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**Report No. P=2062-IN**

REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT OF THE  
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
TO THE  
EXECUTIVE DIRECTORS  
ON A  
PROPOSED LOAN  
TO  
INDIA  
FOR THE  
BOMBAY HIGH OFFSHORE DEVELOPMENT PROJECT

June 20, 1977

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CURRENCY EQUIVALENTS  
(as of June 14, 1977)

Rs 1.00	=	Paise 100
US\$1.00	=	Rs 8.80
Rs 1.00	=	US\$0.1136
Rs 1 million	=	US\$113,600

(Since September 24, 1975 the Rupee has been officially valued relative to a "basket" of currencies. As these currencies are now floating, the US Dollar/Rupee exchange rate is subject to change. Conversions in the Appraisal Report were made at US\$1 to Rs 9.00).

FISCAL YEAR

April 1 - March 31

ABBREVIATIONS AND ACRONYMS

ONGC	=	Oil and Natural Gas Commission
GOI	=	Government of India
BHDP	=	Bombay High Development Project
DCF	=	Discounted Cash Flow
Mmt <sub>3</sub> /y	=	million metric tons per year
Mm <sup>3</sup> /d	=	million cubic meters per day
b/d	=	barrels per day
LPG	=	liquefied petroleum gas
POL	=	Petroleum, Oil, Lubricants

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INDIA -- BOMBAY HIGH OFFSHORE DEVELOPMENT PROJECT

LOAN AND PROJECT SUMMARY

Borrower: India, acting by its President

Beneficiary: Oil and Natural Gas Commission

Amount: US\$150.0 million

Purpose: Construction of the facilities required to produce up to 140,000 barrels per day of oil and 2.2 million cubic meters per day of natural gas from the Bombay High and Bassein oil and gas fields, located about 160 km and 100 km, respectively, west of Bombay, in the Arabian Sea, and construction of facilities to process, transport, store and deliver to users the oil and natural gas expected to be available from these fields at full production.

Terms: Repayment over 20 years, including three years' grace, at 8.20% per annum

Relending Terms: Maturity not to exceed 20 years, including three years' grace, at 10-1/4% per annum.

Estimated Cost:

	(US\$ Million)		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
Wells	12.0	37.0	49.0
Well Platforms	9.0	28.0	37.0
Land	4.5	--	4.5
Pipelines	18.0	149.0	167.0
Processing Platforms	2.5	82.5	85.0
Oil Terminal	17.0	0.5	17.5
Gas Processing Plant	7.0	5.0	12.0
Oil Stabilization Plant	10.0	1.0	11.0
Supply Base	15.0	--	15.0
Telecommunications	8.0	4.0	12.0
Customs Duty	12.0	--	12.0
Consulting Services	<u>9.0</u>	<u>28.0</u>	<u>37.0</u>
Base Cost	124.0	335.0	459.0
Physical Contingencies	19.0	51.0	70.0
Price Contingencies	<u>11.0</u>	<u>31.0</u>	<u>42.0</u>
Total Project Cost	154.0	417.0	571.0

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Financing Plan: (US\$ Million)

ONGC Internal Cash	100.0
GOI Loan/Equity	471.0
of which: IBRD Loan	150.0
Commercial borrowing	50.0*
Bilateral assistance	50.0*
OIDB Loans	70.0*
	<u>571.0</u>

\* Estimate

Estimated Disbursements: (US\$ Million)

<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>Total</u>
80.0	63.0	7.0	150.0

Consultants' Services:

For design and supervision of construction of the facilities included in the project ..... 11,000 man-months.

Rate of Return: 66% (economic)

Appraisal Report: No. 1569a-IN, dated June 10, 1977.

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

REPORT AND RECOMMENDATION OF THE PRESIDENT  
TO THE EXECUTIVE DIRECTORS ON A PROPOSED LOAN  
TO INDIA FOR THE BOMBAY HIGH OFFSHORE DEVELOPMENT PROJECT

1. I submit the following report and recommendation on a proposed loan, in an amount equivalent to US\$150 million, to the Government of India (GOI), to help finance the construction of facilities required to produce up to 140,000 barrels per day of oil and 2.2 million cubic meters per day of natural gas from the Bombay High and North Bassein oil and gas fields, and the construction of facilities to process, transport, store and deliver to users the oil and natural gas expected to be available from these fields at full production. Amortization would be over 20 years, including three years' grace, at an interest rate of 8.2% per annum. The proceeds of the loan would be on-lent by the GOI to the Oil and Natural Gas Commission for a period of not more than 20 years, including three years' grace, at an interest rate of 10.25% per annum.

PART I - THE ECONOMY 1/

2. An economic report, "Economic Situation and Prospects of India" (1529-IN dated April 25, 1977), was distributed to the Executive Directors on May 3, 1977. Country data sheets are attached as Annex I.

Background

3. India is exceptional among the Bank Group's member countries for its size and diversity; the country is divided into more than 20 States with a population of some 630 million speaking over 60 languages. Since Independence the trend in growth of GNP has been about 3.5% per annum, or a little over 1% per annum in per capita terms, while over the five years 1971/72 - 1975/76 it fell to as low as 2.5% per annum, in spite of the record harvest of 1975/76. This unsatisfactory performance is in part the result of the low availability of investable resources: the net transfer of resources from abroad has never been above 3% of GNP, and fell to as little as 0.8% between 1969/70 and 1973/74; similarly, while India's domestic savings effort compares well with other countries at the same average income levels, the rate has very rarely exceeded 17% of GNP. The investment rate puts India in the lower third of all developing countries. More significant perhaps is the fact that in spite of a marked rise in the investment rate from about 10% in the early 1950's to about 18% over the past fifteen years, the trend in GNP growth has remained about the same. This indicates a marked decline in the efficiency of capital use, as a result of increasing capacity underutilization, long project gestation, and increased emphasis on relatively capital-intensive projects and sectors.

4. Since Independence the growth of the socio-economic infrastructure (transport, education, health services, etc.) has been impressive, but has

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1/ Parts I and II of this report are the same as those in the President's Report on the Periyar Vaigai Irrigation Project (P-2045-IN, dated May 19, 1977).

often been achieved at high cost and has yielded results of variable quality. Many industrial and agricultural investment schemes have been highly successful, but others have taken excessively long to be completed and have operated well below full capacity. In some regions of the country, growth and structural change have been rapid and compare favorably with developments in many other parts of the world; in other regions there has been stagnation, and in some, decline. Although national income has increased in most years, there has been no rise in the living standards of the vast mass of rural and urban poor, conservatively estimated at 200 million people with per capita incomes of US\$70 per annum (converted at the official exchange rate) and US\$250 on a purchasing power parity basis.

5. The structure of the economy has been slow to change. Agriculture remains the dominant sector, with its share of national product declining only gradually from about 50% to 42% over the last twenty years. The share of manufacturing industry has increased only slowly and, since the late 1960's, has remained approximately constant at about 16%. There has, however, been a shift in the composition of manufacturing production, with consumer, intermediate, and capital goods now contributing about one-third each, compared with an overwhelming preponderance of consumer goods 25 years ago.

#### Recent Trends

6. In March, 1977, a party other than Congress formed a Government for the first time since Independence. Undoubtedly, changes in economic policies and emphasis will be formulated in the course of the next few months. The state of the economy was not a prominent election issue; in fact the economy was generally stronger than at any time in the last six years. Although the growth of GDP in 1976/77 is not expected to have exceeded 2%, this was on top of the very good growth of 8.8% in 1975/76. Agricultural production is expected to have fallen by about 3%, but only because of the return to a more normal harvest of 110-114 million tons of foodgrains after the record 121 million tons of the previous year. Industrial growth was around 10% in 1976/77, which is significantly above the rates achieved in the late 1960's and early 1970's. Exports continued their bright performance, rising by 18% in US dollars and 12% in volume terms. The overall resource position, with record foreign exchange and foodgrain reserves, is exceptionally strong, and gives the Government considerable room for maneuver.

7. In agriculture the bumper crop of 1975/76 was largely due to remarkably good weather conditions; the good crop in 1976/77 - a foodgrain harvest in the region of 110 million tons would be the second largest on record - was produced under generally normal weather. A conspicuous change was the increase in fertilizer use, which rose by more than 20% over 1975/76, following marked declines in fertilizer prices. Industrial production benefited from fewer labor disputes, fuller utilization of installed capacity in both private and public sectors, a more liberal import policy, relatively good power availability, and increased demand because of higher consumer incomes, expanded exports and higher public expenditures. However, wholesale prices, which had fallen 14% from September 1974 through March 1976,

rose 11% from the end of March to December 1976 and continued rising into 1977. It is not yet clear whether this upsurge indicates a new inflationary trend or merely a correction of the previous sharp decline in the relative prices of a range of agricultural commodities.

8. The balance of payments situation has improved dramatically since the 1973-1975 period. In 1975/76 the trade deficit was \$1,530 million, which was more than covered by US\$1,560 million in net aid, US\$205 million in net purchases of currency from the IMF, and US\$559 million in net miscellaneous capital and invisibles (mostly private remittances); indeed, this large aggregate net resource inflow led to a US\$794 million increase in foreign exchange reserves, to a level of US\$2.2 billion. In 1976/77, the trade deficit is estimated to have fallen by US\$1,080 million, due to a rise of US\$845 million in exports and also to a fall of US\$235 million in imports, primarily because of lower prices and volumes of foodgrains and fertilizer imports. The decreased trade deficit, along with a further increase in the net inflow of miscellaneous capital and invisibles from abroad of US\$540 million, more than offset the fall of US\$350 million in net aid and the substantial repurchases of currency from the IMF, and allowed a US\$1.5 billion addition to reserves, which reached a level of US\$3.7 billion at the end of March 1977.

#### Development Prospects

9. The favorable economic situation gives the new Government the opportunity to address the longer-term constraints on growth. The basic task is to raise the overall rate of growth from its historic range of 3-4%. In the long run this will require raising more resources for investment. But it will also be important to achieve significantly better utilization of available resources, partly through an immediate boost to industrial demand.

10. In agriculture, the basic problem remains that, despite the record foodgrain crop in 1975/76 and the good crop in 1976/77, the long-term growth rate of foodgrain production has been unacceptably low, at about 2.5% per annum over the last seventeen years, and only 2% in the last ten. This has meant that only in good years has there been any margin of production to cater to per capita growth in food consumption, and in normal years it has been necessary to import food. There is considerable scope for stepping up growth both by increasing the use of inputs and by raising the productivity of existing capacity. Three promising developments in regard to the first are the sharply higher outlays on irrigation in the Fifth Plan period along with a renewed determination to complete projects expeditiously; the indications that private investment in tubewells is picking up again after a slowdown in the early 1970's; and the recent recovery of fertilizer demand. With regard to more productive use of existing capacity, there is increased awareness in the Government that the benefits of irrigation projects can be much increased not only through command area development but also through more efficient design and operation of major surface irrigation infrastructure. Also, hopes have been generated for increasing productivity on both irrigated and rainfed farms through a reorganized and improved extension and research system, which has been recently introduced in several States in northern and eastern India.

11. A strong effort to raise agricultural growth is essential, not only to meet food requirements, but also because of the pervasive influence of agriculture on the levels of activity in other sectors of the economy. This effort must also be so structured as to increase the incomes of small and marginal farmers, in order to increase production, since they operate 25% of the cultivated land and account for somewhat more than 25% of production, and for welfare reasons, since they make up about 70% of rural population and constitute the majority of those living below the poverty level.

