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REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT OF THE  
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPME  
AND  
INTERNATIONAL DEVELOPMENT ASSOCIATION  
TO THE  
EXECUTIVE DIRECTORS  
ON A  
PROPOSED LOAN  
IN AN AMOUNT EQUIVALENT TO US\$156.4 MILLION  
AND A  
PROPOSED CREDIT  
OF SDR 156 MILLION  
TO INDIA  
FOR THE  
UPPER INDRAVATI HYDRO PROJECT

April 18, 1983

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CURRENCY EQUIVALENTS  
(As of April 7, 1983)

US\$1.00	=	Rs 10.017
Rs 1.00	=	US\$0.0998
Rs 1 million	=	US\$99,800

The US Dollar/Rupee exchange rate is subject to change. Except as otherwise noted, conversions in the Staff Appraisal Report were made at the rate of US\$1 to Rs 9.5, which represents the projected exchange rate over the disbursement period.

FISCAL YEAR

April 1 - March 31

ABBREVIATIONS

CEA	-	Central Electricity Authority
GOI	-	Government of India
GOO	-	Government of Orissa
NHPC	-	National Hydro Power Corporation
NTPC	-	National Thermal Power Corporation
OIPD	-	Orissa Irrigation and Power Department
OSEB	-	Orissa State Electricity Board
REB	-	Regional Electricity Board
REC	-	Rural Electrification Corporation
SEB	-	State Electricity Board
kV	-	kilovolt (1,000 volts)
kW	-	kilowatt (1,000 watts)
kWh	-	kilowatt-hour (1,000 watt-hours)
MW	-	megawatt (1,000,000 watts)
GWh	-	gigawatt-hour (1,000,000 kilowatt-hours)

INDIA

UPPER INDRAVATI HYDRO PROJECT

LOAN, CREDIT AND PROJECT SUMMARY

Borrower: India, acting by its President.

Beneficiary: State of Orissa.

Amount: Bank Loan: US\$156.4 million, including capitalized front-end fee.  
IDA Credit: SDR 156 million (US\$170 million equivalent).

Terms: Bank Loan: Repayment over 20 years, including five years' grace, at the applicable rate of interest; front-end fee of 0.25% of the base loan amount.  
IDA Credit: Standard.

Relending Terms: As part of Central assistance to States for development projects on terms and conditions applicable at the time. GOI will carry the exchange and interest rate risks.

Project Description: Construction of a 600-megawatt hydro-electric power station comprising four 150-megawatt turbogenerator sets, a 110-sq km reservoir, four dams and eight dykes, together with associated channels, tunnels, shafts and penstocks, in the Koraput and Kalahandi districts of the State of Orissa, and provision of associated engineering and administrative services. The tail waters from the power station will provide a capability for the irrigation of about 109,000 hectares in the vicinity of the plant. There are no risks other than those normally associated with this type of project. The major structures are all of types that have been frequently built in the past, and there is adequate understanding of and experience with their construction.

Estimated Cost:

<u>Item</u>	<u>(US\$ millions)</u>		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
Land and Preliminary Works	16.2	-	16.2
Dams, Reservoir and Associated Structures	91.2	3.1	94.3
Power Station	29.0	63.5	92.5
Channels, Tunnels and Penstocks	46.0	2.6	48.6
Quarters and Buildings	13.7	-	13.7
Roads and Bridges	6.6	-	6.6
Tools and Construction Plant	0.3	3.2	3.5
Energy and Services	5.8	-	5.8
Engineering and Administration	<u>32.5</u>	<u>-</u>	<u>32.5</u>
Base Cost	241.3	72.4	313.7
Physical Contingencies	36.7	7.5	44.2
Price Contingencies	<u>93.1</u>	<u>28.0</u>	<u>121.1</u>
Total Project Cost (excluding taxes and duties)	371.1	107.9	479.0
Taxes and Duties	<u>27.3</u>	<u>-</u>	<u>27.3</u>
Total Project Cost	398.4	107.9	506.3
Front-end Fee on Bank Loan	<u>-</u>	<u>0.4</u>	<u>0.4</u>
Total Financing Required	<u>398.4</u>	<u>108.3</u>	<u>506.7</u>

Financing Plan:

	<u>(US\$ millions)</u>		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
IBRD	80.6	75.8	156.4
IDA	137.5	32.5	170.0
Government of Orissa	<u>180.3</u>	<u>-</u>	<u>180.3</u>
Total	<u>398.4</u>	<u>108.3</u>	<u>506.7</u>

<u>Estimated</u> <u>Disbursements:</u>	IBRD/IDA FY	(US\$ millions)							
		<u>FY84</u>	<u>FY85</u>	<u>FY86</u>	<u>FY87</u>	<u>FY88</u>	<u>FY89</u>	<u>FY90</u>	<u>FY91</u>
	Annual	27.4	<u>1/</u> 29	81	88	62	26	6	3
	Cumulative	27.4	56.4	137.4	225.4	287.4	313.4	319.4	326.4

Rate of Return: About 12%.

Appraisal Report: No. 4289-IN, dated April 11, 1983.

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1/ Including payment of front-end fee of about US\$0.4 million.



INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

AND

INTERNATIONAL DEVELOPMENT ASSOCIATION

REPORT AND RECOMMENDATION OF THE PRESIDENT  
TO THE EXECUTIVE DIRECTORS ON A PROPOSED LOAN AND CREDIT  
TO INDIA FOR THE UPPER INDRAVATI HYDRO PROJECT

1. I submit the following report and recommendation on a proposed loan and development credit to India for US\$156.4 million and SDR 156 million (US\$170 million equivalent) respectively on standard terms to help finance the construction of a hydro-electric power station on the Indravati river in the State of Orissa. The project is designed primarily to increase the electrical generating capacity in the State by 600 megawatts to a total of over 2,000 megawatts, but will additionally provide a capability for the irrigation of about 109,000 hectares of land in the vicinity of the plant. The Government of India (GOI) will channel the proceeds of the loan and credit to the Government of Orissa (GOO) in accordance with GOI's standard terms and arrangements for financing State development projects. The exchange and interest rate risks will be borne by GOI.

PART I - THE ECONOMY 1/

2. An economic report, "Economic Situation and Prospects of India" (3872-IN, dated April 7, 1982), was distributed to the Executive Directors on April 19, 1982. Country data sheets are attached as Annex I.

Background

3. India is a large and diverse country with a population of about 700 million (in mid-1982) and an annual per capita income of US\$240. Economic growth has been slow in the past, averaging about 3.6% per annum over the past 30 years. The economy is dominated by agriculture which employs more than two-thirds of the labor force. However, the land base is not sufficient to provide an adequate livelihood to everyone engaged in agricultural activities, especially those with little or no land. Consequently the latter have only an insecure grasp on the means of existence. Growth of value-added in agriculture -- 2.3% per annum over the past 30 years -- has been slower than growth of industrial value-added (5.0% per annum). As a result, there has been a gradual decline in the share of agriculture in GDP (at factor cost measured in 1970/71 prices) from 60% to about 40%, while the share of industry rose from 15% to around 24%. But industrialization has not been rapid enough to absorb the growing labor force, or to bring about a rapid economic transformation, with significantly higher productivity and income levels.

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1/ Parts I and II of the report are substantially the same as Parts I and II of the President's Report for the Second Uttar Pradesh Public Tubewells Project (No. P-3458-IN), dated February 15, 1983.

4. Nevertheless, there has been steady progress on several fronts. In the face of a large and rapidly growing population, India has been able to increase agricultural output faster than total population while eliminating persistent dependence on foodgrain imports. Savings and investment have increased markedly since 1950/51: gross domestic savings more than doubled from 10.8% of GDP (at factor cost) to 24.8%, while gross domestic investment rose from 12.5% of GDP to 26.2%. Foreign savings (balance of payments deficit on current account) have never financed a major portion of domestic investment: a peak of about 20% was reached during the early 1960s; for a few years in the late 1970s, surpluses arose, and at the present time, foreign savings are about 10% of investment. External assistance has been low both as a percentage of GDP and in per capita terms. Net external assistance has never risen above 3% of GDP, and was less than 1% at the end of the 1970s.

5. Before the 1970s, India placed relatively less emphasis on export promotion and more on import substitution. The volume growth of exports between 1950/51 and 1979/80 averaged only 3.5% per annum, only marginally higher than the volume growth of imports over the same period. In the early to mid-1970s, however, India's terms of trade, which had remained roughly constant during the 1960s, deteriorated sharply. In response, the Government introduced various policy measures designed to stimulate exports. As a result, the volume of India's exports grew on average about 7.6% per annum for the 1970s as a whole, a performance which demonstrates that sustained rapid growth is possible. While expanding world markets, particularly in the nearby Middle East, contributed to this growth, liberalized access to imported inputs and more effective export incentives played a major role.

6. Moving into the second half of the 1970s, the Indian economy was buoyed by relatively rapid export growth and an expanding level of foodgrain output, which culminated in a record 132 million tons of foodgrain production in 1978/79. As a result, growth in real GDP, agricultural and industrial value-added, substantially exceeded the historical 30-year trends (paragraph 3). In 1979/80, however, this momentum was broken when the worst drought in recent years, combined with a doubling of international oil prices and domestic supply shortages, led to a sharp fall in foodgrain production, a decline in GDP, and the opening up of a large trade deficit. Severe inflationary pressures also emerged after several years of virtual price stability. The impact of these setbacks is still being felt in the Indian economy, particularly in the balance of payments, and adjustments will be needed for some years to come. However, the short-term recovery process is almost completed and the economy has regained its growth momentum.

#### Recent Trends

7. In 1980/81, the economy substantially recovered with real GDP growing by 7.5%. While industrial output expanded by 4%, recovery was particularly robust in agriculture where normal weather helped output to rise by more than 15%. Increased foodgrain production, along with judicious use of Government buffer stocks built up in earlier years, also helped moderate price rises. Inflation remained a serious problem with the annual average wholesale price index rising 18%, although the second half of the year provided clear evidence of a deceleration in inflation.



8. 1981/82 was a year of solid growth after the rebound in 1980/81 and GDP grew by 5.5%. While foodgrain production rose only modestly over its 1980/81 level, other crops including oilseeds and sugarcane performed well and total agricultural output grew by 4%. The availability of power, coal and rail transport, already improved in 1980/81, was even better in 1981/82, recording growth rates of about 10%, 9.4% and 15% respectively. As constraints on the supply of infrastructure and basic commodities continued to ease, industrial output responded with an 8% increase. The downward trend in inflation continued. Wholesale prices rose by about 9% on an average annual basis, while the increase on a March 1981 to March 1982 basis was less than 2%, showing a continued deceleration. Easier supply conditions, combined with a more restrictive monetary policy, contributed to the sharp decline in the rate of inflation.

9. The performance of the agriculture sector in 1981/82 ensured that supply conditions in the country remained quite favorable. It also provided continuing evidence of the positive effects of large investments and appropriate policies in past years. Foodgrain production reached between 132 and 134 million tons, thus matching or perhaps surpassing the previous record. Irrigated area expanded by 2.5 million hectares, while fertilizer consumption improved over its 1980/81 level by more than 7%, despite substantial price increases. Recent performance and probable future trends suggest that on average foodgrain supplies will exceed demand. However, the balance remains delicate with some imports likely to be required from time to time. Indeed, the effects of the severe 1979/80 drought were still being felt in 1981/82 when 2.25 million tons of wheat were imported to rebuild depleted stocks. Nevertheless, the relatively low import requirement, the ability of the Government to delay imports for as long as two years after the production shortfall, and the decline in foodgrain prices in real terms demonstrate the flexibility and resilience provided by the public foodgrain system.

10. Shortages of basic commodities and infrastructural services were major contributors to industrial stagnation and the onset of high inflation in 1979/80. This was the culmination of several years of declining capacity utilization in important, interrelated sectors such as power, coal, and rail transport. A major cause of the improved economic climate over the last two years has been a much improved level of output in these sectors, due mainly to greater efficiency and utilization of installed capacity. Expansion of coal output by about 10 million tons for the second successive year and of rail freight traffic to a record level were particularly noteworthy features of the 1981/82 economic performance. The shortfalls in domestic energy production which contributed so heavily to the poor 1979/80 performance have also been reduced. However, even though there remains large scope for improving efficiency, further improvements in capacity utilization will become increasingly difficult, and increases in capacity are needed to meet increasing demand.

11. Despite a brief phase in the late 1970s, when savings rates exceeded investment rates and foreign exchange reserves actually increased, recent experience shows that the needs of the Indian economy continue to outstrip the availability of resources, both internal and external. Investment exceeds domestic savings. The latter, at nearly 25% of GDP, are already high and further increases, particularly from the household sector, will be increasingly difficult to obtain. However, over the last two years, the

Government has taken a number of measures to generate higher savings in the public sector. Principal among these were price and tax increases, and subsidy reductions, on a range of commodities produced mainly in the public sector.

12. The shortage of resources is even more apparent in the foreign sector. Problems became serious after 1979/80 when the cost of India's POL imports rose sharply and the terms of trade deteriorated. Coupled with domestic supply shortages and a slowing down in export growth, these factors caused India's current account deficit to rise from only 0.6% of GDP in 1979/80 to 2% of GDP in 1980/81. In 1981/82, the current account deficit rose to US\$4.3 billion, representing 2.7% of GDP. Unfavorable movements in export prices and the terms of trade threatened a worse outcome. However, the much improved performance of basic import-substituting industries and a resumption of healthy export volume growth (8.3%) prevented this. To finance this gap in the face of inadequate concessional aid flows, the Government drew down a record US\$2.36 billion in foreign exchange reserves, withdrew almost US\$700 million under the recently negotiated IMF Extended Fund Facility, and turned increasingly to other non-concessional sources of finance. In 1980/81 and 1981/82 for example, new government guaranteed commitments for commercial borrowing totalling over US\$1.3 billion were contracted for major projects.

13. The trends in the volume and terms of India's trade indicate that significant adjustments will need to be made in the economy to bring India's external accounts into reasonable balance at an acceptable level of growth. In particular, there is a need to increase the growth of exports, to increase production of commodities such as fertilizer, cement and steel which India can produce efficiently, in order to reduce imports of these items, to moderate the rise in oil imports through greater domestic production and slower demand growth, and to further reduce the constraints in transportation and other infrastructural facilities which are retarding growth in a wide range of activities, including exports. It is encouraging that, in response to the present balance of payments difficulties, the Government has not reacted by placing more stringent controls on imports, but rather has maintained and extended the more liberal policies evolved in the past several years. Recent improvements in the availability of power, a major constraint facing exporters, and the adoption of several new export and industrial policy measures have improved the prospects for accelerating export growth.

#### Development Prospects

14. The experience of recent years illustrates that India does have the capacity to grow and develop at a more rapid pace. Although the industrial sector is small compared to the size of the economy, it nevertheless is large in absolute terms and has a highly diversified structure, capable of manufacturing a wide variety of consumer and capital goods. Basic infrastructure -- irrigation, railways, telecommunications, power, roads and ports -- is extensive compared to many countries, although there is considerable need for additional capacity as well as improvement in the utilization of existing capacity. India is also well-endowed with human resources and with institutional infrastructure for development. Finally, India has an extensive natural resource base in terms of land, water, and minerals (primarily coal and ferrous ores, but also gas and oil). With good economic policies and

reasonable access to foreign savings, India has the capability for managing these considerable resources to accelerate its long-term growth.

15. The medium-term framework for advancing India's development objectives is the Sixth Five Year Plan (1980/81-1984/85), which is now about halfway completed. The Plan assigns priority to agriculture, energy development, the growth of exports and domestic import substitutes where appropriate, and the removal of infrastructural bottlenecks. Overall performance has so far been encouraging, although the likelihood of continued bottlenecks in key sectors such as power and transport is growing. Moreover, fulfillment of the Plan targets will require an acceleration of domestic savings rates. The efforts of the Central Government to raise resources have so far been impressive and are likely to be broadly sufficient to meet the financing requirements of the Central Government's share in plan investment, if inflation can be kept in check. However, a significant shortfall in savings is likely to occur in some states unless further measures are introduced. There will be a need also for continuous efforts to maintain and raise further the already high level of private savings. Recent increases in interest rates and tax concessions on time deposits should stimulate such savings. The further dampening of inflationary expectations, the prospects for which look bright, will be an important part of this effort.

16. The higher capital formation rates of the past few years augur well for future income growth. Thus far, however, output growth has not matched the size of India's investment programs. Much of this phenomenon relates to India's stage of development, in which a large and growing proportion of investment has been needed to build up basic infrastructure. These services, such as power, transport and irrigation, have inherently high capital output ratios. However, at least some of the rise in the sectoral capital output ratios has been due to a deterioration in efficiency and is avoidable through better management. Bottlenecks in these basic sectors clearly can prejudice growth in other sectors where large investments have been made. As demonstrated in the last two years, performance in the basic service sectors can be improved through better planning and management, thus leading to higher productivity and capacity utilization, throughout the economy. At the same time, programs to expand domestic capacity are vital. In the case of tradeable commodities like coal, steel and cement, this is justified on the grounds of comparative advantage. For sectors such as power and transportation, expansion of planned capacity in accordance with the requirements of the rest of the economy will be vital to overall medium- and long-term prospects. At present rates of development, however, an adequate balance between supply and demand in these sectors will be difficult to sustain. Performance in the power sector to date suggests that India's power deficit will continue into the early 1990s, although more rapid project implementation and efficiency could narrow the size of the gap. For railways, real investment levels may be inadequate to meet demand projections and will need to be monitored closely and adjusted upward as necessary if serious bottlenecks are to be avoided in the next few years.

17. Under the Sixth Plan, India has an ambitious energy production program backed by substantial financial commitment. While the gap between domestic consumption of petroleum and production remains large, the prospects for progressive substitution of domestic petroleum for imports are quite bright. In 1981, resources for exploration were raised by successive price

increases for petroleum products. On the production side, scheduled expansion is expected to raise domestic production of crude from the current 46% to about 64% of demand by 1984/85. The rapidly expanding level of exploratory activity, combined with the possibilities for accelerated offtake from known fields offer much encouragement for India's longer term energy prospects.

18. The continuation of India's balance of payments difficulties has been marked by the progressive use of foreign exchange reserves and non-concessional borrowing to finance the deficit. Use of reserves reached a record level in 1981/82, leaving less than four months of import coverage by the end of the year. At the same time, India also made use of the IMF Extended Fund Facility. Entering this period with a favorable debt service profile, India has so far also been able to tap commercial capital markets at favorable spreads (over, of course, relatively high underlying rates) and in the last two years commercial borrowing has been stepped up. These sources will be important in the future since India's current account deficits, though not large relative to the size of the economy, will nevertheless be large in absolute terms and will necessitate external borrowing beyond levels expected to be available from normal concessional sources.

