	8%	8%	6.66%
15.	Bitumen	6%	-	6%	7%	8%	8%	6.66%
16.	Petroleum Coke	4%	-	4%	4%	4%	4%	4%
17.	Indane(Liquified Petroleum Gas)	6%	-	6%	7%	8%	8%	6.66%
18.	Transformer Oil	-	-	6%	7%	8%	8%	6.66%
19.	Tins/Containers	6%	-	6%	7%	4%	8%	6.66%

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

1.	BIHAR	: Additional Tax at 100 paise eff.1.12.1975 for every Rs.100/- of the value of the bill ispayable (on products under sales tax Act).
2.	HARYANA	:- Surcharge at 2% on sales tax on all products under sales tax is payable.
3.	MADHYA PRADESH	:- Turn over tax at 1% to 2% of the value of the bill depends on the products is payable. The sales tax rates indicated includes this levy also.
4.	PUNJAB	: Additional tax at 2% of the sales tax on products under General sales tax act is payable.
5.	WEST BENGAL	:- Surcharge at 10% eff.20.4.1974 of sales tax on sales tax products is payable. The sales tax rates indicated includes this levy also.
6.	KERALA	: Surcharge at 8% of sales tax is payable, but the same is not recoverable from the market.
7.	J& Kashmir	: Surcharge at 5% of sales tax is payable but the same is not recoverable from the market.
8.	MAHARASHTRA	:- Additional sales tax@ 6% of tax is payable but the same is not recoverable from the market. This does not apply to Kerosene.
9.	KARNATAKA	: Additional tax @ 10% of sales tax is payable and is not recoverable from the market.
10.	TAMIL NADU	: Surcharge at 5% on tax is also payable which is recoverable. Additional sales tax at 0.7% of the tax-able turnover is also payable which has to be borne by seller i.e. not recoverable.
11.	GUJARAT	: Additional sales tax at 6% on sales tax in respect of products under Gujarat sales tax act and motor spirit tax act is payable.
12.	ORISSA	: Additional sales tax at 5% on sales tax is payable on products under sales tax act. This is non-recoverable from the market.
13.	UTTAR PRADESH	: A Surcharge levy of 1% on the taxable turnover is also payable. The Sales tax rates indicated includes this levy also.

TONNAGE OF INDIAN TANKER FLEET

(DWT in '000')

Year*	Oil Tankers		Ore Oil Carriers		Total	
	No. of Tankers	DW Tonnage	No. of ships	D.W. Tonnage	No. of Ships	D.W. 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
		(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
		(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	1237.4	45	3215.6

* As on 31st December each year.

Source:- Ministry of Shipping & Transport.

INDIAN TANKER FLEET AS ON 31.12.1976

Owners	Name of Vessel	D.W. Tonnes	Year Build
1.Shipping Corporation of India	Lajpat Rai	40434	1965
	Desh Bandhu	36232	1964
	Jawahar Lal Nehru	87612	1969
	Lal Bahadur Shastri	87649	1970
	Nanak	34780	1956
	Gargi	57588	1964
	Netaji Subhash Bose	87980	1973
	Vivekananda	87980	1974
	Chhatrapati Shivaji	87980	1974
	B.R.Ambedkar	88041	1974
	Desh Deap	11226	1959
	Vishveshvaraya	16400	1974
	Bhagat Singh	16480	1974
	Bellary*	85000	1969
	Biladilla*	85520	1971
	Barauni*	85000	1970
	Chanakya*	21615	1964
	Bhaskara*	21594	1965
	Leelawati*	21615	1965
	Moti Lal Nehru*	112289	1973
	Gautama Buddha*	127468	1974
	Abdul Kalam Azad*	112539	1974
	Jhansi Ki Rani*	75000	1974
	Jai Narain Vyas	24500	1975
	Kanchanjanga	273317	1975
	Lok Manya Tilak	89407	1975
	Rafi Ahmed Kidwai	24500	1975
	Rajendra Prashad	115723	1975
	Sarojini Naidu	16480	1975
	Satya Murti	89490	1975
	Zakir Husain	115723	1975
	Samarat Ashok	127468	1974
	Kolandia	24500	1976
	Valiathol*	114000	1976
	Jag Leela*	124100	1976
	Jag Laxmi*	124140	1976
2.Great Eastern Shipping Co.	Anco Jyoti	17610	1968
	Jag Prakash	25072	1974
	Jag Priya	32360	1975
3.Ratnakar Shipping Co.Ltd.	Jag Athel Ladki	101500	1972
	Ratna Jayshree	59284	1966
4.Thakur Shipping Co.	Varuna Vahini	20460	1961
5.Scindia Steam Nav.Co.	Walchand*	103100	1973
6.Varun Shipping Co.Ltd.	Arya Doot	20637	1960
7.Essar Constructions	Nand Kala	6703	1972
8. Sagar Line	Sagar Tarani	723	1965
	Kovalli	273317	1976

* Ore Oil Carries

Source:- Ministry of Shipping & Transport

Share of Traffic in Petroleum Products & Fert.&Fert.Raw Materials in the total traffic handled at Major ports during 1965-66, 1969-70, and 1973-74 to 1976-77.

Name of the major port.	Year	Total traffic in Mn. Tonnes	Of the traffic in Col.3 traffic in Pol Mn. Tonnes	Fert.& Fert. Raw materials	Total Col.4+5 Mn. Tonnes	PERCENTAGES Col.4 to Col.3	Col.5 to Col.3	Col.6 to Col.3
1.	2.	3.	4.	5.	6.	7.	8.	9.
Calcutta	1965-66	9.84	1.43	0.23	1.66	14.5	2.3	16.8
	1969-70	6.89	1.49	0.20	1.69	21.6	2.9	24.5
	1973-74	6.28	1.97	0.40	2.37	31.4	6.4	37.7
	1974-75	7.54	2.28	0.49	2.77	30.2	6.5	36.7
	1975-76	7.70	2.89	0.40	3.29	37.5	5.2	42.7
	1976-77	8.02	3.07	0.43	3.50	38.3	5.4	43.6
Bombay	1965-66	18.11	9.92	0.45	10.37	54.8	2.5	57.3
	1969-70	15.04	8.53	0.51	9.04	56.7	3.4	60.1
	1973-74	18.37	11.15	0.94	12.09	60.7	5.1	65.8
	1974-75	18.01	10.29	1.06	11.35	57.1	5.9	63.0
	1975-76	16.94	8.79	1.08	9.87	51.9	6.4	58.3
	1976-77	17.29	8.82	0.70	9.52	51.0	4.0	55.1
Madras	1965-66	4.87	0.93	0.47	1.40	19.1	9.7	28.7
	1969-70	6.44	2.24	0.83	3.07	34.8	12.9	47.7
	1973-74	7.75	3.46	0.49	3.95	44.6	6.3	51.0
	1974-75	8.02	3.23	0.72	3.95	40.3	9.0	49.3
	1975-76	8.26	3.35	0.34	3.69	40.6	4.1	44.7
	1976-77	7.83	3.08	0.43	3.51	39.3	5.5	44.8
Cochin	1965-66	2.87	1.04	0.21	1.25	36.2	7.3	43.6
	1969-70	4.79	3.56	0.18	3.74	74.3	3.8	78.1
	1973-74	3.72	2.50	0.21	2.71	67.2	5.6	72.8
	1974-75	4.81	3.53	0.26	3.79	73.4	5.4	78.8
	1975-76	4.25	2.87	0.29	3.16	67.5	6.8	74.4
	1976-77	4.75	3.44	0.35	3.79	72.4	7.4	79.8
Vizag	1965-66	4.38	2.01	0.14	2.15	45.9	3.2	49.1
	1969-70	8.31	1.95	0.55	2.50	23.5	6.6	30.1
	1973-74	8.05	2.02	0.73	2.75	25.1	9.1	34.2
	1974-75	7.22	1.72	0.75	2.47	23.8	10.4	34.2
	1975-76	8.52	1.42	0.69	2.11	16.7	8.1	24.8
	1976-77	8.70	1.50	0.63	2.13	17.2	7.2	24.5

Share of Traffic in Petroleum Products & Fert. & Fert.Raw Materials in the total traffic handled at Major ports during 1965-66,1969-70 and 1973-74 to 1976-77.

Name of the major port	Year	Total Traffic in Mn. Tonnes	Of the traffic in col.3 traffic in POL.	Fert.& Fert.Raw Materials Mn.Tonnes	Total col.4+5	PERCENTAGES Col. 4 to col.3	Col. 5 to Col. 3	Col.6 to Col.3
1.	2.	3.	4.	5.	6.	7.	8.	9.
Kandla	1965-66	2.51	0.93	0.13	1.06	37.1	5.2	42.2
	1969-70	2.11	0.98	0.38	1.36	46.4	18.0	64.4
	1973-74	3.12	1.60	0.52	2.12	51.3	16.7	67.9
	1974-75	3.52	1.75	0.71	2.46	49.7	20.2	69.9
	1975-76	3.28	1.44	0.52	1.96	43.9	15.9	59.8
	1976-77	3.32	1.56	0.67	2.23	47.0	20.2	67.2
Mormugao	1965-66	7.86	0.09	0.07	0.16	1.1	0.9	2.0
	1969-70	9.03	0.15	0.05	0.20	1.7	0.6	2.2
	1973-74	14.34	0.55	0.03	0.68	4.5	0.2	4.7
	1974-75	14.11	0.60	0.06	0.66	4.3	0.4	4.7
	1975-76	12.77	0.55	0.06	0.61	4.3	0.5	4.8
	1976-77	13.45	0.57	0.06	0.63	4.2	0.4	4.7
Paradip	1965-66	-	-	-	-	-	-	-
	1969-70	1.75	-	-	-	-	-	-
	1973-74	2.29	-	-	-	-	-	-
	1974-75	2.61	-	-	-	-	-	-
	1975-76	3.29	-	-	-	-	-	-
	1976-77	3.31	-	-	-	-	-	-
Port of New Mangalore	1975-76	0.33	0.06	0.03	0.09	18.2	9.1	27.3
	1976-77	0.43	0.17	-	0.17	39.5	-	39.5
Port of New Tuticorin	1975-76	0.27	0.20	-	0.20	74.1	-	74.1
	1976-77	0.63	0.31	0.02	0.23	49.2	3.2	36.5
Grand Total	1965-66	50.44	16.35	1.70	18.05	32.4	3.4	35.8
	1969-70	54.36	18.90	2.20	21.10	34.8	4.0	38.8
	1973-74	63.92	23.25	3.32	26.57	36.4	5.2	41.6
	1974-75	65.84	23.40	4.08	27.48	35.5	6.2	41.7
	1975-76	65.61	21.57	3.38	24.95	32.9	5.2	38.0
	1976-77	67.73	22.52	3.23	25.75	33.3	4.8	38.0

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	1055.64	2696.35	136.59
1975	2191.35	177.62	2368.97	117.52
1976	2060.77	20.65	2081.42	84.63

N.B. I/F = Indian Flag Vessels

F/F = Foreign Flag Vessels

* = Includes Freight paid on Demurrage and Dead Freight paid.

AFRA FREIGHT COSTS, 1972, 73, 74, 75 & 76

RAS TANURA TO BOMBAY

($ per long ton)

	General Purpose 16500-24999 (dwt.)	Medium Range 25000-44999 dwt	L.R.1. 45,000-79,999 dwt	L.R.2 80000-159999 dwt	VLCC 60000- & above dwt *
1972					
January	1.87	1.66	1.38	1.21	
February	2.02	1.80	1.44	1.28	
March	1.95	1.81	1.45	1.27	
April	1.90	1.76	1.42	1.23	
May	1.89	1.70	1.35	1.15	
June	1.86	1.64	1.30	1.09	
July	1.87	1.63	1.27	1.10	
August	1.91	1.66	1.28	1.12	
September	1.91	1.66	1.29	1.11	
October	1.96	1.69	1.29	1.11	
November	2.02	1.73	1.32	1.13	
December	2.02	1.73	1.36	1.17	
Average, 1972	1.93	1.71	1.35	1.16	
1973					
January	2.21	1.90	1.45	1.25	
February	2.26	1.98	1.49	1.30	
March	2.30	2.02	1.55	1.37	
April	2.45	2.14	1.65	1.44	
May	2.43	2.20	1.73	1.53	
June	2.48	2.21	1.75	1.53	
July	2.78	2.39	1.75	1.55	
August	3.24	2.80	2.00	1.72	
September	3.63	3.04	2.22	1.96	
October	3.70	3.20	2.32	2.13	
November	3.95	3.45	2.49	2.39	
December	4.58	3.90	2.74	2.57	
Average, 1973	3.00	2.60	1.94	1.60	
1974					
January	4.20	3.51	2.50	2.25	1.55
February	3.97	3.19	2.21	1.83	1.46
March	4.09	3.39	2.25	1.78	1.45
April	4.02	3.36	2.18	1.80	1.42
May	4.01	3.33	2.18	1.82	1.42
June	3.97	3.34	2.18	1.75	1.41
July	3.84	3.26	2.14	1.66	1.39
August	3.64	3.21	2.16	1.67	1.41
September	3.41	3.03	2.08	1.62	1.39
October	3.28	2.95	1.97	1.55	1.34
November	3.41	2.96	1.97	1.54	1.30
December	3.51	3.02	2.06	1.57	1.34
Average, 1974	3.78	3.21	2.16	1.74	1.41

* Availability only with effect for January, 1974

Afra Freight Costs 1972 to 1976

contd.

Rastanura to Bombay

	General purpose 16500-24999dwt	Medium range 25000-44999 dwt	LR-1 45000-79999 dwt	L.R.2 80000-159999 dwt	VLCC 160000 dwt and above
1975					
January	3.15	2.77	1.85	1.41	1.2[illegible]
February	3.20	2.76	1.83	1.38	1.25
March	3.09	2.73	1.85	1.41	1.28
April	3.01	2.75	1.85	1.41	1.29
May	2.96	2.79	1.85	1.43	
June	3.01	2.77	1.86	1.44	1.31
July	3.13	2.86	1.91	1.43	1.32
August	3.30	3.00	1.98	1.46	1.37
September	3.36	2.95	2.00	1.48	
October	3.36	2.91	1.97	1.48	1.33
November	3.39	3.00	1.98	1.42	
December	3.40	3.00	1.95	1.47	1.32
Average, 1975	3.20	2.86	1.91	1.44	1.30
1976					
January	3.42	3.08	2.03	1.52	1.34
February	3.55	3.13	2.06	1.52	1.34
March	3.34	3.13	2.00	1.56	1.36
April	3.40	3.12	1.97	1.54	1.34
May	3.43	3.06	1.98	1.47	1.32
June	3.29	3.03	2.01	1.51	1.31
July	3.38	3.08	2.01	1.46	1.31
August	3.42	3.13	2.04	1.48	1.32
September	3.48	3.04	2.05	1.50	1.29
October	3.60	3.02	2.02	1.47	1.27
November	3.58	2.99	1.99	1.41	1.28
December	3.67	3.03	1.98	1.41	1.27
Average, 1976	3.46	3.07	2.01	1.49	1.31

($ per long ton.)

World scale flat rate Ras Tanura to Bombay

Date	Rate
1st Jan., 1972	1.60
1st Feb., 1972	1.68
1st Jan., 1973	1.72
1st Jan., 1974	1.79
1st Jan., 1975	2.27
1st July, 1975	2.31
1st Jan., 1976	2.61
1st July, 1976	2.61

AFRA FREIGHT COSTS 1972 to 1976.

RAS TANURA TO MADRAS

($ per long ton)

	General purpose (16500-24999dwt)	Medium range 25000-44999 dwt	L.R. 1 45000-79999 dwt	L.R. 2 80000-159999 dwt	VLCC* 160000 dwt & above
1972					
January	2.98	2.64	2.20	1.93	
February	3.16	2.81	2.26	1.97	
March	3.05	2.84	2.28	1.99	
April	2.97	2.76	2.22	1.93	
May	2.96	2.65	2.12	1.80	
June	2.98	2.57	2.04	1.71	
July	2.93	2.55	1.98	1.71	
August	3.00	2.60	2.00	1.75	
September	2.99	2.60	2.02	1.74	
October	3.07	2.65	2.01	1.74	
November	3.16	2.70	2.06	1.77	
December	3.16	2.71	2.13	1.83	
Average, 1972	3.03	2.67	2.11	1.82	
1973					
Jnuary	3.42	2.94	2.24	1.93	
Febryary	3.50	3.07	2.30	2.02	
March	3.56	3.12	2.40	2.12	
April	3.80	3.31	2.56	2.23	
May	3.75	3.41	2.67	2.36	
June	3.83	3.42	2.71	2.36	
July	4.29	3.69	2.71	2.40	
August	5.01	4.33	3.09	2.67	
September	5.61	4.70	3.44	3.03	
October	5.72	4.95	3.59	3.30	
November	6.12	5.33	3.83	3.69	
December	7.08	6.03	4.24	3.97	
Average, 1973	4.64	4.03	2.98	2.67	
1974					
January	6.35	5.31	3.78	3.40	2.35
February	6.01	4.83	3.35	2.76	2.21
March	6.20	5.13	3.41	2.69	2.20
April	6.08	5.09	3.30	2.73	2.15
May	6.06	5.04	3.31	2.76	2.15
June	6.02	5.06	3.30	2.65	2.14
July	5.82	4.93	3.24	2.52	2.10
August	5.51	4.86	3.28	2.53	2.13
September	5.17	4.59	3.15	2.45	2.10
October	4.97	4.46	2.99	2.34	2.02
November	5.17	4.49	2.99	2.33	1.98
December	5.32	4.57	3.12	2.38	2.02
Average, 1974	5.72	4.86	3.27	2.63	2.13

* Availability only with effect for January, 1974.

Afra Freight Costs 1972 to 1976

contd. Rastanura to Madras

	General purpose 16500-24999 dwt	Medium range (25000-44999) dwt	I.R. 1 (45000-79999) dwt	I.R.2 (80000-159999 dwt)	VLCC (160000 & above dwt)
1975					
January	5.08	4.47	2.98	2.28	1.99
February	5.15	4.46	2.95	2.23	2.01
March	4.99	4.40	2.98	2.28	2.06
April	4.85	4.44	2.98	2.27	2.09
May	4.78	4.51	2.98	2.30	
June	4.86	4.47	3.00	2.33	2.12
July	5.01	4.58	3.06	2.29	2.12
August	5.28	4.81	3.17	2.35	2.19
September	5.38	4.73	3.21	2.37	
October	5.38	4.66	3.16	2.36	2.14
November	5.42	4.80	3.17	2.28	
December	5.44	4.80	3.12	2.35	2.11
Average,1975	5.14	4.59	3.06	2.31	2.09
1976					
January	5.37	4.85	3.19	2.38	2.11
February	5.58	4.91	3.24	2.39	2.11
March	5.24	4.92	3.15	2.45	2.14
April	5.33	4.90	3.10	2.41	2.11
May	5.39	4.80	3.12	2.31	2.08
June	5.17	4.76	3.16	2.38	2.05
July	5.31	4.83	3.17	2.30	2.05
August	5.31	4.92	3.21	2.32	2.07
September	5.46	4.78	3.22	2.35	2.03
October	5.65	4.74	3.17	2.31	2.00
November	5.62	4.69	3.13	2.21	2.02
December	5.77	4.76	3.10	2.22	2.00
Average,1976	5.44	4.82	3.16	2.34	2.06

($ per long ton)

World scale flat/Rastanura to Madras

Date /rate	Rate
1st Jan.,1972	2.55
1st Feb.,1972	2.63
1st Jan.,1973	2.66
1st Jan.,1974	2.71
1st Jan.,1975	3.66
1st July,1975	3.70
1st Jan. 1976	4.10
1st July,1976	4.10

AFRA FREIGHT COSTS 1972 to 1974

BAY SANURA TO CALCUTTA

($ per long ton)

	General purpose 16500-24999 dwt)	Medium range 25000-44999 dwt	L.R.1 45000-79999 dwt	L.R. 2 80000-159999 dwt	VLCC* 160000 dwt and above
1972					
January	3.68	3.26	2.72	2.39	
February	3.88	3.46	2.77	2.42	
March	3.74	3.49	2.80	2.45	
April	3.65	3.39	2.72	2.37	
May	3.63	3.26	2.60	2.21	
June	3.58	3.15	2.50	2.10	
July	3.60	3.13	2.44	2.11	
August	3.68	3.19	2.46	2.15	
September	3.67	3.19	2.48	2.14	
October	3.78	3.25	2.47	2.14	
November	3.88	3.32	2.53	2.17	
December	3.89	3.33	2.62	2.23	
Average, 1972	3.72	3.28	2.59	2.24	
1973					
January	4.22	3.62	2.76	2.38	
February	4.31	3.78	2.84	2.49	
March	4.39	3.85	2.96	2.61	
April	4.68	4.09	3.15	2.75	
May	4.62	4.20	3.29	2.91	
June	4.72	4.21	3.34	2.91	
July	5.29	4.56	3.34	2.96	
August	6.18	5.34	3.80	3.29	
September	6.92	5.79	4.24	3.73	
October	7.05	6.10	4.43	4.06	
November	7.54	6.57	4.75	4.55	
December	8.72	7.43	5.23	4.90	
Average, 1973	5.72	4.96	3.68	3.29	
1974					
January	7.81	6.52	4.65	4.18	2.89
February	7.39	5.93	4.12	3.40	2.71
March	7.62	6.31	4.19	3.30	2.70
April	7.47	6.25	4.06	3.35	2.64
May	7.45	6.19	4.06	3.39	2.64
June	7.39	6.22	4.05	3.26	2.63
July	7.15	6.06	3.99	3.09	2.59
August	6.77	5.97	4.03	3.10	2.62
September	6.35	5.64	3.87	3.01	2.58
October	6.11	5.48	3.67	2.88	2.48
November	6.35	5.51	3.67	2.87	2.43
December	6.53	5.62	3.83	2.93	2.49
Average, 1974	7.03	5.97	4.02	3.23	2.62

* Available with effect for January, 1974.

Afra freight Costs 1972 to 1976

contd. Rastanura to Calcutta.