12. The industrial sector is poised for rapid growth, as the most serious constraints on the supply side have been removed by the improved situation with respect to power, coal and imported raw materials and components. There has been a progressive liberalization of controls and the 1976/77 Central Budget announced a reduction of some taxes on private industry. In many cases management of public enterprises has improved, as is reflected in their markedly higher production and profitability as a group. In the medium term it is the demand for industrial output that will determine industrial growth. In certain industries, export demand will provide a strong pull on production; this is true, for example, for iron and steel, certain chemicals, some electrical equipment, processed agricultural products, and vehicles. But the impact of increased exports on overall industrial demand will grow only slowly given the current low share of exports in sales. If the higher growth and productivity in agriculture discussed earlier were to materialize, it would provide a significant stimulus to industry. It is difficult to specify the linkages explicitly; but because of the large share that agriculture holds in GNP, the coefficients do not have to be large for agricultural growth and the concomitant growth in demand for industrially produced inputs and mass consumption goods to boost overall industrial demand significantly. A higher public deficit and increased public investments are the instruments most directly under Government control, and also those that can increase demand for industrial products most immediately. The interim budget of the new Government moves strongly in this direction with a 240% increase in the planned budget deficit over 1976/77.

13. Improvement in the supply of energy augurs well for India's ability to meet the needs of a more rapidly growing economy. Organizational and transportation problems in the coal industry have largely been overcome; production is sufficient to meet demand, stocks are comfortable, and the industry has good prospects for meeting both domestic and export demand. Supply of electricity continues to be a concern, because of the vulnerability of hydro power to variations in the monsoon and the continued existence of local shortages, even when the overall power situation is satisfactory. But the severe power supply constraints of the past have been relaxed for the moment at least, and several institutional improvements promise to reduce the future incidence of shortages: underutilization of capacity has been virtually eliminated in well-established power stations; progress has been made in the organized exchange of power between States thus relieving localized power shortages; and the problems of slow implementation of power investment due to delayed delivery of materials and equipment have virtually disappeared. In addition, the delays caused by the inability of State Electricity

Boards to finance projects expeditiously have been eased by their improved financial position following tariff increases, and by increased Plan outlays by the Central Government. The medium-term prospects for the oil and gas sector have been further improved by major new finds of oil and gas near the large offshore Bombay High field. Crude oil from Bombay High was brought to shore for the first time in May 1976; production reached an annual rate of 2 million tons by March 1977, and will rise to a level of 12-13 million tons by 1982/83. Although India will continue to import crude at or somewhat above the current level, much of the foreign exchange burden of rapidly rising imports will be avoided by the development of these resources. Prospects are also bright for further discoveries offshore, given the current high level of exploration activity.

14. Underlying all other development issues is that of population. Although India's population growth rate of a little over 2% is not high in comparison with most LDCs, the size of the absolute increment - 13 million annually - is daunting. It appears, however, that population growth may have passed its peak in the 1960's, and it is expected to continue to slow down, both because the birth rate will continue to decline and because the death rate will not fall as steeply as in the past. With a sustained family planning effort, it should be possible to lower the population growth rate to 1.1% per annum by the end of the century. Our "best guess" projection of India's population by 2000 is 880 million. Many of the benefits of family planning policy will only be felt beyond the turn of the century, but the decline in fertility will bring about an early change in the age structure of the population. The school age group will grow more slowly or not at all after 1981, thereby reducing the pressures on the primary and secondary education system. The labor force, however, will continue to grow at a fast rate until the end of the century.

15. India's balance of payments position should be comfortable for the next few years. The combination of past global inflation and increased exports have reduced the proportion of export earnings needed for debt service from 30% in 1970/71 to 16% in 1976/77. The ratio is not likely to rise above this level in the next few years. Given continuing favorable policies, the volume of exports should continue to grow by 7% to 10% annually in the near future; and import needs for fertilizer, POL and foodgrains will continue to require a diminishing proportion of available foreign exchange. The large inflow of private remittances shows no immediate signs of declining and should continue to bolster the foreign exchange position in the medium term. Imports, including a variety of capital goods, have already been liberalized significantly. Increased public investment and a revival of the domestic economy is likely to generate substantial additional import demand. However, this should be quite manageable, given the currently comfortable foreign exchange position, bright export prospects, and continuation of the current real level of net aid. The present situation presents an opportunity to raise the level of investment and, consequently, reach a more satisfactory level of long-term growth.

PART II - BANK GROUP OPERATIONS IN INDIA

16. Since 1949, the Bank Group has made 50 loans and 85 development credits to India totalling US\$1,762 million and US\$4,338 million (both net of cancellation), respectively. Of these amounts, US\$816 million has been repaid, and US\$1,432 million was still undisbursed as of May 31, 1977. Annex II contains a summary statement of disbursements as of May 31, 1977, and notes on the execution of ongoing projects.

17. Since 1957, IFC has made 14 commitments in India totalling US\$58.4 million, of which US\$13.0 million has been repaid, US\$7.6 million sold and US\$6.9 million cancelled. Of the balance of US\$30.9 million, US\$24.4 million represents loans and US\$6.5 million equity. A summary statement of IFC operations as of May 31, 1977 is also included in Annex II (page 2).

18. In recent years, the emphasis of Bank Group lending has been on agriculture. The Bank Group has been particularly active in supporting minor irrigation and other on-farm investments through agricultural credit operations. Major irrigation, marketing, seed development, and dairying are other agricultural activities supported by the Bank Group. Also, the Bank Group has been active in financing the expansion of output in the fertilizer sector and, through its sizeable assistance to development finance institutions, in a wide range of geographically scattered medium- and small-scale industrial enterprises. IDA financing of industrial raw materials and components for selected priority sectors has been instrumental in facilitating better capacity utilization in industry. The Bank Group has also been active in supporting infrastructure development for power, telecommunications, and railways. Family planning, education, water supply development, and urban investments have also received Bank Group support in recent years.

19. The direction of assistance under the Bank/IDA program has been consistent with India's needs and the Government's priorities. The emphasis of the program on agriculture, industry, power, urban development and water supply remains highly relevant. Projects designed to foster agricultural production through the provision of essential inputs such as credit for on-farm investments, command area development of existing irrigation schemes, intensification and streamlining of extension systems, and seed production form an important aspect of the Bank Group's program for the next several years. Special emphasis will be given to projects benefiting small farmers. Projects supporting water supply, sewerage, and urban development also form an integral part of the Bank's lending strategy to India for the next several years. Lending in support of infrastructure and industrial investments will focus on agriculture-, export- and energy-related projects.

20. The need for a substantial net transfer of external resources in support of India's economy has been a recurrent theme of Bank economic reports and of the discussions within the India Consortium. Thanks in large part to the response of the aid community, India has successfully adjusted to the changed world price situation. However, the basic need for readily

usable foreign exchange assistance, to augment domestic resources, assure effective utilization of existing capacity, stimulate investment and accelerate economic growth, remains. As in the past, Bank Group assistance for projects in India should include, as appropriate, the financing of local expenditures. India imports relatively few capital goods because of the capacity of the domestic capital goods industry. The import component of projects tends to be especially low in such high-priority areas as agriculture, education, and family planning. For the Bank Group to be able to make an appropriate contribution to the financing of projects in these sectors, it is important to cover a proportion of local expenditures.

21. It is clear from the review of the Indian economy that as much as possible of India's external capital requirements should be provided on concessionary terms. Accordingly, the bulk of the Bank Group assistance to India has been, and should continue to be, provided from IDA. However, the amount of IDA funds that can reasonably be allocated to India remains small in relation to India's needs for external support, and some Bank lending to India, for which the country is creditworthy, is appropriate. As of May 31, 1977, outstanding loans to India totaled US\$973 million, of which US\$494 million remained to be disbursed, leaving a net amount outstanding of US\$479 million.

22. Of the external assistance received by India, the proportion contributed by the Bank Group has grown significantly. In 1969/70, the Bank Group accounted for 34% of total commitments, 13% of gross disbursements, and 12% of net disbursements as compared with an estimated 58%, 24% and 29%, respectively, in 1975/76. On March 31, 1976, India's outstanding and disbursed external public debt was US\$13.1 billion, of which the Bank Group's share was 25%. The Bank Group's share is expected to remain around this level in the future. Because Bank Group assistance to India is predominantly in the form of IDA credits, debt service to the Bank Group will rise slowly. In 1975/76, about 15% of India's total debt service payments were to the Bank Group.

### PART III - THE OIL AND GAS SECTOR 1/

23. India's total demand for commercial primary energy has grown at an average annual rate of 6% over the past ten years, but per capita consumption remains very low; it was only 11% of the world average in 1975. India's energy policy is predicated on the maximum economic use of domestic resources, mainly coal. India's total coal reserves are estimated at 83,000 million metric tons, which should be sufficient to cover the country's coal needs for the next 50 years. These reserves are being developed very rapidly; production is projected to increase from the current level of about 100 million tons to 350 million tons by 1990, with a total investment estimated at US\$7 billion over 15 years.

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1/ India's energy sector was reviewed by the World Bank in 1974 (Volume II of Report No. 402-IN, dated May 7, 1974) and the oil and gas sector in 1976 (Report No. 1172-IN, dated May 11, 1976).

24. The share of oil and natural gas in total commercial energy supply grew from 21% in 1965 to 32% in 1973; it has remained constant since, as a result of steps taken to limit consumption after the price increases of 1973-74. India's petroleum consumption is low and limited for the most part to sectors where other sources of energy cannot be substituted economically, with the result that there is little scope for further reducing demand without constraining economic growth. Thus hydrocarbons (oil and natural gas) are of critical importance to India's development efforts, accounting for about one-third of the total commercial energy supply and for about 25% of the country's import bill. The performance and prospects of the oil and gas sector are a highlight of the Indian economy over the past two years. Major new offshore strikes west of Bombay in the Arabian Sea have led to the delineation of fields with proven and probable recoverable reserves estimated at about 250 million tons of crude oil and about 30 billion cubic meters of natural gas. These fields have more than doubled India's known reserves of crude oil and increased the potential availability of natural gas by over 50%.

25. The potential oil-bearing structures offshore Bombay were first identified by seismic survey in 1966, but no exploration took place for almost eight years, since offshore oil was not thought to be competitive with imported supplies at pre-1973 prices. Since 1974, these finds have been developed with striking rapidity. Commercial production from Bombay High, a structure located about 160 km west of Bombay, began in May 1976, slightly over two years from the sinking of the first exploratory well, and reached a level of 40,000 barrels per day (2 million tons per year) by March 1977. In 1976, two more major fields were discovered at Bassein, about 60 km east of Bombay High and virtually on the direct pipeline route to Bombay; production from the Bassein North field is expected to begin in December 1978, when pipeline transportation facilities are available and the production platform is completed.

26. Responsibility for exploration and development in the Bombay High area has been assigned by the Government to the Oil and Natural Gas Commission (ONGC), a statutory body which was established in 1959. Three other offshore areas are being explored under production-sharing contracts in which ONGC has a working interest: the Kutch Basin by Reading and Bates (U.S.), the Bay of Bengal by Natomas (U.S.), and the Cauvery Basin by Asamera (Canada). ONGC is also responsible for the major share of onshore exploration and development. Of the 8.4 million tons of oil produced onshore in 1976/77 (all in the States of Assam and Gujarat), ONGC was responsible for about 63%; Oil India Limited, a joint sector company, for 36%; and Assam Oil Company, a subsidiary of the Burmah Oil Company, for about 1%.

27. The development plans for Bombay High and Bassein North call for increasing production from the current level of 2 million metric tons per year (Mmt/y) to 4 Mmt/y by December 1977, and to 10 Mmt/y by December 1981. Onshore, production from known oil fields is expected to increase from 8.4 million tons in 1976/77 to 9.4 million tons in 1980/81. Thus, total availability of domestic crude oil from known fields should increase from almost

9 Mmt/y at present to about 19.4 Mmt/y by the end of 1981. Current exploration efforts, both offshore and onshore, may well result in the discovery of new fields which could be brought into production in the 1980's. Although another field at Bassein South is expected to contain large amounts of free gas, the development of this field will await the completion of detailed reservoir engineering studies and the construction of facilities to utilize profitably this valuable resource.