19. India's development prospects over the next few years will hinge on the extent to which the economy can be brought into both internal and external balance, while at the same time maintaining reasonably high growth. In the longer term, income growth represents the best strategy for achieving these needed adjustments, both by generating higher savings for further investment, and by fostering the development of export and import-substituting industry to realign the balance of payments. In the short-term, significant external borrowing, including an increased emphasis on commercial borrowing, will be necessary to cope with the balance of payments consequences of such a growth strategy. However, an important element in providing India with the capacity to adjust flexibly will be adequate flows of concessional assistance. Although India is currently in a position to increase borrowing on commercial terms from the very low levels of the past, there are limits to India's creditworthiness in world markets. Maintaining an adequate rate of growth while adjusting the structure of the Indian economy to a more open and efficient environment as intended by the Government requires foreign resources in addition to the level of commercial borrowing available to India. Indeed, along with increasing exports, higher levels of investment to support an adequate rate of growth is a key element in maintaining India's recently improved creditworthiness. India is still a very poor country with a large rural sector and enormous investment requirements for human development and basic infrastructure. The fact that India has been able to maintain over the past seven years a rate of growth above the long term trend, despite the severe setbacks of 1979/80, lends substance to the hope that a more open trade policy and concerted efforts to remove constraints on the growth of productive capacity, supported by adequate mobilization of savings both foreign and domestic, can sustain a rate of growth closer to 5.0% per annum than the long run trend of 3.6% per annum. Combined with a reduction in the rate of population increase to below 2.0% per annum, a 5.0% growth rate would mean a doubling of the trend rate of growth of per capita income of less than 1.4% per annum. Success in these efforts would make a significant difference to the prospects of easing poverty in India.

20. A large and growing population and severe poverty underline the need for India's development efforts to be protected and accelerated if possible. The 1981 Census placed India's population at 683.4 million, or about 12 million- higher than official projections. The fact that there was no decline in inter-census rates of population growth, equivalent to about 2.2% per annum, is a cause for concern. While further analysis may suggest this rate of growth to be slightly overestimated, the expectation of a measurable decline in the population growth rate has not materialized. Until full details of the Census are released, firm judgements about the reasons for this outcome are not possible. However, the results re-emphasize the need for continuing efforts to strengthen the family planning program in a broad range of activities and services. These efforts are given high priority in the Sixth Plan which aims at a rise in the proportion of protected couples in the reproductive age group from its estimated 1979/80 level of about 23% to over 35% by 1984/85.

21. Reduction of poverty remains the central goal of Indian economic growth. More than one-third of the world's poor live in India, and more than 80% of the Indian poor belong to the rural households of landless laborers and small farmers. About 51% of the rural population and 38% of the urban population subsist below the poverty line. Improvements in the living standards of the poor will depend to a large extent on the overall growth of the economy, particularly on increases in agricultural production and employment, in non-farm rural employment, and also in employment opportunities in urban areas. These developments will have to stem in large part from market forces which, however, must be encouraged and reinforced by appropriate Government policies and the strengthening of basic services and infrastructure. The declining trend in real foodgrain prices between 1970 and 1981 resulting from India's sustained effort to raise agricultural production, reflects such developments. There is also a role for direct Government action in faster implementation of land reform (though the scope for significant reduction in poverty through land redistribution is quite limited in India), in increasing the supply of credit available to small farmers and rural artisans, and finally in broadening the provision of those services which enhance the human capital of the poor and improve living standards. Many of the latter are elements of the Minimum Needs Program, which has been an integral part of Indian planning for the past decade. Progress has been slow but steady in the expansion of primary education, the extension of rural health facilities and the provision of secure village water supplies. Operations such as the community health volunteer program and the national adult literacy campaign provide encouraging evidence that well-targetted, relatively low-cost programs can lead to enhanced prospects for India's poor.

## PART II - BANK GROUP OPERATIONS IN INDIA

22. Since 1949, the Bank Group has made 68 loans and 153 development credits to India totalling US\$4,095 million and US\$10,956 million (both net of cancellation), respectively. Of these amounts, US\$1,280 million has been repaid, and US\$5,291 million was still undisbursed as of September 30, 1982. Bank Group disbursements to India in the current fiscal year through September 30, 1982 totalled US\$287 million, representing an increase of about 76

percent over the same period last year. Annex II contains a summary statement of disbursements as of September 30, 1982, and notes on the execution of ongoing projects.

23. Since 1959, IFC has made 28 commitments in India totalling US\$219.6 million, of which US\$26.4 million has been repaid, US\$55.6 million sold and US\$7.5 million cancelled. Of the balance of US\$130.1 million, US\$121.9 million represents loans and US\$8.2 million equity. A summary statement of IFC operations as of September 30, 1982, is also included in Annex II (page 5).

24. The thrust of Bank Group assistance to India has been consistent with the country's development objectives in its support of agriculture, energy and infrastructure. Of particular importance have been investments in irrigation, extension and on-farm development designed to increase agricultural productivity, and efforts to improve the availability of basic agricultural inputs to farmers through credit, fertilizer, marketing, storage, and seed projects. Major elements of the lending program have also been directed at helping to meet the energy needs of the economy while curbing the growth of oil imports, and to ease the infrastructure bottlenecks which have hampered economic growth in India, particularly through power generation and distribution, and railways and telecommunications projects. The Bank Group has also provided financing for a broad range of medium- and small-scale industrial enterprises, primarily in the private sector, through its support of development finance institutions. Recognizing the importance of improving the ability to satisfy the essential needs of urban and rural populations, the Bank Group has supported nutrition and family planning programs, a rural roads project, as well as water supply and sewerage and other urban infrastructure projects.

25. This pattern of assistance remains highly relevant, and consonant with Government priorities, as reflected in the Sixth Plan. The continued active involvement of the Bank Group in agriculture, energy and infrastructure development will appropriately contribute to India's adjustment and growth prospects. Irrigation will need continuing support, with emphasis on improved efficiency in water conveyance systems to ensure reliable delivery to farmers' fields. In addition, major investments to develop the large Narmada River basin will be vital to India's efforts to increase agricultural production. Important complements to these efforts, such as fertilizer production and distribution, agricultural credit and extension, will continue to receive support. A continued program of investments aimed at rapidly increasing the domestic supply of energy will clearly be necessary if India is to curb the cost of oil imports and alleviate the critical power shortages which constrain output in both the agricultural and industrial sectors. Exploitation of oil and gas resources is a central element of this program, which should be supplemented by investments in hydro and thermal power generation, and in the expansion of the transmission and distribution networks. Industrial projects to increase the domestic production of basic commodities, which have been in short supply and which India has a comparative advantage in producing, should also receive high priority. Finally, raising the efficiency and levels of transportation infrastructure would mitigate a key constraint to achieving higher levels of economic growth so that further support of the railways and for ports development will be particularly appropriate.

26. The need for a substantial net transfer of external resources in support of the development of India's economy has been a recurrent theme of Bank economic reports and of the discussions within the India Consortium. Thanks in part to the response of the aid community, India successfully adjusted to the changed world price situation of the mid-1970s. However, there is now a need for increased foreign assistance to India, not only to help the economy adjust to the more recent oil price increases and the overall deterioration in the world trade environment but also to maintain the relatively higher growth rates achieved during the first two years of the Sixth Plan. As in the past, Bank Group assistance for projects in India should aim to include the financing of local expenditures. India imports relatively few capital goods because of the capacity and competitiveness of the domestic capital goods industry. Consequently, the foreign exchange component tends to be small in most projects. This is particularly the case in such high-priority sectors as agriculture, irrigation, and water supply.

27. India's poverty and needs are such that whenever possible, 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. This requirement for additional assistance can be met, in part, through Bank lending. Given its development prospects and policies, India is judged credit-worthy for Bank lending to supplement IDA assistance. A continuation of efforts already underway to achieve growth in productive capacity, trade expansion, higher levels of savings, foodgrains self-sufficiency and a reduction in the rate of population growth should result in continued economic growth and improvement in the balance of payments. Despite recent setbacks, India's external payments position is still manageable. The ratio of India's debt service to the level of exports was about 11% in 1982/83 and is projected to remain below 20% through 1995/96. As of September 30, 1982, outstanding loans to India held by the Bank totalled US\$2,922 million, of which US\$1,308 million remain to be disbursed, leaving a net amount outstanding of US\$1,614 million.

28. 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 50%, 43% and 53%, respectively, in 1981/82. On March 31, 1982, India's outstanding and disbursed external public debt was about US\$17.9 billion, of which the Bank Group's share was US\$7.1 billion or 38% (IDA's US\$5.9 billion and IBRD's US\$1.2 billion). In 1981/82, about 16.0% of India's total debt service payments were to the Bank Group.

PART III - THE POWER SECTOR

Background

29. The performance of the Indian power supply industry and the economy as a whole are closely related, and economic growth and improvement of the standard of living depend to a large degree on the development of the power sector. Since alternative sources of energy are not readily available in the amounts needed, shortage of power has an immediate impact on virtually all activities of the economy. Energy matters have been receiving top priority consideration in Central and State Government policy planning, and the power sector now takes the largest share of India's public investment resources (12% of the Sixth Five-Year Plan outlay). In spite of this emphasis, demand for power continues to outstrip supply.

Power Supply and Demand - India-Wide

30. In the 1950s and 1960s, installed capacity <sup>1/</sup> and power generation managed to keep pace with the nation's demand for power, both growing at an average annual rate of 10-12%. Since 1970, the situation has deteriorated: delays in commissioning new power projects, operating and maintenance problems, and insufficient investment under severe budget constraints have led to a critical situation in which demand for power consistently outstrips supply. This situation was exacerbated by below-average monsoon rains (particularly in the early 1970s and in 1979) which affected hydro-electric power generation, and an unstable coal supply caused by disruptions in coal mining and transport, as well as the poor quality of the coal itself. Between 1970/71 and 1974/75, growth in power generation averaged only 5% annually. The situation improved considerably over the period 1975/76 through 1979/80, with growth in both generation and capacity averaging 7-9% annually. This improvement resulted from successive good monsoons in 1975/76 and 1976/77, improved coal supply, and a concerted effort to improve project implementation, thermal capacity utilization and overall power system management. In 1979/80, however, generation increased by only about 2% in spite of a 7% increase in capacity, due mainly to lower hydro plant availability than

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<sup>1/</sup> 'Installed capacity' in reference to a power generating unit is the manufacturer's rating of the unit, usually specified in megawatts (MW). This rating indicates the rate at which the generator will produce electricity under certain specified conditions. 'Available capacity' is the actual rate at which electricity can be generated, taking into account electricity required for scheduled maintenance and the generation process itself, for example, for fuel pumps and other auxiliary purposes.



normal. The situation has since improved with power generation increasing at a greater rate than installed capacity: data for 1980/81 and 1981/82 indicate an average increase for these two years of about 8.0% per year for power generation and 6.5% per year for installed capacity indicating better utilization of existing resources. Nevertheless, power shortages have persisted in many parts of the country, particularly in the Eastern Region. Total installed generating capacity as of March 1982 was about 35,000 MW, including non-utility plant. Of this total, about 63% was conventional thermal, 35% hydro, and 2% nuclear.

31. Industry consumes about 60% of all electricity sold, while agriculture (mainly irrigation) accounts for about 18%, domestic use for about 12%, and other uses 10%. As a result of accelerated agricultural development, there has been a marked growth of power consumption in the rural areas where more than 80% of India's population lives. The number of electrified villages, for example, grew from just over 3,000 in 1950/51 to an estimated 300,000, or about 52% of all the villages in India, by the end of 1982. Projections made by India's Central Electricity Authority (CEA) in its long-term system plan indicate that over the thirteen-year period 1981/82-1994/95, utility generating capacity should grow at an average annual rate of about 9.5% to total some 106,000 MW, of which about 59,000 MW (56%) would be thermal, 44,000 MW (41%) hydro and 3,500 MW (3%) nuclear. About 15,000 MW of the additional generating capacity are expected to be added by 1984/85.

#### Power Supply and Demand - Eastern Region

32. The Eastern Region comprises the States of Orissa, West Bengal and Bihar. These States will be served by the proposed project. The major supply authorities of the Eastern Region are the Bihar State Electricity Board, the West Bengal State Electricity Board, the Orissa State Electricity Board (OSEB)--which will own and operate the power plant when it is completed--the Damodar Valley Corporation, the Calcutta Electric Supply Corporation, and Durgapur Projects Limited. The total installed capacity in the Region in March 1982 was about 5,350 MW, of which OSEB accounted for about 17%. Orissa's existing power system comprises four hydro stations--Hirakud (198 MW), Chiplima (72 MW), Machkund (34 MW), Balimela (360 MW)--and one coal-fired thermal station at Talcher (250 MW), totalling 914 MW. A further 560 MW is presently under construction at Upper Kolab, Rengali and Talcher. Only about 27% of Orissa's generating plant is thermal, making the State considerably less vulnerable than the Region at large (in which 80% of its capacity is thermal) to unplanned outages of thermal units, which have arisen frequently in recent years, particularly in West Bengal.

33. During the late 1970s, installed capacity in the Region increased by about 4% to 5% per year. Plant availability, however, deteriorated during the later years, leading to a decrease in generation in 1979/80,

and only small increases thereafter. Much of this was due to poor maintenance of thermal plant in the State Electricity Boards (SEBs), labor disputes affecting plant operations and coal supply, and institutional weaknesses of the SEBs. Potential unconstrained peak demand in the Region is expected to grow, after the present shortages have been overcome, by about 8.5% per annum until 1995. However, although installed capacity is expected to increase at a rate of about 15% per annum until 1985, relatively reliable supply is unlikely to be attained before the early 1990s. The probability of loss of load, particularly if high forced outage rates continue, will be unacceptably high throughout the 1980s. Supply restrictions will have to continue for some time to come, and can only be eased through the timely implementation of projects and rapid improvement in plant maintenance. New additions to capacity during the 1980s will be predominantly thermal. New sites available for hydro development are limited and will take time to develop. However, hydro-power development will increase significantly during the early 1990s, so that by 1995 about 30% of total installed capacity in the Region will be hydro. Much of this increase in hydro capacity will take place in Orissa, where more than 1,000 MW will be commissioned by 1990, and a further 1,000 MW could be developed thereafter. Large expansion of thermal capacity is likely at the coalfields at Farakka in West Bengal and Talcher in Orissa.

#### Bank Group Operations in the Power Sector

34. Since 1954, the Bank has made thirteen loans to India for power projects amounting to US\$982.5 million and IDA fifteen credits totalling US\$2,096 million. Of these amounts, US\$2,139 million is for generating plant; US\$23 million for construction equipment for the Beas hydro-electric project; US\$380 million for the provision of high-voltage transmission; and US\$536.5 million for the support of rural electrification schemes. Fifteen loans and credits have been completed: ten for generating plant, the Beas Project, the first three Power Transmission Projects, and the First Rural Electrification Project. The Fourth Power Transmission (Credit 604-IN of January 1976), First Singrauli (Credit 685-IN of April 1977), First Korba (Credit 793-IN of May 1978), Third Trombay (Loan 1549-IN of June 1978), and First Ramagundam (Credit 874-IN and Loan 1648-IN of February 1979) Thermal Power Projects, and the Second Rural Electrification Project (Credit 911-IN of June 1979), are in an advanced stage of implementation. The credit for the Second Singrauli Thermal Power Project (Credit 1027-IN) and the credit/loan for the first stage of the Farakka Thermal Power Project (Credit 1053-IN and Loan 1887-IN) were approved in May and June 1980, respectively. The credit for the second stage of the Korba Thermal Power Project and the loan for the second stage of the Ramagundam Thermal Power Project were approved in July and December 1981, respectively. The loan for the Third Rural Electrification Project was approved in June 1982. The First and Second Singrauli, First Korba, and Trombay projects are on schedule. The

Farakka and Ramagundam projects are proceeding satisfactorily after initial delays. The first two units of Singrauli were commissioned on schedule in 1982. The third Singrauli unit and the first at Korba will be commissioned soon.

35. A project performance audit was conducted in 1980 for the Second Power Transmission Project (Credit 242-IN). The project was considered to have been successful in assisting the nine beneficiary SEBs in extending their transmission systems to help meet their growing power requirements. Utilization of generating capacity in these SEBs exceeded the appraisal forecast. Rehabilitation of the finances of the SEBs, which commenced under this project, is continuing under subsequent projects. The audit highlighted the difficulties of adequately supervising this project which consisted of many wide-scattered subprojects, and of effecting institutional improvements in the absence of a close working relationship between the Bank Group and the beneficiary SEBs. With the assumption of increased responsibilities by the CEA in the power sector, a considerably more effective relationship with the SEBs is envisaged.

#### Sector Institutions

36. The institutional structure of the Indian power sector is complex. Under the Indian Constitution, the responsibility for supplying power is shared between the Central Government and the State Governments, and full agreement between the Center and the States is required for the implementation of most actions. With the rapid expansion of the power sector, there has been an increasing need to coordinate the activities in the power industry beyond State boundaries, and various agencies have been established with a view to promoting integrated power development in the country. The principal agencies in the sector are: the State Electricity Boards, the Regional Electricity Boards (REBs), the Central Electricity Authority, the two Central power corporations--the National Thermal Power Corporation (NTPC) and the National Hydro Power Corporation (NHPC)--and the Rural Electrification Corporation (REC).

37. The SEBs were constituted by the State Governments under the provisions of the Electricity (Supply) Act, 1948, to promote the coordinated development of generation, transmission and distribution of electricity in the most efficient and economical manner, and to control and regulate private licensees and utilities. The States effectively own or control over 90% of electricity supply facilities. While the SEBs are corporate entities and enjoy some autonomy in the management of their day-to-day operations, they are under the control of State Governments in such matters as capital investment, tariffs, borrowings, pay scales and personnel policies.

38. As a means of improving collaboration between SEBs and establishing Regional rather than State power systems, Regional Electricity

Boards have been set up for each of the Northern, Southern, Eastern, Western and North-Eastern Regions. The general function of an REB is to coordinate the operation of the Regional power system to the maximum benefit of the Region as a whole, to coordinate overhaul and maintenance programs, to determine generation schedules and power available for transfer between States, and to determine tariffs for the transfer of power within the Region. At present, REBs function mainly in an advisory role.

39. The CEA was constituted in 1950 with responsibility for developing national power policy and coordinating the activities of the various agencies involved in electricity supply. Its powers were enlarged by amendments in 1976 to the Electricity (Supply) Act, 1948. It is now also responsible for the formulation and coordination of plans for power development, optimization of investments in the power sector for the whole country, development of interconnected system operation, training of personnel, and research and development. Its Thermal Department takes responsibility for monitoring the performance and maintenance records of thermal power stations, and for organizing the training of power station personnel. The Economic and Commercial Department accumulates data on economic, financial and accounting aspects of the power industry, both at Center and State levels, with particular reference to the operations of the SEBs, and advises SEBs on financial matters.

40. Because SEBs had been unable to build and maintain sufficient plant to meet the rising demand, GOI in 1975 incorporated NTPC and NHPC, whose main purpose is to construct, own and operate large Central power stations, as well as high-voltage power transmission lines and associated substations. NTPC is at present building six large thermal power stations, while NHPC is building three hydro stations. Although the Central Government is becoming increasingly important in the sector, the SEBs will continue to play a major role, particularly in hydro-electric projects. The States own most hydro sites and are unlikely to turn over these sources of comparatively inexpensive energy to the Center. NHPC can develop hydro sites only when the water rights are clear and the State has surrendered its claim on them.

