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REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT OF THE  
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
TO THE  
EXECUTIVE DIRECTORS  
ON A  
PROPOSED LOAN  
IN AN AMOUNT EQUIVALENT TO \$52.0 MILLION  
TO THE  
PEOPLE'S REPUBLIC OF CHINA  
FOR A  
YANTAN HYDROELECTRIC PROJECT

May 6, 1986

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### CURRENCY EQUIVALENTS

Currency Name	-	Renminbi (RMB)	
Currency Unit	-	Yuan (Y) = 100 Fen	
		<u>1985</u>	<u>April 1986</u>
\$1.00	=	Y2.96	Y3.20
Y1.00	=	\$0.34	\$0.31

(Project cost estimates are based on the exchange rate of Y 3.00 to \$1.00 which prevailed at the time of appraisal.)

### FISCAL YEAR

January 1 to December 31

### WEIGHTS AND MEASURES

km	=	Kilometer (= 0.62 miles)
kWh	=	Kilowatt hour (= 860.42 kcals)
GWh	=	Gigawatt hour (1,000,000 kilowatt hours)
TWh	=	Terawatt hour (1,000,000,000 kilowatt hours)
kW	=	Kilowatt (1,000 watts)
MW	=	Megawatt (1,000 kilowatts)
kV	=	Kilovolt (1,000 volts)
kVA	=	Kilovolt-ampere (1,000 volt-amperes)
MVA	=	Megavolt-ampere (1,000 kilovolt-amperes)
TCF	=	Trillion cubic feet

### PRINCIPAL ABBREVIATIONS AND ACRONYMS

ECEPA	-	East China Electric Power Administration
ECPS	-	East China Power System
GEPB	-	Guangxi Electric Power Bureau
MOF	-	Ministry of Finance
MWREP	-	Ministry of Water Resources and Electric Power
PCBC	-	People's Construction Bank of China
SAA	-	State Audit Administration
SCEPA	-	South China Electric Power Administration
SEC	-	State Economic Commission
SPC	-	State Planning Commission
WREPERI	-	Water Resources and Electric Power Economic Research Institute

CHINA

YANTAN HYDROELECTRIC PROJECT

Loan and Project Summary

Borrower: The People's Republic of China

Beneficiary: Guangxi Electric Power Bureau (GEPB)

Amount: \$52.0 million equivalent

Terms: 20 years, including five years of grace, at standard variable interest rate

Onlending Terms: The proceeds of the loan would be onlent from the Government to GEPB under a subsidiary loan agreement with a 20-year term, including five years of grace and at an interest rate of 8.5% p.a. The foreign exchange risk (between the dollar and RMB) and commitment fees would be borne by GEPB.

Project Description: The project seeks to support economic growth in South China through the cascade development of the Hongshui river. The project would be the Bank's first involvement in the power subsector in the Guangxi autonomous region and would help to build relations with GEPB and, later, the South China Electric Power Administration (SCEPA) with whom the Bank is expecting to collaborate on future power generation projects. The project would introduce state-of-the-art dam construction techniques, provide a link between the Yantan power station and South China using 500 kV transmission lines, and help to strengthen and update the power bureau's financial planning and management practices. The project comprises the construction of a 110 m high concrete gravity dam, a spillway, a powerhouse and a ship lift; provision and installation of four generating units of 275 MW each; construction of two single-circuits of 500 kV transmission lines and three associated substations; provision of consulting service for design and construction management; and implementation of a training program. Bilateral technical assistance on a grant basis is being arranged with the Norwegian and Canadian governments. The project presents no special risks.