	General purpose 16500-24999 dwt	Medium range 25000-44999 dwt	LR 1 45000-79999 dwt	L.R. 2 80000-159999 dwt.	VLCC 160000 & above dwt
1975					
January	6.24	5.49	3.67	2.80	2.44
February	6.34	5.48	3.62	2.74	2.48
March	6.13	5.40	3.66	2.80	2.54
April	5.96	5.45	3.66	2.79	2.57
May	5.88	5.54	3.67	2.83	
June	5.98	5.50	3.69	2.86	2.60
July	6.15	5.62	3.75	2.81	2.60
August	6.48	5.90	3.89	2.88	2.68
September	6.60	5.80	3.94	2.91	
October	6.61	5.72	3.87	2.90	2.63
November	6.66	5.89	3.89	2.80	
December	6.67	5.89	3.83	2.89	2.59
Average, 1975	6.31	5.64	3.76	2.83	2.57
1975					
January	6.87	6.21	4.08	3.05	2.70
February	7.15	6.29	4.15	3.07	2.70
March	6.71	6.29	4.03	3.14	2.74
April	6.83	6.28	3.96	3.09	2.70
May	6.90	6.15	3.99	2.96	2.66
June	6.62	6.10	4.04	3.05	2.63
July	6.80	6.19	4.05	2.95	2.63
August	6.87	6.29	4.11	2.98	2.65
September	6.99	6.12	4.12	3.01	2.59
October	7.23	6.07	4.06	2.96	2.56
November	7.20	6.01	4.01	2.83	2.58
December	7.39	6.09	3.97	2.84	2.56
Average, 1976	6.97	6.17	4.05	2.99	2.64

($ per long ton)

World scale flat rate Ras Tanura to Calcutta

Date	Rate
1St Jan., 1972	3.15
1st Feb., 1972	3.23
1st Jan., 1973	3.28
1st Jan., 1974	3.33
1st Jan., 1975	4.50
1st July, 1975	4.54
1st Jan., 1976	5.25
1st July, 1976	5.25

RETAIL OUTLETS IN INDIA AS ON 1st JAN. OF EACH YEAR

(Number)

Year		BRL/ B/Shell	ESSO/ HPCL	Caltex	IOC	IBPC	AOC	Total
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	391	155	10590
	%	32.8	18.1	13.0	30.9	3.7	1.5	100
1974	Nos.	3262	1887	1359	3349	442	164	10463
	%	31.2	18.0	13.0	32.0	4.2	1.6	100
1975	Nos.	3173	1868	1206	3550	480	163	10440
	%	30.4	17.9	11.6	34.0	4.6	1.5	100
1976	Nos.	3157	1872	1201	3583	578	164	10555
	%	29.9	17.7	11.4	33.9	5.5	1.6	100
1977	Nos.	3183	1916	1200	3804	654	166	10923
	%	29.2	17.5	11.0	34.8	6.0	1.5	100

Note :-

1. % = Percentage
2. - = The data exludes Consumers retail outlets.

Crude Oil & Products Pipeline in India
(as on 1.1.7[illegible])

Pipelines	Owned by	Length in kms.	Diametre in inches
I. Crude Pipelines			
1. Digboi Oil field-Digboi Refinery	A.O.C.	12	6"
2. Digboi Oil field-Digboi Refinery	A.O.C.	11	4"
3. Nahorkatiya-Gauhati	O.I.L.	404	16"
4. Gauhati-Barauni	O.I.L.	754	14"
5. Ankleshwar-Koyali	O.N.G.C.	94.8	16"
6. Lakwa-Moran	O.N.G.C.	17.5	12"
7. Nawagam-Koyali	O.N.G.C.	78.7	14"
8. Kalol-Nawagam	O.N.G.C.	48.8	12"
9. Sanand Kalol	O.N.G.C.	12.5	8"
10. Sobhashan-North Kadi	O.N.G.C.	20.2	8"
11. North Kadi-Kalol	O.N.G.C.	36.2	12"
12. Rudrasagar- Lakwa	O.N.G.C.	37.5	8"
13. Nahorkatiya-Digboi	O.I.L.	35	8"
Total Crude Pipeline		1562.2	
II. Products Pipelines			
1. Digboi Refinery-Tinsukia	A.O.C.	34	6"
2. Digboi Refinery-Tinsukia	A.O.C.	37	6"
3. Digboi Refinery-Tinsukia	A.O.C.	34	4"
4. Gauhati-Siliguri	I.O.C.	425	8-5/8"
5. Barauni-Kanpur	I.O.C.	668	12-3/4"
6. Koyali-Ahmedabad	I.O.C.	115	8-5/8"
7. Haldia-Morigram-RajBandh	I.O.C.	270	12¾"
8. Haldia-Barauni	I.O.C.	524	12¾"
Total Products Pipeline		2107	
III. Gas Pipelines			
1. Cambay-Dhuvaran	O.N.G.C.	24.9	14"
2. Ankleshwar Uttaran	O.N.G.C.	37.5	16"
3. Ankleshwar-Baroda	O.N.G.C.	96.6	14"
4. Nawagam-Calico-Mills Ahmedabad	O.N.G.C.	22.2	8"
5. Kalol-IFFCOPremises(L.P.)	O.N.G.C.	2.6	12"
6. Kalol-IFFCO Premises(H.P.)	O.N.G.C.	2.6	6"
7. Sanand-Kalol	O.N.G.C.	12.6	6"
8. Sobhashan-Dudh Sagar Dairy	O.N.G.C.	9.1	8"
9. Kosamba-Gujarat Glass Factory	O.N.G.C.	3.3	4"
Total Gas Pipeline		211.4	
Total (I+II+III)		3880.6	

L.P. = Low Pressure

H.P. = High Pressure

ESTIMATED WORLD CRUDE OIL AND GAS RESERVES
(as on 1.1.77)

Country	OIL		Natural Gas	
	Billion Tonnes	% of Total	Trillion Cubic feet	% to Total
1. Total Western Hemisphere	9.2	10.5	366.3	15.7
of which				
1.1 U.S.A.	4.3	4.9	220.0	9.5
1.2 Venezuela	2.1	2.4	40.7	11.7
1.3 Canada	0.9	1.0	56.0	2.4
1.4 Ecuador	0.2	0.2	12.0	0.5
1.5 Mexico	1.0	1.1	12.0	0.5
1.6 Argentina	0.3	0.3	6.8	0.3
2. Total Africa	8.3	9.5	209.1	9.0
of which				
2.1 Libya	3.5	4.0	25.8	1.1
2.2 Algeria	0.9	1.0	125.8	5.4
2.3 Nigeria	2.7	3.1	44.0	1.9
2.4 Egypt	0.3	0.3	2.8	0.1
3. Total Middle East	50.4	57.5	536.5	23.0
of which				
3.1 Saudi Arabia	20.7	23.6	86.0	3.7
3.2 Kuwait	9.2	10.5	31.7	1.4
3.3 Iran	8.6	9.8	330.0	14.2
3.4 Iraq	4.7	5.4	27.0	1.2
3.5 Neutral Zone	0.9	1.0	5.0	0.2
3.6 Abu Dhabi	4.0	4.6	20.0	0.9
4. Total Europe	3.4	3.9	141.9	6.1
of which				
4.1 West Germany	0.05	0.1	7.5	0.3
4.2 U.K.	2.30	2.6	30.0	1.3
4.3 Netherlands	0.01	neg	61.9	2.7
4.4 Italy & Sicily	0.04	neg	6.6	0.3
4.5 Norway	0.78	0.9	18.5	0.8
4.6 Yugoslavia	0.05	0.1	1.5	0.1
5. Total Asia & Pacific	2.6	3.0	120.0	5.2
of which				
5.1 Indonesia	1.4	1.6	24.0	1.0
5.2 Australia	0.2	0.2	32.3	1.4
5.3 India	0.4	0.5	3.5	0.2
5.4 Pakistan	0.01	neg	15.8	0.7
5.5 Brunei-	0.2	0.2	8.4	0.4
5.6 Malaysia	0.3	0.3	15.5	0.6
6. Total Free World	73.9	84.3	1373.8	59.0
7. Total Communist World	13.8	15.7	953.0	41.0
of which				
7.1 Russia	10.7	12.2	918.0	39.5
7.2 Red China	2.7	3.1	25.0	1.1
7.3 Hungry (Others) Cuba	0.4	0.4	10.0	0.4
Total World	87.7	100	2326.8	100

Source :- Oil & Gas Journal, December, 27, 1976.

1 Tonne = 7.3 per barrel

WORLD CRUDE OIL PRODUCTION-1975 & 1976

Qty:-Mn.Tonnes

Country	1975	1976 Provisional	% change 1976/75
Industrial Countries			
North America (a)			
Canada	82.8	74.0	-10.4
U.S.A.	466.0	455.9	- 2.6
Total North America	548.8	529.9	- 3.8
Western Europe			
Austria	2.0	1.9	- 5.1
Denmark	0.2	0.1	-25.0
France	1.0	1.0	-
FR Germany	5.7	5.6	- 1.8
Italy	1.0	1.0	-
Netherlands	1.4	1.7	+14.8
Norway	9.3	13.7	+47.6
Spain	2.2	2.2	- 2.4
Turkey	3.1	3.3	+ 8.3
U.K.	1.1	12.3	+1013.6
Yugoslavia	3.7	3.5	- 5.3
Total Western Europe	30.7	46.3	+51.3
Far East			
Australia	19.3	19.6	+ 1.5
Japan	0.6	0.6	-
Total Far East	19.9	20.2	+ 1.4
Total Industrial Countries	599.4	596.4	- 1.0
Centrally Planned Economies			
China (b)	78.3	82.9	+ 5.6
Rumania	14.6	14.2	- 2.7
USSR (a)	489.7	521.0	+ 6.1
Others	5.5	5.5	-
Total Centrally Planned Economies	588.1	623.6	+ 5.8
O P E C			
Algeria	44.2	45.4	+ 2.4
Ecuador	8.2	9.6	+15.5
Gabon	11.3	10.9	- 4.4
Indonesia	64.5	74.4	+15.1
Iran	269.1	296.5	+ 9.9
Iraq	108.7	107.4	- 1.4
Kuwait (KOC)	92.4	96.5	+ 4.2
Libya	72.8	92.6	+26.8
Neutral Zone	25.4	24.3	- 4.3
Nigeria	89.5	103.8	+15.7
Qatar	21.1	23.5	+11.4
Saudi Arabia-Aramco	339.6	416.1	+22.2
UAE: Abu Dhabi	67.2	76.5	+13.6
Dubai	12.7	15.7	+22.7
Sharjah	1.9	1.8	- 2.6
Venezuela	122.2	119.9	- 2.2
Total OPEC	1350.8	1514.8	+11.9

a) Includes natural gas liquids and Synthetic Oils.

b) Includes oil from shale and coal

CONTD...../-

WORLD CRUDE OIL PRODUCTION -1975 and 1976

(Qty. Million Tonnes)

Country	1975	1976 (Prov.)	% Change
Other Developing Countries			
Angola	8.0	5.6	-30.8
Argentina	20.2	19.8	- 2.0
Bahrain	2.8	2.9	+ 1.8
Brazil	8.2	8.2	-
Brunei	8.8	9.0	+ 2.2
Colombia	8.0	7.6	- 5.7
Congo	1.7	2.0	+17.6
Egypt(C)	15.0	16.5	+ 9.8
India	8.3	8.7	+ 4.8
Mexico	40.4	40.4	- 0.4
Oman	17.0	18.3	+ 7.0
Peru	3.6	3.7	+ 4.2
Syria	9.5	8.7	- 8.8
Trinidad	11.2	10.7	- 4.7
Tunisia	4.5	3.7	-17.9
Others	9.8	10.8	+15.1
Total Other Developing Countries.	177.0	176.6	- 0.3
Total World	2715.3	2911.4	+ 6.8

a) Includes natrual gas liquids and Synthetic Oil.

b) Includes Oil from Shale and Coal

C) Includes Sinai fields.

Source:- Petroleum Economics Limited: Jan.-Feb.,1977

ESTIMATED WORLD NATURAL GAS PRODUCTION

Country/Area	1974 Billion (10^9) cubic feet	1974 % of total	1975 Billion (10^9) cubic feet	1975 % of total	% change 1975/74
1. Total Western Hemisphere	28801	60.7	25519	53.5	-11.0
of which					
1.1. U.S.A.	22377	47.1	20465	42.7	- 8.5
1.2 Venezuela	1466	3.1	205	0.4	-86.0
1.3 Canada	3342	7.0	3422	7.1	+ 2.4
1.4 Trinidad&Tobago	65	0.1	51	0.1	-21.5
1.5 Mexico	686	1.4	772	1.6	+12.5
1.6 Argentina	278	0.6	273	0.6	- 1.8
1.7 Bolivia	152	0.3	112	0.2	-26.3
2. Total Africa	283	0.6	402	0.9	+42.0
of which					
2.1 Libya	41	0.1	134	0.3	+226.8
2.2 Algeria	21	neg	20	neg	- 4.8
2.3 Nigeria	60	0.1	91	0.2	+51.7
2.4 Egypt	50	0.1	51	0.1	+ 2.0
3. Total Middle East	1046	2.2	2058	4.3	+96.8
of which					
3.1 Kuwait	2	neg	175	0.4	+7750.0
3.2 Iran	906	1.9	1750	3.7	+93.2
3.3 Iraq	129	0.3	122	0.3	- 5.4
3.4 Bahrain	3	neg	3	neg	-
4. Total Europe	5767	12.1	6043	12.6	+ 4.8
of which					
4.1 West Germany	674	1.4	690	1.4	+ 2.4
4.2 U.K.	1207	2.5	1231	2.6	+ 2.0
4.3 Netherlands	2868	6.0	3199	6.7	+11.5
4.4 Italy & Sicily	572	1.2	533	1.1	- 6.8
4.5 France	304	0.6	267	0.6	-12.2
4.6 Yugosalavia	55	0.1	52	0.1	- 5.5
5. Total Asia & Pacific	740	1.6	817	1.7	+10.4
of which					
5.1 Indonesia	161	0.3	203	0.4	+26.1
5.2 Australia	160	0.3	183	0.4	+14.4
5.3 India	19	neg	36	0.1	+89.5
5.4 Pakistan	142	0.3	155	0.3	+ 9.2
Total Free World	36637	77.2	34939	73.0	- 4.6
6. Total Communist World	10837	22.8	12943	27.0	+19.4
6.1 U.S.S.R.	9213	19.4	10202	21.3	+10.7
6.2 Red China	187	0.4	1284	2.7	+586 .6
6.3 Hungry	162	0.3	215	0.4	+32.7
6.4 Rumania	936	2.0	935	1.9	- 0.1
6.5 Poland	178	0.4	227	0.5	+27.5
6.6 Others	161	0.3	80	0.2	-50.3
Total World	47474	100	47882	100	+ 0.9

Source:- International Petroleum Encyclopedia-1976.

PRODUCTIVITY OF PRODUCING WELLS IN SELECTED FIELDS IN THE WORLD-1976.

Country	Field	Discovery Date	Depth (meters)	Wells F.	Wells P.	Daily average 1st 6 month '76 ('000 'bbls)	Gravity (API)	T/w/d 1976
Algeria	Edjeleh	1956	580-1251	40	-	20.0	35.0	67.4
	Zarzaitine	1958	1403	25	-	100.0	42.0	517.1
	Hassi Messaoud North	1956	3355	108	-	225.0	49.0	259.4
	Hassi Messaoud South	1956	3355	145	-	360.0	49.0	309.1
Libya	Gialo	1961	671-1922	1	154	265.6	35.7	230.4
	Sarir	1961	2745	68	-	270.0	37.2	527.5
	Intisar,D,	1967	2867	17	-	177.3	39.5	1369.0
	Defa	1969	1647-1800	55	-	171.6	35.6	419.5
	Nasser	1959	1678-2318	25	-	167.0	40.0	874.2
Iran	Agha Jari	1936	2288	43	-	852.4	33.7	2696.7
	Ahwaz-Asmari	1958	2654	48	-	937.0	31.9	2678.5
	Gach Saran	1937	2745	30	-	619.6	31.0	2850.3
	Marun	1963	3660	44	-	1348.4	32.9	4180.8
	Darius-Offshore	1961	3355	11	-	58.9	34.0	726.2
	Sassan ,,	1966	2288-2471	18	-	153 .0	34.0	1152.9
	Rostam ,,	1966	2196-2989	8	16	18.1	33.9	102.3
Iraq[e]	All fields since	1909	610-3813	160	-	1900.0	30.0-42.5	1535.0
Neutral Zone	Khafji-Offshore	1961	1342-3660	132	-	199.5	27.8	213.4
Saudi Arabia	Abqaic	1940	2040	64	-	825.0	37.0	1717.6
	Berri,Partly-Offshore)	1964	2532 2532	45	-	807.6	32.0-39.0	2363.0
	Safaniyah(,,)	1951	1556	97	-	621.1	27.0	906.6
	Ghawar	1948	2111	372	-	5189.9	34.0	1892.2
Burma	Mann	1970	488-2135	79	-3	14.1	37.5	22.8
	Yenangyuang	1902	30-2044	3	141	2.9	36.0	2.7
India	All fields since	1890	92-3902	-	1435*	171.0	22.0-48.0	16.3
Indonesia	Bangko	1970	458	-	46	78.4	34.2	231.2
	Minas	1944	732	-	235	356.8	35.4	204.1
	Attaka (Offshore)	1970	2288	56	-	105.2	41.0	244.3

t/w/d/ = Tonnes/well/day e=Estimated * flowing, Pumping and shut in wells including wells, used for injection purposes.
F = flowing

Source:- Oil & Gas Journal December, 27, 1976.

WORLD OIL REFINING CAPACITIES AT END 1976 and 1975

Country/Area	Million Tonnes per annum 1976	1975	1976 share of total (%)	% Change 1976 over 1975	% Change annual average 1971-1976
North America	929	863	24.9	+7.8	+4.6
U.S.A.	819	759	21.9	+8.0	+4.4
Canada	110	104	3.0	+6.5	+6.3
Latin America	399	380	10.7	+5.0	+6.2
Argentina	36	35	1.0	+3.6	+2.9
Brazil	57	51	1.5	+12.4	+15.2
Mexico	47	39	1.3	+19.1	+ 9.6
N.W.I.	42	42	1.1	-	+1.2
Trinidad	23	23	0.6	-	+0.9
Venezuela	75	75	2.0	-	+2.9
Other Latin America	119	115	3.2	+3.6	+8.3
Total Western Hemisphere	1328	1243	35.6	+6.9	+5.0
Western Europe	1055	1030	28.2	+2.5	+6.0
Belgium	56	49	1.5	+14.9	+6.0
France	173	165	4.6	+4.8	+7.5
Italy	222	219	5.9	+1.3	+4.7
Netherlands	97	97	2.6	-	+4.5
Spain	63	59	1.7	+6.8	+10.1
United Kingdom	150	147	4.0	+2.2	+4.8
West Germany	155	155	4.2	-	+4.2
Other Western Europe	139	139	3.7	-	+9.1
Middle East	139	139	3.7	+0.5	+3.1
Aden	8	8	0.2	-	-
Bahrain	12	12	0.3	-	-
Iran	38	38	1.0	-	+ 5.0
Iraq	9	9	0.2	-	+10.1
Kuwait	28	28	0.8	-	+0.8
Netural Zone	4	4	0.1	-	-
Saudi Arabia	23	23	0.6	-	+1.8
Other Middle East	17	17	0.5	+4.5	+7.0
Africa	69	63	1.9	+9.8	+12.2
South Asia	36	36	1.0	-	+2.7
South East Asia	153	144	4.2	+6.6	+12.6
Indonesia	26	21	0.7	+24.0	+4.4
Singapore	54	54	1.5	-	+20.4
Other South East Asia	73	69	2.0	+6.5	+11.4
Japan	266	263	7.1	+1.4	+7.0
Australasia	38	38	1.0	-	+1.8
U.S.S.R., E.Europe & China	647	610	17.3	+6.1	+8.3
Total Eastern Hemisphere	2403	2323	64.4	+3.5	+6.9
Total World	3731	3566	100	+ 4.7	+6.2

Source :- B.P.Statistical Review , 1976.

WORLD OIL CONSUMPTION 1976 and 1975

Million Tonnes

Country/Area	1976	1975	1976 % share of total	% Change 1976 over 1975	% Change annual average 1971/76
U.S.A.	822.4	765.9	28.6	7.4	2.7
Canada	85.9	83.1	3.0	3.4	2.5
Total North America	908.3	849.0	31.6	7.0	2.7
Latin America	186.4	174.0	6.5	7.1	4.8
Total Western Hemisphere	1094.7	1023.0	38.1	7.0	3.0
Austria	11.5	10.6	0.4	8.6	2.4
Belgium & Luxembourg	27.6	26.5	1.0	4.4	-0.5
Denmark	16.8	15.7	0.6	7.3	-2.0
Eire	5.3	5.2	0.2	1.4	3.2
Finland	12.8	11.9	0.4	7.4	2.9
France	117.3	110.4	4.1	6.2	2.7
Greece	10.7	9.9	0.4	7.5	7.6
Iceland	0.6	0.6	-	-4.3	0.2
Italy	98.5	94.5	3.4	4.2	1.0
Netherlands	39.4	34.8	1.4	13.1	1.8
Norway	8.7	8.0	0.3	8.1	1.0
Portugal	7.2	6.8	0.3	5.7	5.8
Spain	47.2	42.7	1.6	10.6	8.8
Sweden	29.4	26.6	1.0	10.7	0.8
Switzerland	12.9	12.5	0.4	3.5	-0.5
Turkey	15.2	13.4	0.5	13.2	11.2
U.K.	91.6	92.1	3.2	-0.5	-2.3
West Germany	139.2	128.9	4.8	8.0	0.8
Yugoslavia	13.2	12.2	0.5	8.5	8.1
Cyprus/Gibraltar/Malta	1.3	1.1	-	17.5	2.3
Total Westen Europe	706.4	664.4	24.5	6.3	1.5
Middle East	73.3	66.8	2.5	9.8	6.0
Africa	54.2	51.3	1.9	5.6	4.1
South Asia	32.4	31.0	1.1	4.5	3.0
South East Asia	91.7	81.2	3.2	13.0	7.5
Japan	253.8	244.0	8.8	4.0	2.9
Australasia	36.3	35.3	1.3	2.8	2.9
U.S.S.R.	380.0	362.0	13.2	5.0	6.8
Eastern Europe	90.0	86.0	3.1	4.7	8.2
China	66.0	55.6	2.3	18.7	21.6
Total Eastern Hemisphere	1784.1	1677.6	61.9	6.3	4.1
World	2878.8	2700.6	100.0	6.6	3.7
World(Excl.USSR,E.Europe and China)	2342.8	2197.0	81.4	6.6	2.8

Source:- BP Statistical Review -1976

COUNTRY-WISE IMPORTS AND EXPORTS-1976.

(Crude Oil and Products)

Million Tonnes

Country/Area	IMPORTS		EXPORTS	
	Crude	Products	Crude	Products
U.S.A.	261.7	103.3	0.4	11.9
Canada	36.8	2.0	18.3	12.0
Latin America	114.7	9.9	58.4	114.5
Western Europe	627.7	54.1	2.5	14.4
Middle East	8.3	3.9	983.4	49.8
North Africa	3.1	3.7	143.8	3.4
West Africa	0.7	2.0	110.3	1.2
East & South Africa	20.3	2.1	-	1.4
South Asia	17.3	5.2	-	-
South East Asia	63.6	24.6	66.7	17.5
Japan	233.7	28.7	-	0.1
Australasia	11.0	5.5	-	2.7
U.S.S.R.,E.Europe & China	18.0	1.0	50.0	43.0
*Destination not known	16.9	25.9	-	-
Total	1433.8	271.9	1433.8	271.9

* INCLUDES INCREASED QUANTITIES IN TRANSIT, TRANSIT LOSSES, MINOR MOVEMENTS NOT OTHERWISE SHOWN, MILITARY USE ETC.