41. The REC was constituted in 1969 and registered under the Companies Act, 1956, as a limited company wholly owned by GOI. Its primary objective is to finance rural electrification schemes prepared by SEBs throughout India, functioning as a financial intermediary with technical expertise, and ensuring the efficient onlending of funds drawn primarily from GOI. REC coordinates its lending operations with the activities of other agencies which provide financing for rural development. Although the amount of REC financial support is small in relation to total SEB operations, REC today finances more than half of total rural electrification expenditures.

Bank Group Strategy in the Power Sector

42. The Bank Group has had a continuing dialogue with the Government in seeking solutions to a number of complex and politically sensitive problems which have confronted the Indian electricity supply industry since Independence. The sensitivity of Center-State relations and the political constraints arising from the fact that electricity supply is within the concurrent jurisdiction of the Central and State Governments (para 36) have dictated a policy of seeking progress through cooperation. More specifically, the Bank Group's main objectives in its lending operations in the Indian power sector are: (a) to accelerate the installation of generating and transmission capacity to eliminate power shortages and to promote measures to improve the operation and maintenance of existing plant; (b) to foster comprehensive long-range regional and national system planning so as to assure implementation of a least-cost power development program; (c) to promote improvements in sector organization and training; and (d) to strengthen the finances of the sector institutions, particularly the SEBs.

43. Some noteworthy results have been achieved, which include: (a) the establishment of the REBs and later of the Centrally-owned power companies (NTPC and NHPC), which marked the first important steps towards Central ownership of power generation and transmission facilities; (b) reorganization and strengthening of the CEA through amendment of the Electricity (Supply) Act in 1976; (c) amendment of the financial provisions of the Electricity (Supply) Act, which provided for the development of SEBs on a more commercial basis, with the objective of financing from internal sources a reasonable proportion of their investments (para 44); (d) implementation of action plans by a number of SEBs, designed to improve their financial performance through tariff increases, rationalization of manpower requirements, improved maintenance management, and the introduction of other cost-effective measures; (e) completion of tariff studies by most of the SEBs with a view to reassessing tariff policies (para 76); (f) satisfactory progress of NTPC's generation/transmission construction program with Bank Group assistance (para 46); and (g) establishment of the Committee on Power to review all aspects of the power sector (para 45).

44. Two areas of specific concern to the Bank Group in the past have been the lack of a nationwide long-range plan for power development, and the weak financial position of some SEBs. With regard to the first of these, a long-range national power development study designed to provide the basis for a least-cost power development program was completed by GOI in late 1982. The study projects the growth in power demand and the corresponding capacity expansion requirements through the year 2000, according to different scenarios based upon India's rate of economic growth. A least-cost expansion program for each of the five electricity supply regions is also derived in the study. With regard to the financial

performance of the SEBs, there has been considerable improvement in overall performance since 1978/79. GOI is keen to maintain the rehabilitation effort and further improve performance through the introduction of financial policies that would enable the SEBs to operate more along commercial lines and enhance their self-financing capability. With the approval in 1982 of the Third Rural Electrification Project (Loan 2165-IN), new financial performance criteria, which set specific levels of internal cash generation and rural electrification subsidies paid by the States to the SEBs, were established for those SEBs intending to participate in the project. A number of SEBs have already undertaken to fulfill these requirements, and all of the major SEBs are expected to do so. These measures should lead to further improvements in the SEBs' financial performance in the 1980s.

45. In 1978 the Indian authorities recognized that all aspects of the sector needed to be reviewed in depth and that satisfactory solutions had to be found for outstanding sector development problems. Consequently, GOI established in November 1978 a Committee on Power whose purpose was to examine all aspects of the power industry and make recommendations for improvements. The Committee completed its task and submitted its conclusions to GOI in September 1980. These conclusions refer to all major aspects of the power sector--power planning, project formulation and implementation, operation and maintenance, organization and management, finance, financial management and tariffs, rural electrification, and research and development. Implementation of most of the Committee's recommendations is already underway: for example, better planning procedures and improved operations and maintenance management, such as plant breakdown procedure and spare parts procurement. However, other important measures require due deliberation by GOI and the State Governments and their joint agreement before they can be implemented. These measures include sector development, organizational structure, and sector finances.

46. In 1982, GOI submitted a program for the implementation of five categories of power sector improvements which the Bank Group considered areas of high priority. The five categories are: (a) improving the performance of thermal power plants; (b) coordinating power development with the development of other sectors; (c) intensifying hydro-electric power development; (d) strengthening the role of the Central sector in power generation and transmission; and (e) establishing appropriate financial objectives and policies for SEBs. Satisfactory progress has been made in these areas, and a number of actions have already been achieved. For example, teams of specialists have been established by the Department of Power to visit all power plants with 100/120 MW and 200/210 MW thermal generating units in the country to diagnose technical and operational problems, propose solutions and assign responsibilities for their implementation. The draft long-range power plan, forecasting power demand and capacity expansion through the year 2000, has been completed (para 44). A second hydro-electric project (Bodhghat) has been posed to

the Bank and a number of others are in advanced stages of preparation. GOI, through NTPC, now has under construction and partly in operation about 10,000 MW of power generating capacity, which includes, as well as the four large thermal plants at Singrauli, Korba, Ramagundam and Farakka being financed by the Bank Group, two new thermal plants (Rihand and Vindhyachal) begun by NTPC in 1982. A project (the Fifth Power Transmission Project) to reinforce the Centrally-owned power transmission grid, and provide the first stage of integration of the Northern, Western and Southern regional grids, has recently been appraised by the Bank Group. NTPC has been decentralized, providing regional organizations for more effective monitoring, control and operation of its power generation and transmission facilities. Finally, draft legislation for amendment of the financial provisions of the Electricity (Supply) Act, 1948 has been prepared by GOI for submission to Cabinet in the spring of this year (para 71); a uniform system of commercial accounting for the SEBs is under development; and new financial performance criteria for the SEBs have been introduced (para 70).

#### PART IV - THE PROJECT

47. The project was prepared by the Irrigation and Power Department of the Government of Orissa (OIPD) and appraised by a mission which visited India in October/November 1982. A Staff Appraisal Report is being distributed separately to the Executive Directors. Negotiations were held in Washington in March 1983. GOI and GOO were represented by a delegation with Mr. N. Misra as coordinator. A Supplementary Project Data Sheet is attached as Annex III.

#### Project Description

48. The proposed project, located in the Koraput and Kalahandi districts in the State of Orissa, is designed primarily to increase the power generating capacity in the State by about 600 MW to a total of over 2,000 MW, and thereby provide a substantial quantity of low-cost energy to help meet the growing electricity needs of the State and of the Eastern Region of India. Designed as a low load factor plant, the Upper Indravati power station will provide needed peaking capacity to complement the Region's thermal power stations. Secondly, the project will direct waters from the Indravati river in the Godavari basin into the Hati river in the Mahanadi basin, providing water to irrigate about 109,000 hectares (270,000 acres) of cultivable land for which no other feasible irrigation source exists.

49. The project comprises the following components:

(a) a hydro-electric power station of 600 MW installed capacity, consisting of four 150 MW turbo-generator units, capable of producing an average annual energy output of 1,962 gigawatt-hours (GWh);

(b) a reservoir with an area of 110 sq km and a live storage capacity of about 1,435 million cubic meters;

(c) four dams--Indravati, Muran, Kapur and Podagad--of masonry, earth, or composite masonry and earth fill, ranging in height from 40 m to 73 m and in length from 436 m to 540 m;

(d) eight dykes, totalling about 3,000 m in length;

(e) a water conductor system consisting of a head race channel, horseshoe tunnel, surge shaft, two pressure tunnels and four steel penstocks;

(f) a tailrace channel 9 km in length to conduct water to a re-regulating reservoir for irrigation purposes;

(g) site services and facilities, including roads, bridges, quarters and buildings, and power, water and sewerage facilities;

(h) engineering and administrative services.

50. Turbo-generators of 150 MW capacity are the largest that can be transported to Upper Indravati given limitations on road and rail transportation. Of the turbo-generator choices considered--120 MW and 150 MW--the larger equipment was found to be more economical, and electrically compatible with the system. The proposed capacity of 600 MW, generating 1,962 gigawatt-hours per year, implies a load factor of 37%, which is consistent with the forecast generation requirements. Additional generators can be installed at the site if needed.

51. The output from the project will be transmitted over two 220 kV transmission lines to a 400 kV substation owned and operated by the National Hydro Power Corporation. Additional transmission lines within Orissa that may be desirable to optimize the transmission of the project's output will be financed and built by the Government of Orissa (Section 3.07 of Project Agreement).

#### Project Implementation

52. The project will be implemented over an eleven-year period (early preparation work began in 1979) by the Orissa Irrigation and Power Department. OIPD provides irrigation services throughout the State and constructs hydro-electric projects for subsequent operation by the Orissa State Electricity Board. The Secretary, Irrigation and Power, is the



permanent head of the Department, and he is assisted by a group of Chief Engineers, one of whom is responsible for the Upper Indravati Project. Orissa has a common State engineering cadre, from which the OSEB draws its engineering staff on deputation. Engineering advice and consulting services are provided by the Central Water Commission on hydraulic structures and equipment, and by the Central Electricity Authority on electrical matters.

53. A special Control Board, under the chairmanship of the Chief Minister of Orissa, was set up in January 1979 to oversee the execution of the Upper Indravati Project. The members include the Minister for Irrigation and Power, the Chief Secretary, the Secretaries of three other interested departments, the District Collectors from the project area, and the Chief Engineers of the project. The Chief Construction Engineer, Upper Indravati, who has been resident on the site since the start of work, is responsible for all the civil works; the Chief Engineer, Electricity/Electrical Projects, is responsible for the electrical and mechanical works.

54. Project accounting procedures for major projects within the State are well established, and are based on the system of Public Works Accounting common throughout India. However, project accounts in their present form are not altogether suitable for effective monitoring of project progress and cost against appraisal estimates. OIPD's accounting arrangements are presently under review as part of a larger study of OIPD's project management being carried out by consultants (para 55). The review will include project accounting requirements, accounting procedures, and appropriate formats for project accounts.

55. OIPD has completed a number of power projects, and two (Upper Kolab and Rengali) are presently under construction. While OIPD's technical expertise and experience in such projects are sound, project management of these developments has not been entirely satisfactory since construction schedules have slipped and estimated costs have been exceeded. However, OIPD is reviewing its existing construction management and accounting arrangements with consultant assistance and is expected to provide a review report to the Bank Group by August 1983. Provision of the report is a condition of effectiveness for the loan and credit (Section 5.01(a) of Development Credit Agreement). Following completion of the review, and in consultation with the Bank Group, GOO will implement those recommendations in the consultants' report as are accepted by GOO (Section 3.06 of Project Agreement).

56. Systematic field investigations in the area of the proposed project began as early as 1959. In 1982, a panel of independent experts employed by the Bank carried out a review of the major features of the project to ensure that the project is technically and economically sound. In the course of its review, the panel, together with Association staff,

examined a number of studies on the locations, types and sizes of the various works, structures and equipment that had been carried out to that time, and found them satisfactory. However, the panel recommended an expanded program of exploration, some design changes to the Podagad and Muran dams to rectify problems previously encountered at these sites, and further studies. All the important recommendations of the panel were accepted by OIPD and have been implemented. Although other problems may still emerge before all investigations are complete, none is foreseen that might pose a threat to the feasibility of the project. OIPD has appointed a Board of Consultants, consisting of independent experts, to review the designs of the dams and structures and conduct periodic reviews during the period of construction. Periodic inspections of the dams and structures will also be carried out after the project is in operation, and during negotiations details of OIPD's dam safety inspection procedures were provided to the Bank Group and found acceptable (Section 3.02 of Project Agreement).

57. A considerable amount of preliminary work on the project has already been completed. Tenders for the major items such as the dams, turbines and generators are scheduled to be awarded by the end of 1983. Commissioning of the four turbo-generator units is scheduled to occur between September 1988 and April 1990. Commissioning of the first unit will take place a year before the masonry dams are complete. Construction of the system of irrigation canals downstream of the power station has not been provided for in the project and has not yet been scheduled in detail, but will proceed as rapidly as funds can be made available for it.

58. Following the commissioning of the fourth generating unit of the hydro-electric plant in April 1990, the facilities will be transferred from OIPD to OSEB, who will assume responsibility for their subsequent operation and maintenance. OSEB already operates a number of hydro-electric projects constructed by OIPD. The dam structures built under the project will remain under the control of GOO, and OSEB will pay half the cost of dam maintenance. Power generated by the plant prior to the transfer of the facilities to OSEB will be purchased by OSEB, although GOO has not yet decided upon the terms to be applied. Water releases from the project will be governed mainly by irrigation requirements once the downstream irrigation works have been built, so it will be necessary to ensure that water releases will be adequate for power generation requirements. Accordingly, GOO will ensure that the Upper Indravati power station will be permitted water releases sufficient to generate energy and peak power appropriate to the electrical demand in all months of the year (Section 3.05 of Project Agreement).

#### Land Acquisition

59. Almost all of the major structures included in the project are located on State-owned land. The State may also expropriate land where

necessary. The areas to be flooded in the formation of the reservoir can be acquired, and other land is available for persons displaced. About 20,000 people in 105 villages will be displaced by the reservoir and will be resettled in the general area of the project. They will be compensated with homestead and agricultural land, and provided with transport to the new location, in accordance with guidelines formulated by the Orissa authorities. Details of these guidelines were provided to the Bank Group during negotiations and were found satisfactory. OIPD will formulate a resettlement plan and implementation schedule based upon the guidelines at least two years before submergence of any land in the project area (Section 3.03 of Project Agreement). Funds have been provided in the cost estimates for resettlement purposes, and no problems are foreseen.

### Ecology

60. The Environmental Appraisal Committee within GOI's Department of Science and Technology has studied the project, and its recommendations will be followed. In conjunction with the Soil Conservation and Agriculture Departments, OIPD will undertake a comprehensive afforestation program in the catchment area to replace lost forest and reduce sedimentation in the reservoir. No rare or endangered species are found in the area, and the plentiful water in the reservoir is expected to benefit wildlife.

### Project Cost and Financing

61. The total cost of the project, including contingencies but excluding about US\$27 million in taxes and duties, is estimated at about US\$479 million equivalent, of which about US\$108 million (22%) represents the estimated foreign exchange costs. A capitalized front end fee on the proposed IBRD loan adds approximately a further US\$0.4 million (US\$390,025) to the financing required. The principal cost components, net of physical and price contingencies, are: land and preliminary works US\$16.2 million; dams, reservoir and associated structures US\$94.3 million; power station US\$92.5 million; channels, tunnels and penstocks US\$48.6 million; engineering and administration US\$32.5 million; quarters and buildings US\$13.7 million; and other components US\$15.9 million. The project cost estimates are based on 1982 prices. Price contingencies, amounting to about 38% of base cost, are based on expected inflation rates of 8.5% for 1982/83, 8.0% for 1983/84, 7.5% for 1984/85, 7.0% for 1985/86, and 6.0% thereafter, for both local and foreign costs. Physical contingencies of about 15% on civil works and 10% on mechanical and electrical equipment have been allowed, amounting to about 14% of base cost.

62. The proposed Bank loan of US\$156.4 million (including the capitalized front end fee of about US\$0.4 million) and IDA credit of SDR 156 million (US\$170 million equivalent) will finance all of the foreign

exchange costs of about US\$108 million and about US\$218 million of the local costs, and will cover about 68% of the total project cost net of taxes and duties. The balance of the funds required, aggregating about US\$180 million equivalent, will be provided by GOO from its own resources. The proceeds of the proposed loan and credit will be made available by GOI to GOO through its allocation to State funds as part of its normal assistance to the States for development projects. The exchange and interest rate risks will be borne by the Government of India.

#### Procurement and Disbursement

63. The main project components, including the dams, dykes, link channels, tunnels, penstocks, powerhouse, tailrace canal, and the electrical and mechanical equipment for the powerhouse and associated structures, will be covered by about twenty-six separate contracts, valued at about US\$324 million equivalent. Most of these will require both supply and erection or construction by the contractor. Fourteen of these contracts, amounting to about US\$293 million equivalent and covering the major works, will be awarded on the basis of international competitive bidding and have been packaged so as to be suitable for this purpose. The remaining twelve contracts and others not lending themselves to ICB, amounting to about US\$49 million equivalent, will be awarded using OIPD's local competitive bidding procedures, which are satisfactory. Such contracts will cover civil works for link channels, dykes, headrace channel, approach channel, power house excavation, access roads, site buildings, staff quarters and power distribution in the area of the project, and tools, plant, miscellaneous equipment and materials up to an aggregate amount of US\$14 million equivalent. Indian tenderers competing under international competitive bidding will be granted preference margins of the lesser of 15% or the current rate of import duty in respect of equipment contracts, and 7-1/2% of civil works contracts, and are expected to win most of the contract awards. Contracts of more than US\$500,000 equivalent will be subject to prior review by the Bank Group. The proceeds of the loan and credit will be disbursed over an eight-year period (FY84-FY91), and will cover 100% of the c.i.f. cost of imported goods or of the ex-factory cost of goods manufactured in India, and 85% of expenditures on civil works. By the end of the sixth year, over 96% of the proceeds of the loan and credit will have been disbursed. Expenditures amounting to about 10% of the total project cost have already been incurred in the early preparation work for the project. Expenditures incurred since April 1, 1982 and prior to loan and credit signing, covering such works as dam and power house excavation, and construction of quarters, buildings, access roads and bridges, will be financed retroactively up to an amount of US\$10 million equivalent (SDR 9.2 million), representing about 2% of the total project cost (Schedule 1, para 4 of Development Credit Agreement).

The Orissa State Electricity Board (OSEB)

64. OSEB was constituted in 1961 under the Electricity (Supply) Act, 1948 and is responsible for the generation, transmission and distribution of electricity throughout the State of Orissa. OSEB constructs and operates thermal generating stations, and operates hydro-electric stations constructed by OIPD. OSEB is not fully autonomous, however, since it is controlled by GOO in matters of staff conditions of service, accounting, borrowing and tariff-setting. OSEB's capital investment program is determined within the overall State and national planning framework.

65. OSEB is a corporate body consisting of seven members including a full time Chairman and three full-time members for Generation, for Transmission, Distribution and Commercial matters, and for Finance. The other three members of the Board are part time and comprise GOO's Secretary, Finance Department; Secretary, Irrigation and Power Department; and Chief Engineer Electricity/Electrical Projects. The first two full-time members are experienced Chief Engineers drawn from the State cadre, and the Finance Member is usually drawn from the State finance service. OSEB is divided for management purposes into 14 circles, each headed by a Superintending Engineer, who is responsible for three or four operating Divisions (67 in total), each of which is headed by an Executive Engineer. Accounting staff operate at headquarters and at the Divisional level, which is the primary cost and revenue earning center.