28. As a result of the slow growth of the economy and of Government measures to limit consumption of refined products, which was growing at a trend rate of 8-9% in the period before the oil crisis, consumption of petroleum products declined from 22.5 million tons in 1973 to 21.8 million tons in 1974. It grew by about 3% in 1975/76 and by 6-7% in 1976/77 to about 24 million tons. The volume of petroleum imports declined from almost 18 million tons of crude equivalent 1/ in 1973/74 to about 17.4 million tons in 1974/75, 16.2 million tons in 1975/76, and 16.9 million tons in 1976/77. The import bill rose from US\$719 million in 1973/74 (compared with US\$265 million in 1972/73) to US\$1,451 million in 1974/75 and an estimated US\$1,627 million in 1976/77.

29. Even with a low rate of overall economic growth in India, consumption of petroleum products will exceed the combined production of existing onshore fields, Bombay High, and Bassein North, which is expected to peak at about 26.5 million tons in 1985. If overall growth were to increase to, say, 6% per annum, the annual growth in consumption of petroleum products could easily rise again to 9%; this would involve the consumption of about 50 million tons of crude equivalent by 1985, with imports of some 23.5 million tons (valued at US\$2.3 billion at present oil prices), in spite of the projected rapid increase in domestic production.

30. As warranted by the highly profitable investment opportunities and large unexplored prospective areas which currently exist, exploration and development programs have been sharply stepped up, and the oil and gas sector has taken an increasing proportion of Plan outlays. Total expenditures for exploration, development and refining included in the Fifth Five-Year Plan (1974/75 - 1978/79) are Rs 16.9 billion, or 4.3% of total Plan outlay. Of this amount, ONGC was to get Rs 10.6 billion, or 62%, but this is very likely to be exceeded -- perhaps by 50% or more. It is too early to determine the extent to which the Bombay High project will affect the share of ONGC, or of the oil and gas sector as a whole, in total Plan expenditures, since this depends on evolving needs in the sector as well as other developments in the economy. However, it is likely that the proportion of total Plan expenditure allocated to ONGC alone will rise from under 2% in 1974/75 to over 5% in the last two years of the Plan period.

31. India's policies with respect to the development of the oil and gas sector changed from an almost total reliance on foreign oil companies after

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1/ Crude oil imported as such and refined products expressed in the quantity of crude required to produce them.

Independence to a strong emphasis on self-reliance until the oil crisis of 1973-74. Recently, India has followed a policy which, while it continues to stress national autonomy, has increased cooperation with foreign oil companies. Negotiations with a view to acquiring the assets of foreign companies in India have been successful, and settlements have been reached in all cases. The Government now owns more than 85% of total refining capacity in India and has a controlling interest in the remainder. Although ONGC has become India's principal organization for exploration for and development of hydrocarbons, its pragmatic attitude toward foreign expertise is indicated by the production-sharing contracts mentioned in para 26 above and by its regular use of foreign consultants (para 41).

32. The proposed project would be the Bank Group's first lending operation in the Indian petroleum sector. However, the Bank Group has been involved in the energy sector since 1950. The Bank Group has made 17 loans and credits totalling US\$749.1 million for power generation and transmission and two loans totalling US\$47.4 million for coal production. At the request of ONGC, the Bank's initial involvement in this sector -- in the preparation of terms of reference for studies of the utilization of natural gas -- has been extended to an association with every critical step in the preparation of the proposed project. ONGC's field for further expansion, particularly offshore, is wide open, and, through the proposed project, the Bank will continue to advise ONGC regarding its expansion program, including project evaluation methods and the marshalling of the large financial resources required for the future development of the sector.

#### PART IV - THE PROJECT

33. The proposed project was appraised by a mission which visited India in January/February 1977. The appraisal report (No. P-1569a-IN, dated June 10, 1977) is being distributed separately to the Executive Directors. Negotiations were held in Washington in May 1977. The Borrower was represented by Mr. B.B. Vohra of the Ministry of Petroleum and Mr. Vineet Nayyar of the Ministry of Finance, and ONGC by Mr. N.B. Prasad, Chairman, and Mr. P.T. Venugopal, Member (Finance).

#### Project Description

34. The proposed project is the third phase of ONGC's development program for the Bombay High offshore area (including Bassein North) and consists of the construction of facilities required to produce up to 140,000 barrels per day (b/d) (7 Mmt/y) of crude oil and 2.2 million cubic meters per day (Mm<sup>3</sup>/d) of associated natural gas, and to process, transport, store and deliver to users the oil and natural gas expected to be available from these fields at full production (240-260,000 b/d). The principal components include: about 20 additional development wells, about 5 well platforms, three production platforms equipped with processing and pumping facilities, two subsea pipelines to shore, an onshore terminal including gas and oil processing and storage facilities, supply lines to the users of the oil and gas, a supply base for

ONGC's offshore operations, a telecommunications system, and consulting services. The project is expected to begin in the Fall of 1977 and to be completed by May 1979. The pipelines and supply lines are scheduled for completion by May 1978, before the start of the monsoon. This schedule is tight but manageable.

35. Bombay High crude is temporarily being transported to shore by tanker, using a single-buoy mooring system. Although this system is capable of transporting up to 80,000 barrels per day of oil, it has two major drawbacks: the associated natural gas must be flared offshore, and the system cannot operate during the extreme weather conditions which prevail during the monsoon period (June - October), requiring shut-down of the entire field. Moreover, production capability is expected to exceed the capacity of the existing transportation system after December 1977.

36. The crude oil produced by Bombay High and Bassein North will be substituted for imported supplies to domestic refineries. Because of the technical characteristics of the Bombay High crude, some modifications are required at existing refineries. The two major refineries at Trombay, which are the first concerned, have already completed most of the necessary adjustments, and other refineries will complete them during the project implementation period. Any delay in refinery modification would not have adverse effects on the project, as the crude oil could be easily exported at international prices. The associated gas will be used as feedstock in the Trombay fertilizer complex of the Fertilizer Corporation of India, where the necessary modifications are being undertaken. Liquefied petroleum gas (LPG) will be bottled at the Trombay refineries, where facilities exist for handling and storage, and sold for domestic and commercial use. Studies concerning the possible utilization of additional associated gas which may become available and free gas at Bassein South are underway with the assistance of consultants (Stone and Webster, U.S.).

#### Project Cost and Financing

37. The project cost, including contingencies (US\$112 million), is estimated at US\$571 million, of which US\$417 million, or 73%, represents foreign exchange costs. Taxes and duties account for about US\$12 million of the total.

38. The proposed loan would provide 26% of the total project cost and 36% of the foreign exchange costs. In addition, the Government has indicated its intention to borrow about US\$50 million from commercial banks toward the financing of the project and to utilize official bilateral aid to the extent it is available for use in a manner consistent with optimal project implementation. GOI representatives estimate that US\$50-100 million in bilateral aid may be available for the project from countries including Japan, France, Germany and the U.K. About US\$100 million is expected to be available from ONGC's internal resources and about US\$70 million in loans from India's Oil Industry Development Board over the next two years. The balance would be made available by the Government from its own resources. The Government has undertaken to cover promptly all of ONGC's financing requirements, including its working capital requirements (Section 3.02 of Loan Agreement).

### Procurement and Disbursement

39. The goods and services financed under the proposed loan would be procured in accordance with the Bank's guidelines. All contracts would be awarded on the basis of international competitive bidding, except that, subject to prior approval of the Bank, items with limited sources of availability, whose timely supply is critical to efficient project execution and which are estimated to cost US\$2 million or less, may be procured on the basis of quotations from short lists of suppliers, provided that the aggregate value of such contracts does not exceed US\$7.5 million. The proceeds of the loan would be disbursed against 100% of the c.i.f. cost of construction of the subsea pipelines (US\$70 million) fabrication and erection of two well platforms and one processing platform at Bassein North and of one processing platform in the northern part of the Bombay High field (US\$65 million), and construction and equipment of the gas fractionating plant (US\$10 million). US\$5 million would be unallocated. The contracts against which the loan proceeds would be disbursed were selected on the basis of their suitability for international competitive bidding and their timing (i.e., items for which tenders had been issued without prior Bank review were excluded). ONGC's normal procurement procedure for foreign supplies requires worldwide bidding similar to the Bank's procedures; it is expected that this procedure will be applied for imported equipment and services not financed from the proceeds of the Bank loan.

### Project Implementation

40. ONGC is responsible for project implementation. The Commission, which was established by an Act of Parliament in 1959, consists of a Chairman and not less than two nor more than eight members appointed by the Government. At the present time, there are four full-time members (Exploration, Production, Finance and Materials), and two part-time members (Secretary (Economic Affairs), Ministry of Finance, and Secretary (Petroleum), Ministry of Petroleum). As of January 1977, ONGC's total staff was 23,000, including 1,500 engineers and technicians. ONGC's administrative and financial functions are centralized in the corporate headquarters at Dehra Dun; its operational staff is divided among three Regional offices and the Bombay High Development Project (BHDP), whose headquarters are in Bombay. The staff of BHDP, which was created in 1973/74, is now about 600 people, mostly engineers and technicians.

41. The BHDP staff are experienced and technically competent in offshore oil and gas development. In addition, consultants have been employed for the design and engineering of most of the project facilities: Pipeline Technologists (U.K.) for the pipelines and supply lines; Engineers India Ltd., in collaboration with Crest Engineering (U.S.), for the production/processing platforms; Peter Fraenkel and Partners (U.K.) for the supply base; and Burmah Oil Engineering (U.K.), in collaboration with the Post and Telegraph Department of the Ministry of Communications and the Telecommunications Branch of the Ministry of Defense, for the telecommunication system. Engineering consultants for design and supervision of construction of the onshore processing/storage terminal have been nominated. ONGC has agreed to take all action

necessary to acquire as and when needed the land and rights of way required for construction of the project facilities (Section 2.10 of Project Agreement); the necessary legal formalities are well underway, and ONGC can begin construction prior to the completion of these formalities.

42. Although ONGC has been remarkably successful in developing the Bombay High field, ONGC management recognizes the need to improve BHDP's capabilities to handle a project which is far larger and more complex than what has been done so far. Accordingly, ONGC is transferring experienced personnel from onshore operations to the project staff and is hiring additional qualified engineers. The Commission has also appointed a Project Manager and sub-project managers, and is in the process of appointing consultants to assist in the establishment of appropriate management procedures for the implementation of the project. ONGC has agreed to establish a satisfactory management information system for the Bombay High project by December 31, 1977 (Section 2.06 of Project Agreement); this would be one of the first tasks of the project management consultants. ONGC has undertaken a program to meet additional staff training needs, which the Bank has reviewed and found satisfactory. ONGC has also agreed to submit to the Bank an updated development plan of the Bombay High and North Bassein fields by the end of each calendar year starting in 1977 (Section 2.05 of Project Agreement).

43. All necessary precautions will be taken during design and construction of the project to minimize the ecological hazards associated with the production facilities, pipelines and the offshore and terminal facilities. ONGC is procuring a vessel outfitted for offshore fire-fighting and oil spill clean-up, and the Indian Coast Guard service will assist in any offshore oil emergency. All manned platforms will be equipped for fire-fighting and with emergency escape and survival systems, and the North Sea safety regulations will be adopted during construction.

#### ONGC Finances

44. ONGC's financing requirements which are not met from internal cash generation are provided as follows: exploration expenditures through equity contributions from the Government, and development expenditures through loans, primarily from the Government (at 10-1/4% interest for 10 years including 4 years' grace) and the Oil Industry Development Board (at 4.5% interest for 15 years including 2 years' grace). An exception to this rule is Bombay High development, for which 50% of the financing required is provided in the form of equity. The Government sets prices for crude oil and natural gas at a level which enables ONGC to cover its operating costs, including depreciation, to service its debt and to finance a reasonable share of its development program.

45. ONGC's production of crude oil increased at an average rate of 12.5% per annum over the period 1973/74 - 1976/77; together with an increase in the price it received for crude oil, this led to an increase in revenues from Rs 816 million (US\$90.6 million) to an estimated Rs 1,450 million (US\$161 million) over the same period. ONGC's cash generation enabled it to finance

about 49% of its capital investment requirements, including those of Bombay High, after meeting its debt service and its need for additional working capital, in the four-year period.