LOWEST POSTED PRICES OF POL PRODUCTS AT BANDAR MAHSHAHR

/AG

Date of change w.e.f.	Light Distillates				
	Avgas 115/145	Avgas 100/130	Avgas 73	93 Octane	83 Octane
25.7.67	16.0	14.7	12.7	9.3	7.3
5.9.68	"	"	"	"	"
28.3.69	"	"	"	9.0	7.1
20.10.70	"	"	"	"	"
19.2.71	"	"	13.6	"	"
23.2.71	16.7	15.4	"	9.7	7.8
14.5.71	"	"	"	"	"
3.6.71	16.9	15.6	"	9.9	8.0
10.6.71	"	"	13.7	"	"
21.9.71	"	"	"	"	"
21.1.72	"	"	13.8	"	"
26.1.72	17.1	15.8	"	10.1	8.1
3.2.72	17.2	15.9	14.1	10.2	8.3
3.1.73	17.4	16.1	"	10.3	"
5.1.73 (effective Jan.1)	"	"	"	10.4	8.4
10.1.73	17.6	16.3	14.7	10.6	8.7
23.2.73	"	"	"	"	"
2.4.73	"	"	"	"	"
5.4.73	18.0	16.7	"	10.9	8.9
6.4.73 (effective April-1.)	18.5	17.2	15.2	11.5	9.5
7.6.73	18.5	17.2	15.2	11.5	9.5
11.6.73	20.3	19.0	17.0	13.2	11.3
▲2.7.73	20.5	19.2	17.2	13.5	11.6

contd.../-

Date of change w.e.f.	Middle Distillates				Others
	Turbine fuel 50F	Kerosine	Diesel Index 53-57	Indl. Diesel ($bbl.)	Light fuel ($bbl.)
25.7.67	9.5	8.9	6.8	2.70	1.52
5.9.68	"	"	"	"	1.50
28.3.69	"	"	6.6	2.62	1.42
20.10.70	"	"	"	2.80	1.50
19.2.71	"	"	"	2.72	1.52
23.2.71	10.2	9.6	7.3	3.02	1.82
14.5.71	"	"	"	3.10	1.90
3.6.71	10.4	9.8	7.5	"	"
10.6.71	"	"	"	3.20	2.02
21.9.71	"	"	"	"	1.95
21.1.72	"	"	"	"	"
26.1.72	10.6	10.0	7.8	"	2.02
3.2.72	10.7	10.1	"	3.32	2.07
3.1.73	10.9	10.3	8.1	"	"
5.1.73 effective Jan.1	"	"	8.2	"	2.17
10.1.73	11.1	10.5	8.2	3.42	2.20
23.2.73	"	"	"	3.45	2.22
2.4.73	"	"	"	"	2.23
5.4.73	11.3	10.7	8.4	"	"
6.4.73 effective April-1	11.8	11.2	9.0	3.57	2.27
7.6.73	11.8	11.2	9.0	3.58	2.27
11.6.73	12.5	11.9	9.6	3.65	2.32
▲2.7.73	12.5	11.9	9.7	3.65	2.32

contd.

Date of change w.e.f.	Light Distillates				
	Avgas 115/145	Avgas 100/130	Avgas 73	93 Octane	83 Octane
(Eff.on & since July,1.)					
9.7.73	20.6	19.3	17.3	13.6	11.7
11 .7.73	"	"	"	"	"
2.8.73	20.8	19.5	17.5	13.8	11.8
8.8.73	"	"	"	"	"
9.8.73	"	"	"	13.9	11.9
17.10.73	21.0	19.7	17.7	14.0	12.1
25.10.73	"	"	"	14.1	"
30.10.73	"	"	"	"	"
31.10.73	21.3	20.0	18.0	14.4	12.4
1.11.73	23.0	21.7	20.0	16.0	14.1
14.11.73	23.5	22.2	"	16.6	14.6
26.11.73	23.8	22.5	20.5	16.8	14.9
6.12.73	"	"	20.8	"	"
10.12.73	24.1	22.8	"	17.2	15.2
14.12.73	24.3**	23.0**	21.0**	17.3**	15.4**
14. 1.74	24.3	23.0	21.0	17.4	15.4
18. 1.74	36.5	35.0	33.0	28.0	26.0
4. 2.74	36.7	35.4	33.5	28.5	26.0
1. 4.74	36.8	35.5	33.5	29.5	27.0
2. 4.74	36.8	35.5	33.5	29.7	27.7
25. 4.74	40.5	39.0	37.0	33.2	30.2
6. 6.74	40.5	39.0	37.0	33.2	30.2
7. 7.74	40.7	39.4	37.5	33.2	30.2

contd..../-

Date of change w.e.f.	Middle Distillates				Others
	Turbine fuel -587	Kerosine	Diesel index 53-57	Indl. Diesel (Bbl)	Light fuel($ bbl)
eff.on & since July 1					
9.7.73	12.7	12.1	9.8	3.65	2.32
11.7.73	12.7	12.1	9.8	3.87	2.32
2.8.73	13.1	12.5	10.3	4.05	2.35
8.8.73	13.1	12.6	10.3	4.05	2.35
9.8.73	13.1	12.6	10.3	4.12	2.40
17.10.73	13.1	12.8	10.3	4.14	2.40
25.10.73	13.4	"	10.6	4.15	"
30.10.73	"	"	"	"	"
31.10.73	14.4		11.5	4.42	"
1.11.73	17.1	16.8	14.3	5.80	5.24
14.11.73	17.8	17.3	14.9	"	14.6
26.11.73	"	"	14.9	5.82	"
6.12.73	"	17.5	"	"	"
10.12.73	18.6	18.0	15.3	5.90	3.35
14.12.73	"	18.3	15.7	6.16	3.75
14. 1.74	18.9	"	"	6.25	3.78
18. 1.74	29.0	28.5	26.5	10.40	8.70
4. 2.74	31.0	30.0	28.0	11.35	9.00
1. 4.74	"	"	"	"	"
2. 4.74	"	"	"	"	"
25. 4.74	"	"	"	"	"
6. 6.74	"	"	"	"	9.10
7. 7.74	"	"	"	"	9.20

Date of Change w.e.f.	Light Distillates				
	Avgas 115/145	Avgas 100/130	Avgas 73	93 Octane	83 Octane
18.7.74	40.7	39.4	37.5	33.2	31.3
13.8.74	"	"	41.0	"	"
20.8.74	45.9	43.9	"	"	"
1.10.74	"	"	"	"	"
15.10.74	46.1	44.1	41.1	33.5	32.0
21.10.74	47.6	45.6	45.0	34.5	32.5
1.11.74	"	"	"	"	"
2.12.74	50.0	48.0	"	"	"
5.12.74	"	"	"	35.0	33.5
6.12.74	50.6	48.6	47.5	35.9	34.0
27. 1.75	"	"	"	"	"
10.10.75	52.5	50.5	"	36.5	"
20.10.75	"	"	"	"	"
21.10.75	53.0	51.0	51.0	38.3	36.4
4. 3.76	"	48.0	"	"	"
28.4.76	"	"	"	"	"
3.5.76	"	"	"	"	"
3.1.77	"	"	"	39.6	36.7
18.1.77	56.0	54.0	51.0	40.0	37.5
28.1.77	"	"	53.0	41.2	39.0
31.1.77	58.0	56.0	"	"	"
24.1.77	"	"	"	"	"

contd.../-

Date of change w.e.f.	Middle Distillates				Others
	Turbine fuel 58f	Kero.	Diesel Index 53-57	Indl. Diesel	Light fuel($ bbl)
18.7.74	31.0	30.0	28.0	11.36	9.20
13.8.74	"	"	"	"	"
20.8.74	"	"	"	"	"
1.10.74	"	30.7	28.1	"	9.25
15.10.74	32.0	"	"	11.50	9.30
21.10.74	32.5	31.5	29.5	11.77	9.55
1.11.74	"	32.2	29.6	"	9.60
2.12.74	"	"	"	11.85	"
5.12.74	33.5	"	"	"	9.65
6.12.74	33.7	33.4	30.8	12.11	10.05
27.1.75	34.1	33.8	31.1	"	"
10.10.75	35.5	34.4	31.1	12.50	"
20.10.75	"	"	"	"	10.20
21.10.75	36.7	36.4	33.6	12.86	10.60
4.3.76	36.7	36.4	33.6	12.86	10.60
28.4.76	"	"	"	"	"
3.5.76	"	"	"	"	"
3.1.77	37.0	36.5	33.7	13.25	"
18.1.77	38.8	38.3	35.1	14.00	10.80
28.1.77	"	"	35.5	"	11.65
31.1.77	"	"	"	"	"
24.2.77	"	"	36.2	14.08	"

53-57 = H.S.D.

Indl.Diesel= L.D.O.

Light fuel = Furnace Oil

a) effective feb.15 1971
+ Effective on and since Dec.3,1973
** Effective on and since Dec., 12,1973
BOb) ffective on and since Dec.,1,1974

Source:- Platt's Oilgram.

RETAIL PRICES INCLUDING DUTY AND TAXES OF SOME SELECTED PRODUCTS IN DIFFERENT COUNTRIES AS ON 31-7-1976.

1. MOTOR GASOLINES REGULAR

Country	$ / US GALLON		
	Retail Price	Duty	Taxes
Canada (Ottawa)	62.6		26.7
USA (New York)	63.9	1.3	13.0
France (Paris)	140.0	-	54.8%
Germany west (Bonn)	138.6	6%	65.6+11%
Italy (Rome)	169.8	7%	110.2
Netherlands (The Hague)	151.7	68.6	20.9
U.K. (London)	125.1	53.4	12.5%
Kenya (Nairobi)	109.0	27.0	18.0
Iran (Tehran)	32.2	-	-
Saudi Arabia (Jiddah)	11.8	-	-
Burma (Rangoon)	46.7	NA	2.5
India (New Delhi)	142.4	90.1	7%
Indonesia (Djakarta)	63.8	NA	NA
Japan (Tokyo)	136.1	2.7	56.7
Pakistan (Islamabad)	100.8	33.3	53.3
Phillippines (Manila)	71.0	1.5	16.8
Singapore (Singapore)	104.0	55.2	55.2
Thailand (Bangkok)	76.8	20.8	3.2
Australia (Sydney)	NA	NA	NA

Source:- International Petroleum Annual-1975.

NA:- Not Available.

RETAIL PRICES INCLUDING DUTY AND TAXES OF SOME SELECTED PRODUCTS IN DIFFERENT COUNTRIES AS ON 31- 7-1976.

2. House Hold Kerosince

Country	¢ / US GALLON		
	Retail Price	Duty	Taxes
Canada (Ottawa)	46.3	-	NA
USA (New York)	61.9	0.3	-
France (Paris)	93.1	-	43.1%
Germany West (Bonn)	476.8	6%	65.6+11%
Italy (Rome)	38.4	7%	5.4
Netherland(The Hague)	77.6	5.2	3.0
U.K.(London)	55.0	-	1.8
Kenya (Nairobi)	64.0	6.0	-
Iran(Tehran)	13.4	-	-
Saudi Arabia(Jiddah)	8.0	-	-
Burma (Rangoon)	33.3	NA	1.7
India (New Delhi)	54.6	18.0	3%
Indonesia (Djakarta)	16.4	NA	NA
Japan (Tokyo)	49.2	1.1	-
Pakistan (Islamabad)	33.3	-	25.8
Sri Lanka (Colombo)	NA	NA	NA
Singapore(Singapore)	47.6	1.5	1.5
Thailand (Bangkok)	54.0	3.8	2.2
Australia (Sydney)	NA	NA	NA
Philippines(Manila)	54.0	1.5	3.6

NA :- Not Available.

Source:- International Petroleum Annual-1975.

RETAIL PRICES INCLUDING DUTY AND TAXES OF SOME SELECTED PRODUCTS IN DIFFERENT COUNTIRES AS ON 31-7-1976.

3. Motor Lubrica-ting oil

Country	¢ / US GALLON		
	Retail Price	Duty	Taxes
Canada (Ottawa)	623.1	-	NA
USA (New York)	360.0	2.0	6.0
France (Paris)	592.4	-	18.2%
Germany West (Bonn)	1229.3	6%	65.6+11%
Italy (Rome)	NA	NA	NA
Netherland(The Hague)	NA	NA	NA
U.K. (London)	352.4	-	1.8
Kenya (Nairobi)	400.0	18.0	10.0
Iran (Tehran)	268.1	-	-
Saudi Arabia(Jiddah)	658.0	-	-
Burma (Rangoon)	216.7	NA	10.8
India(New Delhi)	375.9	NA	7%
Indonesia(Djakarta)	911.0	NA	NA
Japan(Tokyo)	1024.4	6%	-
Pakistan(Islamabad)	NA	NA	NA
Philippines(Manila)	279.0	NA	33.0
Sri Lanka(Colombo)	NA	NA	NA
Singapore(Singapore)	492.9	33.6	33.6
Thailand (Bangkok)	431.9	34.5	26.6
Australia(Sydney)	NA	NA	NA

NA.-:Not Available

Source:- International Petroleum Annual-1975.

RETAIL PRICES INCLUDING DUTRY AND TAXES OF SOME SELECTED PRODUCTS IN DIFFERENT COUNTRIES AS ON 31-7-1976.

4. Bunkers 'C' Fuel

Country	¢ / US BARREL		
	Retail Price	Duty	Taxes
Canada(Ottawa)	1073.5	-	NA
USA (New York)	1248.0	-	-
France (Paris)	1306.3	-	-
Germany West (Bonn)	1369.2	3.5%	88.2+11%
Italy (Rome)	1317.0	5%	166.1
Netherland(TheHague)	1298.6	84.2	4%
U.K.(London)	1601.3	-	74.8
Kenya (Nairobi)	1175.7	-	-
Iran (Tehran)	1090.8	-	-
Saudi Arabia(Jiddah)	252.0	-	-
Burma (Rangoon)	1085.0	NA	70.0
India (New Delhi)	1131.7	-	-
Indonesia (Djakarta)	841.7	NA	NA
Japan(Tokyo)	1425.5	34.9	-
Pakistan (Islamabad)	910.1	54.2	621.2
Philippines(Manila)	1638.0	63.0	96.6
Sri Lanka (Colombo)	NA	NA	NA
Singapore(Singapore)	1252.5	90.4	90.4
Thailand (Bangkok)	1352.4	-	-
Australia (Sydney)	NA	NA	NA

NA :- Not Available.
Source:- International Petroleum Annual-1975.

POSTED AIRFIELD PRICE OF JET A-1 FUEL AT MAJOR INTERNATIONAL AIRPORTS AS ON 1-1-1977.

Country/Airfield	Jet A-1 Price USC/USG
Australia	
Sydney	40.74
Perth	40.74
Bahrain	57.51
Belgium	
Brussels	63.06
Egypt	
Cairo	64.00
Ethiopia	
Addis Ababa	73.80
France	
Paris(Orly)	51.77
Germany	
Frankfurt	64.04
Holland	
Amsterdam(Schiphol)	61.00
Iran	
Tehran	46.38
Italy	
Rome(Fimicino)	60.50
Kenya	
Nairobi	63.00
Kuwait	46.73(1)
Lebanon	
Beirut	61.00
Malaysia	
Kualalumpur	57.64
Mauritius	
Plaisance	59.00
Singapore	
Paya Lebar	52.61
Switzerland	
Geneva	70.41
Trucial States	
Abu Dhabi	57.51
Sharjah	62.26
United Kingdom	
London(Heathrow)	58.04

(1) Monopoly price

Source :- Air India

Key Crude Oil Price Postings Around the World

These are not sales prices (except in the U.S. and Indonesia), but Prices posted by Govt. for computing oil company taxes.

In $ per barrel. Postings in effect on dates shown or thereabout)

		1975			1976					1977	
		Jan.1	Apr.1	July 1	Oct.1	Jan.1	Mar.	July,27	Aug.17	Jan.1	April,26
A Crude & Gravity											
Arab Light	34	11.251	11.251	11.251	12.376	12.376	12.376	12.376	12,376	13.000	13.000
Arab Berri	39	11.951	11.951	11.951	12.768	12.768	NA£	NA £	NA£	13.420	13.420
Arab Medium	31	11.161	11.161	11.161	12.227	12.184	12.184	12.129	12.129	12.570	12.570
Arab Heavy	27	11.041	11.041	11.041	12.086	11.978	11.871	11.871	11.871	12.230	12.230
Iran Light	34	11.475	11.475	11.475	12.495	12.495	12.495	12.495	12.495	13.774	13.774
Iran Heavy	31	11.235	11.235	11.235	12.360	12.360	12.258	12.183	12.183	13.430	13.430
Kuwait	31	11.145	11.145	11.145	12.260	12.151	12.151	12.075	12.075	–	–
Abu Dhabi											
Umm Shaif	37	11.446	11.446	11.446	12.575	12.575	12.575	12.575	12.575	13.200	13.200
Murban	39	11.686	11.686	11.686	12.815	12.815	12.815	12.815	12.815	13.440	13.440
Zakum	40	11.586	11.586	11.586	12.715	12.715	12.715	12.715	12.715	13.340	13.340
Iraq Basrah	35	11.272	11.272	11.272	12.400	12.400	12.400	12.400	12.400	–	13.624
Qatar Marine	36	11.613	11.613	11.613	12.540	12.540	12.540	12.540	12.540	–	13.979
Qatar Dukhan	40	12.014	12.014	12.014	12.740	12.740	12.740	12.740	12.740	–	14.183
Oman	34	12.298	12.298	12.298	NA£	NA £	NA£	NA £	NA £	@13.677	13.677
Mediterranean & African Crudes											
Arab Light	34	13.247	13.247	13.247	NA £	NA£	NA £	NA £	NA£	NA£	NA £
Iraq Kirkuk	36	NA£	NA£	NA£	NA £	NA £	NA£	NA£	NA£	–	–
Libyan	40	15.768	15.000	14.600	16.060	16.060	16.060	16.060	16.350	18.250	18.250
Nigerian	34	14.691	12.063	11.663	13.071	13.709	13.709	13.709	13.709	–	–
Nigerian	37	–	–	–	–	–	–	–	–	15.291	15.291
Indonesian Crude (Official Selling Price)											
Sumatra Light	34	12.600	12.600	12.600	NA£	–	–	–	–	–	–
Venezuelan Crude (Reference Prices)											
Tia Juana	26	13.541	13.541	13.541	14.643	–					
Tia Juana	31	14.134	14.134	14.134	15.579	–					
Oficina	35	14.665	14.665	14.665	16.169	–					
United States (Representative Posting)											
East Texas	Flat	*11.200	*11.600	*12.650	NA£	–					

* Posted prices for crude not subject to government price controls; controlled crudes (about 60% of outp
are posted at $ 5.200 per barrel. NA£ Posting not available. Source:- Oil Grams April,26, 1977.

© Effective Feb.,1,1977. PIW 18th August, 1975

WORLD SCALE FREIGHT RATES

(Percentage)

	General purpose 16500-24999 dwt	Medium range 25000-44999dwt	L. R. 1 45000-79999 dwt	L. R. 2 80000-159999 dwt	VLCC 160000 & abcve.
1971					
January	168.5	152.4	114.7	97.9	
February	158.8	142.8	111.2	94.7	
March	143.0	133.5	107.8	90.7	
April	133.8	130.3	109.6	91.2	
May	130.3	125.7	106.3	89.5	
June	123.6	119.1	103.2	90.2	
July	118.8	114.7	101.4	88.8	
August	114.6	110.5	99.3	86.1	
September	116.1	111.2	97.0	83.4	
October	117.6	109.3	95.6	81.3	
November	116.3	107.8	91.4	80.9	
December	118.4	107.6	87.9	79.4	
1972					
January	116.7	103.5	86.4	75.8	
February	120.1	107.0	85.9	74.8	
March	115.8	107.9	86.6	75.7	
April	113.1	105.0	84-3	73.3	
May	112.5	100.9	80.6	68.5	
June	110.9	97.6	77.5	65.1	
July	111.4	96.9	75.4	65.2	
August	113.9	98.7	76.2	66.6	
September	113.6	98.7	76.7	66.3	
October	116.9	100.6	76.6	66.2	
November	120.2	102.8	78.4	67.3	
December	120.3	103.2	81.0	69.6	
1973					
January	128.6	110.5	84.1	72.7	
February	131.4	115.3	86.6	75.8	
March	133.7	117.3	90.1	79.6	
April	142.7	124.6	96.1	83.8	
May	141.0	128.1	100.4	88.7	
June	143.9	128.5	101.8	88.7	
July	161.4	138.9	101.7	90.3	
August	188.5	162.8	116.0	100.2	
September	210.9	176.6	129.2	113.8	
October	215.0	186.0	135.0	123.9	
November	229.9	200.3	144.9	138.7	
December	266.0	226.5	159.5	149.4	

WORLD SCALE FREIGHT RATES

(Percentage)

	General purpose 16500-24999 dwt	Medium range 25000-44999 dwt	L.R.1 45000 -79999 dwt	L.R.2 80000- 159999 dwt	VLCC 160000- & above
1974					
January	234.5	195.8	139.6	125.5	86.8
February	221.8	178.2	123.6	102.0	81.5
March	228.7	189.4	125.8	99.2	80.2
April	224.4	187.8	121.9	100.6	79.2
May	223.8	185.8	122.0	101.7	79.4
June	222.0	186.8	121.6	97.8	78.9
July	214.6	181.9	119.7	92.9	77.8
August	203.3	179.4	120.9	93.2	78.7
September	190.6	169.3	116.3	90.5	77.5
October	183.4	164.6	110.2	86.5	74.6
November	190.7	165.5	110.3	86.1	72.9
December	196.2	168.8	115.0	87.9	74.7
1975					
January	138.7	122.0	81.5	62.3	54.3
February	140.8	121.8	80.5	60.8	55.0
March	136.3	120.1	81.4	62.2	56.4
April	132.5	121.2	81.3	62.1	57.0
May	130.6	123.1	81.5	62.8	-
June	132.8	122.2	82.0	63.6	57.8
July	135.4	123.8	82.6	61.9	57.3
August	142.8	130.0	85.6	63.4	59.2
September	145.4	127.8	86.7	64.0	-
October	145.5	126.0	85.3	63.9	57.9
November	146.6	129.7	85.6	61.6	-
December	147.0	129.8	84.4	63.6	57.0
1976					
January	130.9	118.2	77.8	58.1	51.4
February	136.2	119.8	79.0	58.4	51.5
March	127.9	119.9	76.8	59.8	52.1
April	130.1	119.6	75.5	58.9	51.5
May	131.4	117.1	76.0	56.4	50.7
June	126.1	116.1	77.0	58.0	50.1
July	129.6	117.9	77.2	56.1	50.1
August	130.9	119.9	78.3	56.7	50.5
September	133.2	116.6	78.5	57.3	49.4
October	137.8	115.7	77.4	56.4	48.8
November	137.1	114.4	76.3	53.9	49.2
December	140.8	116.0	75.7	54.1	48.7

WORLD TANKER FLEET AT END 1976(10000 long Tons D.W. and over)

(Excluding 45.7 Million D.W.T.Combinded Carriers)

By Flag and Ownership

Flag	Oil company	Private	Govt.	Others	Total 1976	Total 1975	Change 1976 over 1975
	(Million long ton Dead weight)						
Liberia	29.8	69.6	-	0.3	99.7	89.6	+10.1
Norway	0.9	28.5	-	0.2	29.6	26.1	+ 3.5
U.K.	20.4	10.2	0.1	0.1	30.8	32.7	-1.9
Japan	4.7	27.7	-	-	32.4	31.8	+0.6
U.S.A.	5.3	5.1	1.2	-	11.6	10.6	+1.0
Panama	4.8	5.2	-	0.1	10.1	8.8	+1.3
France	10.6	4.0	0.1	-	14.7	12.8	+1.9
Greece	-	17.0	-	-	17.0	15.9	+1.1
Other Western Europe	13.6	25.8	0.1	-	39.5	35.6	+3.9
Other Western Hemisphere	6.3	0.2	0.1	-	6.6	6.5	+0.1
U.S.S.R.,E.Europe, and China	..	-	9.3	-	9.3	8.4	+0.9
Other Eastern Hemisphere	8.4	10.9	0.1	-	19.4	12.6	+6.8
Total	104.8	204.2	11.0	0.7	320.7	291.4	+29.3
Fleet as at end 1975	95.1	185.1	10.5	0.7	291.4		
Net increase 1976	9.7	19.1	0.5	-	+29.3		

Source:- BP Statistical review of the world oil industry, 1976

INTER- AREA TOTAL OIL MOVEMENTS-1976

Country	USA	CANADA	Latin America	Western Europe	Africa
U.S.A.	-	0.6	3.9	4.5	0.6
Canada	30.0	-	-	0.3	-
Latin America	105.0	16.2	7.0	17.5	0.5
Western Europe	7.8	-	-	-	4.9
Middle East	94.6	19.5	85.7	466.5	24.2
North Africa	43.8	1.0	7.6	80.3	0.7
West Africa	54.3	1.5	11.5	42.9	-
East and South Africa	-	-	-	-	-
South Asia	-	-	-	-	-
South East Asia	28.0	-	0.7	0.2	-
Japan	-	-	-	-	-
Australasia	0.5	-	-	-	-
U.S.S.R., E.Europe and China.	1.0	-	8.2	69.6	1.0
Total Imports	365.0	38.8	124.6	681.8	31.9

contd.../-

Country	South East Asia	Japan	Australasia	Other Eastern Hemisphere	Dest.* not known	Total Export
U.S.A.	0.2	1.7	0.2	0.6	-	12.3
Canada	-	-	-	-	-	30.3
Latin America	-	0.5	0.2	1.5	24.5	172.9
Western Europe	-	-	-	4.2	-	16.9
Middle East	80.8	196.2	12.3	35.1	18.3	1033.2
North Africa	0.5	2.2	-	11.1	-	147.2
West Africa	-	1.3	-	-	-	111.5
East & South Africa	1.4	-	-	-	-	1.4
South Asia	-	-	-	-	-	-
South East Asia	-	51.5	3.8	-	-	84.2
Japan	0.1	-	-	-	-	0.1
Australasia	0.1	2.1	-	-	-	2.7
U.S.S.R., E.Europe, and China	5.1	6.9	-	1.2	-	93.0
Total(Imports)	88.2	262.4	16.5	53.7	42.8	1705.7

* Includes increased quantities in transit, transit losses, minor movements not otherwise shown and military use etc.