66. The management of OSEB is drawn from the engineering cadre, who tend to devote their time primarily to engineering activities, while such areas as meter reading, billing, consumer accounts and connection procedures have not had in the past the attention they deserve. However, a start has been made on tackling these problems and OSEB has retained accounting consultants to overhaul its procedures in these areas (para 74).

67. In the area of plant operations, the State's only thermal power plant--at Talcher--which has been in operation for 14 years, has proved unreliable in the past in providing base load service, primarily because of the poor quality of the coal used and the resultant heavy wear on the coal and ash handling plant. Plant management has been so occupied with the operations and maintenance problems that little attention has been given to the plant's thermal performance. However, OSEB now has in progress a program of actions designed to alleviate or rectify the major problems at the Talcher plant. A further important aspect of plant operations, utility management, that has not been receiving due attention in OSEB is the control of energy losses, which have been reported in recent years as about 20% of energy generated. There are serious difficulties in approaching this problem, such as a widespread lack of metering, and the evident unreliability at present of OSEB's statistics for sales and unaccounted energy. OSEB has recently established a special cell to tackle

this problem, and studies are being carried out. OSEB will produce a long-term action program by March 31, 1984 designed to reduce energy losses to acceptable levels, and will implement the required measures from fiscal year 1984/85 (Section 3.14 of Project Agreement).

68. OSEB's accounting system follows the lines of the Public Works Accounts code, with some modifications, with its emphasis on "authorization" of expenditure rather than upon management information. Under the Third Rural Electrification Project, OSEB agreed to introduce, from April 1, 1984, a common system of commercial accounting, which is presently under preparation by consultants appointed by GOI. At negotiations, this agreement was reconfirmed (Section 3.12 of Project Agreement).

69. OSEB appointed, in 1982, a firm of chartered accountants to examine OSEB's accounting arrangements and to bring accounting work up to date. Progress has been good. However, during the latter part of 1983/84 intensive preparation and staff training for the introduction of the new commercial accounting system will be needed and during 1984/85 its introduction and operation will require careful monitoring. Audited accounts for 1982/83 and 1983/84 will also have to be prepared during this period, under the existing accounting system. Thereafter, the first annual accounts based upon the new system will require timely preparation. OSEB will retain the services of qualified and experienced accounting consultants to assist in the above tasks (Section 3.10 of Project Agreement).

#### OSEB Finances

##### (a) Financial Performance

70. The financial operations of SEBs are regulated by the provisions of the Electricity (Supply) Act 1948, as amended from time to time. In June 1978, after intensive consultation with the Bank Group, several amendments to the financial provisions of the 1948 Act were enacted so as to enable the SEBs to reorganize their finances along commercial lines, primarily through the introduction of the concepts of reasonable contribution to investment and of equity share capital. There has been little attempt by the States to give practical effect to these measures. Equity capital has not been introduced to the SEBs and States have not specified the surplus to be earned by their SEBs. Furthermore, certain anomalies remaining in the Act prevent SEBs from operating in accordance with commercial accounting principles. To some extent GOI initiatives were awaiting the publication of the recommendations of the Committee on Power, which is the subject of a continuing dialogue between GOI and the States. In the meantime the Bank Group has continued to press for major reform of SEB finances and, during the processing of the Third Rural Electrification Project, reached agreement with GOI concerning: (a) the introduction of a uniform commercial accounting system of SEBs throughout India;

(b) improved financial performance by SEBs, measured in terms of achieving not less than a 20% contribution to investment annually from 1982/83; and  
(c) the limitation of subsidies paid by the States to their SEBs, in respect of rural electrification losses, to a reasonable proportion of an SEB's sales revenues.

71. GOI has made encouraging progress with the State Governments and their SEBs in respect of the above agreements. Financial consultants are already working on the preparation of a commercial accounting system; CEA finance staff has been strengthened and several States have already indicated their agreement to the above principles. In particular, to fulfill the requirements for participation in the Third Rural Electrification Project, the Government of Orissa and OSEB have given formal undertakings to GOI to introduce the commercial accounting system, to achieve the required contribution to investment, and to limit the rural electrification subsidies. These agreements were reconfirmed during negotiations (paras 68, 75). Furthermore, following discussions with the Bank Group, GOI has now prepared a series of further amendments to the 1948 Act to remove the remaining legal obstacles to the operation of SEB finances along commercial lines. These amendments have been submitted to Cabinet for review and approval.

72. OSEB was required, under Bank Group lending operations prior to the Third Rural Electrification Project, to achieve a rate of return of at least 9.5% on its average net fixed assets in operation. Prior to 1980/81 OSEB consistently fell short of this target. Net income was insufficient to meet interest on borrowings. A rate of return of 11%-12% would have been required for OSEB to meet its interest obligations in full. OSEB has now been able to resolve certain difficulties with major industrial consumers and substantial tariff increases have occurred since 1978/79 which have led to improved financial performance (para 75).

73. OSEB's finances have been supported to an extent by subsidy paid by the State Government in respect of rural electrification losses. Recent investigations of OSEB's accounts indicate that such losses probably have been overstated and that, in future, OSEB would not require any such subsidy to achieve the recently-agreed 20% cash generation covenant. In 1980/81, net cash generation equivalent to about 25% of capital investment was achieved, after capitalization of interest is taken into account.

(b) Billing and Collection

74. OSEB's receivables have ranged in the past from the equivalent of three to six months' billings in respect of electricity sales. At March 31, 1981 such receivables amounted to Rs 300 million. Efforts are now under way to remedy certain deficiencies in the billing system, to strengthen billing, collection and recovery procedures and to incorporate adjustments into the 1981/82 accounts. In particular, OSEB proposes to

transfer the responsibility for the administration of the accounts of about 250 major industrial consumers, who generate some 75-80% of OSEB's revenues, to the Board's headquarters. This will improve accountability and the control of cash flow. Thereafter, with the assistance of the present accounting consultants, efforts will be concentrated upon improving the billing and collection arrangements in respect of the large numbers of small consumers throughout the State. Accordingly, OSEB will, from fiscal year 1983/84 onwards, ensure that the level of its consumer receivables does not exceed the equivalent of three months' billings of electricity sales (Section 3.13 of Project Agreement).

(c) Tariffs

75. OSEB has introduced a series of tariff increases in recent years which have enabled it to improve its financial performance; the operating ratio has improved from 95% in 1978/79 to about 75% in the 1982/83 financial year. The average tariff (inclusive of duties and fuel surcharge) has risen from Rs 0.20/kWh in 1978/79 to Rs 0.37 in 1982/83, a significant achievement. In order to fulfill its obligations under the Third Rural Electrification Project, and to achieve an annual contribution to investment of not less than 20%, OSEB will require an average tariff increase from the present Rs 0.37/kWh to Rs 0.57/kWh by 1989/90, the year of commissioning the Upper Indravati Project. While much of this 54% increase in tariffs would be needed to offset assumed price escalation, an increase of about 15% at constant 1982/83 prices would be required to maintain the 20% contribution to investment. OSEB will review its tariffs annually to ensure that its revenues are sufficient to meet all operating and maintenance costs and full debt service, and to provide a surplus equivalent to not less than 20% of its capital investment (Section 3.15 of Project Agreement). In addition, beginning with fiscal year 1983/84, GOO will limit any annual subsidy to OSEB to the lesser of OSEB's rural electrification losses or an amount equivalent to 10% of OSEB's sales revenues (Section 3.04 of Project Agreement).

76. Average tariffs of OSEB have been rising at a rate of about 20% per year in recent years to a 1982/83 level of 37.0 paise/kWh (USc3.9/kWh). Industrial tariffs, accounting for about 85% of consumption, have been increasing at a comparable rate, while domestic and agricultural tariff levels have decreased in real terms. In general, on the basis of marginal cost-based tariff studies carried out by OSEB in 1981 and Bank staff in 1982, tariffs for high voltage (mostly industrial) consumers range from 50% to 93% of the long-run marginal cost (LRMC) of supply, while low voltage tariffs (particularly those of domestic and agricultural consumers) cover only 25% to 50% of LRMC. Cross subsidization among consumer categories is the policy of OSEB and GOO, and for social and political reasons is unlikely to be abandoned in the near future. Nevertheless, since 85% of OSEB supply goes to high voltage industrial consumers, the overall variation between LRMC and the average



price per kWh is acceptable. However, further improvements to the structure of OSEB tariffs are desirable, and have been discussed with OSEB with the recently updated tariff study in view. Major improvements would include: (a) correction of the distortion that exists in the ratio between demand and energy charges for customers with a two-part tariff; (b) adoption of a system of demand charges such that industrial consumers of lower-voltage supply are subject to higher demand charges than consumers of higher-voltage supply; (c) increase in the level of low-voltage tariffs relative to high-voltage tariffs; (d) modification of the system of domestic tariffs from a decreasing block system to an increasing one; and (e) elimination of the ceiling on total price per kWh for selected categories of consumers under a two-part tariff system. OSEB will accordingly review its tariff situation in light of these proposed modifications and in consultation with GOI introduce improvements to its tariff structure as considered appropriate (Section 3.16 of Project Agreement).

(d) Transfer of Upper Indravati Hydro-Electric Station to OSEB

77. The value of the assets to be transferred to OSEB upon commissioning of the hydro-electric station under the project will be equivalent to the full cost of the identifiable power components, together with 50% of the reservoir costs. This apportionment of costs is based upon GOO studies of the respective power and irrigation benefits and is reasonable. State Government projects are financed from budgetary grants, rather than from loans, and as no direct interest cost is incurred, there is no capitalization of interest during the construction period. However, OSEB will be required to assume and service a loan equivalent to the value of the assets transferred on the above basis, including an imputed amount for interest during construction. The loan will be repaid over 25 years with interest at the higher of 7.5% (OSEB's forecast average borrowing rate at the expected date of transfer), or GOO's then current lending rate to OSEB. However, in view of the fact that the Electricity (Supply) Act is being amended, these terms and conditions will be subject to the provisions of the Act as amended at the time of transfer (Section 3.08 of Project Agreement).

(e) Financing Plan

78. OSEB will not contribute directly to the cost of the project, although through a combination of tariffs and duties its consumers are expected to contribute the equivalent of about 47% (Rs 5,688 million) of the combined GOO and OSEB investment of Rs 12,135 million in the power sector through 1989/90. OSEB will, however, share the costs of maintenance of the major dams associated with the hydro-electric station, although these remain the responsibility of GOO.

79. OSEB's financial requirements for the period 1982/83 through 1989/90 (the project construction period) are estimated at Rs 7,724

million. About 79% (Rs 6,090 million) of this amount will have to be borrowed by OSEB through 1989/90 from GOO or other institutional sources. Such funds would be made available to OSEB under the Sixth and Seventh Five Year Plans in respect of capital expenditures sanctioned by GOI. OSEB's capital structure, and in particular the introduction of equity share capital, will be the subject of future discussions with GOI and GOO.

(f) Future Finances

80. Financial projections for OSEB prepared in cooperation with CEA and covering the period 1982/83 through 1991/92 indicate a satisfactory trend, assuming that tariffs are adjusted as necessary to maintain a 20% contribution to investment. The operating ratio is reasonably stable, at around 76%, as is the debt service coverage, at about 1.3 times. Tariffs would increase from Rs 0.37 per kWh in 1982/83 to Rs 0.58 per kWh in 1991/92.

Project Justification and Risks

81. The proposed project is justified as the least-cost solution for providing up to 600 incremental MW and about 1,900 incremental GWh per year in the Eastern Region grid. Compared to the only practical alternative--an extension of the existing pit-head Talcher thermal power station--the proposed project has the lowest present-value cost at any discount rate within a reasonable range. The economic rate of return for the project, using average retail tariffs and quantifiable consumers' surplus as benefit proxies for consumers' willingness to pay for continuous power supply, is about 12%. This must be regarded as well below the true economic rate of return for the project, since additional expected benefits from the project which are difficult to quantify--for example, the derived consumers' and producers surpluses of industrial, agricultural, and commercial output made possible by the alleviation of power shortages--are not included.

82. There appear to be no risks other than those normally associated with this type of project. The major structures are all of types that have been frequently and customarily built in the past, and there is adequate understanding and experience of their design and construction. No earthquake of any significance has been recorded in the area, and there is no known fault or fracture zone in the vicinity of the dams. Further surveys have still to be made to confirm that there will be no significant leakage from the reservoir and more detailed studies of siltation to be expected in the reservoir are required, but these considerations do not pose a threat to the project.

PART V - LEGAL INSTRUMENTS AND AUTHORITY

83. The draft Loan Agreement between India and the Bank, the draft Development Credit Agreement between India and the Association, the draft Project Agreement between the Bank, the Association and the State of Orissa, the Report of the Committee provided for in Article III, Section 4(iii) of the Articles of the Agreement of the Bank, and the Recommendation of the Committee provided for in Article V, Section 1(d) of the Articles of Agreement of the Association are being distributed to the Executive Directors separately.

84. Special conditions of the project are listed in Section III of Annex III. Receipt of the report resulting from the review of construction management and accounting procedures of the Orissa Irrigation and Power Department is a condition of effectiveness of the loan and credit (Section 5.01(a) of Development Credit Agreement).

85. I am satisfied that the proposed loan and credit would comply with the Articles of Agreement of the Bank and the Association.

PART VI - RECOMMENDATION

86. I recommend that the Executive Directors approve the proposed Loan and Credit.

A. W. Clausen  
President

by

E. Stern

April 18, 1983



INDIA - SOCIAL INDICATORS DATA SHEET

AREA (THOUSAND SQ. KM.)	INDIA			REFERENCE GROUPS (WEIGHTED AVERAGES)	
	MOST RECENT ESTIMATE <sup>a</sup>			LOW INCOME ASIA & PACIFIC	MIDDLE INCOME ASIA & PACIFIC
	1960	/b	1970		
TOTAL	3287.6				
AGRICULTURAL	1818.2				
GNP PER CAPITA (US\$)	70.0	110.0	240.0	261.4	890.1
ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF COAL EQUIVALENT)	111.2	152.5	194.4	448.7	701.7
POPULATION AND VITAL STATISTICS					
POPULATION, MID-YEAR (THOUS.)	434850.0	547569.0	673207.0	.	.
URBAN POPULATION (PERCENT OF TOTAL)	17.9	19.7	22.3	17.3	32.4
POPULATION PROJECTIONS					
POPULATION IN YEAR 2000 (MILLIONS)			994.1	.	.
STATIONARY POPULATION (MILLIONS)			1694.4	.	.
YEAR STATIONARY POPULATION IS REACHED			2115	.	.
POPULATION DENSITY					
PER SQ. KM.	132.3	166.6	200.6	158.1	255.9
PER SQ. KM. AGRICULTURAL LAND	247.0	307.8	362.8	355.9	1748.0
POPULATION AGE STRUCTURE (PERCENT)					
0-14 YRS.	40.9	42.7	40.2	36.8	39.9
15-64 YRS.	54.5	54.2	56.8	59.7	56.8
65 YRS. AND ABOVE	4.6	3.1	3.0	3.5	3.3
POPULATION GROWTH RATE (PERCENT)					
TOTAL	1.8	2.3	2.1	2.0	2.3
URBAN	2.5	3.3	3.3	3.3	3.9
CRUDE BIRTH RATE (PER THOUSAND)					
CRUDE DEATH RATE (PER THOUSAND)	43.7	40.0	35.6	29.3	31.8
GROSS REPRODUCTION RATE	21.8	16.7	13.6	11.0	9.8
FAMILY PLANNING	2.9	2.7	2.4	2.0	2.0
ACCEPTORS, ANNUAL (THOUSANDS)	64.0	3782.0	5619.0	.	.
USERS (PERCENT OF MARRIED WOMEN)	..	12.0	22.6	19.3	36.3
FOOD AND NUTRITION					
INDEX OF FOOD PRODUCTION PER CAPITA (1969-71=100)					
	98.0	102.0	99.0	108.1	115.6
PER CAPITA SUPPLY OF					
CALORIES (PERCENT OF REQUIREMENTS)					
	95.6	90.4	88.8/c	97.3	106.4
PROTEINS (GRAMS PER DAY)					
	53.6	49.7	48.4/c	56.9	54.4
OF WHICH ANIMAL AND PULSE					
	17.2	14.8	13.1/c	20.0	13.9
CHILD (AGES 1-4) MORTALITY RATE	26.2	20.7	17.4	10.9	6.7
HEALTH					
LIFE EXPECTANCY AT BIRTH (YEARS)					
	43.2	48.1	51.8	57.8	59.8
INFANT MORTALITY RATE (PER THOUSAND)					
	165.0	139.0	123.4	89.1	63.7
ACCESS TO SAFE WATER (PERCENT OF POPULATION)					
TOTAL	..	17.0	33.0	32.9	32.0
URBAN	..	60.0	83.0	70.7	51.9
RURAL	..	6.0	20.0	22.2	20.5
ACCESS TO EXCRETA DISPOSAL (PERCENT OF POPULATION)					
TOTAL	..	18.0	20.0	18.1	37.7
URBAN	..	85.0	87.0	72.7	65.7
RURAL	..	1.0	2.0	4.7	24.0
POPULATION PER PHYSICIAN	4850.4	4889.0	3630.6	3297.8	8540.4
POPULATION PER NURSING PERSON	10975.3/d	8296.5	5696.1	4929.3	4829.4
POPULATION PER HOSPITAL BED					
TOTAL	2178.7	1612.9	1311.0/e	1100.4	1047.5
URBAN	..	..	362.3/e	301.3	651.6
RURAL	..	..	10432.8/e	5815.7	2597.6
ADMISSIONS PER HOSPITAL BED	..	..	..	..	27.0
HOUSING					
AVERAGE SIZE OF HOUSEHOLD					
TOTAL	5.2	5.6	5.2	..	..
URBAN	5.2	5.6	4.8	..	..
RURAL	5.2	5.6	5.3	..	..
AVERAGE NUMBER OF PERSONS PER ROOM					
TOTAL	2.6	2.8	..	..	..
URBAN	2.6	2.8	..	..	..
RURAL	2.6	2.8	..	..	..
ACCESS TO ELECTRICITY (PERCENT OF DWELLINGS)					
TOTAL	..	..	..	..	..
URBAN	..	..	..	..	..
RURAL	..	..	..	..	..