46. The prospects arising out of India's first major offshore discovery open a new era for ONGC in which its capital expenditures and cash flow requirements will increase considerably. On the basis of present prices and conservative estimates of production from existing onshore and offshore fields, ONGC's revenues are also expected to rise as can be seen in the table below, from Rs 1,941 million (US\$216 million) in 1977/78 to Rs 6,082 million (US\$675 million) in 1981/82. The annual rate of return after taxes on average invested capital is projected to average about 12% after completion of the project, and ONGC is expected to be able to finance about 57% of its capital investment requirements from internal cash generation. Over the period 1977/78 - 1981/82, ONGC's debt/equity ratio is projected to be not more than 42/58. Thus, ONGC's overall financial situation, including its liquidity and its debt management, has been and is expected to remain sound.

Years ending March 31

Crude oil production (Mmt)	7.3	10.2	13.3	16.5	18.5
Revenues - Rs millions	1,941	2,991	3,979	5,351	6,082
Operating Income After Taxes	168	564	1,030	1,986	1,766
Operating ratio - %	91	81	74	63	71
Rate of return on average invested capital - % /a	2.5	5.8	8.4	14.1	11.7
Rate of return on average net fixed assets - %	4.7	9.3	11.4	18.8	15.5
Debt/Equity ratio	42/58	42/58	41/59	34/66	29/71
Debt service coverage times	2.7	3.4	3.8	4.5	4.0

47. Consumer prices for petroleum products in India have been set, with few exceptions, above international prices and fully reflect the scarcity value of petroleum. The producer price set by the Government is the main parameter in ensuring that ONGC's profitability and cash flow objectives are met. Accordingly, ONGC has agreed that it will prepare and furnish each year to the Government an economic and financial evaluation of the project and of any subsequent major development, which will indicate the price levels required for ONGC to earn a discounted cash flow (DCF) financial return of at least 15% after taxes on the project and on any subsequent major development. The GOI has agreed that it will review, on the basis of this report, the price of oil and gas produced by ONGC with a view to determine the price levels needed to enable ONGC, under conditions of efficient operation, to meet its operating expenses and earn a return on its invested capital sufficient to cover its debt service requirements, maintain adequate working capital and finance a substantial portion of its proposed capital expansion. (Section 4.03 of Project Agreement and Section 4.02 of Loan Agreement). ONGC will have its accounts and financial statements audited by an independent auditor and will submit these to the Bank. (Section 4.02 of the Project Agreement).

48. The Government has established well-head prices to ONGC of US\$5/barrel of offshore crude oil, US\$55/thousand cubic meters for natural gas, and US\$90/ton for liquid petroleum gas (LPG). The DCF financial rate of return of the project, at these prices, is projected to be 19.8%. Thus, the current price of US\$5/barrel is adequate to cover production and exploration costs and to generate a reasonable profit to ONGC after taxes.

#### Project Benefits and Risks

49. Using the prices established by the Government for gas, which are comparable to international prices, and the present international price of US\$13/barrel for crude oil, the proposed Bombay High Development Program yields an economic rate of return of about 66%. This result is less sensitive to variations in costs than to delays in implementation; thus, a 20% cost increase would bring the return to 56%, while a one-year delay would bring it to 50%, which is still quite satisfactory.

50. The risks normally associated with hydrocarbon development projects are compounded for offshore ventures by weather conditions. However, over the years the industry has developed techniques and technologies which, if they do not eliminate risks, reduce them to an acceptable level. The technical solutions selected by ONGC have been proved reliable, and ONGC's consultants and contractors have considerable experience in the design and construction of offshore and onshore facilities. ONGC's staff is qualified and experienced in all the facets of oil and gas production, processing and utilization and, therefore, the risk of errors in design and/or operation is minimal. Weather conditions, however, are not predictable and may cause delays despite the precautions taken to avoid major construction work offshore during the monsoon.

51. There is also a risk that the fields will not live up to ONGC's expectations. It is impossible to fully predict the behavior of a reservoir, and fields have been known to "dry up" much sooner than expected. ONGC has been careful and conservative in its approach to the evaluation of the fields and has used experienced consultants to assess both the reserves and the production mechanisms. All estimates are consistent and show that the fields should eventually produce more than was anticipated originally. Continuous monitoring by ONGC, assisted by reservoir engineering consultants, of the behavior of the reservoirs will provide sufficiently advanced warning of any problems for ONGC to take remedial actions. As part of the appraisal, the Bank engaged an independent firm of reservoir engineering consultants (De Golyer and MacNaughton), whose opinion fully confirms ONGC's estimates of reserves and proposed development program.

#### PART V - LEGAL INSTRUMENTS AND AUTHORITY

52. The draft Loan Agreement between India and the Bank, the draft Project Agreement between the Bank and ONGC, the Recommendation of the Committee provided for in Article III, Section 4(iii) of the Articles of

Agreement and the text of a draft Resolution approving the proposed loan are being distributed to the Executive Directors separately.

53. Special conditions of the Project are listed in Section III of Annex III.

54. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Bank.

PART VI - RECOMMENDATIONS

55. I recommend that the Executive Directors approved the proposed loan.

Robert S. McNamara  
President

June 20, 1977

INDIA	SOCIAL INDICATORS DATA SHEET					
	INDIA			REFERENCE COUNTRIES (1970)		
	1960	1970	HIGHEST RECENT ESTIMATE	INDONESIA	PHILIPPINES	BRAZIL **
LAND AREA (THOU KM <sup>2</sup> )						
TOTAL	3280.5					
AGRIC.	1780.7					
GNP PER CAPITA (US\$)	70.0	110.0	150.0	110.0	230.0	540.0
POPULATION AND VITAL STATISTICS						
POPULATION (MID-YR, MILLION)	434.8	507.6	608.1	116.3	36.9	92.8
POPULATION DENSITY						
PER SQUARE KM.	133.0	167.0	185.0	61.0	123.0	11.0
PER SQ. KM. AGRICULTURAL LAND	252.0	308.0	334.0	411.0	279.0	66.0
VITAL STATISTICS						
CRUDE BIRTH RATE (/THOU, AV)	43.2	41.0	37.0	43.9	44.2	38.4
CRUDE DEATH RATE (/THOU, AV)	23.9	19.0	17.0	20.6	13.2	9.9
INFANT MORTALITY RATE (/THOU)	139.0 /a	..	130.0	..	80.0	110.0
LIFE EXPECTANCY AT BIRTH (YRS)	41.7	47.2	49.5	48.0	55.6	59.7
GROSS REPRODUCTION RATE	3.2	2.9	2.8	3.2	3.3	2.6
POPULATION GROWTH RATE (%)						
TOTAL	2.0	2.3	2.2	2.0	3.0	2.9
URBAN	2.5 /b	3.2	3.1	3.7 /a	4.0	5.0
URBAN POPULATION (% OF TOTAL)	17.9	19.8	20.6	17.5 /b	27.6	56.0
AGE STRUCTURE (PERCENT)						
0 TO 14 YEARS	41.0	41.6	41.9 /a	44.0	49.6	42.0
15 TO 64 YEARS	55.9	55.3	54.9 /a	53.5	51.6	55.0
65 YEARS AND OVER	3.1	3.1	3.2 /a	2.5	2.8	3.0
AGE DEPENDENCY RATIO						
ECONOMIC DEPENDENCY RATIO	0.8	0.8	0.8	0.9	0.9	0.8
	1.1 /c	1.1 /a	1.2 /b	..	1.5	1.5
FAMILY PLANNING						
ACCEPTORS (CUMULATIVE, THOU)	71.0	14585.0	37688.0	259.3	354.0	250.0
USERS (% OF MARRIED WOMEN)	..	..	18.7	..	2.0	1.6
EMPLOYMENT						
TOTAL LABOR FORCE (THOUSAND)	175000.0	218000.0	248000.0 /c	..	12300.0	29600.0
LABOR FORCE IN AGRICULTURE (%)	71.0	69.0	68.0	..	55.0 /a	40.0
UNEMPLOYED (% OF LABOR FORCE)	1.0 /d	..	1.7	..	7.0	..
INCOME DISTRIBUTION						
% OF PRIVATE INCOME RECEIVED BY:						
HIGHEST 5% OF HOUSEHOLDS	26.7	25.0 /b	..	..	..	35.0 /a
HIGHEST 20% OF HOUSEHOLDS	51.7	53.1 /b	..	..	..	62.0 /a
LOWEST 20% OF HOUSEHOLDS	4.1	4.7 /b	..	..	..	3.0 /a
LOWEST 40% OF HOUSEHOLDS	13.6	13.1 /b	..	..	..	10.0 /a
DISTRIBUTION OF LAND OWNERSHIP						
% OWNED BY TOP 10% OF OWNERS						
	..	..	..	..	..	45.0
% OWNED BY SMALLEST 10% OWNERS						
	..	..	..	..	..	1.5
HEALTH AND NUTRITION						
POPULATION PER PHYSICIAN	5840.0 /a,f	4890.0	4220.0	26370.0	..	1910.0
POPULATION PER NURSING PERSON	3370.0 /a,f	5220.0	3680.0 /d	7630.0 /c	..	3220.0 /b
POPULATION PER HOSPITAL BED	2590.0 /h	1810.0	..	1640.0 /d	850.0	260.0
PER CAPITA SUPPLY OF:						
CALORIES (% OF REQUIREMENTS)	95.0	93.0	94.0 /e	91.0	100.0	109.0
PROTEIN (GRAMS PER DAY)	55.0	53.0	52.0 /a	43.0	45.0	64.0
OF WHICH ANIMAL AND PULSE	19.0	18.0	..	14.0	22.0	39.0
DEATH RATE (/THOU) AGES 1-4	44.0	..	..	..	9.0	..
EDUCATION						
ADJUSTED ENROLLMENT RATIO						
PRIMARY SCHOOL	38.0	68.0	79.0 /a	69.0	104.0	87.0
SECONDARY SCHOOL	9.0	..	26.0 /a	12.0	48.0	28.0
YEARS OF SCHOOLING PROVIDED (FIRST AND SECOND LEVEL)						
	12.0	12.0	11.0	12.0	10.0	13.0
VOCATIONAL ENROLLMENT (% OF SECONDARY)						
	8.0	6.0	..	29.0	6.0 /b	17.0
ADULT LITERACY RATE (%)	24.0	33.0	36.0 /a,f	59.0	..	68.0
HOUSING						
PERSONS PER ROOM (URBAN)						
	2.6	..	2.8	..	2.1	1.0
OCCUPIED DWELLINGS WITHOUT PIPED WATER (%)						
	..	..	..	..	76.0	73.0 /c
ACCESS TO ELECTRICITY (% OF ALL DWELLINGS)						
	..	..	..	..	23.0	48.0
RURAL DWELLINGS CONNECTED TO ELECTRICITY (%)						
	..	..	..	..	7.0	8.0
CONSUMPTION						
RADIO RECEIVERS (PER THOU POP)						
	5.0	21.0	24.0	114.0	45.0	60.0
PASSENGER CARS (PER THOU POP)						
	0.7	1.0	1.0	2.0	8.0	25.0
ELECTRICITY (KWH/YR PER CAP)						
	48.0	114.0	129.0	20.0	235.0	491.0
NEWSPRINT (KG/YR PER CAP)						
	0.2	0.3	0.3	0.3	2.0	2.7

SEE NOTES AND DEFINITIONS ON REVERSE

NOTES

Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961, for 1970 between 1968 and 1970 and for Most Recent Estimate between 1973 and 1975.

\*\* Brazil has been selected as an objective country because of its size and comparable problems of regional inequality.