Source:- BP Statistical Review -1976.

ESTIMATED G.N.P. AND PER CAPITA G.N.P. OF OPEC COUNTRIES

Country	Estimated G.N.P.at Current Prices (MN.$)					Per capita N.G.P. ($)				
	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974
Abu Dhabi	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Algeria@	4638	5168	6026	7431	NA	322	350	396	471	NA
Indonesia@	9824	10144	12160	15369	NA	82	81	94	116	NA
Iran	10581	12677	15292	25810	43994	371	422	496	816	1333
Iraq	2932	3611	8675	11562	NA	234	370	861	1110	NA
Kuwait	3027	4302	3886	5962	10870	4036	5279	4858	6916	11688
Libya	3117	3916	4122	7192	12280	1608	1948	1978	3330	5033
Nigeria@	5696	7171	7682	8900	NA	148*	127	111	112	NA
Qatar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Saudi Arabia@	3866	5530	6818	11423	28282	528	715	852	1428	3535
Venezuela	11557	12660	14431	17864	25309	1112	1177	1292	1576	2176

@ Gross Domestic Product * Provisional

Source:- Annual Statistical Bulletin-OPEC Statistical unit-1975

TOTAL & PER CAPITA REVENUES FROM OIL OF OPEC COUNTRIES

Country	Total oil Revenues(MN $)					Per Capita Oil Revenue				
	1971	1972	1973	1974	1975	1971	1972	1973	1974	1975
Abu Dhabi	436	551	678	NA	NA	4364	3673	3390	NA	NA
Algeria	324	613	988	3299	3262	22	40	62	203	200
Indonesia	339	555	732[a]	1575[a]	3786[a]	3	5	6	12	29
Iran	1851	2396	4399	21443	NA	62	78	139	674	NA
Iraq	850	575*	432*	NA	NA	87	57	41	NA	NA
Kuwait	1076	1545	1789	8099	5734	1321	1931	2075	8709	5851
Libya	1605	1563	2243	NA	NA	898	750	1038	NA	NA
Nigeria	922	1117	2080	6037	NA	16	16	26	76	NA
Qatar	199	255	454	1849	NA	1208	1500	2671	9245	NA
Saudi Arabia	1945	2795	4340	22574	NA	251	349	543	2822	NA
Venezuela	1715	1956	3188	9439	7524	159	175	281	812	627

a= Budget Estimates
* = Revenues from foreign companies only.

Source:- Annual Statistical Bulletin of OPEC Statistics unit-1975

WORLD PRIMARY ENERGY CONSUMPTION+-1975.

	Oil	Natural Gas	Solid fuels	Water Power+	Nuc-lear+	Total
	Million Tonnes Oil Equivalent					
U.S.A.	765.9	508.7	327.9	80.2	44.4	1727.1
Canada	83.1	43.1	15.5	50.3	3.0	195.0
Total Western Hemisphere	849.0	551.8	343.4	130.5	47.4	1922.1
Latin America	174.0	39.2	51.5	33.6	0.7	299.0
Total Western Hemisphere	1023.0	591.0	394.9	164.1	48.1	2221.1
Austria	10.6	3.6	3.8	6.2	-	24.2
Belgium & Luxemburg	28.5	9.6	8.9	0.1	1.6	46.7
Denmark	15.7	-	2.8	++	-	18.5
Eire	5.2	-	1.8	0.2	-	7.2
Finland	11.9	0.7	5.6	3.1	-	21.3
France	110.4	17.0	25.2	13.3	3.9	169.8
Greece	9.9	-	3.7	0.6	-	14.2
Iceland	0.6	-	++	1.4	-	2.0
Italy	94.5	18.0	10.1	9.7	0.9	133.2
Netherlands	34.8	33.2	2.6	-	0.8	71.4
Norway	8.0	-	0.8	20.2	-	29.0
Portugal	6.8	-	0.4	1.6	-	8.8
Spain	42.7	1.3	11.2	6.8	1.9	63.9
Sweden	26.6	-	5.0	14.6	3.0	49.2
Switzerland	12.5	0.6	0.3	8.5	1.9	23.8
Turkey	13.4	-	14.3	1.4	-	29.1
United Kingdom	92.1	32.9	71.9	1.2	6.3	204.4
West Germany	128.9	33.3	81.1	3.6	5.1	252.0
Yugoslavia	12.2	2.2	11.9	5.0	-	31.3
Cyprus/Gibraltar Malta	1.1	-	++	-	-	1.1
Total Western Europe	664.4	152.4	261.4	97.5	25.4	1201.1
Middle East	66.8	26.7	2.1	1.6	-	97.2
Africa	51.3	5.8	55.9	7.3	-	120.3
South Asia	31.0	6.0	60.1	7.4	1.0	105.5
South East Asia	81.2	4.1	61.2	7.3	-	153.8
Japan	244.0	8.5	62.1	20.0	5.3	339.9
Australasia	35.3	4.9	27.6	5.4	-	73.2
U.S.S.R.	362.0	235.0	380.0	40.0	5.0	1022.0
Eastern Europe	86.0	50.0	260.0	5.0	-	401.0
China	55.6	4.7	321.8	6.3	-	388.4
Total Eastern Hemisphere	1677.6	498.1	1492.2	197.8	36.7	3902.4
World	2700.6	1089.1	1887.1	361.9	84.8	6123.5
World(excl.U.S.S.R. E.Europe & China)	2197.0	799.4	925.3	310.6	79.8	4312.1

++ = Less than 0.55 million tonnes oil equivalent.

+ Includes water power and nuclear electricity at the high (Input) factor i.e. the data represents the quantities of fossil fuels which would be required to replace in conventional thermal stations the electricity generated wfrom water and nuclear power.

Source:- B.P. Statistical Review -1976.

WORLD PRIMARY ENERGY CONSUMPTION-1976

	Oil	Natural Gas	Solid fuels	Water Power+	Nuclear +	Total
	Million Tonnes Oil Equivalent					
U.S.A.	822.4	516.4	350.5	76.1	49.2	1814.6
Canada	85.9	44.1	15.3	52.3	4.1	201.7
Total Western Hemisphere	908.3	560.5	365.8	128.4	53.3	2016.3
Latin America	186.4	40.5	51.9	35.9	0.7	315.4
Total Western Hemisphere	1094.7	601.0	417.7	164.3	54.0	2331.7
Austria	11.5	4.0	3.6	5.0	-	24.1
Belgium & Luxemburg	27.6	10.2	9.2	++	2.3	49.3
Denmark	16.8	-	2.9	-	-	19.7
Eire	5.3	-	1.9	0.2	-	7.4
Finland	12.8	0.8	6.2	2.3	-	22.1
France	117.3	18.5	26.5	12.4	4.1	178.8
Greece	10.7	-	3.9	0.5	-	15.1
Iceland	0.6	-	-	1.5	-	2.1
Italy	98.5	25.1	9.0	10.1	0.9	143.6
Netherlands	39.4	34.6	2.8	-	0.9	77.7
Norway	8.7	-	0.4	21.4	-	30.5
Portugal	7.2	-	0.4	1.3	-	8.9
Spain	47.2	1.5	11.2	5.8	1.9	67.6
Sweden	29.4	-	4.6	14.0	3.9	51.9
Switzerland	12.9	0.5	0.4	6.9	1.9	22.6
Turkey	15.2	-	16.4	2.0	-	33.6
United Kingdom	91.6	34.4	72.0	1.1	7.6	206.7
West Germany	139.2	36.2	76.4	3.2	5.6	260.6
Yugoslavia	13.2	1.5	12.4	5.3	-	32.4
Cyprus/Gibraltar/Malta	1.3	-	++	-	-	1.3
Total Western Europe	706.4	167.3	260.2	93.0	29.1	1256.0
Middle East	73.3	28.8	2.1	1.4	-	105.6
Africa	54.2	6.5	58.4	8.9	-	128.0
South Asia	32.4	7.0	62.0	8.6	1.0	111.0
South East Asia	91.7	4.2	60.6	7.4	-	163.9
Japan	253.8	10.9	60.0	21.9	9.4	356.0
Australasia	36.3	6.0	28.2	5.5	-	76.0
U.S.S.R	380.0	252.6	387.4	42.7	7.6	1070.3
Eastern Europe	90.0	53.7	266.7	7.3	0.7	418.4
China	66.0	5.2	337.5	6.8	-	415.5
Total Eastern Hemisphere	1784.1	542.2	1523.1	203.5	47.8	4100.7
World	2878.8	1143.2	1940.8	367.8	101.8	6432.4
World(excl.U.S.S.R. E.Europe& China)	2342.8	831.7	949.2	311.0	93.5	4528.2

++ Less than 0.05 million tonnes oil equivalent.

\+ Includes water power and nuclear electricity at the high input factor i.e. the data represents the quantities of fossil fuels which would be required to replace in conventional thermal stations the electricity generated from water and nuclear power.

Source:- B.P.Statistical Review -1976.

Comparative Transportation Costs Ras Tanura to Rotterdan in Various Sizes of Tankers 1976, 1980 and 1985 - Resale Price

Delivery Year	Size of Tanker dwt)	30000	50000	70000	120000	250000	410000
	Mileage(round trip)						
	Days at sea	22388	22388	22388	22388	22388	22388
	Days in port	62.1	60.1	60.1	60.1	60.1	60.1
	Total Voyage Days	2.8	3.1	3.4	3.8	4.5	5.0
		64.9	63.2	63.5	63.9	64.6	65.1
	Trips per annum	5.32	5.46	5.43	5.40	5.26	5.22
	Cargo(tons per trip)	28390	47795	67220	115845	241090	395895
1976	Voyage Costs($000)						
1976	Fixed direct costs	229	264	286	340	469	660
	Capital costs	190	247	276	299	436	625
	Bunkers	168	225	263	354	640	940
	Port charges	22	30	36	57	110	179
	Total	609	766	861	1050	1655	2404
	Cost per ton of cargo($)	21.44	16.02	12.82	9.06	6.86	6.08
1980	Fixed direct costs	340	393	425	506	708	999
	Capital costs	290	392	434	599	988	1537
	Bunkers	215	288	337	454	825	1212
	Port charges	30	41	51	80	153	250
	Total	875	1114	1247	1639	2674	3998
	Cost per ton of cargo($)	30.84	23.32	18.54	14.15	11.10	10.09
1985	Fixed direct costs	556	641	692	746	1154	1624
	Capital costs	342	477	591	874	1628	2546
	Bunkers	305	409	478	643	1167	1714
	Port charges	44	61	74	117	224	369
	Total	1247	1588	1835	2377	4173	6251
	Cost per ton of cargo($)	43.91	33.21	27.30	20.52	17.31	15.79
* 1976	Fixed direct costs	48.8	33.4	25.8	17.8	11.8	10.1
	Bunkers and port charges	40.5	32.4	27.0	21.5	18.8	17.1
	Total direct costs	89.3	65.8	52.8	39.3	30.6	27.2
	Capital costs	40.6	31.3	24.9	15.6	11.0	9.6
	Total costs	129.9	97.1	77.7	54.9	41.6	36.8
*1980	Fixed direct costs	72.7	49.9	38.3	26.5	17.8	15.3
	Bunkers and port charges	52.3	41.6	35.0	27.9	24.6	22.4
	Total direct costs	125.0	91.5	73.3	54.4	42.4	37.7
	Capital costs	61.9	49.8	39.1	31.4	24.9	23.5
	Total cost	186.9	141.3	112.4	85.8	67.3	61.2
*1985	Fixed direct costs	118.6	81.3	62.4	39.0	29.0	24.8
	Bunkers and port charges	74.5	59.6	49.8	39.8	35.0	31.9
	Total direct costs	193.1	140.9	112.2	78.8	64.0	56.7
	Capital costs	73.0	60.4	53.3	45.6	40.9	39.0
	Total cost	266.1	201.3	165.5	124.4	104.9	95.7

* 1977 Worldscale Equivalent.

Comparative Transportation Costs Ras Tanura to Rotterdam in Various Sizes of Tankers 1976, 1980 and 1985 Yard Contract Price

Delivery Year	Size of Tanker(dwt)	30000	50000	70000	120000	250000	410000
	Mileage(round trip)	22388	22388	22388	22388	22388	22388
	Days at sea	62.1	60.1	60.1	60.1	60.1	60.1
	Days in port	2.8	3.1	3.4	3.8	4.5	5.0
	Total Voyage Days	64.9	63.2	63.5	63.9	64.6	65.1
	Trips per annum	5.32	5.46	5.43	5.40	5.26	5.22
	Cargo(tons per trip)	28390	47795	67220	115845	241090	395895
	Voyage Costs($000)						
1976	Fixed direct costs	229	264	286	340	469	660
	Capital costs	252	346	430	630	1107	1780
	Bunkers	168	225	263	354	640	940
	Port charges	22	30	36	57	110	179
	Total	671	865	1015	1381	2326	3559
	Cost per ton of cargo($)	23.63	18.10	15.11	11.92	9.64	9.00
1980	Fixed direct costs	340	393	425	506	708	999
	Capital costs	270	369	446	630	1079	1682
	Bunkers	215	288	337	454	825	1212
	Port Charges	30	41	51	80	153	250
	Total	855	1091	1259	1670	2763	4143
	Cost per ton of cargo($)	30.14	22.84	18.73	14.42	11.47	10.46
1985	Fixed direct costs	566	641	692	746	1154	1624
	Capital costs	352	490	609	896	1676	2621
	Bunkers	305	409	478	643	1167	1714
	Port charges	44	61	74	117	224	367
	Total	1257	1601	1853	2402	4221	6326
	Cost per ton of cargo($)	44.26	33.50	27.56	20.74	17.51	15.98
	1977 World scale Equivalent						
1976	Fixed direct costs	48.8	33.5	25.8	17.8	11.8	10.1
	Bunker & port charges	40.5	32.4	27.0	21.5	18.8	17.2
	Total direct costs	89.3	65.9	52.8	39.3	30.6	27.3
	Capital costs	53.9	43.8	38.8	32.9	27.8	27.2
	Total costs	143.2	109.7	91.6	72.2	58.4	54.5
19[illegible]	Fixed direct costs	72.7	49.9	38.3	26.5	17.8	15.3
	Bunkers & port charges	52.3	41.7	35.0	27.9	24.6	22.4
	Total direct costs	125.0	91.6	73.3	54.4	42.4	37.7
	Capital costs	57.7	46.8	40.2	33.0	27.1	25.7
	Total costs	182.7	138.4	113.5	87.4	69.5	63.4
1985	Fixed directo costs	118.5	81.2	62.3	39.0	29.0	24.8
	Bunkers & port charges	74.5	59.6	49.8	39.8	35.0	31.9
	Total direct costs	193.0	140.8	112.1	78.8	64.0	56.7
	Capital costs	75.2	62.2	54.9	46.9	42.1	40.1
	Total cost	268.2	203.0	167.0	125.7	106.1	96.8

Basic Tanker Operating Data and Performance Characteristics

Size						
Summer deadweight tons	30000	50000	70000	120000	250000	4100000
Approximate gross registered tonnage	18500	29000	39500	64000	130000	207000
Approximate net registered tonnage	12000	17500	26000	43000	100000	165000
Dimensions						
Draught fully laden (feet)	35	39	42	53	65.5	81
Length between perpendiculars (feet)	540	685	760	850	1085	1115
Beam:extreme breadth (feet)	85	100	110	130	170	225
Type	Motor	Motor	Motor	Motor	Turbine	Turbine
Performance						
Speed (knots) - Loaded	14.5	15.0	15.0	15.0	15.0	15.0
- ballast	15.5	16.0	16.0	16.0	16.0	16.0
- average	15.0	15.5	15.5	15.5	15.5	15.5
Fuel consumption (fuel oil/diesel tons per day): at sea	36*/12	51*/2	60*/2	81*/2	154	225
in port	0.8	10*/2	13*/2	28*/2	65	100
Operating days per annum	345	345	345	345	340	340
Building Costs ($per dwt.)						
1976 delivery - Yard contract	355	300	265	225	185	180
- Resale	275	220	175	110	75	65
1980 delivery - Yard contract	380	320	275	225	180	170
- Resale	420	350	275	220	170	160
1985 delivery - Yard contract	495	425	375	320	280	265
- Resale	495	425	375	320	280	265

* Interfuel 1,500 Seconds Redwood Viscosity.

Estimated Tanker Supply and Demand Balance 1975-1985
Allowing for Possible Fleet Adjustments

Million dwt.

	Size Group 000 dwt.	0-45	45-80	80-160	160-320	320+	Total
1975	Tanker Demand	36.3	32.2	38.3	88.8	7.9	203.5
	Tanker Supply	48.8	40.5	59.6	140.7	8.5	298.1
	Surplus/(Deficit)	12.5	8.3	21.3	51.9	0.6	94.6
1976	Tanker Demand	36.5	31.6	44.3	107.6	10.7	230.7
	Tanker Supply	45.4	38.7	71.7	162.3	15.5	333.6
	Surplus/(Deficit)	8.9	7.1	27.4	54.7	4.8	102.9
1977	Tanker Demand	37.1	35.3	41.0	113.1	16.8	243.3
	Tanker Supply	41.7	36.3	76.7	172.0	26.6	353.3
	Surplus/(Deficit)	4.6	1.0	35.7	58.9	9.8	110.0
1978	Tanker Demand	38.4	38.7	39.7	108.4	18.0	243.2
	Tanker Supply	39.4	39.7	77.0	175.2	31.5	362.8
	Surplus/(Deficit)	1.0	1.0	37.3	66.8	13.5	119.6
1979	Tanker Demand	39.6	41.7	41.2	114.1	18.9	255.5
	Tanker Supply	40.6	42.7	74.7	176.2	33.0	367.2
	Surplus/(Deficit)	1.0	1.0	33.5	62.1	14.1	111.7
1980	Tanker Demand	41.1	45.4	39.8	122.7	20.5	269.5
	Tanker Supply	42.1	46.4	71.8	176.1	33.4	369.8
	Surplus/(Deficit)	1.0	1.0	32.0	53.4	12.9	100.3
1982	Tanker Demand	44.3	42.8	41.7	127.9	23.7	280.4
	Tanker Supply	45.8	44.5	65.6	171.6	33.4	360.9
	Surplus/(Deficit)	1.5	1.7	23.9	43.7	9.7	80.5
1985	Tanker Demand	45.6	43.8	44.3	131.0	34.1	298.8
	Tanker Supply	47.8	48.4	51.6	140.6	31.4	319.8
	Surplus/(Deficit)	2.2	4.6	7.3	9.6	(2.7)	21.0

SULFUR CONTENTS IN OIL OF SELECTED MAIN GULF FIELDS

Country	Fields	API°	Sulfur wt. %
Algeria	Hassi-Messaoud	44.0	0.14
Ecuador	Oriental	30.4	0.87
Gabon	Anguille	32.0	0.74
	Gamba	31.8	0.11
	Hamajiblend	29.0	1.26
Indonesia	Duri	20.6	0.21
	Jatibarang	28.9	0.11
	Kalamono	18.7	0.07
	Minas	35.2	0.09
	Tarakan	19.5	0.14
	Walio-Export	35.4	0.08
Iran	Cyrus	19.0	3.48
	Darius	33.9	2.45
	I Heavy	30.8	1.6
	I.Light	33.5	1.4
	Rostam	35.9	1.55
	Sassan	33.9	1.91
Iraq	Basrarh	33.9	2.08
	Kirkuk	35.9	1.95
	N.Rumaila	34.3	1.98
Kuwait	Kuwait	31.2	2.50
Libya	Brega	40.4	0.21
	Sarir	36.5	0.14
	Essider	37.0	0.45
	Zueitina	39.6	0.23
Nigeria	Bonny Light	37.6	0.13
Qatar	Dukhan	40.9	1.29
	Marina	37.0	1.50
Saudi Arabia	Arabian Heavy	28.2	2.84
	Light-Berri	38.8	1.10
	Light	33.4	1.80
	Medium	30.8	2.40
	Medium Zuluf	30.7	2.51
	Murban	39.4	0.74
	Umm Shaif	37.6	1.38
	Zakum	40.1	0.98
Venezuela	Lachequero	16.8	2.40
	Bosean	10.3	5.4
	Lagomedio	32.0	1.3

Source:- International Petroleum Encyclopedia-1976.

WORLD-ESTIMATED CRUDE OIL SUPPLY 1973-1985

million tons.

Industrialised Countries	1973	1974	1975	1976	1980	1985
North America	609	582	546	531	565	605
Western Europe	23	23	31	501	133	200
Others	19	19	20	21	22	17
Total	651	624	597	602	720	822
Developing Countries						
OPEC	1542	1530	1345	1491	1704	1953
Others	155	163	176	181	299	378
Total	1697	1693	1521	1672	2003	2331
Total World*	2348	2317	2118	2274	2723	3153
Balancing Factor(a)	(20)	(63)	70	12	(8)	17
Total World* Consumption	2328	2254	2188	2286	2715	3170

* Excluding CPEs

Source:-Petroleum Economics Limited, London

(a) Including net exports from CPEs, stock change, oil afloat, unrecorded military consumption etc.