INDIA - SOCIAL INDICATORS DATA SHEET

	INDIA			REFERENCE GROUPS (WEIGHTED AVERAGES - MOST RECENT ESTIMATE) <sup>/a</sup>	
	1960 <sup>/b</sup>	1970 <sup>/b</sup>	MOST RECENT ESTIMATE <sup>/b</sup>	LOW INCOME ASIA & PACIFIC	MIDDLE INCOME ASIA & PACIFIC
<b>EDUCATION</b>					
<b>ADJUSTED ENROLLMENT RATIOS</b>					
PRIMARY: TOTAL	61.0	73.0	78.0/ <sup>e</sup>	97.4	96.2
MALE	80.0	90.0	92.0/ <sup>e</sup>	101.0	99.8
FEMALE	40.0	56.0	63.0/ <sup>e</sup>	87.8	92.1
SECONDARY: TOTAL	20.0	26.0	27.0/ <sup>e</sup>	53.0	37.6
MALE	30.0	36.0	36.0/ <sup>e</sup>	63.8	41.1
FEMALE	10.0	15.0	17.0/ <sup>e</sup>	41.3	34.1
VOCATIONAL ENROL. (% OF SECONDARY)	8.0	1.0	0.7/ <sup>g</sup>	1.7	20.8
<b>PUPIL-TEACHER RATIO</b>					
PRIMARY	46.1	41.5	51.8/ <sup>e</sup>	37.7	35.5
SECONDARY	16.0	20.9	..	20.2	25.0
ADULT LITERACY RATE (PERCENT)	28.0	33.4	36.0	52.1	73.1
<b>CONSUMPTION</b>					
<b>PASSENGER CARS PER THOUSAND POPULATION</b>					
	0.6	1.1	1.3/ <sup>e</sup>	1.5	9.8
<b>RADIO RECEIVERS PER THOUSAND POPULATION</b>					
	4.9	21.5	33.6	35.4	116.5
<b>TV RECEIVERS PER THOUSAND POPULATION</b>					
	0.0	0.0	1.0	3.2	37.6
<b>NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION</b>					
	10.6	16.0	19.8	16.4	53.7
<b>CINEMA ANNUAL ATTENDANCE PER CAPITA</b>					
	4.1	4.1	3.7	3.6	2.8
<b>LABOR FORCE</b>					
TOTAL LABOR FORCE (THOUSANDS)	185951.1	219194.2	264204.4	.	.
FEMALE (PERCENT)	30.7	32.5	31.8	29.5	33.6
AGRICULTURE (PERCENT)	74.0	74.0	69.3	70.0	52.2
INDUSTRY (PERCENT)	11.0	11.0	13.2	15.0	17.9
<b>PARTICIPATION RATE (PERCENT)</b>					
TOTAL	42.8	40.0	39.2	40.0	38.5
MALE	57.0	52.4	51.8	51.8	50.5
FEMALE	27.3	26.9	25.9	23.8	26.6
ECONOMIC DEPENDENCY RATIO	1.1	1.1	1.1	1.0	1.1
<b>INCOME DISTRIBUTION</b>					
<b>PERCENT OF PRIVATE INCOME RECEIVED BY</b>					
HIGHEST 5 PERCENT OF HOUSEHOLDS	26.7	26.3/ <sup>g</sup>	22.2/ <sup>f</sup>	..	..
HIGHEST 20 PERCENT OF HOUSEHOLDS	51.7	48.9/ <sup>g</sup>	49.4/ <sup>f</sup>	..	..
LOWEST 20 PERCENT OF HOUSEHOLDS	4.1	6.7/ <sup>g</sup>	7.0/ <sup>f</sup>	..	..
LOWEST 40 PERCENT OF HOUSEHOLDS	13.6	17.2/ <sup>g</sup>	16.2/ <sup>f</sup>	..	..
<b>POVERTY TARGET GROUPS</b>					
<b>ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US\$ PER CAPITA)</b>					
URBAN	..	..	132.0	133.8	194.7
RURAL	..	..	114.0	111.1	155.1
<b>ESTIMATED RELATIVE POVERTY INCOME LEVEL (US\$ PER CAPITA)</b>					
URBAN	..	..	..	..	178.2
RURAL	..	..	..	..	164.9
<b>ESTIMATED POPULATION BELOW ABSOLUTE POVERTY INCOME LEVEL (PERCENT)</b>					
URBAN	..	..	40.3	43.8	24.4
RURAL	..	..	50.7	51.7	41.1

.. Not available  
. Not applicable.

NOTES

<sup>/a</sup> The group averages for each indicator are population-weighted arithmetic means. Coverage of countries among the indicators depends on availability of data and is not uniform.

<sup>/b</sup> Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate, between 1978 and 1980.

<sup>/c</sup> 1977; <sup>/d</sup> 1962; <sup>/e</sup> 1976; <sup>/f</sup> 1975; <sup>/g</sup> 1964-65.

DEFINITIONS OF SOCIAL INDICATORS

Notes: Although the data are drawn from sources generally judged the most authoritative and reliable, it should also be noted that they may not be internationally comparable because of the lack of standardized definitions and concepts used by different countries in collecting the data. The data are, nonetheless, useful to describe orders of magnitude, indicate trends, and characterize certain major differences between countries.

The reference groups are (1) the same country group of the subject country and (2) a country group with somewhat higher average income than the country group of the subject country (except for "High Income Oil Exporters" group where "Middle Income North Africa and Middle East" is chosen because of stronger socio-cultural affinities). In the reference group data the averages are population weighted arithmetic means for each indicator and shown only when majority of the countries in a group has data for that indicator. Since the coverage of countries among the indicators depends on the availability of data and is not uniform, caution must be exercised in relating averages of one indicator to another. These averages are only useful in comparing the value of one indicator at a time among the country and reference groups.

AREA (thousand sq.km.)

Total - Total surface area comprising land area and inland waters; 1979 data.  
Agricultural - Estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to lie fallow; 1979 data.

GNP PER CAPITA (US\$) - GNP per capita estimates at current market prices, calculated by same conversion method as World Bank Atlas (1978-80 basis); 1960, 1970, and 1980 data.

ENERGY CONSUMPTION PER CAPITA - Annual consumption of commercial energy (coal and lignite, petroleum, natural gas and hydro-, nuclear and geothermal electricity) in kilograms of coal equivalent per capita; 1960, 1970, and 1979 data.

POPULATION AND VITAL STATISTICS

Total Population, Mid-Year (thousands) - As of July 1; 1960, 1970, and 1980 data.

Urban Population (percent of total) - Ratio of urban to total population; different definitions of urban areas may affect comparability of data among countries; 1960, 1970, and 1980 data.

Population Projections

Population in year 2000 - Current population projections are based on 1980 total population by age and sex and their mortality and fertility rates. Projection parameters for mortality rates comprise of three levels assuming life expectancy to be increasing with country's per capita income level, and female life expectancy stabilizing at 77.5 years. The parameters for fertility rate also have three levels assuming decline in fertility according to income level and past family planning performance. Each country is then assigned one of these nine combinations of mortality and fertility trends for projection purposes.

Stationary population - In a stationary population there is no growth since the birth rate is equal to the death rate, and also the age structure remains constant after fertility rates decline to the replacement level of unit net reproduction rate, when each generation of women replaces itself exactly. The stationary population size was estimated on the basis of the projected characteristics of the population in the year 2000, and the rate of decline of fertility rate to replacement level.

Year stationary population is reached - The year when stationary population size will be reached.

Population Density

Per sq. km. - Mid-year population per square kilometer (100 hectares) of total area; 1960, 1970 and 1979 data.  
Per sq. km. agricultural land - Computed as above for agricultural land only; 1960, 1970 and 1979 data.

Population Age Structure (percent) - Children (0-14 years), working-age (15-64 years), and retired (65 years and over) as percentages of mid-year population; 1960, 1970, and 1980 data.

Population Growth Rate (percent) - total - Annual growth rates of total mid-year population for 1950-60, 1960-70, and 1970-80.

Population Growth Rate (percent) - urban - Annual growth rates of urban populations for 1950-60, 1960-70, and 1970-80.

Crude Birth Rate (per thousand) - Annual live births per thousand of mid-year population; 1960, 1970, and 1980 data.

Crude Death Rate (per thousand) - Annual deaths per thousand of mid-year population; 1960, 1970, and 1980 data.

Gross Reproduction Rate - Average number of 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 1980.

Family Planning - Acceptors, Annual (thousands) - Annual number of acceptors of birth-control devices under auspices of national family planning program.

Family Planning - Users (percent of married women) - Percentage of married women of child-bearing age (15-44 years) who use birth-control devices to all married women in same age group.

FOOD AND NUTRITION

Index of Food Production per Capita (1969-71=100) - Index of per capita annual production of all food commodities. Production excludes seed and feed and is on calendar year basis. Commodities cover primary goods (e.g. sugarcane instead of sugar) which are edible and contain nutrients (e.g. coffee and tea are excluded). Aggregate production of each country is based on national average producer price weights; 1961-65, 1970, and 1980 data.

Per capita supply of calories (percent 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 distribution of population, and allowing 10 percent for waste at household level; 1961-65, 1970 and 1977 data.

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 provide for minimum allowances 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; 1961-65, 1970 and 1977 data.

Per capita protein supply from animal and pulse - Protein supply of food derived from animals and pulses in grams per day; 1961-65, 1970 and 1977 data.  
Child (ages 1-4) Death Rate (per thousand) - Annual deaths per thousand in age group 1-4 years, to children in this age group; for most developing countries data derived from life tables; 1960, 1970 and 1980 data.

HEALTH

Life Expectancy at Birth (years) - Average number of years of life remaining at birth; 1960, 1970 and 1980 data.

Infant Mortality Rate (per thousand) - Annual deaths of infants under one year of age per thousand live births; 1960, 1970 and 1980 data.

Access to Safe Water (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) with reasonable access to safe water supply (includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs, and sanitary wells) as percentages of their respective populations. In an urban area a public fountain or standpost located not more than 200 meters from a house may be considered as being within reasonable access of that house. In rural areas reasonable access would imply that the housewife or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs.

Access to Excreta Disposal (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) served by excreta disposal as percentages of their respective populations. Excreta disposal may include the collection and disposal, with or without treatment, of human excreta and waste-water by water-borne systems or the use of pit privies and similar installations.

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

Population per Visited Person - Population divided by number of practising male and female graduate nurses, assistant nurses, practical nurses and nursing auxiliaries.

Population per Hospital Bed - total, urban, and rural - Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private general and specialized hospital and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally convalescent care are not included. Rural hospitals, however, include health and medical centers not permanently staffed by a physician (but by a medical assistant, nurse, midwife, etc.) which offer in-patient accommodation and provide a limited range of medical facilities. For statistical purposes urban hospitals include WHO's principal/general hospitals, and rural hospitals, local or rural hospitals and medical and maternity centers. Specialized hospitals are included only under total.

Admissions per Hospital Bed - Total number of admissions to or discharges from hospitals divided by the number of beds.

HOUSING

Average Size of Household (persons per household) - total, urban, and rural - A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes.

Average number of persons per room - total, urban, and rural - average number of persons per room in all urban, and rural occupied conventional dwellings, respectively. Dwellings exclude non-permanent structures and unoccupied parts.

Access to Electricity (percent of dwellings) - total, urban, and rural - Conventional dwellings with electricity in living quarters as percentage of total, urban, and rural dwellings respectively.

EDUCATION

Adjusted Enrollment Ratios

Primary school - total, male and female - Gross total, male and female enrollment of all ages at the primary level as percentages of respective primary school-age populations; normally includes children aged 6-11 years but adjusted for different lengths of primary education; for countries with universal education enrollment may exceed 100 percent since some pupils are below or above the official school age.

Secondary school - total, male and female - Computed as above; secondary education requires at least four years of approved primary instruction; provides general, vocational, or teacher training instructions for pupils usually of 12 to 17 years of age; correspondence courses are generally excluded.

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

Pupil-teacher ratio - primary, and secondary - Total students enrolled in primary and secondary levels divided by numbers of teachers in the corresponding levels.

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

CONSUMPTION

Passenger Cars (per thousand population) - Passenger cars comprise motor cars seating less than eight persons; excludes ambulances, hearses and military vehicles.

Radio Receivers (per thousand population) - 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.

TV Receivers (per thousand population) - TV receivers for broadcast to general public per thousand population; excludes unlicensed TV receivers in countries and in years when registration of TV sets was in effect.

Newspaper Circulation (per thousand population) - Shows the average circulation of "daily general interest newspaper", defined as a periodical publication devoted primarily to recording general news. It is considered to be "daily" if it appears at least four times a week.

Cinema Annual Attendance per Capita per Year - Based on the number of tickets sold during the year, including admissions to drive-in cinemas and mobile units.

LABOR FORCE

Total Labor Force (thousands) - Economically active persons, including armed forces and unemployed but excluding housewives, students, etc., covering population of all ages. Definitions in various countries are not comparable; 1960, 1970 and 1980 data.

Female (percent) - Female labor force as percentage of total labor force.

Agriculture (percent) - Labor force in farming, forestry, hunting and fishing as percentage of total labor force; 1960, 1970 and 1980 data.

Industry (percent) - Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force; 1960, 1970 and 1980 data.

Participation Rate (percent) - total, male, and female - Participation or activity rates are computed as total, male, and female labor force as percentages of total, male and female population of all ages respectively; 1960, 1970, and 1980 data. These are based on ILO's participation rates reflecting age-sex structure of the population, and long time trend. A few estimates are from national sources.

Economic Dependency Ratio - Ratio of population under 15 and 65 and over to the total labor force.

INCOME DISTRIBUTION

Percentage of Private Income (both in cash and kind) - Received by richest 5 percent, richest 20 percent, poorest 20 percent, and poorest 40 percent of households.

POVERTY TARGET GROUPS

The following estimates are very approximate measures of poverty levels, and should be interpreted with considerable caution.

Estimated Absolute Poverty Income Level (US\$ per capita) - urban and rural - Absolute poverty income level is that income level below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable.

Estimated Relative Poverty Income Level (US\$ per capita) - urban and rural - Rural relative poverty income level is one-third of average per capita personal income of the country. Urban level is derived from the rural level with adjustment for higher cost of living in urban areas.

Estimated Population Below Absolute Poverty Income Level (percent) - urban and rural - Percent of population (urban and rural) who are "absolute poor".

ECONOMIC DEVELOPMENT DATA

<sup>g/</sup>  
GNP PER CAPITA IN 1980 US\$ 240

GROSS NATIONAL PRODUCT IN 1980/81 <sup>b/</sup>	ANNUAL RATE OF GROWTH (% constant prices) <sup>e/</sup>						
	US\$ Bln.	%	1955/56-1959/60	1960/61-1964/65	1965/66-1969/70	1970/71-1974/75	1975/76-1979/80
GNP at Market Prices	159.37	100.0	3.7	3.6	3.6	2.9	4.1
Gross Domestic Investment	38.46	24.1					
Gross National Saving	35.30	22.1					
Current Account Balance	-3.16	-2.0					

OUTPUT, LABOR FORCE AND PRODUCTIVITY IN 1978

	Value Added (at factor cost)		Labor Force <sup>i/</sup>		V.A. Per Worker	
	US\$ Bln.	%	Mil.	%	US\$	% of National Average
Agriculture	39.8	39.6	180.6	70.7	220	56
Industry	25.2	25.1	32.2	12.6	783	199
Services	35.5	35.3	42.6	16.7	833	211
Total/Average	100.5	100.0	255.4	100.0	394	100

GOVERNMENT FINANCE

	General Government <sup>e/</sup>			Central Government		
	Rs. Bln. 1980/81	% of GDP		Rs. Bln. 1980/81	% of GDP	
		1980/81	1976/77-1980/81		1980/81	1976/77-1980/81
Current Receipts	238.19	19.0	19.1	125.41	10.0	10.6
Current Expenditures	238.93	19.0	18.0	133.29	10.6	10.6
Current Surplus/Deficit	-0.74	-0.1	1.1	- 7.88	- 0.6	N.S.
Capital Expenditures <sup>f/</sup>	107.35	8.5	7.6	79.99	6.4	5.4
External Assistance (net) <sup>d/</sup>	12.86	1.0	1.0			

MONEY, CREDIT AND PRICES	1970/71	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	February 1981	February 1982	
		(Rs Billion outstanding at end of period)									
Money and Quasi Money	109.8	194.6	223.2	273.2	329.1	398.6	467.9	553.1	536.13	615.53	
Bank Credit to Government (net)	54.6	95.3	97.9	118.5	137.3	162.4	201.0	258.1	238.22	292.18	
Bank Credit to Commercial Sector	64.6	126.5	153.7	185.1	212.2	253.5	306.3	363.2	349.03	422.15	
		(Percentage or Index Numbers)								April-Feb 1980/81	April-Feb 1981/82
Money and Quasi Money as % of GDP	27.3	28.0	30.1	33.9	40.8	40.9	44.1	44.0			
Wholesale Price Index (1970/71 = 100)	100.0	174.9	173.0	176.6	185.8	185.8	217.6	257.0	255.9	280.5	
Annual percentage changes in:											
Wholesale Price Index	7.7	25.2	-1.1	2.1	5.2	-	17.1	18.1	18.4	9.6	
Bank Credit to Government (net)	15.0	9.2	2.7	21.0	15.9	18.3	23.8	28.4	28.6 <sup>g/</sup>	22.7 <sup>h/</sup>	
Bank Credit to Commercial Sector	19.4	18.2	21.5	20.4	14.6	19.5	20.8	18.6	16.6 <sup>g/</sup>	20.9 <sup>h/</sup>	

<sup>a/</sup> The per capita GNP estimate is at market prices, calculated by the conversion technique used in the World Bank Atlas, '81.

All other conversions to dollars in this table are at the average exchange rate prevailing during the period covered.

<sup>b/</sup> Quick Estimates, Central Statistical Organization.

<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> World Bank estimates; not necessarily consistent with official figures.

<sup>e/</sup> Transfers between Centre and States have been netted out.

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

<sup>g/</sup> Percentage change from end-February, 1980 to end-February 1981.

<sup>h/</sup> Percentage change from end-February, 1981 to end-February 1982.

<sup>i/</sup> Total Labor Force and percentage breakdown from Sixth Five Year Plan, Table 2.6 and Annexure Table 13.8.