<u>INDIA</u>	<u>1960</u>	<u>/a</u> 1951-61 average; <u>/b</u> 1951-60; <u>/c</u> Ratio of population under 15 and 65 and over to labor force age 15 and over, <u>/d</u> Registered applicants for work, <u>/e</u> 1962, <u>/f</u> Registered, not all practicing in the country, <u>/g</u> Including midwives, <u>/h</u> 1958, <u>/i</u> 1960-62.
	<u>1970</u>	<u>/a</u> Ratio of population under 15 and 65 and over to labor force age 15 and over, <u>/b</u> 1967-68; <u>/c</u> Including midwives; <u>/d</u> 1967.
	<u>MOST RECENT ESTIMATE:</u>	<u>/a</u> 1971; <u>/b</u> Ratio of population under 15 and 65 and over to labor force age 15 and over; <u>/c</u> 1976. <u>/d</u> Including midwives; <u>/e</u> 1969-71 average; <u>/f</u> Population 10 years and over.
<u>INDONESIA</u>	<u>1970</u>	<u>/a</u> 1961-71; <u>/b</u> 1971; <u>/c</u> Including midwives; <u>/d</u> Total hospital beds incomplete.
<u>PHILIPPINES</u>	<u>1970</u>	<u>/a</u> As percentage of employment, <u>/b</u> Not including private vocational schools.
<u>BRAZIL</u>	<u>1970</u>	<u>/a</u> Economically active population; <u>/b</u> Hospital personnel, <u>/c</u> Inside only.

R10, April 18, 1977

DEFINITIONS OF SOCIAL INDICATORS

Land Area (thou km<sup>2</sup>)

Total - Total surface area comprising land area and inland waters.  
Agric. - Most recent estimate of agricultural area used temporarily or permanently for crops, pastures, market & kitchen gardens or to lie fallow.

GNP per capita (US\$) - GNP per capita estimates at current market prices, calculated by same conversion method as World Bank Atlas (1973-75 basis); 1960, 1970 and 1975 data.

Population and vital statistics

Population (mid-yr. million) - As of July first; if not available, average of two end-year estimates, 1960, 1970 and 1975 data.

Population density - per square km - Mid-year population per square kilometer (100 hectares) of total area.

Population density - per square km of agric. land - Computed as above for agricultural land only.

Vital statistics

Crude birth rate per thousand, average - Annual live births per thousand of mid-year population, ten-year arithmetic averages ending in 1960 and 1970, and five-year average ending in 1975 for most recent estimate.

Crude death rate per thousand, average - Annual deaths per thousand of mid-year population, ten-year arithmetic averages ending in 1960 and 1970 and five-year average ending in 1975 for most recent estimate.

Infant mortality rate (thou) - Annual deaths of infants under one year of age per thousand live births.

Life expectancy at birth (yrs) - Average number of years of life remaining at birth, usually five-year averages ending in 1960, 1970 and 1975 for developing countries.

Gross reproduction rate - Average number of live daughters a woman will bear in her normal reproductive period if she experiences present age-specific fertility rates, usually five-year averages ending in 1960, 1970 and 1975 for developing countries.

Population growth rate (%) - total - Compound annual growth rates of mid-year population for 1950-60, 1960-70 and 1970-75.

Population growth rate (%) - urban - Computed like growth rate of total population, different definitions of urban areas may affect comparability of data among countries.

Urban population (% of total) - Ratio of urban to total population; different definitions of urban areas may affect comparability of data among countries.

Age structure (percent) - Children (0-14 years), working-age (15-64 years), and retired (65 years and over) as percentages of mid-year population.

Age dependency ratio - Ratio of population under 15 and 65 and over to those of ages 15 through 64.

Economic dependency ratio - Ratio of population under 15 and 65 and over to the labor force in age group of 15-64 years.

Family planning - acceptors (cumulative, thou) - Cumulative number of acceptors of birth-control devices under auspices of national family planning program since inception.

Family planning - users (% of married women) - Percentages of married women of child-bearing age (15-44 years) who use birth-control devices to all married women in same age group.

Employment

Total labor force (thousand) - Economically active persons, including armed forces and unemployed but excluding housewives, students, etc., definitions in various countries are not comparable.

Labor force in agriculture (%) - Agricultural labor force (in farming, forestry, hunting and fishing) as percentage of total labor force.

Unemployed (% of labor force) - Unemployed are usually defined as persons who are able and willing to take a job, out of a job on a given day, remained out of a job, and seeking work for a specified minimum period not exceeding one week; may not be comparable between countries due to different definitions of unemployed and source of data, e.g., employment office statistics, sample surveys, compulsory unemployment insurance.

Income Distribution - Percentage of private income (both in cash and kind) received by richest 5%, richest 20%, poorest 20%, and poorest 40% of households.

Distribution of land ownership - Percentages of land owned by wealthiest 10% and poorest 10% of land owners.

Health and Nutrition

Population per physician - Population divided by number of practicing physicians qualified from a medical school at university level.

Population per nursing person - Population divided by number of practicing male and female graduate nurses, "trained" or "certified" nurses, and auxiliary personnel with training or experience.

Population per hospital bed - Population divided by number of hospital beds available in public and private general and specialized hospital and rehabilitation centers; excludes nursing homes and establishments for custodial and preventive care.

Per capita supply of calories (% of requirements) - Computed from energy equivalent of net food supplies available in country per capita per day; available supplies comprise domestic production, imports less exports, and changes in stock; net supplies exclude animal feed, seeds, quantities used in food processing and losses in distribution, requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distributions of population, and allowing 10% for waste at household level.

Per capita supply of protein (grams per day) - Protein content of per capita net supply of food per day, net supply of food is defined as above, requirements for all countries established by USDA Economic Research Services provide for a minimum allowance of 60 grams of total protein per day, and 20 grams of animal and pulse protein, of which 10 grams should be animal protein, these standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Survey.

Per capita protein supply from animal and pulse - Protein supply of food derived from animals and pulses in grams per day.

Death rate (/thou) ages 1-4 - Annual deaths per thousand in age group 1-4 years, to children in this age group, suggested as an indicator of malnutrition.

Education

Adjusted enrollment ratio - primary school - Enrollment of all ages as percentage of primary school-age population, includes children aged 6-11 years but adjusted for different lengths of primary education, for countries with universal education, enrollment may exceed 100% since some pupils are below or above the official school age.

Adjusted enrollment ratio - secondary school - Computed as above, secondary education requires at least four years of approved primary instruction, provides general, vocational or teacher training instructions for pupils of 12 to 17 years of age, correspondence courses are generally excluded.

Years of schooling provided (first and second levels) - Total years of schooling; at secondary level, vocational instruction may be partially or completely excluded.

Vocational enrollment (% of secondary) - Vocational institutions include technical, industrial or other programs which operate independently or as departments of secondary institutions.

Adult literacy rate (%) - Literate adults (able to read and write) as percentage of total adult population aged 15 years and over.

Housing

Persons per room (urban) - Average number of persons per room in occupied conventional dwellings in urban areas, dwellings exclude non-permanent structures and unoccupied parts.

Occupied dwellings without piped water (%) - Occupied conventional dwellings in urban and rural areas without inside or outside piped water facilities as percentage of all occupied dwellings.

Access to electricity (% of all dwellings) - Conventional dwellings with electricity in living quarters as percent of total dwellings in urban and rural areas.

Rural dwellings connected to electricity (%) - Computed as above for rural dwellings only.

Consumption

Radio receivers (per thou pop) - All types of receivers for radio broadcasts to general public per thousand of population; excludes unlicensed receivers in countries and in years when registration of radio sets was in effect; data for recent years may not be comparable since most countries abolished licensing.

Passenger cars (per thou pop) - Passenger cars comprise motor cars seating less than eight persons, excludes ambulances, hearses and military vehicles.

Electricity (kwh/yr per cap) - Annual consumption of industrial, commercial, public and private electricity in kilowatt hours per capita; generally based on production data, without allowance for losses in grids but allowing for imports and exports of electricity.

Newsprint (kg/yr per cap) - Per capita annual consumption in kilograms estimated from domestic production plus net imports of newsprint.

ECONOMIC DEVELOPMENT DATA

GNP PER CAPITA IN 1975 <sup>a/</sup> US\$ 150

GROSS NATIONAL PRODUCT IN 1975/76 <sup>b/</sup>

	US\$ Bln.	%
GNP at Market Prices	82.8	100.0
Gross Domestic Investment	46.7	20.1
Gross National Saving	16.0	19.3
Current Account Balance	-0.7	-0.8
Resource Gap	-1.5	-1.8

ANNUAL RATE OF GROWTH (% constant prices) <sup>c/</sup>

1960/61-1964/65	1965/66-1969/70	1970/71-1974/75
3.8	3.7	2.6

OUTPUT, LABOR FORCE AND PRODUCTIVITY IN 1971

	Value Added (at factor cost)		Labor Force		V.A. Per Worker	
	US\$ Bln.	%	Mil.	%	US\$	% of National Average
Agriculture	24.5	46.6	130.0	72.1	188	64
Industry	11.8	22.3	20.2	11.2	582	199
Services	16.3	31.1	30.2	16.7	542	186
Total/average	52.6	100.0	180.4	100.0	292	100

GOVERNMENT FINANCE

	General Government <sup>d/</sup>			Central Government		
	(Rs. Bln)	% of GDP		(Rs. Bln)	% of GDP	
	1975/76	1975/76	1973/74-1975/76	1975/76	1975/76	1973/74-1975/76
Current Receipts	133.34	18.5	16.7	79.11	11.0	9.8
Current Expenditures	118.77	16.5	15.3	70.05	9.7	8.8
Current Surplus/Deficit	14.57	2.0	1.4	9.06	1.3	1.0
Capital Expenditures <sup>e/</sup>	54.27	7.5	6.2	40.75	5.6	4.6
External Assistance (net)	13.89	1.9	1.3	13.89	1.9	1.3

MONEY, CREDIT AND PRICES

	1965/66	1971/72	1972/73	1973/74	1974/75	1975/76	September 1975	September 1976	
		(Billion Rs outstanding at end of period)							
Money and Quasi Money	61.4	122.4	142.2	169.1	187.2	213.6	199.0	238.3	
Bank Credit to Public Sector	40.8	69.0	82.5	92.9	102.6	108.5	112.8	112.7	
Bank Credit to Private Sector	28.1	64.4	76.0	90.1	109.5	134.2	106.0	143.8	
		(Percentage or Index Numbers)						January 1976	January 1977
Money and Quasi Money as % of GDP	24.0	26.4	27.9	27.1	26.2	27.9			
Wholesale Price Index (1961/62 = 100)	131.6	188.4	207.1	254.2	313.0	302.8	290.0	320.5	
Annual percentage changes in:									
Wholesale Price Index	7.7	4.0	9.9	22.7	23.1			10.5 <sup>f/</sup>	
Bank Credit to Public Sector	12.9	21.3	19.6	12.6	10.4	5.7		4.7 <sup>g/</sup>	
Bank Credit to Private Sector	12.8	13.6	18.0	18.5	21.5	22.5		24.6 <sup>g/</sup>	

<sup>a/</sup> The per capita GNP estimate is at market prices, calculated by the conversion technique used in the World Atlas. All other conversions to dollars in this table are at the average exchange rate prevailing during the period covered.

<sup>b/</sup> Quick Estimates.

<sup>c/</sup> Computed from trend line of GNP at factor cost series, including one observation before first year and one observation after last year of listed period.

<sup>d/</sup> Transfers between Center and States have been netted out.

<sup>e/</sup> All loans and advances to third parties have been netted out.

<sup>f/</sup> Net bank credit to Government Sector.

<sup>g/</sup> Bank Credit to Commercial Sector.