PART - II

PETRO-CHEMICALS STATISTICS

CHRONOLOGY OF SOME IMPORTANT EVENTS IN THE PETRO-CHEMICALS INDUSTRY IN INDIA.

(A) ORGANIC INTERMEDIATES

(i) The Durgapur Projects Ltd.

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.

1961: The Durgapur Projects Ltd. was incorporated as a Private Limited Company on 6th September and from 15th September, the Company took over the complex managed previously under departmental control of the Durgapur Industries Board.

1959: The Second Battery of the Coke Oven Plant was commissioned in February.

1960: The first Battery of the Coke Oven Plant was commissioned in March. The first two power generating units were commissioned in June.

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.

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(ii) M/s Durgapur Chemicals Ltd.

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, 59, Rue Pouchet, 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 & Cie India (P) Limited, a Company sponsored by M/s Krebs & Cie Paris was also entered into for procurement of equipment in India and engineering of utility services.

The construction work of the factory buildings at Durgapur started.

1966: The construction work of the factory buildings completed.

1968: Phthalic Anhydride Plant was commissioned on 24th January.

1969: Caustic Chlorine Plant commissioned on 3rd February.

Pentachlorophenol plant was commissioned in June.

1970: Phenol plant was finally commissioned after repeated failure of guarantee test on 12th May.

(iii) M/s Herdillia Chemicals Ltd.

1963: Incorporated on 1st July.

1964: Agreement was finalised to lease about 300 acres of land at Thana-Belapur Road, Thana (Maharashtra) from Maharashtra Industrial Development Corporation.

1965: An industrial licence for the manufacture of the 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 fees 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.

Grading and levelling of the grounds at site was commenced in October.

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1966: Agreements were entered into with Universal Oil Products Company, U.S.A. for obtaining exclusive non-transferable licence to use a U.O.P. catalytic condensation process for the manufacture of Cumene. The same was guaranteed by U.O.P.

1968: The plant was inaugurated on 18th February. Commercial production of phenol, acetone, diacetone alcohol, phthalic anhydride and phthalates commenced.

1972: The licenced capacity of Phthalates was increased to 5000 M.T. per annum in November.

1973: There was a major fire in the reactor of Phthalic Anhydride plant in January causing extensive damage. A new reactor was fabricated indigenously in place of the earlier reactor which was imported and the plant was re-started in December.

Commenced recovery of crude acetophenone from Phenol plant for sale.

1974: Through progressive debottlenecking, the installed capacity of the phenol plant was increased to 1400 tonnes per annum.

The installed capacity of the Phthalates 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. This will save 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 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 products.

A 730 KVA diesel generating set was installed to augment power supply.

(iv) Hindustan Polymers Ltd.

1961: The Company obtained industrial licence for the manufacture of alcohol and styrene, polystyrene and its co-polymers.

Technical collaboration agreements finalised for the styrene monomer plant with M/s Universal Oil Products.

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1962: Incorporated as Hindustan Polymers Ltd.

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., UK 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.

1973: Styrene plant commissioned.

(v) M/s Indian Organic Chemicals Ltd.

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 plant.

1970: Plasticizers Plant 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 constructed. Exported Ethyl Acetate worth Rs. 28 lakhs.

(vi) Indian Petrochemicals Corporation Ltd.

1950: Towards late 1950's Government evinced keen interest in the development of the Petrochemical 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.

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1963: Mr.V.W.Henney submitted his report to Government. Government appointed a Planning Group on Petrochemicals Industries to recommend specific steps for implementation of petrochemicals projects.

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 prepared and submitted to Government a detailed project report in respect of the Gujarat Aromatics Project (GAP) and based on this report investment approval for the Project was obtained.

1968: Collaboration agreements for Aromatics Project were concluded between Government of India and Fried Krupp GMBH Chemieanlagenbau ofWest Germany.

1969: IPCL was incorporated in March. Government assigned the agreements in respect of GAP to IPCL.

1970: Foundation stone for Gujarat Aromatics Project was laid on 24th January.

Detailed Project Report for Gujarat Olefins Project was submitted to the Government in May.

Foreign collaboration agreement for Naphtha Cracker unit signed with M/s Lummus Company Ltd., U.K.

Detailed Project Report in respect of Acrylonitrile Project was submitted to Government in June.

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, letters of intent received for the following projects :

Gujarat Olefins, Acrylonitrile, Acrylic Fibre, Detergent Alkylate, Ethylene Glycol, Polybutadiene Synthetic Rubber, Polypropylene, Low Density Polyethylene.

1972: Foundation stone for Gujarat Olefins Project was laid on January 29th.

Foreign collaboration agreement for Butadiene Extraction Unit of GOP signed in June.

Foreign collaboration agreements in respect of Polypropylene, Ethylene Glycol, Acrylonitrile, Acrylic Fibre, Polybutadiene Rubber, Low Density Polyethylene and Detergent Alkylate Projects were signed between June and November.

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.

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1974: In March, regular production of paraxylene commenced.

Civil construction work on Low Density Polyethylene Project commenced in April.

Civil construction work on Ethylene Glycol and Detergent Alkylate Projects commenced in May.

Mechanical erection work for Naphtha Cracker and its offsites commenced in June.

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.

Civil construction work on Polybutadiene Synthetic Rubber Project commenced in October.

Work on BBH Unit of GPO commenced in October.

1975: In March, Training Centre was inaugurated.

Civil construction work on Acrylonitrile 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 projects 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 also commenced.

Production of DMT in the Aromatics Plant reached its prorata installed/licensed capacity in April.

Mechanical erection work for Polybutadiene Rubber and Ethylene Glycol Plants commenced.

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1976: (Contd.) 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.

Production of DMT in October was 2411 MT which exceeded past record production.

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 commission in November.

Mechanical erection work for Acrylic Fribre 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 and commissioned.

Service Water System of UB-II commissioned for Polybutadiene Rubber Project.

The connecting bridge at well No.2 (Jalampura) for water supply completed.

Instrumentation erection for the Polypropylene Project commenced.

Mechanical erection of Refrigeration Plant for the Polybutadiene Rubber and Acrylic Fibre Plants commenced in December.

(vii) <u>M/s Mysore Petrochemicals Ltd.</u>

1969: The Company was incorporated on the 9th June in the name of Premier Petrochemicals Ltd. but the name was subsequently changed to Mysore Petrochemicals Ltd. on 3rd September 1970. The project had been promoted by the Karnataka State Industrial Investment & Development Corporation Ltd., Bangalore and Shekhavati Investment Corporation Ltd., Calcutta.

1971: The letter of intent for production of Phthalic Anhydride and plasticizers originally issued in favour of M/s Mysore Acetate and Chemicals Co.Ltd. was transferred to the company.

1976: Commercial production of Phthalic Anhydride commenced on 16th May.

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(viii) M/s National Organic Chemical Industries Ltd.

1961: Company was incorporated on May 11.

1964: Various technical collaboration and Engineering Agreements with Companies of Royal Dutch Shell Group of Companies were signed in July.

Industrial licence was granted in August.

1965: Ground was broken for the construction of the complex in January.

Foreign currency loan agreement signed with Shell Petroleum in December.

1966: Central Sales Office and four Branch Offices opened in Bombay, Calcutta, Delhi and Madras in April.

Rupee loan agreements signed with Indian Financial Institutions and SBI.

1968: Petrochemical Complex was inaugurated in January.

Installation of naphtha pipe along the Eastern Express Highway was completed.

First Ethylene deliveries to Polyolefins Industries Ltd. took place in March.

Various Plants of the complex such as Glycols Plant, PVC Plant and Solvents Plant were commissioned.

1969: Alcohols Plant was commissioned in September.

1970: Technical Service Laboratory was inaugurated in September.

A Jetty for bulk exports was completed in October.

1972: First dividend declared for the year 1971 in June.

1974: Naphtha Pipe Line from Burmah-Shell Refineries to the factory across Thana Crack Bridge was installed.

1976: Bonus shares were allotted in December in proprtion of 1:2.

(ix) Polychem Limited

1955: Company was incorporated.

1957: The Polystyrene Plant was brought on stream on 26th May and formally inaugurated on 16th June. Polystyrene was the first major thermoplastic resin to be manufactured indigenously and the Company can rightly claim the credit for placing India on the Plastics map of the world. The plant was engineered by Bechtel Corporation, USA on the basis of DOW know-how and had an initial installed production capacity of 6 million lbs.(2,750 tonnes) per annum.

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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. (5,500 tonnes) per year on account of steep increase in the demand of Polystyrene. The production of Polystyrene was however based on imported Styrene.

1960: The Company received an industrial licence in February for establishing a 6,800 tonnes/year of Styrene Monomer Plant in Bombay in technical collaboration with the Dow Chemical Company, USA. It also received in August industrial licence for establishing a 5,450 KL/year Alcohol Distillery in Maharashtra.

The Styrene plant was engineered and constructed by H.K.Ferguson Company, USA and had an initial installed production capacity of 6,800 tonnes/year. To ensure reliable supplies of alcohol for the production of ethylene, one of the basic raw materials required for the manufacture of Styrene, an Alcohol Distillery to produce 5,450 KL/year of Industrial Alcohol was simultaneously built in Nira, 43 Miles south of Poona. The contract for the distillery was executed on a turn-key basis by Savalle India Limited, Bombay.

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: The Styrene Monomer and Alcohol Plants were brought on stream in August.

1964: To meet the steadily increasing demand for Polystyrene, the capacity of Styrene and Polystyrene 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, besides giving Polystyrene at international prices to local processors to promote export of converted products.

1968: With the availability of petro-based ethylene and benzene, the capacity of styrene plant was further increased to 14,000 tonnes per annum.

Expansion of both Styrene and Polystyrene Plants beyond their initial capacities was achieved without any foreign technical help or collaboration.

1972: A pilot plant for the manufacture of 150 tons/year Divinylbenzene Monomer was brought on stream based on the know-how developed by Research & Development work carried on since 1968.

The production of neutral spirit and Indian Made Foreign Liquors as well as Country Liquors was started utilising surplus alcohol subsequent to the availability of Petro-ethylene.

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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 accid nts 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 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, which know-how was purchased through National Research Development Corporation of India.

1975: Soon after the Polystyrene plant was commissioned, the Company has been engaged in Research & Development work. Over these years, the Company has developed several new formulations of Polystyrene such as Polybutadiene Rubber based high impact grades, glass reinforced polystyrene, food grade polystyrene, structural foam etc.

The divinylbenzene plant of 150 tonnes/year capacity was built based on self developed technology.

To improve gloss and abrasion resistance 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 who now produces it on a commercial basis.

Bench scale technology for making styrene based on exchange resins has been developed.

Development of commercial technology for making ABS resins is in progress.

Research and Development work for making organo-phosphorous type protection chemicals is also on hand.

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.

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(x) M/s Sirsilk Limited

1946: Incorporation of the Company.

Collaboration agreement entered into with M/s Lansils Ltd. of Lancaster, England.

1954: Following plants commissioned :

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 Lansil Ltd. of Lancaster, England terminated.

1955: Weaving unit commissioned with 480 Looms having yearly production capacity of 95 lakhs meters of Art Silk Fabrics.

1956: Licence for substantial expansion granted.

1960: Licence granted for substantial expansion for weaving unit.

1964: Yearly installed capacity of the plants increased.

1965: Further increase of the installed capacity of the plant.

1966: Production of acetate staple fibre commenced.

1968: Part of looms diverted for manufacture of synthetic fabrics.

1974: Established Research and Development Division and Technical Consultancy Service Unit for rendering Technical know-how and other Engineering services for manufacture of chemicals etc.

1975: Process know-how offered to manufacture chemicals such as acetone, acetic acid, acetic anhydride, etc.

(xi) Somaiya Organics (India) Limited

1964: Incorporated on 1st June under the Companies Act, 1956.

1967: With effect from 1st June, the Company acquired a Distillery at Captainganj, Dist.Deoria, U.P. from M/s Godavari Sugar Mills Ltd., who are the promotors of this Company and who had also obtained original licence for the manufacture of Butanol and Butyl Acetate, who also transferred approximately 245 acres of land acquired by them for establishing this factory in Tehsil Nawabganj, Dist. Barabanki U.P.

1969: Civil construction work of the factory commenced in the second quarter.

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1970: Erection of Butanol and Butyl acetate plants was completed and trial production commenced 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.

Factory successfully distilled and manufactured a 'Solvent' by name 'Solvent-72' which can 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 Ethyl acetate commenced.

1975: Commercial production of Ethyl acetate was started on a regular basis.

Similar to the 'Solvent-72' developed in 1973, another 'Solvent-75' was distilled from the same waste material with improved potency.

(xii) M/s 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.

(B) PLASTIC RAW MATERIALS

(i) M/s Alkali & Chemical Corporation of India Ltd.

1937: 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.

1952: A plant to produce 2,800 Kl of nitrocellulose and synthetic paints per annum was installed at Rishra.

The capacity of the caustic soda/chlorine plant was expanded to 5,200 m.t.p.a.

A benzene hexachloride plant with a capacity of 2,600 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 rubber chemicals plant.

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 to 2,770 tonnes p.a.

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 2,370 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 m.t. was received.

1975: Received an industrial licence to put up a pharmaceuticals plant in Madras.

1976: Industrial licence for gramoxone was received and work commenced.
Expansion work for rubber chemicals commenced.

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(ii) M/s Ahmedabad Manufacturing & Calico Printing Co.Ltd.

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 Calcium 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 manufacture 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 impelmented and production started in 1961.

1965: Polyvinyl Alcohol plant commissioned.

1967: The Company obtained industrial licence for effecting substantial expansion of Polyvinyl chloride & its co-polymers.

1972: P.V.C. (Bulk Polymerisation) plant was commissioned.

(iii) M/s Bakelite Hylam Limited

1947: Hyderabad Laminated Products Limited incorporated on June 18 in the Nizam's Dominion of Hyderabad.

1949: Plant from U.K. arrived and erection started.

1950: Erection of plant and machinery completed.

1951: Started trial production with imported varnishes of Laminates for panelling.

Managing Agency changed from the promoters, Khan Bahadur Ahmed Alladin & Co., to Best & Company Limited.

1953: Varnishes developed indigenously.

Manufacture of Laminated Wood commenced under the trade mark HYLY.

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1954: Break-even point reached in operations.

1955: Manufacture of higher electrical grade laminates commenced.

1956: 2-shift production started to cater for bulk business from the Railways for panelling.

1958: Manufacture commenced of Laminates of very high electrical properties as also Asbestos-based Laminates and Decorative Veneers.

1959: Laminate Expansion sanctioned.

Licence received for manufacture and sale of Polyester Resins, Phenolic Resins, and Moulding Materials.

1961: Press No.2 installed.

Plant and machinery erected for manufacture 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 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.R.

Managing Agency terminated.

1969: Hylam Limited and Bakelite (India) Private Limited merged to form Bakelite Hylam Limited on December 4.

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.

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1974: Expansion completed. Two Boilers converted to Coal-firing.

Diesel Generator installed.

1975: Introduced a range of high-quality Insulating Phenolic Varnishes for the Electrical Industry.

(iv) M/s Chemicals and Plastics India Ltd.

1961: In May, Licence granted to The India Cements Ltd, to manufacture 6,000 tonnes per annum of PVC resins/compounds.

1962: Incorporation of the Company.

In November, original Licence was changed to the name & 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 & mouldings (rigid & flexible) in January.

1967: Inauguration of PVC Plant in May.

Commercial production of PVC resins commenced in July.

1969: Production of PVC pipes commenced.

1970: Industrial Licence was issued for expanding PVC capacity to 20,000 tonnes per annum.

1971: Successful commercial production of gramophone record compound.

1972/73: Completed intermediate stage of expansion in PVC capacity to 13,500 tonnes per annum.

1975: Permission granted by the State Government to set up a captive distillery for production of industrial alcohol.

Industrial Licence was granted for production of 3,500 tonnes of PVC pipes per annum in December.

1976: Record production of 11,400 tonnes of PVC resins. Entered export market for PVC conduits, pipes and fittings. Exports exceeded Rs.1 crore this year as against Rs.35 lakhs in the previous year.

(v) M/s Chemo-Pharma Laboratories Ltd.

1970: Diversification and expansion programme undertaken to maintain sufficient diversity of products and product lines. The necessary land acquired at MIDC Industrial Area, Kalyan Hiwandi Road.

1971: First stage of gradual diversification costing about Rs.20 lakhs completed with commissioning of plant to manufacture Urea Formaldehyde & Melamine formaldehyde moulding powders.

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1972: Commercial production of Urea Formaldehyde & Melamine formaldehyde powders started.

1975: An improved pullveriser installed which can pullverise the sheets into fine granules without any increase of temperature.

(vi) East Anglia Plastics (India) Ltd.

1956: Incorporated in West Bengal with an authorised capital of Rs. 1 crore. 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 made.

1962: Production of Cellulose Acetate Moulding Compound commenced.

1963: Further share capital of Rs.85 lakhs raised. Industrial Licence for manufacture of 1000 tons Phthalate Plasticisers received and foreign collaboration approved by Government.

1964: Capital Goods Import Licence for Phthalate Plasticisers received.

1965: Manufacture of P.V.C. Compound commenced.

1966: Production of Lighter Phthalates commenced.

1967: Production of Heavier Phthalates commenced. Industrial Licence for Plastic Films, Foils and laminates received.

1968: Industrial Licence for expansion of capacity of Phthalate Plasticisers to 2,000 tonnes received.

1970: Industrial Licence for expansion of capacity of Phthalate Plasticisers to 5,000 tonnes received.

1971: Letter of Intent for manufacture of Phthalic Anhydride, one of the major raw materials for Phthalate Plasticisers received.

1972: Industrial Licence for Phthalate Plasticisers endorsed by Government for production upto the installed capacity of 8,500 tonnes.

1973: Production of Plastic Films and Foils commenced.

1974: Industrial Licence for 6,000 tonnes of Phthalic Anhydride received.

1975: Letter of Intent for production of Malathion received.

1976: A process for manufacture of Titanium Dioxide from an industrial waste was developed by R&D Laboratory and provionally patented.

(vii) M/s Indian Plastics Limited

1946: M/s Bestolite Moulding Company of India, a British firm having its factory at Jogeshwari which 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, household 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 Jogeshwari to a more spacious site comprising about 29,000 sq. meters at Poisar Bridge, Kandivli, Bombay.

Started manufacturing of Valve set Radios with the technical know-how from LEYLAND'S INSTRUMENTS LIMITED, ENGLAND.

1956: Started manufacture of Urea Formaldehyde Moulding Powder.

1957: Manufacture of Transistor Radios started.

1961: Entered into collaboration agreement with HAYAKAWA ELECTRIC COMPANY LIMITED OF JAPAN for the manufacture of Transistor Radios.

1962: Entered into collaboration agreement with BAKELITE GESELLS-CHAFT MBH, West Germany for the technical know-how for the manufacture of thermosetting moulding powders - 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.

(viii) M/s Mysore Acetate and Chemicals Co.Ltd.

1963: The Company was incorporated under the Indian Companies Act on 24th December with its registered 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., Octacamund, Tamilnadu.

1964: The certificate was issued for commencement of business on the 25th May.

1965: Entered into collaboration with M/s Vankoharn Inc., USA 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 the 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. Start-up operations were supervised by Foreign Technical Experts and the Secondary Acetate manufactured by the company is superior in quality and is matching to the quality of imported Secondary Acetate.

(ix) M/s Nuchem Plastics Limited

1951: Started as Button moulders, Rattanchand Harjasrai (Plastics) Ltd. at Amritsar with a paid up capital of 3.11 lacs.

1952/1954: Developmental work on moulding powders, collection of valuable data regarding the manufacture of U.F.Moulding Powder in tropical conditions.

1955/1956: Agreement concluded with Messrs British Industrial Plastics (Chemicals) Ltd., Birmingham for Technical Collaboration.

1957: U.F.Moulding Powder production started.

1958: Button plant shifted from Verka (Amritsar) to Faridabad.

1959: Expansion for 840 tons of Urea Formaldehyde and for 250 tons of Melamine Formaldehyde Moulding Powders sanctioned. Licence received to manufacture Urea Formaldehyde Resins 1800 tons per annum.

1962: Expansion completed. Production on new plant started. The Company received a Licence to manufacture 192 Compression and Injection Moulding Tools per annum. ENGINEERING DIVISION started.

1965: Resin plant 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 installed.

1971: International Division set up to accelerate exports. Production of 5000 tons Moulding Powders per annum taken up.

1972: Research & Development Centre started functioning.

1973: Hexamine Plant commissioned.

Company was awarded 'National Safety Award' by Ministry of Labour.

1974: Bonus shares 1 : 2 issued.

1975: A Formaldehyde Plant sold out on turn-key basis to M/s Southern Synthetics Limited, 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 sold to M/s Nufarm Chemicals, Faridabad.

Formaldehyde plant of M/s Southern Synthetics Ltd., Ranipet was commissioned successfully.

Engineering Division started manufacturing compression presses for plastics, rubber and other specialised usage.

(x) Plastics Resins and Chemicals Ltd.

1962: Incorporated under the Companies Act, 1956.

1971: Commenced manufacturing of PVC Compound with own technical know-how.

1972: Set up a Research Laboratory at factory for quality control and Technical Service Laboratory for customer service in Bombay.

1973: Exported 462 tons of PVC Resins. Exporter's Award by Plastic Linoleum 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.

1976: Received letter of intent for manufacture of Oxygen.

(xi) M/s 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: Foundation stone was laid on 18th February and construction work started.

The Engineering Contract, Agreement with German Reconstruction Bank for foreign loans and all other major Agreements were finalised. It was for the first time Kreditanstalt fur Wiederfbau (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 distributed 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.

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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 jerrycans 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-Butene-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 MT.

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.

(xii) M/s Shriram Chemical Industries

1960: Industrial licence for setting up a 20 tons/day PVC plant at Kota was received.

1961: Technical collaboration agreement signed with M/s Shin Etsu Chemical Industry Co.Ltd. and Mitsui Bussan Kaisha Ltd., Japan.

Receipt of Import Licence.

Laying of foundation stone.

1963: Commercial production of calcium carbide started.

1964: Commercial production of PVC started.

1965: ICMA export promotion award for outstanding performance in the promotion for exports.

1966: Licence for expansion of PVC capacity to 40 T/day received.

1968: Commencement of commercial production for expanded capacity of PVC i.e. 40 tons/day.

1969: National Safety Award given for outstanding performance in industrial safety by achieving highest percentage reduction in frequency rate during the year 1967.

1973: Licence for increased capacity of PVC i.e. 80 tons/day received.

(xiii) M/s The Industrial Plastics Corporation Pvt.Ltd.(TIPCO)

1947: Established a production of Phenolic Resins/compounds of 72 tons per annum, became a founder member of all-India Plastics Mfg. Association.

1959: 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 Philips 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 & formaldehyde.

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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 special purpose Phenolic Resins for foundries Brakelining Industries etc.

1970: Celebrated silver jubilee year.

1971: Joined Release Order scheme to supply P.F.Resin 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.M.Thakkar was honoured by an award for pioneering work done for Plastics Industry.

1973: Established a production Phenolic Resins/compounds of 2 thousand tons per annum.

Exported Phenolic Resin/compounds for the first time to Hongkong.

Introduced Phenolic Resin compounds for injection moulding for the first time in India.

1975: Added a very modern, continuous process closed system equipment for processing P.F. Resin 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 on all time high, value of total supplies exceeded Rs.7 lakhs approximately.