BALANCE OF PAYMENTS (US \$ Mln.)	1978/79	1979/80	1980/81	1981/82	MERCHANDISE EXPORTS (AVERAGE 1977/78 - 1980/81)		
					US\$ Mln.	%	
Exports of Goods	6,978	7,998	8,504	8,700	Engineering Goods	908	12
Imports of Goods	-8,519	-11,302	-15,838	-16,000	Tea	506	7
Trade Balance	-1,541	-3,304	-7,334	-7,300	Gems	403	5
NFS (net)	717	1,100	722	915	Clothing	501	7
Resource Balance	-824	-2,204	-6,612	-6,385	Leather and Leather Products	457	6
Interest Income (net) <sup>k/</sup>	14	196	370	212	Jute Manufactures	303	4
Net Transfers <sup>l/</sup>	1,185	1,577	3,079	1,840	Iron Ore	321	4
Balance on Current Account	375	-431	-3,163	-4,333	Cotton Textiles	316	4
Official Aid					Sugar	102	1
Disbursements	1,695	1,738	2,337	2,724	Others	3,541	48
Amortization	-702	-608	-707	-659	<b>Total</b>	<b>7,448</b>	<b>100</b>
Transactions with IMF	-158	-	1,035	690	<b>EXTERNAL DEBT, MARCH 31, 1981</b>		
All Other Items	265	-475	147	-797			<b>US\$ billion</b>
Increase in Reserves (-)	-1,475	-224	351	2,375	Outstanding and Disbursed		17.2
Gross Reserves (end year) <sup>p/</sup>	7,357	7,579	7,228	4,853	Undisbursed		7.5
Net Reserves (end year) <sup>m/</sup>	7,357	7,579	6,901	3,876	Outstanding, including Undisbursed		24.7
Fuel and Related Materials					<b>DEBT SERVICE RATIO FOR 1980/81</b> <sup>j/ n/</sup>		11.2 per cent
Imports (Petroleum)	2,043	4,045	6,657	6,075	<b>IBRD/IDA LENDING, DECEMBER 31, 1981</b>		
Exports	24	26	33	n.a			<b>US\$ million</b>
							<b>IBRD</b> <b>IDA</b>
					Outstanding and Disbursed	984	5646
					Undisbursed	880	4634
					Outstanding, including Undisbursed	1864	10280
<b>RATE OF EXCHANGE</b>							
June 1966 to mid-December 1971	:	US\$1.00 = Rs 7.5 Re 1.00 = US\$0.13333					
Mid-December 1971 to end-June 1972	:	US\$1.00 = Rs 7.27927 Re 1.00 = US\$0.137376					
After end-June 1972	:	Floating Rate					
Spot Rate end-December 1980	:	US\$1.00 = Rs 7.930 Re 1.00 = US\$0.126					
Spot Rate end-December 1981	:	US\$1.00 = Rs 9.099 Re 1.00 = US\$0.110					

<sup>j/</sup> Estimated.

<sup>k/</sup> Figures given cover all investment income (net). Major payments are interest on foreign loans and charges paid to IMF, and major receipt is interest earned on foreign assets.

<sup>l/</sup> Figures given include workers' remittances but exclude official grant assistance, which is included within official aid disbursements.

<sup>m/</sup> Excludes net use of IMF credit.

<sup>n/</sup> Amortization and interest payments on foreign loans as a percentage of exports of goods and services.

<sup>o/</sup> Includes \$ 234 million of commercial borrowings.

<sup>p/</sup> Including gold.



THE STATUS OF BANK GROUP OPERATIONS IN INDIA

A. STATEMENT OF BANK LOANS AND IDA CREDITS  
(As of September 30, 1982)

Loan or Credit No.	Fiscal Year of Approval	Purpose	US\$ million (Net of Cancellations)		
			Bank	IDA 1/	Undisbursed 2/
46 Loans/ 75 Credits fully disbursed			1,568.0	-	-
			-	4,352.4	-
342-IN	1973	Education	-	12.0	0.79
482-IN	1974	Karnataka Dairy	-	30.0	13.36
502-IN	1975	Rajasthan Canal CAD	-	83.0	21.60
521-IN	1975	Rajasthan Dairy	-	27.7	9.78
522-IN	1975	Madhya Pradesh Dairy	-	16.4	1.24
585-IN	1976	Uttar Pradesh Water Supply	-	40.0	10.98
598-IN	1976	Fertilizer Industry	-	105.0	5.95
604-IN	1976	Power Transmission IV	-	150.0	27.19
609-IN	1976	Madhya Pradesh Forestry T.A.	-	4.0	1.19
610-IN	1976	Integrated Cotton Development	-	18.0	8.02
1251-IN	1976	Andhra Pradesh Irrigation	145.0	-	57.10
1260-IN	1976	IDBI II	40.0	-	4.34
1273-IN	1976	National Seeds I	25.0	-	19.47
1313-IN	1977	Telecommunications VI	80.0	-	7.07
1335-IN	1977	Bombay Urban Transport	25.0	-	6.31
680-IN	1977	Kerala Agric. Development	-	30.0	17.07
682-IN	1977	Orissa Agric. Development	-	20.0	4.48
685-IN	1977	Singrauli Thermal Power	-	150.0	14.13
690-IN	1977	WB Agric. Extension & Research	-	12.0	11.80
1394-IN	1977	Gujarat Fisheries	14.0	-	5.86
712-IN	1977	M.P. Agric. Development	-	10.0	2.71
720-IN	1977	Periyar Vaigai Irrigation	-	23.0	11.81

Loan or Credit No.	Fiscal Year of Approval	Purpose	US\$ million (Net of Cancellations)		
			Bank	IDA 1/	Undisbursed 2/
728-IN	1977	Assam Agricultural Development	-	8.0	4.86
736-IN	1978	Maharashtra Irrigation	-	70.0	14.19
737-IN	1978	Rajasthan Agric. Extension	-	13.0	2.47
740-IN	1978	Orissa Irrigation	-	58.0	7.30
1475-IN	1978	Industry DFC XII	78.5	-	4.00
747-IN	1978	Second Foodgrain Storage	-	107.0	71.45
756-IN	1978	Calcutta Urban Development II	-	87.0	10.06
761-IN	1978	Bihar Agric. Extension & Research	-	8.0	6.67
1511-IN	1978	IDBI Joint/Public Sector	25.0	-	7.17
1549-IN	1978	Third Trombay Thermal Power	105.0	-	22.25
788-IN	1978	Karnataka Irrigation	-	117.6	64.06
793-IN	1978	Korba Thermal Power	-	200.0	71.61
806-IN	1978	Jammu-Kashmir Horticulture	-	14.0	11.74
808-IN	1978	Gujarat Irrigation	-	85.0	48.21
815-IN	1978	Andhra Pradesh Fisheries	-	17.5	11.20
816-IN	1978	National Seeds II	-	16.0	12.69
1592-IN	1978	Telecommunications VII	120.0	-	37.00
824-IN	1978	National Dairy	-	150.0	103.36
842-IN	1979	Bombay Water Supply II	-	196.0	174.69
843-IN	1979	Haryana Irrigation	-	111.0	13.07
844-IN	1979	Railway Modernization & Maintenance	-	190.0	97.94
848-IN	1979	Punjab Water Supply & Sewerage	-	38.0	13.19
855-IN	1979	National Agricultural Research	-	27.0	22.28
862-IN	1979	Composite Agricultural Extension	-	25.0	12.16
871-IN	1979	NCDC	-	30.0	10.16
1648-IN	1979	Ramagundam Thermal Power	50.0	-	50.00
874-IN	1979	Ramagundam Thermal Power	-	200.0	101.84
889-IN	1979	Punjab Irrigation	-	129.0	80.38
899-IN	1979	Maharashtra Water Supply	-	48.0	24.15
911-IN	1979	Rural Electrification Corp. II	-	175.0	39.07
925-IN	1979	Uttar Pradesh Social Forestry	-	23.0	12.79
954-IN	1980	Maharashtra Irrigation II	-	210.0	123.37
961-IN	1980	Gujarat Community Forestry	-	37.0	22.55
963-IN	1980	Inland Fisheries	-	20.0	18.90
981-IN	1980	Population II	-	46.0	42.20
1003-IN	1980	Tamil Nadu Nutrition	-	32.0	27.07
1004-IN	1980	U.P. Tubewells	-	18.0	10.59
1011-IN	1980	Gujarat Irrigation II	-	175.0	150.89

US\$ million  
(Net of Cancellations)

<u>Loan or Credit No.</u>	<u>Fiscal Year of Approval</u>	<u>Purpose</u>	<u>Bank</u>	<u>IDA 1/</u>	<u>Undisbursed 2/</u>
1012-IN	1980	Cashewnut	-	22.0	19.90
1027-IN	1980	Singrauli Thermal II	-	300.0	239.39
1028-IN	1980	Kerala Agricultural Extension	-	10.0	9.58
1033-IN	1980	Calcutta Urban Transport	-	56.0	45.91
1034-IN	1980	Karnataka Sericulture	-	54.0	50.16
1046-IN	1980	Rajasthan Water Supply and Sewerage	-	80.0	69.47
1843-IN	1980	Industry DFC XIII	100.0	-	20.35
1887-IN	1980	Farakka Thermal Power	25.0	-	25.00
1053-IN	1980	Farakka Thermal Power	-	225.0	194.24
1897-IN	1981	Kandi Watershed and Area Development	30.0	-	26.67
1925-IN	1981	Bombay High Offshore Development	400.0	-	82.69
1072-IN	1981	Bihar Rural Roads	-	35.0	24.25
1078-IN	1981	Mahanadi Barrages	-	83.0	63.01
1082-IN	1981	Madras Urban Development II	-	42.0	29.53
1108-IN	1981	M.P. Medium Irrigation	-	140.0	117.07
1112-IN	1981	Telecommunications VIII	-	314.0	193.52
1116-IN	1981	Karnataka Tank Irrigation	-	54.0	46.49
1125-IN	1981	Hazira Fertilizer Project	-	400.0	314.42
1135-IN	1981	Maharashtra Agricultural Ext.	-	23.0	19.60
1137-IN	1981	Tamil Nadu Agricultural Ext.	-	28.0	23.28
1138-IN	1981	M.P. Agricultural Ext. II	-	37.0	31.98
1146-IN	1981	National Cooperative Development Corp. II	-	125.0	101.29
1172-IN	1982	Korba Thermal Power Project - II	-	400.0	400.00
1177-IN	1982	Madhya Pradesh Major Irrigation	-	220.0	206.02
2050-IN	1982	Tamil Nadu Newsprint	100.0	-	81.29
1178-IN	1982	West Bengal Social Forestry	-	29.0	26.94
1185-IN	1982	Kanpur Urban Development	-	25.0	25.00
2051-IN	1982	ICICI XIV	150.0	-	141.49
2076-IN	1982	Ramagundam Thermal Power II	300.0	-	300.00
2095-IN	1982	ARDC IV	190.0	-	190.00
1209-IN	1982	ARDC IV	-	160.0	66.36
1219-IN	1982	Andhra Pradesh Agricultural Extension	-	6.0	6.00
2123-IN	1982	Refineries Rationalization	200.0	-	200.00
2165-IN	1982	Rural Electrification III*	304.5	-	304.50
2186-IN	1982	Kallada Irrigation	20.3	-	20.00

Loan or Credit No.	Fiscal Year of Approval	Purpose	US\$ million (Net of Cancellations)		
			Bank	IDA 1/	Undisbursed 2/
1269-IN	1982	Kallada Irrigation		60.0	60.00
1280-IN	1983	Gujarat Water Supply+*		72.0	72.00
1286-IN	1983	Jammu/Kashmir and Haryana Social Forestry*		33.0	33.00
1288-IN	1983	Chambal Madhya Pradesh II Irrigation*		31.0	31.00
1289-IN	1983	Subernarekha Irrigation+*		127.0	127.00
		Total	4,095.3	10,955.6	
		of which has been repaid	1,173.0	106.7	
		Total now outstanding	2,922.3	10,848.9	
		Amount Sold 133.8			
		of which has been repaid 133.8	-	-	
		Total now held by Bank and IDA 3/	2,922.3	10,848.9	
		Total undisbursed (excluding *)	1,308.1	3,982.7	

- 1/ IDA Credit amounts for SDR-denominated Credits are expressed in terms of their US dollar equivalents, as established at the time of Credit negotiations and as subsequently presented to the Board.
- 2/ Undisbursed amounts for SDR-denominated IDA Credits are derived from cumulative disbursements converted to their US dollar equivalents on the basis of the SDR/US dollar exchange rate (1 SDR = US\$1.07234) in effect on September 30, 1982.
- 3/ Prior to exchange adjustment.
- \* Not yet effective.
- + Not yet signed.

B. STATEMENT OF IFC INVESTMENTS  
(As of September 30, 1982)

<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.	0.6	0.4	1.0
1964	Fort Gloster Industries Ltd.	0.8	0.4	1.2
1964-75-79	Mahindra UGINE Steel Co. Ltd.	11.8	1.3	13.1
1964	Lakshmi Machine Works Ltd.	1.0	0.3	1.3
1967	Jayshree Chemicals Ltd.	1.1	0.1	1.2
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	6.6	-	6.6
1978	Housing Development Finance Corporation	4.0	1.2	5.2
1980	Deepak Fertilizer and Petrochemicals Corporation Ltd.	7.5	1.2	8.7
1981	Coromandel Fertilizers Limited	15.9	-	15.9
1981	Tata Iron and Steel Company Ltd.	38.0	-	38.0
1981	Mahindra, Mahindra Limited	15.0	-	15.0
1981	Nagarjuna Coated Tubes Ltd.	2.9	0.3	3.2
1981	Nagarjuna Signode Limited	2.3	-	2.3
1981	Nagarjuna Steels Limited	1.5	0.2	1.7
1982	Ashok Leyland Limited	28.0	-	28.0
1982	The Bombay Dyeing and Manufacturing Co. Ltd.	18.8	-	18.8
1982	Bharat Forge Company Ltd.	15.9	-	15.9
1982	The Indian Rayon Corp. Ltd.	<u>8.1</u>	<u>-</u>	<u>8.1</u>
	TOTAL GROSS COMMITMENTS	207.5	12.1	219.6
	Less: Sold	53.0	2.6	55.6
	Repaid	26.4	-	26.4
	Cancelled	<u>6.2</u>	<u>1.3</u>	<u>7.5</u>
	Now Held	121.9	8.2	130.1
		=====	====	=====
	Undisbursed	103.0	0.5	103.5
		=====	====	=====

C. PROJECTS IN EXECUTION 1/  
(As of September 30, 1982)

Generally, the implementation of projects has been proceeding reasonably well. Brief notes on the execution of individual projects are below. The level of disbursements was US\$1,245 million in FY82, compared to US\$962 million in the previous year. Disbursements in the current fiscal year through September 30, 1982 total US\$287 million, representing an increase of about 76% over the same period last year. The undisbursed pipeline as of September 30, 1982, is US\$5,291 million.

Ln. No. 1475 Twelfth Industrial Credit and Investment Corporation of India Project; US\$80 million loan of July 22, 1977; Effective Date: October 4, 1977; Closing Date: March 31, 1983

Ln. No. 1843 Thirteenth Industrial Credit and Investment Corporation of India Project; US\$100 million loan of May 16, 1980; Effective Date: June 27, 1980; Closing Date: December 31, 1985

Ln. No. 2051 Fourteenth Industrial Credit and Investment Corporation of India Project; US\$150 million loan of October 8, 1981; Effective Date: December 3, 1981; Closing Date: March 31, 1988

These loans are supporting industrial development in India through a well-established development finance company and are designed to finance the foreign exchange cost of industrial projects. ICICI continues to be a well-managed and efficient development bank financing medium- and large-scale industries, often in the high technology fields and are also mostly export-oriented. Disbursements are on schedule for the twelfth loan and ahead of schedule for the thirteenth and fourteenth loans.

Ln. No. 1260 Second Industrial Development Bank of India Project; US\$40 million loan of June 10, 1976; Effective Date: August 10, 1976; Closing Date: March 31, 1983

Ln. No. 1511 IDBI Joint/Public Sector Project; US\$25 million loan of March 1, 1978; Effective Date: May 31, 1978; Closing Date: March 31, 1983

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1/ 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.



Loan 1260 is designed to assist the Industrial Development Bank of India in promoting small- and medium-scale industries and in strengthening the State Financial Corporations involved. Loan funds were fully committed in December 1981, but close supervision has been necessary to ensure timely implementation of sub-projects and full disbursement of the loan by the closing date. Loan 1511 is designed to encourage the pooling of private and public capital in medium-scale joint ventures. The project also assists IDBI in carrying out industrial sector investment studies and in strengthening the financial institutions dealing with the state joint/public sector. Progress is satisfactory.

Ln. No. 2050 Tamil Nadu Newsprint Project; US\$100 million loan of  
September 23, 1981; Effective Date: March 22, 1982; Closing  
Date: August 31, 1985

Project progress is good. Land acquisition has been completed and construction began in July 1982. Basic engineering work was completed on schedule at the end of August. Procurement is proceeding as planned.

Cr. No. 598 Fertilizer Industry Project; US\$105 million credit of  
December 31, 1975; Effective Date: March 1, 1976; Closing  
Date: December 31, 1982

Cr. No. 1125 Hazira Fertilizer Project; US\$400 million credit of  
October 28, 1981; Effective Date: January 21, 1982; Closing  
Date: June 30, 1986

As of June 1982, 31 of the 37 fertilizer sub-projects being funded by Credit 598 have been completed and are in operation. IDA has agreed to a six-month extension of the closing date to December 31, 1982, by which date the remaining six sub-projects will be completed and the credit fully disbursed. Credit 1125 is proceeding satisfactorily. Site preparation is well advanced. All major design and critical procurement work is essentially complete, and detailed engineering is now being carried out. Disbursements are ahead of schedule.

Ln. No. 2123 Refineries Rationalization Project; US\$200 million loan of  
May 5, 1982; Effective Date: June 29, 1982; Closing Date:  
September 30, 1986

Project implementation is satisfactory. The conversion component is making very good progress. Preparation work and investment approvals for the energy efficiency and pollution control components are expected to be completed on schedule. Attention is now being turned to the construction programs under the project.

Ln. No. 1925 Second Bombay High Offshore Development Project; US\$400 million loan of December 11, 1980; Effective Date: February 24, 1981; Closing Date: March 31, 1984

The project is progressing well. All platforms and subsea pipelines have been installed essentially on schedule. ONGC reached its targetted production level of 240,000 Bbl/day in May 1982, and is presently producing 250,000 Bbl/day, 44% of which comes from project wells.

Cr. No. 604 Power Transmission IV Project; US\$150 million credit of January 22, 1976; Effective Date: October 22, 1976; Closing Date: December 31, 1982

Cr. No. 685 Singrauli Thermal Power Project; US\$150 million credit of April 1, 1977; Effective Date: June 28, 1977; Closing Date: December 31, 1983

Cr. No. 793 Korba Thermal Power Project; US\$200 million credit of May 12, 1978; Effective Date: August 14, 1978; Closing Date: March 31, 1985

Ln. No. 1549 Third Trombay Thermal Power Project; US\$105 million loan of June 19, 1978; Effective Date: February 8, 1979; Closing Date: March 31, 1984

Ln. No. 1648 Ramagundam Thermal Power Project; US\$50 million loan and  
and US\$200 million credit of February 2, 1979; Effective Date:  
Cr. No. 874 May 22, 1979; Closing Date: December 31, 1985

Cr. No. 1027 Second Singrauli Thermal Power Project; US\$300 million credit of June 5, 1980; Effective Date: July 30, 1980; Closing Date: March 31, 1988

Ln. No. 1887 Farakka Thermal Power Project; US\$25 million loan and  
and US\$225 million credit of July 11, 1980; Effective Date:  
Cr. No. 1053 December 10, 1980; Closing Date: March 31, 1987

Ln. No. 2076 Second Ramagundam Thermal Power Project; US\$300 million loan of January 6, 1982; Effective Date: March 16, 1982; Closing Date: June 30, 1988

Cr. No. 1172 Second Korba Thermal Power Project; US\$400 million credit of February 4, 1982; Effective Date: March 16, 1982; Closing Date: December 31, 1989

Credits 685 and 1027 assist in financing the 2,000 MW Singrauli development, which is the first of four power stations in the Government's program for the development of large central thermal power stations feeding power into an interconnected grid. Credit 793, together with Credit 1172, which became effective March 16, 1982, support the construction of the 2100 MW development, consisting of three 200 MW and three 500 MW generating units, at the second such station, at Korba, together with related facilities and associated transmission. Loan 1648/Credit 874, together with Loan 2076,

which also became effective March 16, 1982, support similar investments at Ramagundam. Loan 1887/Credit 1053 assists in financing the first three 200 MW generating units at the Farakka station. The National Thermal Power Corporation (NTPC) has been carrying out construction and operation of these power stations. Loan 1549 supports the construction of a 500 MW extension of the Tata Electric Companies' station at Trombay, designed to help meet the forecast load growth in the Bombay area. All these large-scale thermal power projects are progressing satisfactorily. Construction works for the Singrauli, Korba, and Farakka stations are on or ahead of schedule, although some slippage has occurred in the implementation schedule for the Ramagundam project. The first unit at the Singrauli station was commissioned on schedule in February 1982, and the second unit in October 1982. The first unit at the Korba station is scheduled to be commissioned in January 1983. In the Third Trombay project, design modifications for plant equipment, price increases for materials, and increases in customs duties have resulted in an increase in the total cost of the project. The Government of India is raising additional funds from internal sources to meet the additional cost.