BALANCE OF PAYMENTS	1973/74	1974/75	1975/76	1976/77 <sup>h/</sup>	MERCHANDISE EXPORTS (AVERAGE 1973/74-1975/76)		
					US\$ Min.	%	
Exports of Goods	3,239	4,174	4,555	5,400	Sugar	342	9
Imports of Goods	-3,971	-5,794	-6,085	-5,850	Jute Manufactures	317	8
Trade Balance	-732	-1,620	-1,530	-450	Tea	249	6
NFS (net) <sup>i/</sup>	n.a.	n.a.	n.a.	n.a.	Cotton Textiles <sup>k/</sup>	413	10
Resource Gap	n.a.	n.a.	n.a.	n.a.	Iron Ore	206	5
Interest Payments (net)	-233	-260	-250	-280	Engineering Goods	391	10
Other Factor Payments (net) <sup>i/</sup>	n.a.	n.a.	n.a.	n.a.	Others	2,071	52
Net Transfers <sup>i/</sup>	n.a.	n.a.	n.a.	n.a.	Total	3,989	100
Balance on Current Accounts	n.a.	n.a.	n.a.	n.a.	EXTERNAL DEBT, MARCH 31, 1976 <sup>h/</sup>		
Official Aid					US\$ Billion		
Disbursements	1,249	1,766	2,326	2,050	Repayable in foreign currency	12.3	
Amortisation	-459	-519	-516	-560	Repayable through export of goods	0.7	
Transactions with IMF	75	515	205	-365	Total Outstanding and Disbursed	13.0	
All Other Items	205	80	559	1,100	DEBT SERVICE RATIO FOR 1976/77 15.5 percent <sup>h/l/</sup>		
Increase in Reserves (-)	-105	38	-794	-1,495	IBRD/IDA LENDING, December 31, 1976 (US\$ Min.)		
Gross Reserves (end year)	1,416	1,378	2,172	3,667			
Net Reserves (end year)	1,341	783	1,332	3,202			
<u>Fuel and Related Materials</u>							
Imports	720	1,451	1,417	1,625			
of which: Petroleum	719	1,451	1,417	1,625	Outstanding and Disbursed	452.7	3208.4
Exports	20	26	41	n.a.	Undisbursed	510.3	1140.5
of which: Petroleum	16	17	22	n.a.	Outstanding including Undisbursed	963.0	4348.9
<u>RATE OF EXCHANGE <sup>i/</sup></u>							
Prior to mid-December 1971	: US\$1.00 = Rs 7.5				After end June 1972	: Floating Rate	
	: Rs 1.00 = US\$0.133333				Spot Rate March 31, 1976		
Mid-December 1971 to end June 1972	: US\$1.00 = Rs 7.27927				approx. US\$1.00 = Rs.	8.80475	
	: Rs 1.00 = US\$0.137376				approx. Rs 1.00 = US\$	0.113575	

<sup>h/</sup> Estimated.<sup>i/</sup> Included with 'All other Items'.<sup>j/</sup> Aid and trade figures converted to US dollars using exchange rates as indicated in inside front cover of this report or notes to individual tables.<sup>k/</sup> Including garments.<sup>l/</sup> Amortization and interest payments (excluding IMF transactions) as a percentage of merchandise exports.

THE STATUS OF BANK GROUP OPERATIONS IN INDIA

A. STATEMENT OF BANK LOANS AND IDA CREDITS  
(As of May 31, 1977)

Loan or Credit No.	Year	Borrower	Purpose	US\$ Million <sup>1/</sup> (Net of Cancellation)		
				BANK	IDA	Undisbursed
39 Loans/ 43 Credits fully disbursed				1,089.2	2,344.8	
614-IN	1969	India	Tarai Seeds	13.0	-	3.7
203-IN	1970	India	Punjab Agricultural Credit	-	27.5	3.6
226-IN	1971	India	Andhra Pradesh Agricultural Cr.	-	24.4	0.6
250-IN	1971	India	Tamil Nadu Agricultural Credit	-	35.0	3.8
264-IN	1971	India	Cochin II Fertilizer	-	20.0	0.8
267-IN	1971	India	Wheat Storage	-	5.0	3.7
278-IN	1972	India	Mysore Agricultural Credit	-	40.0	1.2
294-IN	1972	India	Bihar Agricultural Markets	-	14.0	11.1
312-IN	1972	India	Population	-	21.2	8.7
342-IN	1972	India	Education	-	12.0	11.1
356-IN	1972	India	IDBI	-	25.0	12.4
377-IN	1973	India	Power Transmission III	-	85.0	27.6
378-IN	1973	India	Mysore Agricultural Markets	-	8.0	7.2
902-IN	1973	ICICI	Industry DFC X	70.0	-	9.2
390-IN	1973	India	Bombay Water Supply	-	55.0	37.8
392-IN	1973	India	Uttar Pradesh Agricultural Credit	-	38.0	7.4
403-IN	1973	India	Telecommunications V	-	80.0	15.6
427-IN	1973	India	Calcutta Urban Development	-	35.0	15.1
440-IN	1973	India	Bihar Agricultural Credit	-	32.0	17.6
456-IN	1974	India	HP Apple Processing & Marketing	-	13.0	10.7
481-IN	1974	India	Trombay IV	-	50.0	18.3
1011-IN	1974	India	Chambal (Rajasthan) CAD	52.0	-	40.3
482-IN	1974	India	Karnataka Dairy	-	30.0	29.6
502-IN	1974	India	Rajasthan Canal CAD	-	83.0	56.6
520-IN	1974	India	Sindri Fertilizer	-	91.0	30.2
521-IN	1974	India	Rajasthan Dairy	-	27.7	27.4
522-IN	1974	India	Madhya Pradesh Dairy	-	16.4	15.8
526-IN	1975	India	Drought Prone Areas	-	35.0	28.8
1079-IN	1975	India	IFFCO Fertilizer	109.0	-	88.1
1097-IN	1975	India	Industry DFC XI	100.0	-	57.3
532-IN	1975	India	Godavari Barrage Irrigation	-	45.0	32.4
540-IN	1975	India	ARC Credit	-	75.0	32.1
541-IN	1975	India	West Bengal Agric. Dev.	-	34.0	31.0
562-IN	1975	India	Chambal (Madhya Pradesh) CAD	-	24.0	21.1
572-IN	1975	India	Rural Electrification	-	57.0	54.6
582-IN	1975	India	Railways XIII	-	110.0	46.0
585-IN	1975	India	Uttar Pradesh Water Supply	-	40.0	39.5
598-IN	1975	India	Fertilizer Industry	-	105.0	97.5
604-IN	1975	India	Power Transmission IV	-	150.0	150.0
609-IN	1975	India	Madhya Pradesh Forestry T.A.	-	4.0	4.0
610-IN	1976	India	Integrated Cotton Development	-	18.0	18.0
616-IN	1976	India	Industrial Imports XI	-	200.0	7.0
1251-IN(TW)	1976	India	Andhra Pradesh Irrigation	145.0	-	145.0
1260-IN	1976	India	IDBI II	40.0	-	40.0
1273-IN	1976	India	National Seed	25.0	-	25.0
1313-IN	1976	India	Telecommunications VI	80.0	-	60.2
1335-IN	1976	India	Bombay Urban Transport	25.0	-	25.0
680-IN	1977	India	Kerala Agric. Dev.	-	30.0	30.0*
682-IN	1977	India	Orissa Agric. Dev.	-	20.0	20.0*
685-IN	1977	India	Singrauli Thermal	-	150.0	150.0*
687-IN	1977	India	Madras Urban Dev.	-	24.0	24.0*
695-IN	1977	India	Gujarat Fisheries	-	4.0	4.0*
1394-IN(TW)	1977	India	Gujarat Fisheries	14.0	-	14.0*
Total				1,762.2	4,338.0	
of which has been repaid				789.2	27.0	
Total now outstanding				973.0	4,311.0	
Amount Sold			114.6			
of which has been repaid			111.5			
Total now held by Bank and IDA				973.0	4,311.0	
Total undisbursed				493.8	937.8	1,431.6

<sup>1/</sup> Prior to exchange adjustments.

\* Not yet effective.

**B. STATEMENT OF IFC INVESTMENTS**  
(As of May 31, 1977)

<u>Fiscal</u> <u>Year</u>	<u>Company</u>	<u>Amount (US\$ million)</u>		
		<u>Loan</u>	<u>Equity</u>	<u>Total</u>
1959	Republic Forge Company Ltd.	1.5	-	1.5
1959	Kirloskar Oil Engines Ltd.	0.9	-	0.9
1960	Assam Sillimanite Ltd.	1.4	-	1.4
1961	K.S.B. Pumps Ltd.	0.2	-	0.2
1963-66	Precision Bearings India Ltd.	0.7	0.3	1.0
1964	Fort Gloster Industries Ltd.	0.8	0.4	1.2
1964-75	Mahindra UGINE Steel Co. Ltd.	11.8	1.0	12.8
1964	Lakshmi Machine Works Ltd.	1.0	0.3	1.3
1967	Jayshree Chemicals Ltd.	1.0	0.1	1.1
1967	Indian Explosives Ltd.	8.6	2.9	11.5
1969-70	Zuari Agro-Chemicals Ltd.	15.1	3.8	18.9
1976	Escorts Limited	<u>6.6</u>	<u>-</u>	<u>6.6</u>
	TOTAL	49.6	8.8	58.4
	Less: Sold	6.0	1.6	7.6
	Repaid	13.0	-	13.0
	Cancelled	<u>6.2</u>	<u>0.7</u>	<u>6.9</u>
	Now Held	24.4	6.5	30.9
	Undisbursed	5.6	-	5.6

C. PROJECTS IN EXECUTION<sup>1/</sup>

Generally, the implementation of projects has been proceeding reasonably well. Details on the execution of individual projects are below. The level of disbursements was US\$551 million in FY76 or 62% of Bank Group commitments to India in that year. The undisbursed pipeline of US\$1,524 million as of March 31, 1977, corresponds roughly to commitments over the preceding two-year period and reflects the leadtime which would be expected given the mix of fast and slow-disbursing projects in the India program.

Ln. No. 902      Tenth Industrial Credit and Investment Corporation of India Project; US\$70.0 million loan of June 8, 1973; Effective Date: August 16, 1973; Closing Date: December 31, 1978

Ln. No. 1097    Eleventh Industrial Credit and Investment Corporation of India Project; US\$100 million loan of April 2, 1975; Effective Date: July 1, 1975; Closing Date: December 31, 1980

These loans have supported industrialization in India through a well-established development finance company. Loan 902-IN is fully committed and commitments are progressing satisfactorily for Loan 1097-IN. Disbursements under Loan 902-IN are ahead of schedule.

Ln. No. 614      Tarai Seeds Project; US\$13.0 million loan of June 18, 1969; Effective Date: September 12, 1969; Closing Date: December 31, 1977

This loan to the Tarai Development Corporation is to assist in the production, processing and marketing of certified seeds of high yielding varieties. The corporation is working effectively and has developed an excellent reputation for quality seed. Expansion of three processing plants is well under way. Delivery of some equipment in damaged condition, and retendering, because of poor response for some others, has delayed delivery schedules necessitating an extension of the Closing Date by one year to December 31, 1977.

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<sup>1/</sup> These notes are designed to inform the Executive Directors regarding the progress of projects in execution, and in particular to report any problems which are being encountered, and the action being taken to remedy them. They should be read in this sense and with the understanding that they do not purport to present a balanced evaluation of strengths and weaknesses in project execution.