(C) SYNTHETIC FIBRE

(i) M/s Ahmedabad Manufacturing & Calico Ptg.Co.Ltd.

1880: Calico (Textiles) was established at Ahmedabad. Today, the Company is a Public Limited Company with three main Divisions (Textiles, Chemicals, Plastics and Fibres & Marketing Division) and following four wholly owned subsidiary companies :

a) Ilac Ltd.
b) Rajindra Dyeing & Ptg. Mills Ltd.
c) Gujarat Nets Ltd.
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: Spinning and processing unit was commissioned.

Commercial production of polyester staple fibre commenced in July.

1975: Polymer unit was commissioned in March.

(ii) M/s Baroda Rayon Corporation Ltd.

1958: In May, the Company was incorporated.

1959: Received an Industrial licence for the manufacture of Filament Rayon Yarn, Sulphuric Acid, Carbon-Di-Sulphide, Anhydrous Sodium Sulphate in September.

1960: Acquired about 320 acres of land from Government.

1961: Railway Siding was commissioned in May.

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.

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1971: Building foundation for Nylon plant was laid in June.

1973: On 1st January, Gujarat Polyamides was merged with The Baroda Rayon Corporation Limited 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.

Production of Polyester filament yarn was started in April.

(iii) M/s Century Enka Limited

1967: Public issue of shares.

1968: Commencement of construction work.

1969: Nylon Plant commissioned.

1976: Industrial licence for expansion of Nylon Plant received.

(iv) M/s Chemicals and Fibres of India Ltd.

1961: Company incorporated and licence given for manufacture of Polyester Staple Fibre.

1963: Possession of land was given by State Government.

1965: Production of Polyester Staple Fibre commenced.

1967: Licence given for expansion of Polyester Staple Fibre.

1968: Expansion completed.

1971: Licence given for expansion to 6,100 tonnes per annum of Polyester Staple Fibre.

1972: Expansion to 6,100 tonnes per annum of Polyester Staple Fibre completed.

(.v) M/s 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 polymerization of Caprolactam to Nylon chips.

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1968: Substantial expansion was carried out, raising the capacity to 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.

Licensed capacity was increased to 2000 tonnes.

1972: The Industrial licence for 2000 tonnes was implemented and with the additional capacity increased under the fuller utilisation scheme, the total capacity of production was raised to 2394 tonnes per annum of Nylon Yarn.

Letter of intent received for the manufacture of Polyester filament yarn for 360 tonnes per annum. Received an Industrial Licence for the manufacture of Nylon Chips for Plastics Industry with an annual capacity of 330 tonnes. This additional production has been taken care of by the inbuilt capacity of the plant.

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. Caprilactum) from Nylon waste was inaugurated on 20th March.

(vi) M/s Indian Organic Chemicals Ltd. (Fibre Division).

1960: The Company was incorporated.

1969: Site selected for the Polyester Staple Fibre Plant.

1970: Industrial Licence was granted for the manufacture of 6100 metric tonnes of Polyester Staple Fibre per annum.

1971: In February, foundation stone was laid.

In November, machinery erection commenced.

1972: In August, plant commissioned.

1973: In January, commercial production started.

1974: Pilot plant set up in R&D Laboratory.

R & D unit was recognised by the Department of Science & Technology.

First Diesel Generator set commissioned.

1976: Second Diesel Generator set commissioned.

(vii) M/s J.K. Synthetics Limited

1943: Incorporated At Kanpur, 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 received.

1964: Industrial licence for manufacture of 4000 tonnes per annum of acrylic staple fibre 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 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 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 lacs during the year.

Initiated research for development of technology for manufacture of polyester filament yarn from chips.

1969: Research work continued for development of technologies for manufacture of polyester filament yarn, nylon tyre cord, acrylic staple fibre, 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 lacs was incurred for carrying out scientific research.

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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 lacs 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 lacs.

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 commenced.

1973: Licence for the manufacture of 3840 tonnes per annum of nylon yarn 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 increased to 1600 tonnes per annum and 600 tonnes per annum respectively.

Foundation stone laid for Sir Padampat Research Centre, Kota.

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 Techimont 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 approval of the Govt. of India for setting up a synthetic filament yarn plant in Kenya.

Received and implemented industrial licence for manufacture of 800 tonnes per annum of nylon tyre yarn fabrics.

Sir Padampat Research Centre recognised by the Govt. of India. Research activities continued to contribute towards diversification and development of new products.

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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 GmbH., West Germany for the manufacture of draw twisting machines suitable for nylon and polyester filament yarn and for heavy denier yarn.

Indigenous know-how 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). This will earn substantial foreign exchange for India.

Indigenous Nylon-6 battery fabric was developed which would save substantial foreign exchange.

(viii) M/s Modipon Limited

1965: Company incorporated and Industrial Licence received.

1967: Corner stone was laid.

1968: Commercial production was started in March.

1969: Dividend of 8% on Equity share capital recommended for the first year of production ending on February 28.

1970: The plant achieved its full prodction capacity. Industrial licence for marginal expansion from 1800 tonnes to 2200 tonnes per annum was received.

1972: The capacity of original licence was enhanced to 3000 tonnes/annum.

C.O.B. licence for the manufacture of 360 tonnes per annum of Polyester filament yarn was received.

Expansion project of the company commissioned.

Received letter of intent for substantial expansion of 2,000 tonnes/annum of Nylon filament yarn.

1973: Started production of Polyester filament yarn in the month of January.

An old 20 MW power station was purchased in collaboration with other units of Modi Group to meet the power requirement.

1974: Issued bonus shares to the Equity Shareholders in the proportion of three bonus shares for every four Equity shares in August/September.

R&D Cell was established for the characterisation and development of the new type of monomers.

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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: Exported synthetic fabrics in January.

(ix) M/s National Rayon Corporation Limited

1946: The Company was incorporated at Bombay with authorised capital of Rs.10 crores divided into Equity of Rs. 5 crores and Preference Shares of Rs.5 crores.

1951: Production of Rayon Textile Yarn started.

1975: Tyre cord plant was commissioned in December.

1976: Commercial production of Nylon-6 Tyre cord commenced in January.

Water pollution control plant phase-I commissioned in December.

(x) M/s Nirlon Synthetic Fibres & Chemicals Limited

1962: 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.

Floated a wholly owned subsidiary Company for manufacturing nylon fabrics.

1967: Excise Duty on nylon yarn was increased by about 200%.

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 2,160 tonnes.

Tariff Commission Inquiry into the price structure of nylon yarn ordered by the Government.

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1969: Excise duty on nylon yarn of 75 denier and above was increased.

1970: The annual production capacity of nylon yarn was increased to 2520 tonnes.

Machinery for setting up of the Tyrecord Plant 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.

Introduced Gratuity Scheme and a non-contributory staff superannuation scheme.

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.

Annual licensed capacity for manufacturing Polyester filament yarn was increased from 360 tonnes to 576 tonnes.

1973: Polyester filament yarn manufactured to full licensed capacity.

1974: Polycondensation plant commissioned.

1975: Plant for the recovery of Glycol and Methanol commissioned.

Commenced work on Depolymerisation plant for recovery of Caprolactum from waste.

Industrial licence for the manufacture of the Conveyer Belting and Fan and V-Belts.

1976: Recognition of Research & Development Centre was renewed by the Government.

(xi) M/s 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 at Madras was set up.

1974: On 31st December, trial runs commenced.

1975: On 1st April, commercial production commenced.

1976: Facilities for fabric production installed.

(xii) M/s Stretch Fibres (India) Ltd.

1965: Incorporation on 19th June with authorised capital of Rs.150 lakhs divided in 15 lakhs equity shares of Rs.10 each.

On 29th July, certificate for commencement of business was received.

1966: Commencement of Stretch Nylon Yarn in January.

1969: Ist plant for manufacture of knitting fabric commissioned.

1973: Spinning plant for the manufacture of nylon installed.

Commercial production of nylon yarn commenced on 6th October.

(xiii) M/s Shree Synthetics Limited

1968: Shreeram Silk Mills Ltd., Calcutta, a unit of Hastings Mill 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 Limited.

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 received.

.../-

(xiv) M/s 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.

1972: In October, erection of plant and equipment completed.

Trial runs commenced.

1973: In March, commercial production 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 Jaylene 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.

(D) SYNTHETIC RUBBER

M/s Synthetics and Chemicals Limited

1958/59: Chairman visited U.S.A. for foreign collaboration 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., USA.

Government approval of the project and Firestone agreement received.

1961: Foundation stone laid at site at Bareilly.

1962: Technical Service Laboratory at Bombay commissioned to help rubber consuming industries in the field of application of synthetic rubbers.

1963: All plants were commissioned and commercial production started.

1964: Started new Resin S-1958 rubber.

1965: Explosion at Butadiene Plant causing temporary stoppage of production for about six months.

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 chemical industry for the first time in India.

First public enquiry in the fair prices of synthetic rubber held.

1969: Maiden dividend declared for shareholders for this year.

Government applied for the first time statutory control under the Essential Commodities Act on the prices of company's SYNAPRENE rubbers.

Developed new rubbers viz. S-1513 and EPB-08.

1970: Excise duty levied by Government of India at the rate of Rs.300 per tonne of rubber for the first time.

The Company developed and marketed a special synthetic latex S-2000 high solids with high bound styrene latex for use in cord dipping operations.

.../-

1971: 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 Government of India, Department of Labour & Employment.

Developed two new synthetic rubbers, S-1713 and EBR-07.

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 received for the year 1971-72 for singular achievement of safety records as under :

1) Highest percentage reduction in accident frequency rate.

2) Lower frequency rate in chemical industry and

3) Longest accident free period.

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: Letter of intent received for the manufacture of Steel Cord, Textile Re-inforced and Solid PVC conveyor belting.

Two National Safety Awards received for the year 1973 :

1) Lowest accident frequency rate in the chemical industry.

2) Longest accident free period.

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: 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.

.../-

1974 (contnd.) Industrial licence for manufacture of 2000 MT/year nitrile rubber received. Set-up 1 ton/day pilot plant for nitrile rubber and produced nitrile rubber in tonnage quanitites 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 1 ton plant for ABS plastics resins for development of technology and commenced trial production in a few grades of ABS.

Award of Merit 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, U.S.A. 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 Plastic industries for the year 1974 for(i) Longest frequency rate; (ii) Longest disabling injury free period.

Basic Training Centre for practical training of apprentices started functioning.

INSTALLED CAPACITY AND PRODUCTION OF PETRO-CHMICALS IN INDIA DURING , 1970, 1974, 1975 and 1976.

(Qty.in Tonnes)

Name of the Industry Items.	1970			1974			1975			1976		
	No.of units	Insta-lled capa-city	Prodn.	No.of units	Insta-lled capacity	Prodn.	No.of units	Insta-lled capacity	Prodn.	No. of unit	Insta-lledca-pacity	Prodn.
ORGANIC HEAVY CHEMICALS												
Benzene	10	94000	49228	10	94000	68442	10	94000	70737	10	94000	83967
Butadiene	2	32400	18482	2	32400	12522	2	32400	15154	2	32400	15442
Butyl Acetate	3	6280	2529	4	7230	3817	4	7230	3781	4	7230	3781
Butyl Alcohol	3	12450	3445	4	16250	4646	4	16250	5582	4	16250	7285
Diacetone Alcohol	2	4800	2418	2	5800	3129	2	5800	2336	2	5800	2860
Diethylene Glycol	1	600	441	1	600	671	1	600	732	1	600	511
Dichloro Ethane	1	3000	634	1	50000	37510	1	50000	29361	1	50000	23821
2-Ethyl Hexanol	2	9600	6380	2	9600	6638	2	9600	7822	2	9600	8534
Ethylene	2	75000	52068	2	75000	73103	2	75000	66[illegible]6	2	75000	67499
Ethylene Oxide	1	12000	1403	1	12000	10597	1	12000	10340	1	12000	10[illegible]
Monoethylene Glycol	1	10000	4998	1	10000	7481	1	10000	7719	1	10000	6405
Methyl Isobutyl Ketone	1	3700	1131	1	3700	1289	1	3700	866	1	3700	864
Isopropanol	1	1500	1594	1	1500	1512	1	1500	1352	1	1500	1665
Phthalic Anhydride	3	12300	7256	3	15300	8486	3	15300	5653	5	27300	14820
Polyethylene Glycol	1	1000	543	1	1000	713	1	1000	860	1	1000	837

contd..

Name ofthe Industry Item	1970 No.of units	Insta-lled-capa-city	Prodn.	1974 No.of units	Insta-lled capa-city	Prodn.	1975 No.of units	Insta-lled capa-city	Prodn.	1976 No.of units	Insta-lled capa-city	Prodn.
Propylene	2	6000	5494	2	42000	37245	2	42000	33299	2	42000	33141
Styrene	-	-	-	3	33000	16535	3	33000	15961	3	33000	21061
Toluene	9	25755	7834	9	25755	14188	9	25755	13407	9	25755	18432
D.M.T.	-	-	-	1	24000	12745	1	24000	15553	1	24000	24720
Ortho-xylene	-	-	-	1	21000	11749	1	21000	3933	1	21000	15708
Para-xylene	-	-	-	1	17000	7720	1	17000	9919	1	17000	13310
Mixed-xylene	-	-	-	1	2500	2159	1	2500	3962	1	2500	2107
Vinyl Chloride	-	-	-	1	30000	18340	1	30000	16071	1	30000	13447
Caprolactum	-	-	-	1	20000	2816	1	20000	13832	1	20000	15796
SYNTHETIC FIBRES												
Nylon Staple Fibre	-	-	-	1	900	6	1	900	174	1	900	-
Nylon Filament yarn	5	8996	9797	8	15736	10153	8	15736	13581	8	15736	15667
Nylon Tyre Cord.	2	360	68	2	3790	1693	3	5790	3813	4	7990	5286
Polyester Filament yarn	2	720	574	4	1806	1238	5	2166	2233	6	2616	2609
Polyester Staple Fibre	1	4550	5333	5	25300	7928	5	25300	14315	5	25300	21062
SYNTHETIC RUBBER												
Synthetic Rubber	1	30000	30339	1	30000	17918	1	30000	22958	1	30000	23503
PLASTICS RAW MATERIAL												
THERMOSETS												
M.F.Moulding Powder	2	550	83	3	1490	102	3	1490	106	3	1490	157
P.F.Moulding Powder	2	3200	3237	3	6200	4506	3	6200	3592	3	6200	3708
U.F.Moulding Powder	3	1680	1589	4	5150	1646	4	5150	1764	4	5150	2234
C.A.Moulding Powder	2	7200	1003	2	7200	1366	2	7200	1003	2	7200	1117

INSTALLED CAPACITY AND PRODUCTION OF PETRO-CHEMICALS IN INDIA DURING , 1970, 1974, 1975 and 1976.

Qty: in Tonnes

Name of the Industry Item.	1970			1974			1975			1976		
	No.of units	Insta-lled capa-city	Prodn.	No.of units	Insta-lleed capa-city	Prodn.	No. of units	Insta-lled capa. city	Prodn.	No.of units	Insta-lled capa-city	Prodn.
THERMOPLASTICS												
Polyethylene H.D.	1	20000	18346	1	20000	24616	1	20000	22987	1	20000	22822
Polyethylene L.D.	2	19000	23215	2	25000	26546	2	25000	27835	2	25000	26611
Polystyrene	2	17500	8708	2	17500	9848	2	17500	9091	2	17500	12337
P.V.C.Resin	4	43700	38552	5	64700	47432	5	64700	42884	5	64700	46738

Note:- Installed Capacity as per D.G.T.D., records.

Estimated consumption of selected Petro-chemicals

(Qty. in tonnes)

Products	1972-73	1973-74	1974-75	1975-76
Organic intermediates				
1. Benzene	62045	69652	70382	72412
2. Butadiene	12879	14413	11797	16323
3. Diethylene glycol	748	776	673	681
4. Dichloroethane	59950	33263	39339	24557
5. Ethylene	70940	71454	72863	64257
6. Ethylene oxide	8829	10364	10495	9329
7. Ethylene glycol	7861	9558	8114	7444
8. 2-Ethyl Hexanol	7784	7376	6369	8340
9. Isopropanol	1546	1413	1503	1346
10. M.I. Ketone	1355	1309	1056	960
11. Phthalic Anhydride	8144	11330	13805	12931
12. Propylene	38161	36499	37462	32766
13. Polyethylene glycol	728	717	680	872
14. Styrene	20140	23304	14674	16436
15. Toluene	12371	15591	13050	15296
Plastics Raw Materials				
1. M.F.Moulding powder	160	168	76	120
2. P.F.Moulding powder	4466	4912	3893	3661
3. U.F.Moulding powder	1993	2004	1685	1939
4. C.A.Moulding powder	1679	1706	1397	1465
5. Polyethylene L.D.	30013	33202	27621	35012
6. Polyethylene H.D.	24275	29029	27199	21479
7. Polystyrene	13510	14840	8181	9610
8. P.V.C. resins	49586	48973	47453	44223
Synthetic fibre				
1. Acrylic fibre	260	763	752	3163
2. Nylon 6 filament yarn	12519	10200	11159	14037
3. Nylon industrial yarn/ tyre cord	2389	1204	2415	4000
4. Nylon polymides/Staple fibre	531	375	330	356
5. Polyester filament yarn	948	1812	1350	2297
6. Polyester staple fibre	11423	11068	9899	16559
Synthetic Rubber*	27439	26666	24986	31582

Note: Estimated consumption = Production+imports - exports.
* Includes imports and exports of natural & reclaimed rubber also.

END-USE ANALYSIS OF UF&MF MOULDING POWDER(ESTIMATED PERCENTAGE CONSUMPTION IN DIFFERENT INDUSTRIES)

END-USES	1971	1972	1973	1974	1975	1976
1. Button moulders & bottle caps.etc.	28.9	28.3	24.6	23.1	30.1	25.6
2. Electrical Accessaries	62.6	62.0	67.6	70.5	63.5	58.0
3. Tableware croc	3.3	4.5	3.0	1.7	1.4	2.3
4. Switchgears	0.9	1.2	0.6	0.4	0.8	0.3
5. Miscellaneous. (Includes various items like, Ashtrays, handles pen,stands , Toilet sheets novelty etc.)	4.3	4.0	4.2	4.3	4.2	13.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total sales(Thousand tonnes)	2	2	2	2	2	2

End-use analysis of C.A.Moulding Powder(Estimated Percentages consumption in different industries.)

ENDUSES	PERCENTAGES				Qty:- Tonnes.		
	1970	1971	1972	1973	1974	1975	1976
1. Optical & Frames	10.9	12.1	11.5	14.7	11.0	6.9	4.9
2. Bangles	37.6	45.8	45.2	37.0	46.3	59.9	43.8
3. Tooth Brush Handles	23.8	20.9	18.9	22.0	11.8	4.4	5.2
4. Comb	4.2	4.7	6.4	6.2	5.8	7.8	11.1
5. Umbrella handles	4.6	4.6	6.9	5.7	7.0	14.1	19.1
6. Fountain pens	11.8	6.0	6.5	7.7	9.6	3.5	3.1
7. Tool handles	2.4	1.5	3.3	4.5	6.9	2.6	8.0
8. Industrial Components	0.1	0.5	0.6	0.8	0.7	0.2	0.1
9. Sheetings	0.3	0.3	0.2	1.0	-	-	-
10. Toys Keys, tops	0.1	0.1	0.1	neg	-	-	-
11. Miscellaneous	4.2	3.5	0.4	0.4	0.9	0.6	4.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total sales(Thousand Tonnes)	5	5	5	6	7	3	3

END-USE ANALYSIS OF POLYETHYLENE L.D. (ESTIMATED PERCENTAGE CONSUMPTION IN DIFFERENT INDUSTRIES)

END-USES	1970	1971	1972	1973	1974	1975	1976
Film & Coating	74.3	73.8	74.3	74.6	75.9	76-7	72.3
Moulding	6.8	7.0	6.4	6.8	6.3	6.7	6.4
Wire & Pipes	7.9	7.9	8.0	8.3	8.2	7.5	6.9
Miscellaneous	11.0	11.3	11.3	10.3	9.6	9.1	14.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total sales (Thousand Tonnes)	25	28	29	26	27	28	27

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EM USE ANALYSIS POLYETHYLENE-H(ESTIMATE PERCENTAGE CONSUMPTION IN DIFFERENT INDUSTRIES

Application	1970	1971	1972	1973	1974	1975	1976
A. Injection Moulding							
i) Household articles	59.0	46.6	34.4	25.7	24.3	25.2	27.0
ii) Transport cases	0.1	0.7	0.7	0.5	1.0	0.8	2.0
iii) Industrial	4.6	5.2	5.2	6.2	6.3	5.6	5.0
Sub -Total	63.7	52.5	40.3	32.4	31.6	31.6	34.0
B. Blow Moulding							
i) Consumer Packaging	7.5	9.7	12.0	15.1	13.4	11.5	12.5
ii) Industrial Packaging	9.3	8.5	12.5	11.2	11.6	6.5	8.9
iii) Miscellaneous	1.1	0.8	0.7	0.8	1.6	0.6	0.4
Sub -Total	17.9	19.0	25.3	27.1	26.6	18.6	21.8
C. Extrusion							
i) Monofilament & Cane stropping	9.6	10.0	9.6	8.9	8.1	17.6	13.6
ii) Films and sheets	5.0	5.4	2.9	3.3	2.8	4.1	3.1
iii) Pipes and cables	1.4	1.3	2.6	6.1	4.9	6.1	6.9
iv) Strips and woven sacks	2.4	11.8	19.3	22.2	26.0	22.0	20.6
Sub- Total	18.4	28.5	34.4	40.5	41.8	49.8	44.2
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total sales(Thousand tonnes)	14	20	21	21	25	24	23

END USE ANALYSIS OF POLYESTRIDE (ESTD. PERCENTAGE CONSUMPTION IN DIFFERENT INDUSTRIES.)