Cr. No. 911    Second Rural Electrification Corporation Project; US\$175 million credit of June 21, 1979; Effective Date: October 17, 1979; Closing Date: March 31, 1984

Ln. No. 2165    Third Rural Electrification Corporation Project; US\$304.5 million loan of June 22, 1982; Effective Date: October 21, 1982; Closing Date: June 30, 1986

Under Credit 911, project implementation is progressing approximately on schedule without major problems. Procurement of materials and equipment is well advanced. Disbursements of the credit proceeds are ahead of appraisal projections. Under Loan 2165, initial project progress is satisfactory. Procurement is approximately on schedule, with the State Electricity Boards (SEBs) now proceeding with bid invitations. REC is reorganizing its capability to monitor financial performance of the individual SEBs, which is likely to have a beneficial effect on this project as well as on Credit 911.

Ln. No. 1313    Telecommunications VI Project; US\$80 million loan of July 22, 1976; Effective Date: September 14, 1976 Closing Date: March 31, 1983

Ln. No. 1592    Telecommunications VII Project; US\$120 million loan of June 19, 1978; Effective Date: October 30, 1978; Closing Date: December 31, 1983

Cr. No. 1112    Telecommunications VIII Project; US\$314 million credit of March 26, 1981; Effective Date: June 24, 1981; Closing Date: December 31, 1984

Loans 1313 and 1592 are progressing satisfactorily. They are overcoming initial delays caused by procurement problems and a five-month labor strike against one of the indigenous suppliers. All funds from Loan 1313 have been committed and procurement action under Loan 1592 is well advanced. Disbursements are expected to accelerate as work progresses. The

Posts and Telegraphs Department remains a financially sound and efficiently-managed organization. Credit 1112 provides for the continued expansion of the Indian telecommunications network, particularly in rural areas, the establishment of three new telecommunication equipment factories and the modernization and upgrading of three existing ones. Bid evaluation is progressing satisfactorily and it is expected that the project and its individual sub-projects will proceed according to schedule.

Cr. No. 844 Railway Modernization and Maintenance Project; US\$190 million credit of November 13, 1978; Effective Date: January 10, 1979; Closing Date: December 31, 1984

Credit 844 was designed to help the Indian Railways reduce manufacturing and maintenance costs of locomotives and rolling stock and to improve their performance and availability. Physical execution of the project is proceeding satisfactorily. The wheel and axle plant is expected to be operational by December 1982, and Indian Railways' financial and traffic performance continues to improve.

Cr. No. 1072 Bihar Rural Roads Project; US\$35 million credit of December 5, 1980; Effective Date: January 15, 1981; Closing Date: June 30, 1986

The project aims to construct or rehabilitate 700 km of rural roads and to improve maintenance of the rural road network in Bihar. It is proceeding on schedule. The majority of the equipment required for the project has been delivered. Contracts have been awarded for civil works totalling to about US\$13 million and work began last March.

Ln. No. 1335 Bombay Urban Transport Project; US\$25 million loan of December 20, 1976; Effective Date: March 10, 1977; Closing Date: June 30, 1983

Cr. No. 1033 Calcutta Urban Transport Project; US\$56 million credit of October 27, 1980; Effective Date: December 18, 1980; Closing Date: December 31, 1984

Implementation of the Bombay project is satisfactory, with over 70% of the loan disbursed. Construction of new workshop facilities began in January 1982, but to allow for completion the loan closing date may have to be extended one year. A bus fare revision on April 1, 1982 increased revenues by 20% and will enable the project authority to achieve its targeted operating ratio.

There has been good progress in meeting the physical investments under Credit 1033. Delivery of more than 600 buses and trams required for the project should be completed by March 1983. However, management performance of the project authorities must be improved if they are to achieve the operational and financial performance targets agreed to. IDA is engaged in detailed discussions with the Government of West Bengal of measures required to alleviate existing and possible future problems.

- Cr. No. 687    Madras Urban Development Project; US\$24 million credit of April 11, 1977; Effective Date: June 30, 1977; Closing Date: December 31, 1982
- Cr. No. 756    Second Calcutta Urban Development Project; US\$87 million credit of January 6, 1978; Effective Date: April 7, 1978; Closing Date: March 31, 1983
- Cr. No. 1082    Second Madras Urban Development Project; US\$42 credit of January 14, 1981; Effective Date: March 2, 1981; Closing Date: March 31, 1986
- Cr. No. 1185    Kanpur Urban Development Project; US\$25 million credit of February 4, 1982; Effective Date: April 22, 1982; Closing Date: June 30, 1986

Madras Urban Development I, Credit 687, is fully disbursed and scheduled to close on December 31, 1982. The project was implemented satisfactorily and met its basic objectives, introducing low-cost design standards to provide slum improvements to over 25,000 households, sites and services development on 14,000 plots, and improved water supplies; introducing improved urban management systems; and augmenting the city's bus fleet and the operational management capabilities of the bus company. The second project, Credit 1082, is proceeding satisfactorily, with the exception of the sites and services component, where legal challenges are causing delays in land acquisition. The Government of Tamil Nadu (GOTN) is actively pursuing the resolution of these court cases so that land acquisition can be completed by October 1982 and the sites and services works finished by the project closing date. Under both credits, the financial performance of the Pallavan Transport Corporation (PTC), the project implementing agency, is unsatisfactory. It is not generating funds sufficient to meet its financial targets. An action plan to cut operating costs, reduce new investment, and raise revenues has recently been formulated and, subject to the agreement of GOTN, will enable PTC to achieve the required targets by 1983/84 and maintain them thereafter.

Physical performance in the Calcutta project is generally good. All sub-projects presently under implementation are scheduled to be completed by March 31, 1983. Following a review of the overall program for Calcutta's further development, the Government of West Bengal shifted its investment priorities somewhat and consequently requested a revision of some components of this project. IDA agreed to the suggested changes, and the closing date has been extended by nine months to allow for completion of the redefined project.

Credit 1185, which became effective in April 1982, is aimed at providing shelter and urban services in Kanpur, the largest city in Uttar Pradesh. Initial progress has been mixed. The project authority is hampered by lack of adequate staff with proper management expertise, and land acquisition disputes are causing delays in civil works. However, there has been good progress in the slum-upgrading component, where improvements benefitting about 3,700 households are nearing completion, and the institution-strengthening aspects of the project are proceeding well.

Cr. No. 585 Uttar Pradesh Water Supply and Sewerage Project; US\$40 million credit of September 25, 1975; Effective Date: February 6, 1976; Closing Date: December 31, 1982

Physical works under the project are approximately 90% complete. However, financial performance of the implementing agencies has been generally poor, and it is likely that many of them may not be able to meet the financial performance targets agreed with IDA.

Cr. No. 842 Second Bombay Water Supply and Sewerage Project; US\$196 million credit of November 13, 1978; Effective Date: June 12, 1979; Closing Date: March 31, 1985

Cr. No. 848 Punjab Water Supply and Sewerage Project; US\$38 million credit of October 27, 1978; Effective Date: January 25, 1979; Closing Date: March 31, 1983

Cr. No. 899 Maharashtra Water Supply and Sewerage Project; US\$48 million credit of June 21, 1979; Effective Date: November 9, 1979; Closing Date: June 30, 1984

Cr. No. 1046 Rajasthan Water Supply and Sewerage Project; US\$80 million credit of June 25, 1980; Effective Date: August 5, 1980; Closing Date: December 31, 1985

Under Credit 842, construction is in progress on the Panjrapur Treatment Plant, on several reservoirs, and on major water mains; and procurement contracts are well advanced for the remaining project works. Revised cost estimates have been prepared because of the delay in the start of construction. The financial performance of the project authority has been good.

Implementation under Credit 848 is satisfactory, and the overall financial performance of the project authorities has improved considerably.

Recent progress under Credit 899 is encouraging. Land acquisition and construction are proceeding according to the revised implementation schedule. Following a recent tariff revision, the project entities' financial performance should improve in FY83.

Under the Rajasthan project, Credit 1046, the rural water supply schemes are well advanced and engineering designs for the urban schemes are nearly finalized. The financial performance of the Rajasthan Water Supply and Sewerage Board has been good. A recent Cabinet decision has deferred the construction of the planned Hemawas/Kuri Pipeline to provide water to the city of Jodhpur, in order to consider the possibility of accessing water from the Rajasthan Canal instead. A consultant has been hired to analyze the engineering and cost alternatives which would be fully assessed when the alternative proposals are received in about one year's time.

- Cr. No. 502 Rajasthan Canal Command Area Development Project; US\$83 million credit of July 31, 1974; Effective Date: December 12, 1974; Closing Date: June 30, 1983
- Ln. No. 1251 Andhra Pradesh Irrigation and Command Area Development  
(TW) Composite Project; US\$145 million loan (Third Window) of June 10, 1976; Effective Date: September 7, 1976; Closing Date: December 31, 1982
- Cr. No. 720 Periyar Vaigai Irrigation Project; US\$23 million credit of June 30, 1977; Effective Date: September 30, 1977; Closing Date: March 31, 1983
- Cr. No. 736 Maharashtra Irrigation Project; US\$70 million credit of October 11, 1977; Effective Date: January 13, 1978; Closing Date: March 31, 1983
- Cr. No. 740 Orissa Irrigation Project; US\$58 million of October 11, 1977; Effective Date: January 16, 1978; Closing Date: October 31, 1983
- Cr. No. 788 Karnataka Irrigation Project; US\$126 million credit of May 12, 1978; Effective Date: August 10, 1978; Closing Date: March 31, 1984
- Cr. No. 808 Gujarat Medium Irrigation Project; US\$85 million credit of July 17, 1978; Effective Date: October 31, 1978; Closing Date: June 30, 1984
- Cr. No. 843 Haryana Irrigation Project; US\$111 million credit of August 16, 1978; Effective Date: December 14, 1978; Closing Date: August 31, 1983
- Cr. No. 889 Punjab Irrigation Project; US\$129 million credit of March 30, 1979; Effective Date: June 20, 1979; Closing Date: June 30, 1985
- Cr. No. 954 Second Maharashtra Irrigation Project; US\$210 million credit of April 14, 1980; Effective Date: June 6, 1980; Closing Date: December 31, 1985
- Cr. No. 1011 Second Gujarat Irrigation Project; US\$175 million credit of May 12, 1980; Effective Date: June 27, 1980; Closing Date: April 30, 1986
- Cr. No. 1078 Mahanadi Barrages Project; US\$83 million credit of December 5, 1980; Effective Date: February 11, 1981; Closing Date: March 31, 1987
- Cr. No. 1108 Madhya Pradesh Medium Irrigation Project; US\$140 million credit of March 26, 1981; Effective Date: May 13, 1981; Closing Date: March 31, 1987

<u>Cr. No. 1177</u>	<u>Madhya Pradesh Major Irrigation Project; US\$220 million credit of February 24, 1982; Effective Date: April 16, 1982; Closing Date: June 30, 1987</u>
<u>Ln. No. 2186</u> <u>and</u> <u>Cr. No. 1269</u>	<u>Kallada Irrigation Project; US\$20.3 million loan and US\$60 million credit of July 6, 1982; Effective Date: September 21, 1982; Closing Date: March 31, 1987</u>
<u>Cr. No. 1288</u>	<u>Second Chambal Madhya Pradesh Irrigation Project; US\$31 million credit of September 7, 1982; Effective Date: Expected November 1982; Closing Date: March 31, 1987</u>

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 infrastructure, 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.

Delays in construction caused by initial shortages of cement caused the Maharashtra I project to fall considerably behind schedule. For the future, cement will be allotted to the project on a priority basis. In both Maharashtra projects, increased attention is needed to improve the quality of construction work in accordance with agreed and appropriate technical standards, and to correcting the deficiencies which are now present in the systems.

The Karnataka project is experiencing serious delays in command area development and completion of construction of the distribution system, due mainly to lack of proper support from the State Government and inadequate staffing of the project entity. The urgent attention of the State Government must be devoted to the early resolution of these implementation problems.

The Gujarat Medium project is substantially behind schedule, but performance is expected to improve with the recent resolution of technical design problems. A detailed review of the project in July established a revised implementation schedule for the duration of the project. Lack of proper management and planning in the Gujarat II project have contributed to serious delays, which may contribute to considerable cost overruns. Due to unresolved political problems, the Heran component (16% of project costs) has been deleted. In March 1982, the Government of Gujarat sanctioned nearly 300 new staff positions in the Irrigation Department to be assigned exclusively to the implementation of World Bank projects. This is expected to help improve progress in both Gujarat projects, although the project authorities and State Government officials will need to devote considerable time and effort if the problems are to be overcome and momentum re-established.

Progress in canal and watercourse lining is behind schedule in the Punjab project due to shortages of cement and inadequate provision of budgetary resources. The Government of Punjab has recently completed a



review of the project and a revised implementation plan for the duration of the project is to be presented to IDA in November 1982.

The Madhya Pradesh Medium Irrigation Project got off to a slow start due to delays in selecting the sub-projects to be included. Eleven sub-projects have now been appraised, and tendering is underway. The pace of implementation, and the rate of disbursements, are therefore expected to accelerate. Initial progress under the Madhya Pradesh Major Irrigation Project was delayed by serious start-up problems--among them, considerable staffing vacancies in the project entity, use of inefficient and cumbersome procurement procedures, delays in the appointment of consultants, and deficiencies in technical designs of the irrigation works. The Government of Madhya Pradesh is keely aware of these problems and is taking steps to correct them. Project progress is expected to improve soon.

Progress of the remaining projects is generally satisfactory.

Cr. No. 1116 Karnataka Tank Irrigation Project; US\$54 million credit of March 26, 1981; Effective Date: May 5, 1981; Closing Date: March 31, 1986

The project is designed to finance the construction of about 160 tank irrigation schemes throughout the State of Karnataka. As of February 1982, six of these schemes had been sanctioned for implementation, and another 28 were in various stages of preparation. Initial progress with project preparation has been slow due to staff constraints and unfamiliarity of local engineers with the design criteria agreed under the project.

Cr. No. 1004 Uttar Pradesh Public Tubewells Project; US\$18 million credit of May 12, 1980; Effective Date: June 27, 1980; Closing Date: March 31, 1983

Physical progress is proceeding satisfactorily, with approximately 40% of planned tubewells completed. The operation and maintenance units to be set up in the Irrigation Department are not yet established. The Government of Uttar Pradesh has been urged to fulfill this requirement expeditiously. Project completion may be delayed by six months due to initial procurement delays.

Cr. No. 682 Orissa Agricultural Development Project; US\$20 million credit of April 1, 1977; Effective Date: June 28, 1977; Closing Date: December 31, 1983

Cr. No. 690 West Bengal Agricultural Extension and Research Project; US\$12 million credit of June 1, 1977; Effective Date: August 30, 1977; Closing Date: September 30, 1983

Cr. No. 712 Madhya Pradesh Agricultural Extension and Research Project; US\$10 million credit of June 1, 1977; Effective Date: September 2, 1977; Closing Date: September 30, 1983

- Cr. No. 728 Assam Agricultural Development Project; US\$8 million credit of June 30, 1977; Effective Date: September 30, 1977; Closing Date: March 31, 1983
- Cr. No. 737 Rajasthan Agricultural Extension and Research Project; US\$13 million credit of November 14, 1977; Effective Date: February 6, 1978; Closing Date: June 30, 1983
- Cr. No. 761 Bihar Agricultural Extension and Research Project; US\$8 million credit of January 6, 1978; Effective Date: May 2, 1978; Closing Date: October 31, 1983
- Cr. No. 862 Composite Agricultural Extension Project, US\$25 million credit of February 16, 1979; Effective Date: December 14, 1979; Closing Date: December 31, 1984
- Cr. No. 1028 Kerala Agricultural Extension Project; US\$10 million credit of June 25, 1980; Effective Date: August 18, 1980; Closing Date: June 30, 1986
- Cr. No. 1137 Tamil Nadu Agricultural Extension Project; US\$28 million credit of May 7, 1981; Effective Date: July 22, 1981; Closing Date: June 30, 1987
- Cr. No. 1135 Maharashtra Agricultural Extension Project; US\$23 million credit of May 7, 1981; Effective Date: July 22, 1981; Closing Date: June 30, 1987
- Cr. No. 1138 Second Madhya Pradesh Agricultural Extension Project; US\$37 million credit of May 7, 1981; Effective Date: July 22, 1981; Closing Date: June 30, 1987
- Cr. No. 1219 Andhra Pradesh Agricultural Extension and Research Project; US\$6 million credit of May 5, 1982; Effective Date: July 27, 1982; Closing Date: March 31, 1988

These twelve credits finance the reorganization and strengthening of agricultural extension services and the development of adaptive research capabilities in thirteen States in India. In areas where the reformed extension system is in operation, field results have been most encouraging, both in terms of adoption of new agricultural techniques and of increased crop yields.

In Rajasthan, Madhya Pradesh I and Orissa, in particular, significant gains have been made under the projects.

In Assam, after some delays field work continues to improve, the field research stations are focussing their activities on local requirements, and the agricultural university is providing good support to extension training and research.

In West Bengal, a change in government brought a two-year hiatus in project implementation, but the new State Government has reaffirmed its

support, and project activities have resumed. There has been considerable progress in all project components. However, completion of the project in accordance with its original objectives has required an extension of the closing date.

Following the decision by the Government of Bihar (GOB) in January 1982 to provide necessary funds for the project and fill key posts there has been considerable improvement. The project is being extended to a further 11 districts, bringing the total under implementation to 16 out of a possible 31. GOB has made provision for adequate budgetary resources for 1982-83, and all extension and research staff required have been appointed, except among village extension workers where some vacancies persist. GOB plans to consolidate the extension system in the current 16 districts before extending it to the entire State.