- Cr. No. 203     Punjab Agricultural Credit Project; US\$27.5 million credit of June 24, 1970; Effective Date: September 4, 1970; Closing Date: June 30, 1977
- Cr. No. 226     Andhra Pradesh Agricultural Credit Project; US\$24.4 million credit of January 8, 1971; Effective Date: May 10, 1971; Closing Date: June 30, 1977
- Cr. No. 249     Haryana Agricultural Credit Project; US\$25.0 million credit of June 11, 1971; Effective Date: November 2, 1971; Closing Date: June 30, 1977
- Cr. No. 250     Tamil Nadu Agricultural Credit Project; US\$35.0 million credit of June 11, 1971; Effective Date: November 2, 1971; Closing Date: June 30, 1977
- Cr. No. 278     Mysore Agricultural Credit Project; US\$40.0 million credit of January 7, 1972; Effective Date: September 25, 1972; Closing Date: June 30, 1977
- Cr. No. 391     Madhya Pradesh Agricultural Credit Project; US\$33.0 million credit of June 8, 1973; Effective Date: October 10, 1973; Closing Date: December 31, 1977
- Cr. No. 392     Uttar Pradesh Agricultural Credit Project; US\$38.0 million credit of June 8, 1973; Effective Date: October 31, 1973; Closing Date: December 31, 1977
- Cr. No. 440     Bihar Agricultural Credit Project; US\$32.0 million credit of November 29, 1973; Effective Date: March 29, 1974; Closing Date: June 30, 1977
- Cr. No. 540     Agricultural Refinance and Development Corporation (ARDC) Project; US\$75.0 million credit of April 28, 1975; Effective Date: August 5, 1975; Closing Date: December 31, 1977

Apart from the Punjab project, which consists of mechanization equipment only, all the above agricultural credit projects are similar in structure, being designed to provide long- and medium-term credit to farmers through credit institutions for such on-farm investments as tractors, minor irrigation and land-leveling. Disbursement of the minor irrigation components are on schedule. Tractor procurement was delayed following changes in both the supply and demand situations after the projects were originally appraised, which prompted GOI to request that indigenous as well as imported models should be eligible for IDA financing under these credits. The Executive Directors approved this request in December 1973 and those credits which have tractor components have been amended accordingly. Tractor procurement is proceeding satisfactorily. Credit 540 is a continuation

nationwide of the previous program of agricultural credit projects, which were confined to individual states. ARDC will continue to act as the financial intermediary for refinancing agricultural credit.

Cr. No. 267     Wheat Storage Project; US\$5.0 million credit of August 23, 1971; Effective Date: November 14, 1972; Closing Date: September 30, 1978

The Food Corporation of India is making satisfactory progress in the execution of this project. Piling and foundation work is nearly completed. Silo construction has begun and staff training is in progress.

Cr. No. 456     Himachal Pradesh Apple Processing and Marketing Project; US\$13 million credit of January 22, 1974; Effective Date: September 26, 1974; Closing Date: December 31, 1978

This project was designed to promote the development of apple processing and marketing in Himachal Pradesh, and comprises grading and packing centers, cold storages, a juice processing plant, road improvements and cableways. The project encountered initial delays due to managerial and technical problems, however, remedial measures have been taken to overcome these difficulties. A recent review mission found a satisfactory improvement in the prospects for successful project implementation.

Cr. No. 403     Telecommunications V Project; US\$80.0 million credit of June 25, 1973; Effective Date: July 30, 1973; Closing Date: December 31, 1977

Material supply problems which delayed the start of this project have been resolved and physical achievements were at record levels during fiscal year 1976. However, to cover the delivery and installation of imported transmission and switching equipment, the closing date was extended by one year to December 31, 1977.

Cr. No. 377     Power Transmission III Project; US\$85.0 million credit of May 9, 1973; Effective Date: October 10, 1973; Closing Date: September 30, 1977

Cr. No. 604     Power Transmission IV Project; US\$150.0 million credit of January 22, 1976; Effective Date: October 22, 1976; Closing Date: June 30, 1981

For Power Transmission III all equipment has been ordered; there will be a substantial cost overrun due to international price increases, part of which is being met from Power Transmission IV. For Power Transmission IV, bids for most of the equipment have been invited.

- Cr. No. 264      Cochin II Fertilizer Project; US\$20 million credit of July 30, 1971; Effective Date: December 2, 1971; Closing Date: June 30, 1977
- Cr. No. 481      Trombay IV Fertilizer Expansion Project; US\$50.0 million credit of June 19, 1974; Effective Date: August 21, 1974; Closing Date: December 31, 1977
- Cr. No. 520      Sindri Fertilizer Project; US\$91 million credit of December 18, 1974; Effective Date: February 27, 1975; Closing Date: September 30, 1978
- Ln. No. 1079    IFFCO Fertilizer Project; US\$109 million loan of January 24, 1975; Effective Date: April 28, 1975; Closing Date: March 31, 1979
- Cr. No. 598      Fertilizer Industry Project; US\$105.0 million credit of December 31, 1975; Effective Date: March 1, 1976; Closing Date: June 30, 1980

The Cochin Fertilizer Project is being commissioned, about 31 months behind the appraisal estimate. Progress on the Trombay IV project has been good although project completion may be delayed by about four months because of longer than expected delivery times for critical equipment. Under the Sindri project plant construction and erection is proceeding generally according to schedule except for a one-month delay due to anticipated delays in receipt of some materials. Commencement of commercial production is expected by March 1978. The anticipated cost to complete the project is presently running within budget. The IFFCO project was delayed by about a year as a result of a change in feedstock from fuel oil to naphtha and delays in completion of engineering contracts. The project is now progressing satisfactorily based on naphtha as feedstock. Site work has begun, process- and time-critical equipment is being ordered, and engineering work is well under way. Credit 598-IN is designed to increase the utilization of existing fertilizer production capacity. The project has encountered delays in sub-project preparation and investment approvals by the Government. Further, some of the sub-projects identified earlier may not materialize because of reconsideration by the Central and State governments. The Central Government has submitted a list of sub-projects to replace the ones that are likely to be dropped. Because of the above, the project is likely to be delayed by 6-12 months.

- Cr. No. 294      Bihar Agricultural Markets Project; US\$14.0 million credit of March 29, 1972; Effective Date: July 31, 1972; Closing Date: December 31, 1978

Cr. No. 378      Karnataka Wholesale Agricultural Markets Project; US\$8.0 million credit of May 9, 1973; Effective Date: September 7, 1973; Closing Date: December 31, 1979

These projects were designed to help with establishment of wholesale markets in a number of towns in Bihar and Karnataka. Progress under the Bihar project has generally been satisfactory. Markets construction in Bihar was delayed due to legal challenges arising out of the state's acquisition of land for market sites; however, these difficulties have been satisfactorily resolved. Construction of markets is well advanced and a number have opened for business. Progress under the Karnataka project is much less satisfactory, however, largely due to deficiencies in market planning, design and construction. These problems and remedial actions have been brought to the attention of the State and Central Government. The project is being monitored closely to try and bring about the necessary improvements in implementation.

Cr. No. 312      Population Project; US\$21.2 million credit of June 14, 1972; Effective Date: May 9, 1973; Closing Date: June 30, 1978

This credit is designed to finance an experimental and research oriented population project in Karnataka and Uttar Pradesh. The project's infrastructure, which would provide the optimum facilities (buildings, equipment, staff and transport) according to GOI standards in selected districts in each state, is almost complete. The two Population Centers, which will design and monitor research aimed at improving the family planning program, are now functioning.

Cr. No. 342      Agricultural Universities Project; US\$12.0 million credit of November 10, 1972; Effective Date: June 8, 1973; Closing Date: December 31, 1979

The project involves the development of the agricultural universities in Assam and Bihar. Initial lag in implementation on account of late appointments of project staff has been overcome. Campus plans have been approved, and construction has started in Assam and is scheduled to start in Bihar by mid 1977. Disbursement which has been slow because of initial delays should accelerate now that construction and equipment procurement are under way.

Cr. No. 356      Industrial Development Bank of India Project; US\$25.0 million credit of February 9, 1973; Effective Date: June 22, 1973; Closing Date: June 30, 1977

Loan No. 1260      Second Industrial Development Bank of India Project; US\$40.0 million loan of June 10, 1976; Effective Date: August 10, 1976; Closing Date: June 30, 1981

The first IDBI Project (Cr. 356) had a slow start mainly due to institutional problems in the participating State Financial Corporations.

However, the credit is now fully committed. In order to continue Bank Group's involvement in assisting small and medium scale industries, the second operation (Ln. 1260) was approved on June 10, 1976, and more than 10% of the loan amount had been authorized by mid-May 1977.

Cr. No. 390      Bombay Water Supply and Sewerage Project; US\$55.0 million credit of January 22, 1974; Effective Date: March 13, 1974; Closing Date: December 31, 1978

A substantial cost overrun on the project from US\$158 million equivalent to about US\$375 million equivalent has been caused by inflation and price increases resulting from delays in appointment of engineering consultants and redesign of certain project components. The project has been redefined and rephased to fit the financing available from the Credit, local loans and bonds, and internal cash generation of the project entity. The revised cost estimates for the implementation period 1975/76 to 1979/80 amount to US\$266 million equivalent excluding interest during construction. All major contracts for civil works, equipment and materials have been awarded. This is expected to considerably speed up disbursements which has been slow. Financial performance of the project entity during 1975/76 was satisfactory, and major rate increases from April 1, 1976 should ensure continuing financial viability of the project entity.

Cr. No. 616      Eleventh Industrial Imports Project; US\$200.0 million credit of February 24, 1976; Effective Date: April 1, 1976; Closing Date: June 30, 1977

This credit was signed on February 24, 1976, and became effective on April 1, 1976.

Cr. No. 427      Calcutta Urban Development Project; US\$35.0 million credit of September 12, 1973; Effective Date: January 10, 1974; Closing Date: December 31, 1978

Following considerable increases in project costs, GOI and IDA finalized a project redefinition in April 1976, to accommodate the project to funding available. It is now expected to be substantially completed by March 1979. Agreements have been reached on consultants services and technical assistance, as provided for under the project.

Cr. No. 482      Karnataka Dairy Development Project; US\$30 million credit of June 19, 1974; Effective Date: December 23, 1974; Closing Date: September 30, 1982

Cr. No. 521      Rajasthan Dairy Development Project;; US\$27.7 million credit of December 18, 1974; Effective Date: August 8, 1975; Closing Date: December 31, 1982

Cr. No. 522    Madhya Pradesh Dairy Development Project; US\$16.4 million credit of December 18, 1974; Effective Date: July 23, 1975; Closing Date: June 30, 1982

These three credits totalling US\$74.1 million support dairy development projects organized along the lines of the successful AMUL dairy cooperative scheme in Gujarat State. The Karnataka Project which got off to a slow start has begun to show improvement under new management appointed recently. Farmer response has been good and about 250 dairy cooperatives with small farmer participation are functioning effectively. Two Dairy Unions have been established. Close supervision is being maintained. In Madhya Pradesh good progress has been made. About 110 new dairy cooperatives societies have been established. Detailed design studies for plant construction are complete. Technical services investments are being made. Contracts have been placed for livestock imports. The Rajasthan project is also doing well. Four milk unions have been formed and excellent progress has been made in organizing the servicing of nearly 350 dairy cooperatives at the village level. Plant-designs are ready, and procurement is to start soon. KDDC decision to procure plant equipment jointly with RDDC and MPDDC on the same tender should lead to a recovery of considerable time lost earlier.

Cr. No. 532    Godavari Barrage Project; US\$45 million credit of March 7, 1975; Effective Date: June 9, 1975; Closing Date: June 30, 1980

Both the civil works and equipment tenders have been awarded after international competitive bidding. Work is in progress.

Ln. No. 1011    Chambal (Rajasthan) Command Area Development Project; US\$52 million loan of June 19, 1974; Effective Date: December 12, 1974; Closing Date: June 30, 1981

Cr. No. 502    Rajasthan Canal Command Area Development Project; US\$83 million credit of July 31, 1974; Effective Date: December 30, 1974; Closing Date: June 30, 1981

Cr. No. 562    Chambal (Madhya Pradesh) Command Area Development Project; US\$24 million credit of June 20, 1975; Effective Date: September 18, 1975; Closing Date: December 31, 1979

Ln. No. 1251    Andhra Pradesh Irrigation and Command Area Development  
(TW)            Composite Project; US\$145.0 million loan (Third Window)  
of June 10, 1976; Effective Date: September 7, 1976;  
Closing Date: December 31, 1982

These projects, based on existing large irrigation systems, are designed to improve the efficiency of water utilization and, where possible, to use water savings for bringing additional areas under irrigation. Canal lining and other irrigation infrastructures, drainage, and land shaping are

prominent components of these projects. In addition, provisions have been made to increase agricultural production and marketing by reforming and upgrading agricultural extension services and by providing processing and storage facilities and village access roads. Progress of these projects is generally satisfactory and particularly successful with respect to agricultural extension.