END-USES	1972	1973	1974	1975	1976
Appliances	0.2	0.3	0.6	0.1	0.4
Electronics & Industrial	23.0	30.2	31.7	30.8	29.2
Buildings	14.3	13.6	11.1	11.7	15.8
Packaging	19.8	21.7	24.0	22.0	24.9
House hold wares	30.8	28.3	26.7	29.4	22.5
Toys & Novelties	0.1	0.2	0.2	0.3	0.6
Defence	0.6	0.6	1.0	0.9	1.5
Miscellaneous	11.2	5.1	4.7	4.8	5.1
Total	100.0	100.0	100.0	100.0	100.0
Total sales(Thousand tonnes)	11	11	7	7	10

End-use analysis of PVC Resins (Estimated Percentage consumption in different industries)

End-Uses	1970	1971	1972	1973	1974	1975	1976
1. Wire & Cables	27.5	30.3	30.5	28.6	25.5	28.8	26.5
2. Pipes, fittings conduits	6.1	7.7	13.5	16.0	25.0	17.1	20.0
3. Leather cloth & sheet/films	17.5	18.0	20.4	20.1	18.9	24.0	24.7
4. Footwear	22.2	19.2	17.4	17.1	11.1	11.6	8.8
5. Gramophone	0.1	0.1	0.5	0.7	0.7	0.8	1.0
6. Vinyl tiles	-	0.1	0.1	0.2	0.2	0.2	0.2
7. Conveyers Belting	-	-	0.1	0.1	0.3	0.3	0.1
8. Battery separators	-	-	0.3	0.3	1.1	0.7	0.7
9. Transparent Blown Bottoms	-	-	-	-	-	0.2	0.4
10. Transparent Blown films	-	-	-	-	0.1	0.1	-
11. Toys	-	-	0.1	0.1	0.1	0.1	0.1
12. Compounders	18.3	14.4	10.7	10.6	10.4	7.9	7.8
13. Miscellaneous	8.3	10.2	6.4	6.2	6.6	8.2	9.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total sales (Thousand Tonnes)	34	40	46	48	43	42	47

End-use Analysis of D M T(Estimated Percentage Consumption)

Qty:- Tonnes

End-use	1974	1975	1976
Fibre	83.4	77.1	84.7
Filament	11.8	19.8	13.3
Resins	47.8	3.0	1.6
Wire Enament& Others	neg	0.1	0.4
Total	100.0	100.0	100.0
Total sales9(Thousand Tonnes)	10	18	21

End-use Analysis of Ortho-Xylene (Estimated Percentage Consumption

Qty: Tonnes

End-use	1974	1975	1976
Phthalic Anhydride	98.8	91.9	72.8
Paints	0.2	1.2	4.8
Pesticides	neg.	1.2	0.6
Dyestuffs & Dyes-Intermediates	0.5	0.8	1.2
Wire Enaments	-	1.1	1.1
Others	0.5	3.8	6.5
Exports	-	-	13.0
Total	100.0	100.0	100.0
Total sales(Thousand tonnes)	6	6	19

End-use Analysis of Mixed-Xylene (Estimated Percentage Consumption

Qty: Tonnes

End-use	1974	1975	1976
Paints	23.8	49.4	61.8
Pesticides	24.5	32.0	15.4
Dyestuffs & Dye-Intermediates	41.5	3.4	5.1
Wire Enaments & Resins	0.4	1.2	5.0
Others	9.8	14.0	12.7
Total	100.0	100.0	100.0
Total sales(Thousand tonnes)	2	4	2

End-use analysis of Methyl Iso Butyl Ketone (Estimated percentage consumption)

Qty: Tonnes

End-use	1976
Pharmaceuticals	30
Paints/Suface/Coatings	46
Pesticides	17
Others	7
Total	100
Total sales (Thousand Tonnes)	0.9

End-use analysis of Monoethylane Glycol (Estimated percentage consumption)

Qty: Tonnes

End-use	1976
Polyester	66
Explosive	24
Others	10
Total	100
Total sales (Thousand tonnes)	6

End-use Analysis of Isopropanol (Estimated Percentage Consumption)

Qty: Tonnes

End-use	1976
Pharmaceuticals	40
Paints/Suface/Coatings	11
Textile/Chemicals/Auxiliaries	16
Pesticides	10
Cosmetics	3
Others	20
Total	100
Total sales (Thousand tonnes)	1.7

End-use Analysis of Ethylene Oxide (Estimated Percentage Consumption)

Qty:- Tonnes

End-use	1976
Glycols	57
Textile/Auxiliaries	27
Ethanolawines	8
Others	5
Total	100
Total sales (Thousand tonnes)	10

BOMBAY MARKET PRICES OF SELECTED DENIERS OF NYLON YARN

Rs.per kg.

Denier	Spinner	Prices as on 1.1.75	1.7.75	1.1.76	1.7.76	1.1.77
12-1-0	J K I	131.00	148.00	145.00	120.00	126.00
	Modipon I	129.00	146.00	142.00	118.00	125.00
	Garware	125.00	145.00	141.00	118.00	124.00
	Nirlon Std.	126.00	142.00	142.00	118.00	124.00
20-1-0	Nirlon Std.	122.00	133.00	136.00	115.00	117.00
	Modipon I	124.00	132.00	135.00	116.00	118.00
	J K I	125.00	133.00	136.00	116.00	119.00
	Garware	118.00	133.00	135.00	115.00	117.00
40-10-0	J K Sd I	125.00	124.00	115.00	107.00	106.00
	Modipon Wvg.I	129.00	128.00	122.00	108.00	108.00
	Nirlon Std.	131.00	129.00	115.00	107.00	107.00
	Garware ISD	129.00	124.00	113.00	107.00	106.00

Source:- Office of the Textile Commissioner, Bombay.

* * * *

CONSUMPTION OF SBR BY END PRODUCTS

End Products	Consumption (Qty.) 1974	1975	1976
A. Auto Tyre units			
1. Firestone	1146	3008	2556
2. Ceat	1506	2473	3308
3. Dunlop	2344	5634	4051
4. Inchek	312	261	50
5. Goodyear	464	1311	2665
6. M.R.F.	933	1092	1280
7. Premier	408	466	248
8. Modi	37	626	1115
9. J K Industries	-	-	25
10. Apollo Tyres	-	-	23
Sub-Total:	7150	14871	15321
B. OTHERS			
1. Footwear	3825	5700	5900
2. Cycle Tyres & Tubes	710	50	900
3. Retreading material	1550	1200	1000
4. Industrial rubber products	700	850	950
5. Others	1576	1719	1889
Sub-Total:	8361	10319	10639
GRAND TOTAL:	15511	25190	25960

Source:- M/s Synthetic & Chemicals Limited, Bombay.

EX-WORKS PRICES (BULK, EXCLUDING EXCISE DUTY) OF SELECTED PETROCHEMICALS

(Prices Rs./tonne)

Item	Manufacturers	1.1.71	1.7.71	1.1.72	1.7.72
1.	2.	3.	4.	5.	6.
1. Polyethylene LD	UCI	5130	5130	5400	5400
	ACCI	4792	4792	4792	4798
2. Polyethylene HD (Natural colour)	Polyolefins Inds.Ltd.	4212	4329	4329	4346
3. Monomer	Polychem Ltd.	3331	3186	3293	3864
	Hindustan Polymers Ltd.	4250	4250	-	-
4. PVC(Resin)	NOCIL	3100	3100	3100	3100
	Chemicals & Plastics India Ltd.	2900	2900	3050	3350
	Calico Ltd.	2825	2825	2825	2825
5. Dioctyl Phthalate	UCI Ltd.	7300	7300	6000	6250
	IOC Ltd.	7150	7150 (as on 1.1.71)	4650	4500
	HCL, Bombay	7400	6606	5612	5433
6. 2-Ethyle Hexanol	NOCIL	5200	5200	5200	4900
	UCI Ltd.	5300	5300	4900 @	5300
7. Ethylene Glycol	NOCIL	4700	4300	4300	4300
8. Phenol	HCL Bombay	3300	3393	3502	3451
9. Ethylene Oxide	NOCIL	8050	6600*	6100	6100
10. Synthetic rubber	Synthetic & Chem.Ltd.				
-S-1500/502		4400	4400	4400	4400
-S-1712		3900	3900	3900	3900
-S-1958		6800	6800	6800	6800
11. Di Butyl Phthalate	IOC, Bombay	7000	-	5900	6250

UCI = Union Carbide India Ltd. * = In consumers cylinder.
NOCIL = National Organic Chemicals Industries Ltd.
\- = Not available.
HCL = Hardillia Chemicals Ltd.
IOC = Indian Organic Chemicals Ltd.
ACCI = Alkalies & Chemicals Corporation of India Ltd.
@ = Discontinued.

EX-WORKS PRICES (BULK, EXCLUDING EXCISE DUTY) OF SELECTED PETROCHEMICALS

(Price Rs./tonnes,)

Item	Manufacturers	1.1.73	1.7.73	1.1.74	1.7.74
1.	2.	7.	8.	9.	10.
1. Polyethylene LD	UCI	5400	5770	6140	9425
	ACCI	4798	5122	5122	6169
2. PolyethyleneHD (Natural colour)	Polyolefins Inds. Ltd.	4346	4671	4671	7613
3. Monomer	Polychem Ltd.	3807	4082	4060	9196
	Hindustan Polymers Ltd.	-	-	-	9800
4. PVC (Resin)	NOCIL	3100	3650	3800	6000
	Chemicals & Plastics India Ltd.	3350	3600	4200	6000
	Calico Ltd.	2825	2825	2750*	5200*
5. Dioctyl Phthalate	UCI Ltd.	6250	8900	13000	14800
	IOC Ltd.	4300	7900	11650	13500
	HCL, Bombay	5798	8520	9458	13500
6. 2-Ethyle Hexanol	NOCIL	4900	4900	5200	8300 (as on 1.1.75)
	UCI Ltd.	5300	5400	7700	-
7. Ethylene Glycol	NOCIL	4300	4300	4550	6800
8. Phenol	HCL, Bombay	3522	4473	6184	8700
9. Ethylene Oxide	NOCIL	6100	6100	6350	8750
10. Synthetic Rubber	Synthetic & Chem.Ltd.				
-S-1500/502		4400	4400	4400	4950
-S-1712		3900	3900	3900	4450
-S-1958		6800	6800	6800	7400
11. Di Butyl Phthalate	IOC, Bombay	6150	9900	16150	15750

* = 0685 grade
UCI = Union Carbide India Ltd.
NOCIL = National Organic Chemicals Industries Ltd.
\- = Not available
HCL = Hardillia Chemicals Ltd.
IOC = Indian Organic Chemicals Ltd.
ACCI = Alkalies & Chemicals Corporation of India Ltd.

EX-WORKS PRICES (BULK, EXCLUDING EXCISE DUTY) OF SELECTED PETROCHEMICALS

(Price Rs./tonne)

Item	Manufacturers	1.1.75	1.7.75	1.1.76	1.7.76	1.1.77
1.	2.	11.	12.	13.	14.	15.
1. Polyethylene LD	UCI	9425	14703	14703	13195	13195
	ACCI	8087	8087	8087	8087	8087
2. Polyethylene HD (Natural colour)	Polyolefins Inds. Ltd.	7744	7613	7613	7613	7613
3. Monomer	Polychem Ltd.	9340	9316	8230	9340	10090
	Hindustan Polymers Ltd.	9100	9100	9100	9100	9100
4. PVC (Resin)	NOCIL	6000	6000	6000	5000	6000
	Chemicals & Plastics India Ltd.	6000	6000	5150	5150	5700
	Calico Ltd.	5300*	5300*	5300*	5300	5900
5. Dioctyl phthalate	UCI Ltd.	11700	-	-	Nil	Nil
	IOC Ltd.	8600	7200	8100	9800	10700
	HCL, Bombay	10800	9300	10000	11600	11600
6. 2-Ethyle Hexanol	NOCIL	8300	8300	8750	8750	8750
	UCI Ltd.	8000	8000	8650	8650	8650
7. Ethylene Glycol	NOCIL	6800	6800	7250	7250	7550
8. Phenol	HCL, Bombay	8700	8700	8700	8800	8800
9. Ethylene Oxide	NOCIL	8750	8750	9300	9550	9550
10. Synthetic Rubber	Synthetic & Chem. Ltd.					
-S-1500/502		4950	5050	5050	8700	8750
-S-1712		4450	4550	4550	8200	8250
-S-1958		7400	7600	7600	14350	14500
11. Di Butyl Phthalate	IOC, Bombay	15550	11600	10600	9750	11050

* = 0685 grade
UCI = Union Carbide India Ltd.
NOCIL = National Organic Chemicals Industries Ltd.
\- = Not available
HCL = Hardillia Chemicals Ltd.
IOC = Indian Organic Chemicals Ltd.
ACCI = Alkalies & Chemicals Corporation of India Ltd.

IMPORTS OF SELECTED PETRO-CHEMICALS IN INDIA DURING -1974-75&1975-76

Qty: Tonnes
Value : Rs.Mn.

Sr. No.	Industry/ Products	1974-75 Qty.	1974-75 Value	1975-76 Qty.	1975-76 Value
1.	**Organic Chemicals(Excl.Pesticides)**				
1.	Benzene	140.8	0.90	1191.2	4.82
2.	Toluene	3.1	0.03	4.0	0.03
3.	Methyl Alcohol(Methanol)	11177.5	17.34	23.9	0.13
4.	Butyl Alcohol(Butanol)	48.6	0.77	28.2	0.27
5.	Ethylene Glycol	488.5	2.77	157.2	1.34
6.	Ethyl Alcohol undenatured	1.2	0.02	0.3	0.01
7.	Ethyl Alcohol denatured	1.0	0.04	0.8	0.03
8.	Acetone	0.7	0.01	0.8	0.01
9.	M.I.Ketone	-	-	neg.	neg.
10.	Carbolic Acid(Phenol)-Pure	47.5	0.27	40.7	0.28
11.	Phthalic Anydride	6465.6	39.12	6502.4	20.78
12.	Butyl acetate	16.3	0.15	161.4	1.45
13.	Others(Excl.Pesticides Viz BHC,DDT & Ethylene Dichloride)	-	1351.52	-	1282.69
	Total	-	1412.94	-	1311.84
2.	**Plastic Materials Regenerated Cellulose & Artificial Resin**				
1.	P.F.Moulding Powder	4.0	0.03	1.1	0.05
2.	U.F.Moulding Powder	96.2	0.31	82.8	0.39
3.	Polyethylene L.D.	875.8	5.68	7375.6	31.19
4.	Polyethylene H.D.	3152.8	19.44	1511.6	8.40
5.	Polystyrene Moulding Powder	159.9	1.29	416.1	2.74
6.	P.V.C.Resin	706.9	5.10	404.9	2.69
7.	C.A.Moulding Powder	388.4	3.78	332.1	3.03
8.	Others	-	146.76	-	143.59
	Total	-	182.39	-	192.08
3.	**Crude synthetic &Reclaimed rubber**	9437.4	68.39	6390.7	65.16
4.	**Synthetic & Regenerated fibres.**				
1.	Polymide fibre	151.4	2.12	355.8	6.09
2.	Polyester Fibre	327.5	4.86	540.7	6.69
3.	Acrylic Fibre	751.8	11.59	3163.3	38.02
4.	Others	-	8.62	-	10.32
	Total	-	27.19	-	61.12

Source :- Monthly Statistics of Foreign Trade.

Exports of selected Petro-chemicals from India during 1974-75 and 1975-76.

Qty - Tonnes
Value - Rs.million

Industry/products	1974-75		1975-76	
	Qty.	Value	Qty.	Value
I. Organic Chemicals (excluding Pesticides viz. BHC)				
1. Methyl Alcohol (Methanol)	-	-	-	-
2. Benzene	0.7	0.01	2.5	0.01
3. Butyl Alcohol	8.2	0.07	-	-
4. Ethylene Glycol	-	-	-	-
5. Ethyl Alcohol undenatured	21.0	0.02	-	-
6. Acetone	0.6	0.005	-	-
7. Others (excl. Pesticides viz., BHC)	-	79.365	-	73.81
Total (excluding Pesticides viz., BHC)	-	79.47	-	73.82
II. Plastic materials, regenerated cellulose and artificial resins.				
1. M.F. Moulding Powder	33.0	0.33	-	-
2. P.F. Moulding Powder	32.0	0.21	5.3	0.03
3. C.A. Moulding Powder	-	-	-	-
4. Polyethylene L.D.	203.5	2.74	-	-
5. Polyethylene H.D.	12.6	0.19	50.9	0.56
6. U.F. Moulding Powder	1.2	0.01	31.0	0.16
7. Polystyrene Moulding powder	3.1	0.05	9.0	0.28
8. P.V.C. Resins	-	-	-	-
9. Others	-	15.23	-	10.93
Total	-	18.76	-	11.96
III. Synthetic & Regenerated Fibres	-	0.15	907.0	10.43
IV. Crude rubber (Synthetic & reclaimed)				
1. Synthetic rubber	669.3	4.08	3.7	0.03
2. Others	1402.5	4.32	-	0.01
Total	2071.8	8.40	-	0.04

Source: Monthly Statistics of Foreign Trade.

PRODUCTION OF NON-CELLULOSIC CONTINUOUS FILAMENTS IN SELECTED COUNTRIES OF THE WORLD 1970-1974

('000 tonnes)

Country	1970	1971	1972	1973	1974*
1. Argetina	18.08	23.71	25.48	28.83	27.62
2. Australia	23.70	25.30	25.50	24.30	23.30
3. Brazil	26.90	31.20	44.50	63.20	68.70
4. Canada	52.44	60.14	58.10	69.90	65.41
5. Czechoslovakia	21.16	23.92	24.82	30.57	37.58
6. France	81.74	97.19	103.81	111.77	98.84
7. Germany Dem.Rep.	15.00	18.50	28.00	42.00	47.00
8. Germany Fed.Rep.	276.60	335.22	316.38	398.07	376.93
9. India	10.34	10.93	14.20	13.70	15.30
10. Japan	456.71	530.69	502.82	592.13	522.56
11. Italy	99.33	129.60	137.91	150.26	131.70
12. Netherlands	56.80	66.60	67.80	...	...
13. Spain	28.17	31.28	39.50	47.14	....
14. Switzerland	32.70	38.60	46.80	49.80	48.50
15. U.S.S.R.	115.08	132.29	157.19	176.26	195.69
16. U.K.	166.61	191.20	196.43	232.97	200.31
18. U.S.A.	813.70	992.00	1257.90	1514.90	1562.40

* Provisional ... = Not available

Source: U.N. Statistical Year Book - 1975

PRODUCTION OF NON-CELLULOSIC DISCONTINUOUS FIBRES IN SELECTED COUNTRIES OF THE WORLD - 1970-1974

('000 tonnes)

Country	1970	1971	1972	1973	1974*
1. Canada	20.95	25.49	22.10	23.68	26.58
2. France	93.48	115.76	130.49	154.54	138.88
3. Germany Dem. Rep.	29.60	32.00	38.60	47.50	53.00
4. Germany F.D.R.	220.38	268.79	324.22	412.86	389.98
5. India	5.33	5.99	6.70	10.60	7.50
6. Italy	142.36	173.92	187.12	232.04	209.00
7. Japan	571.24	633.93	613.84	716.32	651.77
8. Netherlands	33.20	38.10	44.90	-	-
9. Poland	36.33	38.70	39.38	43.56	55.89
10. Spain	35.32	44.75	69.38	84.08	-
11. U.S.S.R.	51.44	70.77	81.37	110.65	122.85
12. U.K.	170.30	166.14	177.54	220.92	195.77
13. U.S.A.	813.30	954.80	1171.40	1347.00	1262.60

* Provisional

\- Not available

Sources- U.N. Statistical Year Book - 1975.

PRODUCTION OF PLASTICS & RESINS IN SELECTED COUNTRIES OF THE WORLD - 1970-1974

('000 tonnes)

Country	1970	1971	1972	1973	1974*
1. Australia	225	256	285	342	399
2. Belgium	605	...	...	...	...
3. Czechoslovakia	245	270	301	356	...
4. France	1519	1765	2100	2532	2639
5. Germany Dem.Rep.	370	420	458	489	518
6. Germany Fed.Rep.	4170	4605	5209	6239	6071
7. India	95	103	110	109	...
8. Italy	1670	1709	1938	2322	...
9. Japan	5154	5206	5573	6425	6568
10. Netherlands	1150	1305	1526	1839	1937
11. Poland	224	257	299	334	395
12. Sweden	294	313	399	499	...
13. U.S.S.R.	1673	1864	2042	2320	2493
14. U.K.	1449	1447	1608	2528	2467
15. U.S.A.	8712	9556	11755	13719	....

* Provisional ... = Not Available

Source:- U.N. Statistical Year Book - 1975.

PART - III

PLAN STATISTICS

PART - III

PLAN STATISTICS

Annual Plan outlay for 1977-78 for various Programme/ Activities of the Ministry of Petroleum.

(Rs. in Lakhs)

Sl. No.	Programme/ Activities	Name of the undertaking responsible for execution of Programme/Activity	Annual Plan outlay for 1977-78	Extra budgetary resources for financing the Annual Plan outlay for 1977-78	Government budgetary support for financing the Annual Plan outlay 1977-78	Remarks
1.	2.	3.	4.	5.	6.	7.
1.	Exploration and Exploitation of Oil and Natural Gas Reserves.	(i) Oil & Natural Gas Commission (1)	45094.00	22569.00	22525.00	1. The figure of extra budgetary resources in Col.5 includes Rs. 5300 lakhs as contribution from Oil Industry Development Fund.
		(ii) Oil India Ltd. (2)	2773.00	1576.00	1197.00	
		Total	47867.00	24145.00	23722.00	
2.	Petroleum Refining Marketing & Distribution of Petroleum Products	(i) Indian Oil Corporation Ltd. (3)	9600.00	3928.00	5672.00	2. The figure of extra budgetary resources in Col.5 includes Rs.450 lakhs as contribution from Oil Industry Development Fund.
		(ii) Hindustan Petroleum Corporation Ltd. (4)	393.00	393.00	-	
		(iii) Indo-Burma Petroleum Co. Limited	523.50	373.50	150.00	
		(iv) Madras Refineries Ltd.	2.00	2.00	-	
		(v) Cochin Refineries Ltd.	40.00	40.00	-	
		(vi) Bharat Refineries Ltd.	264.50	264.50	-	3. The figure of extra budgetary resources in Col.5 includes Rs.500 lakhs as contribution from Oil Industry Development Fund.
		(vii) Caltex Oil Refining (India) Ltd. (5)	30.00	30.00	-	
		Total	10853.00	5031.00	5822.00	

4. The figures of budgetary resources in Col.5 includes Rs. 300 lakhs from Freight Surcharge Pool Account.

5. The figure of extra budgetary resources in Col.5 includes Rs. 22 lakhs as contribution from Oil Industry Development Fund.

Sl.	Programme/ Activity	Name of the Undertaking responsible for execution of the Programme/Activity	Annual Plan outlay for 1977-78	Extra budgetary resources for financing the Annual Plan outlay for 1977-78	Government budgetary support for financing the Annual Plan outlay for 1977-78	Remarks
1.	2.	3.	4.	5.	6.	7.
1.	Production of Petro-Chemicals and other allied products.	(i) Indian Petro-Chemicals Corp.Ltd.	7120.00	268.00	6852.00	The figure of extra budgetary resources in Col.5 includes Rs. Rs.110 Lakhs as contribution from Oil Industry Development Fund.
		(ii) Bongaigaon Refinery & Petro-Chemicals Ltd.	1817.00	-	1817.00	
		(iii) Petrofils Copperative Limited.	1.00	-	1.00	
		Total	8938.00	268.00	8670.00	
2.	Training in Plastcs Technology	(i) Central Institute of Plastics Engineering and Tools	10.00	7.00	3.00	The figure of extra budgetary resources in Col.5 includes Rs. 15 Lakhs as contribution from Oil Industry Development Fund.
3.	Consultancy in engineering services.	(i) Engineers India Ltd.	41.00	41.00	-	
		Grand Total	67709.00	29492.00	38217.00	

Budget provision (both Plan and Non-Plan)included in the Budget Estimates 1976-77, Revised Estimates 1976-77 and Budget Estimates 1977-78 for various programmes/activities of the Ministry of Petroleum.