In Gujarat, Haryana and Karnataka, all covered under the Composite Agricultural Extension Project, the basic extension system has been established and attention now needs to focus on the quality of extension recommendations and the filling of remaining staff vacancies.

In Kerala, project implementation has begun in three of eleven districts and is operating satisfactorily. Further progress on the project will require an early decision by the State Government to extend the T & V system to the remaining eight districts.

In Tamil Nadu and Maharashtra, project implementation is going extremely well. Field activities by extension staff are generally well organized and conducted. Recommendations are widely accepted by farmers.

Initial implementation of the Madhya Pradesh II project has been slow due to the Government's delay in sanctioning necessary budget resources, and transferring of Department of Agriculture staff to work in the extension service. Field activities are being carried out in only two of the four Year I districts, and have not yet begun in the seven Year II districts. Considerable orientation in the objectives and procedures of the reformed extension service is required by staff at all levels.

Early steps are being taken in the Andhra Pradesh project for the commencement of training, monitoring and evaluation, and civil works activities, and the procurement of equipment and vehicles. Field work has yet to begin, pending the issuance of required governmental orders for the transfer of staff to the reformed extension service.

Cr. No. 680     Kerala Agricultural Development Project; US\$30 million credit of April 1, 1977; Effective Date: June 29, 1977; Closing Date: March 31, 1985

Project progress continue satisfactorily. Implementation of the small-holder component, the project's largest, is gaining momentum. The banking program is functioning well, with the volume of loans sanctioned up 35% over the previous year. The three crumb rubber factories included in the project are in operation and the cashewnut plantations are 85% complete.

Ln. No. 2095 Agricultural Refinance and Development Corporation IV Project;  
and US\$190 million loan and US\$160 million credit of February 24,  
Cr. No. 1209 1982; Effective Date: May 25, 1982; Closing Date:  
June 30, 1984

The project, which is a continuation of ARDC III, consists of a two-year time slice of ARDC's lending program to farmers, mainly for minor irrigation, and including amounts for diversified lending and for the support of training programs for the staff of participating banks. Implementation is proceeding satisfactorily.

Cr. No. 855 National Agriculture Research Project; US\$27 million credit  
of December 7, 1978; Effective Date: January 22, 1979; Closing  
Date: September 30, 1983

The project requires improvement in several areas. Civil works and procurement are both somewhat behind schedule, the Project Unit needs additional staff and there are technical deficiencies in the experimental agricultural activities being carried out under the project. However, the pace of sub-project approval during 1981-82 has been satisfactory and implementation of the sub-projects in the States of Gujarat and Andhra Pradesh is good.

Cr. No. 342 Agricultural Universities Project; US\$12 million credit of  
November 10, 1972; Effective Date: June 8, 1973; Closing  
Date: December 31, 1982

The primary aim of this project is to assist in the development of the agricultural universities in Bihar and Assam, improve the quality of practical training provided to students and enhance their employment opportunities. Implementation of the civil works component of this project was initially delayed at both locations on account of frequent top management changes, shortages in raw materials and political unrest (in Assam). Project implementation has accelerated recently and disbursements are expected to be completed by the closing date.

Cr. No. 747 Second Foodgrain Storage Project; US\$107 million credit of  
January 6, 1978; Effective Date: May 17, 1978; Closing Date  
June 30, 1983

Construction of storage capacity of 1.5 million tons has been completed, with another 300,000 tons in progress. GOI's proposals to delete the bulk storage component and provide additional bag storage capacity have been accepted by IDA. A one-year extension of the closing date has been granted with the possibility of a further extension on the basis of progress achieved during this fiscal year.

Cr. No. 871 National Cooperative Development Corporation (NCDC) Project;  
US\$30 million credit of February 2, 1979; Effective Date:  
May 3, 1979; Closing date: December 31, 1984

Cr. No. 1146 Second National Cooperative Development Corporation (NCDC) Project; US\$125 million credit of July 21, 1981; Effective Date: November 11, 1981; Closing Date: June 30, 1987

These credits provide funds to rural cooperatives in various States for the construction and operation of godowns (warehouses) and cold storage and marketing facilities. Major emphasis is placed on institution building in order to make NCDC grow into a more effective development institution to serve India's rural cooperative sector. Implementation of Credit 871 has slowed down over the last six months due to shortages in cement supplies and inadequate project coordination at the State level. Implementation of Credit 1146 was initially slow due to poor preparation in most States in the pre-project year. However, since December 1981 the project has gained some momentum with about 1300 godowns and 40 cold storage units now sanctioned for construction. Under both projects, the shortage of cement presents a serious bottleneck; and construction costs have risen considerably, which may necessitate a reduction in the total number of storage units to be constructed. NCDC and the State agencies concerned have resolved to do what is required to speed up implementation of these projects.

Cr. No. 482 Karnataka Dairy Development Project; US\$30 million credit of June 19, 1974; Effective Date: December 23, 1974; Closing Date: September 30, 1983

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: March 31, 1983

Cr. No. 824 National Dairy Project; US\$150 million credit of June 19, 1978; Effective Date: December 20, 1978; Closing Date: December 31, 1985

These four credits, totalling US\$224.1 million, support dairy development projects organized along the lines of the successful AMUL dairy cooperative scheme in Gujarat. Farmer response has been excellent. About 18,000 dairy cooperative societies (DCS) have been established, with over two million members. Profitability of most DCSs is good and construction of dairy and feed plants is proceeding well.

In Credit 482, construction of the mother dairy at Bangalore, the key processing facility, was delayed by litigation. Construction by an experienced civil works contractor has now begun. To allow for near completion of this dairy, and for the Government of Karnataka to implement improvements in their management support of the dairy producers' unions as required under the project, the closing date has been extended by one year.

Credit 522 project has proceeded well and is excellently managed. The processing facilities have been completed and are operational. However,

the project authorities postponed formation of the DCSs until the processing facilities and marketing studies were completed. Extension work is now underway (550 DCSs are already established), but the credit closing date has been extended by nine months to allow for creation of the total 1200 DCSs planned, together with their complementary extension and training services.

Under Credit 824, the Operation Flood II Agreements, which allow for the establishment of federations of DCSs, have now been signed by most of the participating States. The major obstacle to the project at the moment is the delay in providing loans to States due to their reluctance to issue the guarantees required by the IDC for commitment of funds. This is currently under review by the project authorities.

Ln. No. 1273 National Seed Project; US\$25 million loan of June 10, 1976;  
Effective Date: October 8, 1976; Closing Date: June 30, 1984

Cr. No. 816 Second National Seed Project; US\$16 million credit of July 17,  
1978; Effective Date: December 20, 1978; Closing Date:  
December 31, 1984

These projects were designed to increase the availability of high quality agricultural seed, and cover nine States. Although they are two to three years behind schedule because of initial problems in coordination and monitoring mainly at the national level, there has been significant progress over the last year. Plans for the 24 seed development farms are complete and production has commenced. Procurement is satisfactory, with six of ten ICB tenders awarded and two more in process. Most of the seed processing plants have been sanctioned for construction, and hence disbursements are expected to improve with the inception of civil works. It is expected that all works under both projects will be completed by June 1984.

Cr. No. 1012 Cashewnut Project; US\$22 million credit of June 10, 1980;  
Effective Date: September 3, 1980; Closing Date: September 30,  
1985

This project helps to finance cashew planting and plantation improvement programs in the States of Andhra Pradesh, Karnataka, Kerala and Orissa. The planting and improvement programs have made very good progress and the area covered is ahead of appraisal estimates. There is every expectation that the project will fulfill its objective of significantly increasing cashew production and improving the incomes of the farmers. In Orissa there is already evidence of a significant improvement in the farmers' welfare as a result of participation in the project.

Cr. No. 610 Integrated Cotton Development Project; US\$18 million credit of  
February 26, 1976; Effective Date: November 30, 1976; Closing  
Date: December 31, 1983

Project implementation continues to improve. The area to be covered by the project (183,000 ha) has been attained, and yields are increasing. Major processing facilities in Maharashtra and Haryana are under contract and bid evaluation. The link between university research and project activity is excellent. However, because of poor performance in the

early stages, the project closing date has been extended by two years to December 31, 1983, to allow for completion of the project works and full utilization of the credit proceeds.

Cr. No. 1034 Karnataka Sericulture Project; US\$54 million credit of October 27, 1980; Effective Date: December 18, 1980  
Closing Date: December 31, 1985

Serious staff shortages in the Department of Sericulture have caused inadequate research and extension work and prevented increases in the production of bivoltine silk, one of the project's principal objectives. This situation is expected to improve soon, as the Chief Secretary, Government of Karnataka, is endeavoring to streamline the cumbersome recruitment procedures to permit more rapid hiring of staff. All other project components are progressing satisfactorily.

Cr. No. 806 Jammu-Kashmir Horticulture Project; US\$14 million credit of July 17, 1978; Effective Date: January 16, 1979;  
Closing Date: June 30, 1984

There has been sufficient progress in civil works and the acquisition of equipment to enable 11 of the 17 apple packing houses and all seven walnut processing centers to become operational by October 1982. Therefore, it is most urgent that the project implementing agency fill their positions of financial and marketing directors in order to formulate appropriate financial and marketing strategies for their first operating season with the new facilities. The training program under the project is progressing well, but research activities are behind schedule due to delays in the appointment of consultants.

Cr. No. 609 Madhya Pradesh Forestry Technical Assistance Project;  
US\$4 million credit of February 26, 1976; Effective Date:  
May 17, 1976; Closing Date: December 31, 1982

A study completed in November 1979 established the feasibility of developing a forest-based industry in Bastar district. However, following a GOI review of the study, it was decided that conversion of the natural forest to pine plantations, as proposed, would not be compatible with the Government's social, economic, and environmental policies for the area. Further project activities have therefore ceased. The project is expected to close on schedule in December 1982.

Cr. No. 925 Uttar Pradesh Social Forestry Project; US\$23 million credit of June 21, 1979; Effective Date: January 3, 1980; Closing Date: December 31, 1984

Cr. No. 961 Gujarat Community Forestry Project; US\$37 million credit of April 14, 1980; Effective Date: June 24, 1980; Closing Date: December 31, 1985

Cr. No. 1178 West Bengal Social Forestry Project; US\$29 million credit of February 24, 1982; Effective Date: April 9, 1982; Closing Date: December 31, 1987

Cr. No. 1286 Jammu-Kashmir and Haryana Social Forestry Project; US\$33 million credit of September 7, 1982; Effective Date: Expected December 1982; Closing Date: March 31, 1988

Under the Uttar Pradesh and Gujarat projects very impressive results have been achieved in the tree plantation programs. However, both projects suffer from serious understaffing, especially among forestry extension workers, and inefficiencies in the management and organization of the social forestry programs. A special review to be carried out jointly by GOI and IDA in November 1982, is designed to address these problems.

Initial implementation of the West Bengal project, which became effective in April 1982, has been satisfactory. Most senior staff are in position, the monitoring and evaluation unit has been established, and physical planting so far has exceeded appraisal report targets.

Initial project activities are underway on Credit 1286, signed on September 7, 1982.

Ln. No. 1897 Kandi Watershed and Area Development Project; US\$30 million loan of September 12, 1980; Effective Date: November 18, 1980; Closing Date: March 31, 1986

There has been considerable progress in project implementation since the last review in June 1981. In the upper catchment, cattle grazing has decreased and afforestation increased, with a consequent improvement in the vegetative cover to reduce erosion and floods--a main project objective. Construction of the Dholbaha dam has started, and feasibility studies of other watershed schemes to be financed by the project are well in hand.

Ln. No. 1394 Gujarat Fisheries Project; US\$14 million loan and US\$4 (TW) and million credit of April 22, 1977; Effective date: July 19, 1977; Cr. No. 695 Closing Date: June 30, 1983

Cr. No. 815 Andhra Pradesh Fisheries Project; US\$17.5 million credit of June 19, 1978; Effective Date: October 31, 1978; Closing Date: September 30, 1984

In Gujarat, the construction of harbor and shore facilities has been delayed by a contractual dispute. This has now been resolved, and harbor works should be finished by mid-1984. Village roads and water supply components of the project are proceeding satisfactorily. In Andhra Pradesh, the project harbor at Visakhapatnam was officially opened in February 1982; harbor works at Kakinada and Nizampatnam are progressing satisfactorily following the resolution of design problems.



Cr. No. 963 Inland Fisheries Project; US\$20 million credit of January 18, 1980; Effective Date: May 5, 1980; Closing Date: September 30, 1985

Project implementation is satisfactory. The Central and State Project Units are functioning efficiently. Detailed designs for the first two fish seed hatcheries in each of the five project States have been completed. The pond improvement schemes are progressing rapidly, with large numbers of loan applications having been submitted to the participating banks for approval of financing.

Cr. No. 981 Second Population Project; US\$46 million credit of April 14, 1980; Effective Date: June 26, 1980; Closing Date: December 31, 1985

The project has as its major objectives the lowering of infant and child morbidity and mortality, the improvement in the health status of mothers and children and the lowering of fertility in three districts in Andhra Pradesh and in six districts in Uttar Pradesh. Implementation of the project is proceeding well. Marked improvement has occurred in several components especially construction, now that cement is being allocated to the project on a priority basis. As a consequence, disbursements are accelerating. The Director of the Population Centre in Uttar Pradesh has been appointed and the training program is well underway.

Cr. No. 1003 Tamil Nadu Nutrition Project; US\$32 million credit of May 12, 1980; Effective Date: August 5, 1980; Closing Date: March 31, 1987

Following an impressive start in one test block where malnourishment rates fell by 50% during the test period, the nutrition program is being expanded to the other 32 blocks in Madurai District. Progress in civil works is now satisfactory despite early shortages of cement and the construction work for the training facilities is to be completed this year.



INDIA

UPPER INDRAVATI HYDRO PROJECT

SUPPLEMENTARY PROJECT DATA SHEET

Section I: Timetable of Key Events

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

Project preparation took place over a period of about seven years.

(b) The agency which has prepared the project

Irrigation and Power Department, Government of Orissa

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

The project was first formally presented to the Bank in October 1980; a preparation mission visited India in January 1981.

(d) Date of departure of appraisal mission

October 1, 1982

(e) Date of completion of negotiations

March 31, 1983

(f) Planned date of effectiveness

August 31, 1983

Section II: Special Bank and IDA Implementation Actions

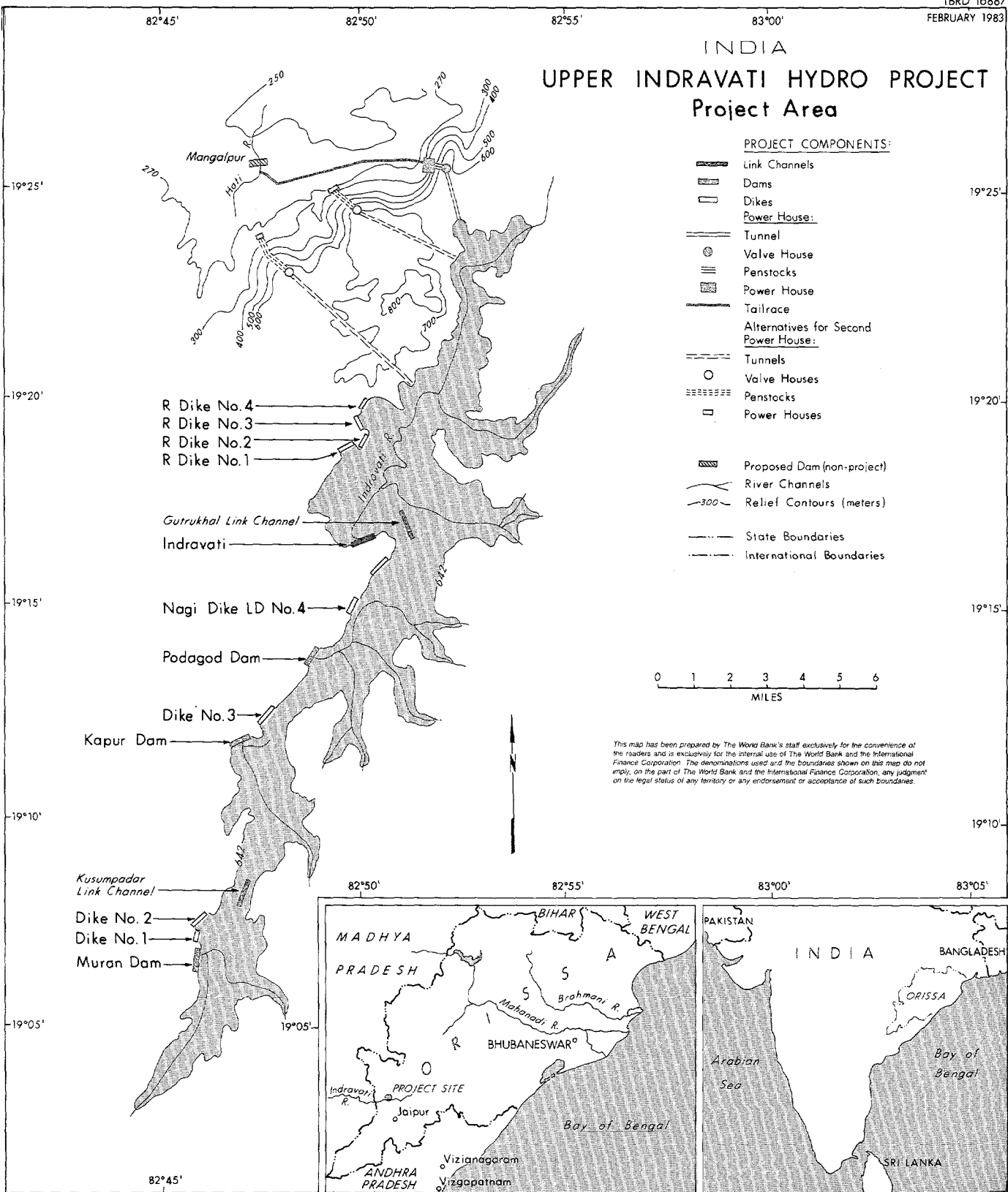
None

Section III: Special Conditions

(a) OIPD to provide water releases sufficient to meet plant power requirements year-round (para 58);

- (b) OIPD to implement agreed recommendations from project management consultants' report (para 55);
- (c) OIPD to transfer project assets to OSEB on completion of commissioning of the hydro electric station (para 77);
- (d) GOO to undertake completion of power transmission lines required by the proposed project (para 51);
- (e) OSEB to prepare by March 31, 1984, a program for reduction of its energy losses (para 67);
- (f) OSEB to undertake to achieve a contribution to its investment program of at least 20% of annual average capital expenditures, from 1982/83 (para 75), and to introduce, from April 1, 1984 a commercial system of accounting (para 68);
- (g) GOO to undertake to limit the rural electrification subsidy payable to OSEB (para 75);
- (h) OSEB to undertake to limit, from 1983/84, its accounts receivables to equivalent of three months' billings of electricity sales (para 74);
- (i) OSEB to introduce improvements to its tariff structure (para 76).

# INDIA UPPER INDRAVATI HYDRO PROJECT Project Area



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