Cr. No. 541      West Bengal Agricultural Development Project; US\$34 million credit of April 28, 1975; Effective Date: August 28, 1975; Closing Date: March 31, 1980

The project became effective on July 31, 1975. Successful reorganization of agricultural extension services has been a major achievement, but preparations for lending operations have been slow mainly due to poor coordination of project agencies. IDA and the government of West Bengal have agreed on measures to improve coordination and on a timetable covering a range of project activities. Progress with preliminaries for procurement of equipment, markets construction and riverlift completions are satisfactory.

Cr. No. 526      Drought Prone Areas Project; US\$35.0 million credit of January 24, 1975; Effective Date: June 9, 1975; Closing Date: June 30, 1980

Overall progress is satisfactory. Expenditure to date is less than expected -- about 22% of project cost estimates -- but is reasonable because inflation has been much less than expected. The most successful component of this multi-component project is dairying, which has a significant impact on rural incomes. Other components are, in general, meeting appraisal targets in terms of physical achievements, although with some time lag. There are, however, several technical problems which need to be overcome. DPAP is largely innovative program and the emergence of such problems was expected. The identification and subsequent to establishing programs which can be replicated throughout India's 72 drought prone districts.

Cr. No. 572      Rural Electrification Project; US\$57.0 million credit of July 23, 1975; Effective Date: October 23, 1975; Closing Date: December 31, 1979

Eleven states have now fulfilled the conditions of eligibility for on-lending under this project [compared with six at the time of appraisal] The project got off to a slow start, due principally to the need to adapt specifications and tender documents to international competitive bidding procedures, but these problems have been overcome. As of September 1976, orders had been placed for 60 approved rural electrification schemes, and tenders had been invited or were in the course of preparation for others.

Cr. No. 582      Railways XIII Project; US\$110.0 million credit of August 26, 1975; Effective Date: October 10, 1975; Closing Date: September 30, 1977

The project is intended to cover most of the foreign exchange requirements of Indian Railway's (IR) investment program from April 1, 1975, through March 31, 1977. Since the approval of the project, increased production in steel products in India and further developments in IR's indigenization program have resulted in a less than anticipated foreign exchange requirement. It is expected, therefore, that of a total Credit of US\$110 million, some US\$30-40 million may be undisbursed at the end of the current project period. During the year 1975/76, IR carried 223 million tons of freight traffic, 6% more than forecasted. The project is being implemented satisfactorily.

Cr. No. 585      Uttar Pradesh Water Supply and Sewerage Project; US\$40.0 million credit of September 25, 1975; Effective Date: February 6, 1976; Closing Date: June 30, 1980

The project had a slow start due to delays in preparation of technical reports for regional and local water authorities. The technical reports for about a third of the project have now been finalized and construction works started in October 1976, about one year behind schedule. All consultants for engineering, organization, management and accounting services for the Jal Nigam (Water Supply Development Corporation) and the Jal Sansthan (water authorities) have been engaged. Significant institutional development can be expected only after the consultants submit their final recommendations. The project is expected to be completed by March 1980, approximately 9 months behind schedule.

Cr. No. 609      Madhya Pradesh Forestry Technical Assistance Project; US\$4.0 million credit of February 26, 1976; Effective Date: May 26, 1976; Closing Date: December 31, 1981

This project will identify a sound resource base for pulp and paper manufacture and related industries, develop suitable logging systems, and undertake a feasibility study to determine optimal use of the existing wood resources in the Bastar District of southern Madhya Pradesh. It also includes a study of ways to integrate the area's tribal population with future development. After initial delays due to difficulties in employing key personnel, project implementation is now satisfactory. For the feasibility study, project authorities have prepared a short list of three foreign consulting firms, who are now being asked to prepare detailed proposals. On the basis of these proposals, the final selection will be made shortly.

Cr. No. 610      Integrated Cotton Development Project; US\$18.0 million credit of February 26, 1976; Effective Date: November 30, 1976; Closing Date: December 31, 1981

Ln. No. 1273    National Seed Project; US\$25.0 million loan of June 10, 1976;  
Effective Date: October 8, 1976; Closing Date: June 30, 1981

Good progress has been made since negotiations. The National Seeds Corporation (NSC) has withdrawn from seeds production as planned, having handed over to State Seeds Corporation (SSC). Detailed production programs, by variety and responsible institution, have been prepared for breeder, foundation and certified generations. GOI and State Governments have made equity contributions to SSC thus ensuring financing of major project activity. Orders will shortly be placed for processing machinery to provide bridging capacity pending the construction of new processing plants. Tender documents for the first purchases of farm machinery have been finalized.

Ln. No. 1313    Sixth Telecommunications Project; US\$80.0 million loan  
of July 22, 1976; Effective Date: September 14, 1976;  
Closing Date: March 31, 1980

Disbursements have commenced and the project is progressing satisfactorily.

Ln. No. 1335    Bombay Urban Transport Project; US\$25.0 million loan of  
December 20, 1976; Effective Date: March 10, 1977;  
Closing Date: June 30, 1980

Procurement work is well in hand. Contracts for 275 single and 175 double deck bus chassis have been awarded and bidding for corresponding bus bodies is in progress. Civil works for bus facilities have been partly commissioned and bidding for 18 of 31 traffic engineering schemes is in progress. Preparations for technical assistance envisaged under the project are under way.

Cr. No. 680    Kerala Agricultural Development Project; US\$30 million  
credit of April 1, 1977; Effective Date: July 1, 1977  
(expected) Closing Date: March 31, 1985

Cr. No. 682    Orissa Agricultural Development Project; US\$20 million  
credit of April 1, 1977; Effective Date: July 1, 1977  
(expected); Closing Date: December 31, 1983

Ln. No. 1394    Gujarat Fisheries Project; US\$14 million loan and US\$4  
(TW) and million credit of April 22, 1977; Effective Date:  
Cr. No. 695    July 22, 1977 (expected); Closing Date: June 30, 1983

Cr. No. 687    Madras Urban Development Project; US\$24.0 million credit  
of April 1, 1977; Effective Date: June 30, 1977 (expected)  
Closing Date: September 30, 1981

Cr. No. 685    Singrauli Thermal Power Project; US\$150.0 million credit of  
April 1, 1977; Effective Date: June 30, 1977 (expected);  
Closing Date: December 31, 1983

INDIA -- BOMBAY HIGH OFFSHORE DEVELOPMENT PROJECT

SUPPLEMENTARY PROJECT DATA SHEET

Section I      Timetable of Key Events

(a) Time taken by the country to prepare the project

Project has been under preparation since oil was discovered at Bombay High in 1974.

(b) The agency which has prepared the project

ONGC/Ministry of Petroleum

(c) Date of first presentation to Bank and date of first mission to consider the project

June 1976/July 1976

(d) Date of departure of appraisal mission

January 7, 1977

(e) Date of completion of negotiations

June 2, 1977

(f) Planned date of effectiveness

September 30, 1977

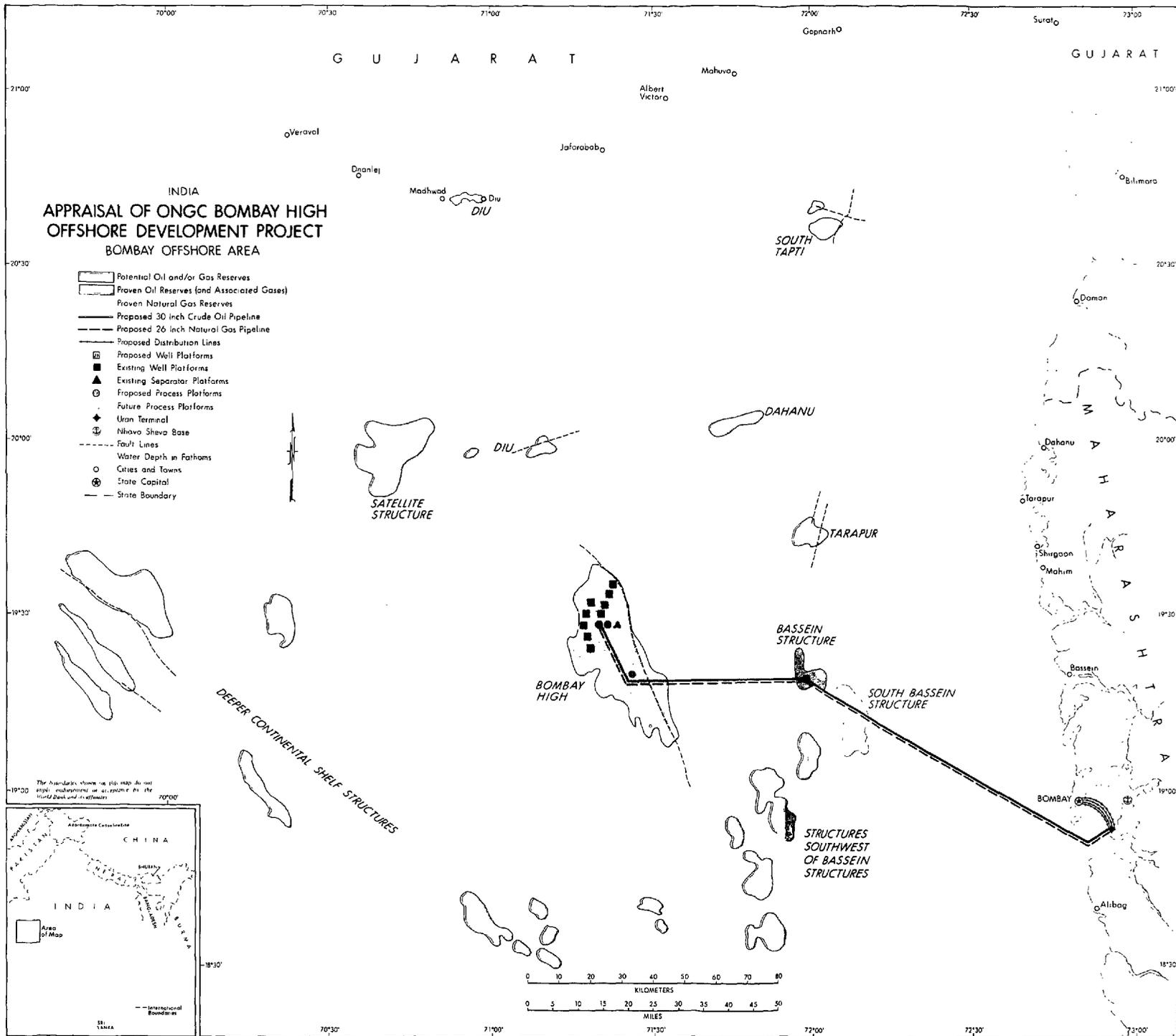
Section II      Special Bank Implementation Actions

None

Section III      Special Conditions

- (a) GOI to cover all of ONGC's financing requirements (para 38).
- (b) ONGC to acquire all necessary land and rights of way (para 41).

- (c) ONGC to establish a satisfactory management information system (para 42).
- (d) ONGC to submit annually updated development plan of Bombay High and North Bassein fields (para 42).
- (e) ONGC to prepare and furnish each year to the GOI an economic and financial evaluation of the project and of any subsequent major development, which will indicate the price level required for ONGC to earn a DCF return of at least 15%. GOI to review, on the basis of this report, the price of oil and gas produced by ONGC with a view to determine the price levels needed to enable ONGC, under conditions of efficient operation, to meet its operating expenses and earn a return on its invested capital sufficient to cover its debt service requirements, maintain adequate working capital and finance a substantial portion of its proposed capital expansion (para 47).



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