(In lakhs of Rupees)

Sl. No.	Programme/Activity with break-down by undertakings/agencies responsible for its execution.)	Budget Estimates 1976-77			Revised Estimates 1976-77			Budget Estimates, 1977-78		
		Plan	Non-Plan	Total	Plan	Non Plan	Total	Plan	Non Plan	Total
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.	Direction and Administration Secretariat of the Ministry.	...	45.92	45.92	...	62.61	62.61	....	64.48	64.48
	Total Direction and Admn.	...	45.92	45.92	...	62.61	62.61	...	64.48	64.48
2.	Exploration and Exploitation of Oil & Natural Gas Reserves									
	(i) Oil & Natural Gas Commission	7329.00	...	7329.00	11363.00	...	11363.00	22525.00	...	22525.00
	(ii) Oil India Ltd.	2828.00	...	2828.00	3505.00	...	3505.00	1197.00	...	1197.00
	Total-Exploration and Exploitation of Oil and Reserves.	10157.00	...	10157.00	14868.00	..	14868.00	23722.00	..	23722.00
3.	Training in Plastics Technology: Central Institute of Plastics Engineering and Tools	1.00	18.00	19.00	1.00	18.00	19.00	3.00	18.00	21.00
	Total-Training in Plastics Technology.	1.00	18.00	19.00	1.00	18.00	19.00	3.00	18.00	21.00

Sl. No.	Program/Activity (with break-down by undertakings/agencies responsible for its execution)	Budget Estimates 1976-77			Revised Estimates 1976-77			Budget Estimates 1977-78		
		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
	4. Petroleum Refining, Marketing & Distribution of Petroleum Products.									
	i) Indian Oil Corpn. Ltd.	6450.00	...	6450.00	2200.00	...	2200.00	5672.00	...	5672.00
	ii) Cochin Refineries Ltd.	3.00	...	3.00	3.00	...	3.00	...	13.82	13.82
	iii) Madras Refineries Ltd.	...	[illegible]	[illegible]	[illegible]	...	...	...	...	...
	iv) Hindustan Petroleum Corpn. Limited	...	311.00	311.00	241.00	615.67	856.67	...	313.38	313.38
	v) Lubrizol India Ltd.	...	...	...	...	...	...	...	...	...
	vi) Indo-Burma Petroleum Company, Ltd.	78.00	...	78.00	...	...	...	...	...	...
	vii) Bridge & Roof Co. (India) Ltd.	50.00	100.00	150.00	100.00	230.00	330.00	100.00	50.00	150.00
	viii) Biecco Lawrie Ltd.	40.00	30.00	70.00	40.00	81.00	121.00	50.00	74.00	124.00
	ix) Bitumen Marketing Corporation Ltd.	100.00	...	100.00	...	...	...	...	...	...
	x) Bharat Refineries Ltd.	...	988.08	988.08	...	865.43	865.43	...	753.47	753.47
	xi) Caltex Oil Refining (India) Ltd.	...	...	...	...	900.00	900.00	[illegible]	586.36	586.36
	Total-Petroleum Refining and Marketing & Distribution of Petroleum products.	6721.00	1429.08	8150.08	2584.00	2692.10	5276.10	5822.00	1791.03	7613.03

Sl. No.	Programme/Activity (with break-down by undertakings/agencies responsible for its execution)	Budget Estimates 1976-77			Revised Estimates 1976-77			Budget Estimates 1977-78		
		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
	5. Production of Petro-chemicals and other allied products.									
	i) Indian Petrochemicals Corporation Ltd.	8060.00	...	8060.00	8880.00	...	8880.00	6852.00	...	6852.00
	ii) Petrofils Cooperative Ltd.	1.00	...	1.00	1.00	...	1.00	1.00	...	1.00
	iii) Bongaigaon Refinery & Petrochemicals Ltd.	2427.00	...	2427.00	2133.00	...	2133.00	1817.00	...	1817.00
	Total-Production of Petrochemicals and other allied products	10488.00	...	10488.00	11014.00	...	11014.00	8670.00	...	8670.00
	6. Consultancy in Engineering Services									
	Engineers India Ltd.	15.00	...	15.00	...	...	...	...	...	...
	Total -Consultancy in Engineering Services	15.00	...	15.00	...	...	...	...	...	...
	7. Assistance for the Development of Oil Industry									
	Oil Industry Development Board.	...	5545.00	5545.00	...	4819.00	4819.00	...	5986.00	5986.00
	Total-Assistance for the Development of Oil Industry.	...	5545.00	5545.00	...	4819.00	4819.00	...	5986.00	5986.00
	Miscellaneous items of expenditure.	...	1.25	1.25	...	0.74	0.74	...	0.24	0.24
	Grand Total	27382.00	7039.25	34421.25	28467.00	7592.45	36059.45	38217.00	7859.75	46076.75

Source :- Perfarmance Budget 1977-78, Ministry of Petroleum

PART-IV

FINANCIAL STATISTICS

PART-IV

FINANCIAL STATISTICS

Profitability analysis of

Hindustan Petroleum Corporation Limited

(Rs./lakhs)

Item	1974-75*	1975-76
1. Authorised capital	1075 @	1075
2. Equity capital	1000	1000
3. Loans : (a) Total	3647	4176
(b) Foreign	460	381
4. Net worth	3344	3270
5. Capital employed	7280	7700
6. Working capital	4172	4671
7. Sales/operating income	36736	45551
8. Profit	805	736
9. Net profit	246	169
10. Digidend declared	154	250
11. Percentage of :		
i) Net profit to equity	24.6	16.9
ii) Profit to capital employed	11.1	9.6
iii) Net profit to net worth	7.4	5.2
iv) Sales to capital employed	504.6	591.6
v) Total loans to equity	364.7	417.6
vi) Foreign loans to capital employed	6.3	4.9

* First year of inclusion for this analysis. In March, 1974 Government of India formed Hindustan Petroleum Corporation Ltd. and vested in it right, title, interest and liabilities of Esso Eastern Inc. In July, 1974, Lube India Limited was amalgamated with this Corporation.

@ Includes preference share capital of Rs. 75 lakhs.

Source: Annual reports from the Company.

Profitability analysis of

Hydrocarbons India Limited

(Rs./in lakhs)

Item	1974-75*	1975-76
1. Authorised capital	2500	2500
2. Equity capital	1650	2500
3. Loans : (a) Total	2971	2164
(b) Foreign	-	-
4. Net worth	809	2236
5. Capital employed	3780	4400
6. Working capital	1621	1461
7. Sales/operating income	3859	3861
8. Profit	2563	2557
9. Net profit	440	577
10. Dividend declared	-	-
11. Percentage of :		
i) Net profit to equity	26.7	23.1
ii) Profit to capital employed	67.8	58.1
iii) Net profit to net worth	54.4	25.8
iv) Sales to capital employed	102.1	87.8
v) Total loans to equity	180.1	86.6
vi) Foreign loans to capital employed	-	-

* First year of inclusion for this analysis.

Source: Annual reports from the Company.

Profitability analysis of

INDIAN OIL CORPORATION LIMITED

(Rs./lakhs)

Item	1973-74	1974-75	1975-76
1. Authorised capital	8500	8500	8500
2. Equity capital	7118	7118	7118
3. Loans (a) Total	7539	9107	3999
(b) Foreign	885	5083	756
4. Net worth	17134	19628	22049
5. Capital employed	17744	23587	18917
6. Working capital	5013	7336	2316
7. Sales/operating income	124454	196745	243082
8. Profit	3472	6087	6203
9. Net profit	981	3064	2991
10. Dividend declared	356	570	570
11. Percentage of :			
i) Net profit to equity	13.8	43.0	42.0
ii) Profit to capital employed	19.6	25.8	32.8
iii) Net profit to net worth	5.7	15.6	13.6
iv) Sales to capital employed	701.4	834.1	1285.0
v) Total loans to equity	105.9	127.9	56.2
vi) Foreign loans to capital employed	5.0	21.6	4.0

Source: Annual Reports of the Company.

Profitability analysis of
Indo-Burma Petroleum Company Limited

(Rs./in lakhs)

Item	1973	1974	1975 @
1. Authorised capital	300*	300*	300*
2. Equity capital	100	160	160
3. Loans: (a) Total	-	-	-
(b) Foreign	-	-	-
4. Net worth	414	453	461
5. Capital employed	148	187	192
6. Working capital	2	25	23
7. Sales/operating income	4999	8846	12994
8. Profit	122	150	146
9. Net profit	49	49	51
10. Dividend declared	23	16	28
11. Percentage of:			
i) Net profit to equity	49.0	49.0	31.9
ii) Profit to capital employed	82.4	80.2	76.0
iii) Net profit to net worth	11.8	10.8	11.1
iv) Sales to capital employed	3377.7	4730.5	6767.7
v) Total loans to equity	-	-	-
vi) Foreign loans to capital employed	-	-	-

* Includes preference share capital of Rs.50 lakhs.

@ January 1975 to March 1976. The Company has since adopted April to March period as its accounting year.

Source:- Annual reports of the Company.

Note:- For comparison purposes, a loan of Rs.134 lakhs taken from Central Government and paid to one of subsidiaries of I.B.P. has been excluded from loans as well as working capital.

Profitability analysis of

LUBRIZOL INDIA LIMITED

(Rs./lakhs)

Item	1973-74	1974-75	1975-76
1. Authorised capital	75	75	75
2. Equity capital	60	60	60
3. Loans: (a) Total	118	191	106
(b) Foreign	-	-	-
4. Net worth	251	623	423
5. Capital employed	361	800	403
6. Working capital	218	661	271
7. Sales/operating income	675	1350	1325
8. Profit	120	389	258
9. Net profit	57	375	168
10. Dividend delcared	4	4	5
11. Percentage of:			
i) Net profit to equity	95.0	625.0	113.3
ii) Profit to capital employed	33.2	48.6	64.0
iii) Net profit to net worth	22.7	60.2	16.1
iv) Sales to capital employed	187.0	168.8	328.8
v) Total loans to equity	196.67	318.3	176.7
vi) Foreign loans to capital employed	-	-	-

Source: Annual Reports of the Company.

Profitability analysis of
MADRAS REFINERIES LIMITED

(Rs./lakhs)

Item	1973-74	1974-75	1975-76
1. Authorised capital	1350	1350	1350
2. Equity capital	1288	1288	1288
3. Loans (a) Total	1431	1071	710
(b) Foreign	594	459	323
4. Net worth	2711	2769	2837
5. Capital employed	4154	3854	3511
6. Working capital	1745	1758	1735
7. Sales/operating income	14198	20021	25482
8. Profit	769	303	625
9. Net profit	671	227	220
10. Dividend declared	155	155	193
11. Percentage of :			
i) Net profit to equity	52.1	17.6	17.1
ii) Profit to capital employed	18.5	7.9	17.8
iii) Net profit to net worth	24.8	8.2	7.8
iv) Total loans to equity	111.1	83.2	55.1
v) Foreign loans to capital employed	14.3	11.9	9.2
vi) Sales to capital employed	341.8	519.5	725.8

Source: Annual reports of the Company.

Profitability analysis of

Oil & Natural Gas Commission

(Rs./lakhs)

Item	1973-74	1974-75	1975-76
1. Authorised capital *	-	-	-
2. Equity capital	13515	13515	16725
3. Loans: (a) Total	8078	7300	11995
(b) Foreign	271	161	120
4. Net worth	21258	17031	22410
5. Capital employed	21072	17456	26044
6. Working capital	5406	6773	7273
7. Sales/operating income	8160	14353	16803
8. Profit	2983	5526	4326
9. Net profit	2451	5077	2393
10. Dividend declared	-	-	-
11. Percentage of			
i) Net profit to equity	18.1	37.6	14.3
ii) Profit to capital employed	14.2	31.7	16.6
iii) Net profit to net worth	11.5	29.8	10.7
iv) Sales to capital employed	38.7	82.2	64.5
v) Total loans to equity	59.8	54.0	71.7
vi) Foreign loans to capital employed	1.3	0.9	0.5

Source:- Annual Reports of the Company.

* There is no share capital. The Central Government contribute all the capital to the Commission.

Profitability analysis of

Indian Petrochemicals Corporation Limited

(Rs./in lakhs)

Item	1973-74	1974-75	1975-76
1. Authorised capital	6000	10000	20000
2. Equity capital	4900	8900	15500
3. Loans : (a) Total	1843	1490	1767
(b) Foreign	173	211	206
4. Net worth	4576	9402	17455
5. Capital employed	4097	5521	6676
6. Working capital	1313	2699	3920
7. Sales/operating income	522	2748	3703
8. Profit/loss	(-) 175	912	1611
9. Net profit	(-) 281	806	1447
10. Dividend declared	-	-	-
11. Percentage of :			
i) Net profit to equity	-	9.1	9.3
ii) Profit to capital employed	-	16.5	24.1
iii) Net profit to net worth	-	8.6	8.3
iv) Sales to capital employed	12.8	49.8	55.5
v) Total loans to equity	37.6	16.7	11.4
vi) Foreign loans to capital employed	4.2	3.8	3.1

Note: Commercial production of MMT commenced in December, 1973.

Source:- Annual Report of the Company.

A P P E N D I X

A P P E N D I X

LIST OF PRODUCTS INCLUDED AMONG LIGHT/MIDDLE DISTILLATES.

A. LIGHT DISTILLATES (including Gases)

1. Motor Gasolines
2. Aviation Gasolines
3. Naphtha
4. SBP Spirit/Solvent Oils
5. Hexane
6. Benzene
7. Toluene
8. L.P.G.
9. Refinery Gas

B. MIDDLE DISTILLATES

1. Kerosines
2. ATF/Jet A-1
3. Vaporising Oil
4. Mineral Turpentine
5. Aromex-Iomex
6. H.S.D.
7. L.D.O./M.L.D.
8. J.B.O.

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III

WEIGHTS

1	Oz	= 28.35 grammes
1	lb	= 0.453592 Kilogrammes
		= 0.009 cwt
1	~~lb~~ Kg	= 2.20462 ib
1	Kg	= 0.01 quintal
1	cwt	= 112 lb
		= 50.802 kg.
1	Metric ton	= 0.98421 long ton*
		= 1.10231 short ton
		= 2204.6 lb
1	English or long ton	= 1.01605 metric tons
		= 1.12 short tons*
1	Short ton	= 0.892857 long ton*
		= 0.907185 metric ton*
		= 2000 lb

* These conversions are based on the assumption that all weights are weights in air, which is the correct basis for computing bulk commercial quantities of petroleum.

POWER AND HEAT UNITS

1	Hp (Horse power)	= 550 foot pounds per second
		= 0.746 Kilowatt
		= 1.014 PS (or Cheval Vapeur)
1	PS (Pferdestaerke) or CV (Cheval Vapeur)	= 542 foot pounds per second
		= 0.986 hp
		= 0.736 KW
1	KW (Kilowatt)	= 1000 watts
		= 1.340 hp
		= 1.359 PS or CV
		= 737 foot pounds per second
1	Therm	= 100000 Btu(British thermal units)
		= 25200 Kilo calories
		= 25.2 thermies
		= 29.3 Kilowatt hours
	1000 Kilocalories (Large calories)	3968 Btu
		= 1.163 Kilowatt hours
		= 1 thermie
1	Kilowatt hour	= 3411 Btu
		= 1.340 hp hours
		= 859.6 Kilocalories
1	Foot pound per second	= 0.00136 Kilowatt
		= 0.00182 hp
		= 0.00184 PS or CV

IV

Specific Gravity : Volume per ton

Degree API	Specific gravity	Barrels per * Metric Ton	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

* Approx. figures at 60 degree F.

Specific gravity ranges

	Specific gravity	Barrels per metric ton
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

Calorific value of fuels

Rough gross values in Btu per lb

Crude Oil	18300-19500
Gasolines	20500
Kerosines	19800
Benzole	18100
Ethyl alcohol	11600
Gas Oils(Bunker) 183	18300
Coal(Bituminous)	10200-14800

V

PRODUCT CONVERSION FACTOR

(Conversion Factor from Volume @ Temp. to tonnes at Natural Temp.)

Products	Litres to Metric Tonnes	Tonnes per K.L	American barrels to Metric tonne
Aviation Spirit 100/130	1421	0.7037	8.94
Aviation Spirit 115/145	1449	0.6901	9.11
Aviation Spirit 73 OM U/L	1432	0.6983	9.01
Motor Spirit 79 R	1427	0.7008	8.98
Motor Spirit 80 TT	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	8.08
Inferior Kerosene	1265	0.7905	7.96
Power Kerosine(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	1071	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
Wax/Aromex/P.Coke/Chemicals	1114	0.8977	7.01
Bitumen	1002	0.9980	6.30
HPF/Alcohol Mixture	1414	0.7072	8.89
Methanol Mixture	1106	0.9042	6.96
Carbon Black Feed Stocks	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

VOLUME PER METRIC TON OF PETROLEUM PRODUCTS.

	Kilolitre-M^3	Imperial Gallons	U.S.Gallons	Barrels
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
Moter Spirit	1.3514	297.265	356.990	8.496
Kerosine	1.2346	271.569	326.137	7.764
Jet Fuel	1.2346	271.569	326.137	7.764
Distillate Fuel Oil	1.1494	252.845	303.647	7.231
Lubricating Oil	1.1111	244.415	293.522	6.988
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

METRIC UNITS

Linear

10 millimetres	= 1 Centimetre
10 Centimetres	= 1 decimetre
10 Decimetres	= 1 metre
10 Metres	= 1 decametre
10 Decametres	= 1 hectametre
10 Hectametres	= 1 kilometre

AREA

100 Sq. millimetres	= 1 Sq. centimetre
100 Sq. centimetres	= 1 Sq. decimetre
100 Sq. decimetres	= 1 Sq. metre
100 Sq. metres	= 1 Sq. decametre
100 ares	= 1 Sq. ares = 1 hectare
100 Hectares	= 1 Sq. hectometre = 1 Sq. kilometre

WEIGHTS

10 Milligrams	= 1 centigram
10 centigram	= 1 decigram
10 Decigrams	= 1 gram
10 Grams	= 1 decagram
10 Decagrams	= 1 hectogram
10 Hectogram	= 1 kilogram
100 Kilogram	= 1 quintal
1000 Kilogram	= 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.

APPROXIMATE CALORIFIC VALUES

1 Kg of	K.Cals	Kg of hard Coal	Kg. of Crude Oil
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 (for World Average gravity)

To Convert these into these	Metric tons	Barrels	Kilo Litres	1,000 Imp. Gallons	1,000 U.S. Gallons
Metric tons	1	7.30	1.16	0.2555	0.306
Barrels	0.137	1	0.159	0.035	0.042
Kilolitres	0.863	6.29	1	0.22	0.264
1,000 Imp.gallons	3.92	28.6	4.55	1	1.20
1,000 U.S.gallons	3.26	23.8	3.79	0.83	1

CONVERSION FACTORS USED IN THE OIL TRIAL

LINEAR AND SQUARE MEASURES

1 inch	= 0.0254 metre
1 foot	= 0.333 yards = 12 inches = 0.305 metre
1 yard	= 3 feet = 36 inches = 0.914 metre
1 metre (m)	= 1.094 yards = 3.281 feet = 39.37 inches = 0.001 Km
1 Kilometre (Km)	= 1000 metres = 0.621 miles
1 Statute mile	= 1760 yards = 1.609 Km.
1 nautical mile	= 6080 feet = 1.15152 statute miles
1 Square foot	= 0.093 square metre
1 Square yard	= 9 square feet = 0.836 square metre
1 square metre	= 1.196 square yards = 10.764 square feet
1 acre	= 0.405 hectare = 4840 square yards
1 hectare (ha)	= 0.01 square Km = 2.471 acres
1 square Km	= 0.386 square mile = 100 ha
1 Square mile	= 2.590 square Km = 640 acres = 259 ha

X

COAL REPLACEMENT AND EQUIVALENTS OF DIFFERENT FUELS

Fuels	Unit Coal equivalent in m.tonnes mtce		Coal replacement in m. tonnes mtcr.
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)	1mt	2.0	2.0
Kerosene & LPG	1 mt	2.0	8.5
HSDO & LDO	1 mt	2.0	9.0
Motor Spirit & Jet Fuel	1 mt	2.0	7.5
Natural Gas (9000 Kcal/kg)	$10^9 m^3$	1.8	3.6
Electricity	10^9 kwh	1.0	1.0

CONVERSION FACTORS

U N I T S	1,000 metric tons oil	1,000 bbl oil*	b/d*	Billion BTU	Billion Kilo-calories	Million kw-hr output basis	Million kw-hr input basis	1,000 metric tons hard coal eq.	Million cum natural gas ‡
1000 metric tons oil*	-	7,300	20.0	42.705	10.762	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 BTU	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-output 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	....
Mlef natural gas‡	0.024	0.177	0.485	1.035	0.261	0.303	0.094	0.036	0.028
Million cum-/day natural gas‡	0.309	2.281	6.251	13.339	3.364	3.905	1.211	0.464	0.365
Mefd 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 BTU/bbl.+@ 30.9% efficiency-11,040 BTU/kw-hr.‡ 1,035 BTU/cu ft.

XII

CUBIC MEASURES

1 Cubic inch	= 16.387 cubic centimetres
1 pint	= 0.5683 litre
1 Litre	= 1000 cubic centimetres = 61.024 cubic inches = 1.7597 pints = 0.26417 American gallon = 0.21997 Imperial gallon = 0.035314 cubic feet
1 hectolitre	= 100 litres
1 American gallon	= 231 cubic inches = 3.7854 litres = 0.83268 Imperial gallon = 0.133681 cubic foot = 0.0238095 American barrel = 0.0037854 cubic metre
1 Imperial gallon	= 277.42 cubic inches = 4.5461 litres = 0.160544 cubic foot = 1.20094 American gallon = 0.028594 American barrel = 0.0045461 cubic metre
1 Cubic foot	= 28.317 litres = 7.4805 American gallons = 6.2288 Imperial gallons = 0.17811 American barrel = 0.028317 cubic metre
1 American barrel	= 9702 cubic inches = 158.99 litres = 42 American gallons = 34.9726 Imperial gallons = 5.6146 cubic feet = 0.15899 cubic metre
1 Cubic metre	==35.315 cubic feet = 1000 Litres = 264.17 American gallons = 219.97 Imperial gallons = 6.2898 American barrels
1 Kilolitre	= 1000 litre = 6.2989 American barrels
1 gross ton(Shipping)	= 100 cubic feet or 2.83 cubic metres of permanently enclosed space.

158 984

Bunker Price

1 MT = 3.785 KL

MT	MT	
142.57	142.57	Kerosene
123.07	123.07	HSD
78.27	77.85	FO

Kerosene $42/BBL

3.785 L

~~$158.99~~

$110.95/KL

~~1.285~~ 1.285 × 110.95 = $142.57/MT

123.07 | 123.07

HSD

$42

30

38.5

3785

= $101.71/KL

1.210 × 101.71 $/MT

= $123.07/MT

FO

11.65 × 19 = 22135

11.55 × 11 = 12705

~~22135~~ 34840

34840 / 30 = 11.613

= 3067

Kerosene $142.57/MT

HSD 123.07/MT

FO 78.27/MT

~~$30.67/KL~~

78.27/MT

Rs Jamun.

1210 Jamun 39.6 x 23 days. = 9108
2835
40.5 x 7 = = 11943

$39.81

3.7854

$105.17/MT

1210 Mango 36.8 x 23 = 8464
2646
37.8 x 7 = 11110 = 37.03
3.7854
$ 97.83/MT

L Fo. 11.85 x 6.74

= $ 79.87/MT

3.285

6.74

$135.14 /MT Sko

= $118.37 Ifo

$79.87 /MT Fo

106.99 x 1.285 = $137.49/M

99.86 x 1.21 = 120.83/MT

$79.87 79.87/M

		Mid		
Bunker Prices	Kero	142.57	142.57	1207.56
8.474	1400	123.07	123.07	1043.15
	Fo	78.27	77.85	663.26
Returns	Kero	135.14	137.49	
	1400	118.37	120.83	
8.535	Fo	79.87	79.87	