Estimated Costs:

	<u>Local</u>	<u>Foreign</u> (\$ million)	<u>Total</u>
Preparatory work	35.9	-	35.9
Land, compensation and resettlement	75.8	-	75.8
Construction equipment and plant	78.3	19.4	97.7
Civil works	124.1	72.0	196.1
Electrical, mechanical equipment and computers	100.5	2.8	103.3
Transmission lines and substations	49.3	17.3	66.6
Engineering and consulting services	5.3	2.5	7.8
Supervision and administration	1.8	-	1.8
Training	1.6	1.0	2.6
 <u>Base Cost /a</u>	 <u>472.6</u>	 <u>115.0</u>	 <u>587.6</u>
Physical contingencies	44.4	10.3	54.7
Price contingencies	182.6	39.1	221.7
 <u>Total Project Cost</u>	 <u>699.6</u>	 <u>164.4</u>	 <u>864.0</u>
Interest during construction	148.5	20.6	169.1
 <u>Total Financing Required</u>	 <u>848.1</u>	 <u>185.0</u>	 <u>1,033.1</u>

Financing Plan:

	<u>Local</u>	<u>Foreign</u> (\$ million)	<u>Total</u>
IBRD loan	-	52.0	52.0
Bilateral grant	-	2.0	2.0
Local bank loans	848.1	131.0	979.1
 <u>Total</u>	 <u>848.1</u>	 <u>185.0</u>	 <u>1,033.1</u>

Estimated  
Disbursements:

<u>Bank FY</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>	<u>92</u>	<u>93</u>
	----- (\$ million) -----						
Annual	2.0	20.0	12.0	7.0	5.0	4.0	2.0
Cumulative	2.0	22.0	34.0	41.0	46.0	50.0	52.0

Economic Rate of Return: 12%

Staff Appraisal Report: No. 6050-CHA, dated May 5, 1986

Map: IBRD No. 19478

/a The project is exempt from import duties and taxes.

**REPORT AND RECOMMENDATION OF THE PRESIDENT OF THE  
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
TO THE EXECUTIVE DIRECTORS  
ON A PROPOSED LOAN  
TO THE PEOPLE'S REPUBLIC OF CHINA  
FOR A YANTAN HYDROELECTRIC PROJECT**

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1. I submit the following report and recommendation on a proposed loan to the People's Republic of China to help finance a Yantan Hydroelectric Project. The loan for \$52.0 million equivalent would have a term of 20 years, including five years of grace, with standard variable interest rate. The proceeds of the loan would be lent to the Guangxi Electric Power Bureau (GEPB) with a 20-year term, including five years of grace, at an interest rate of 8.5% p.a. The foreign exchange risk and the commitment fee on the subsidiary loan would be borne by GEPB. Bilateral technical assistance on a grant basis is being arranged with the Norwegian and Canadian governments.

**PART I - THE ECONOMY**

2. A country economic report entitled "China: Long-Term Issues and Options" (No. 5206-CHA) was distributed to the Executive Directors on May 22, 1985. Basic data on the economy are given in Annex I.

**Background**

3. Since 1978, China has initiated economic reforms in both rural and urban areas and in the external sector. Reforms have been greatest in rural areas. Following some experiments with the abolition of collective farming in impoverished areas, the Government implemented a comprehensive restructuring of rural institutions based on various forms of the "production responsibility system". By 1983 the farm household had become the fundamental unit of management and production in agriculture, within a framework of collective or state ownership of land and major fixed assets. Reforms have not yet proceeded as far in the urban economy, but there have been significant changes in enterprise management and finance. The scope for collective and individual economic activities has been enlarged and state enterprises have been allowed greater freedom in production, pricing and marketing above their mandatory plan targets. State enterprises have also been allowed to retain some profits and investment projects have increasingly been financed on a loan rather than a grant basis.

4. In international trade and investment, China has promoted opening up to the rest of the world in recent years. Between 1978 and 1984, the share of exports to GDP nearly doubled to about 10%, a ratio similar to other large economies such as the U.S. and Brazil. Foreign investment has been encouraged, first through establishment of four Special Economic Zones and signing of joint venture contracts for off-shore oil exploration, and more recently through opening of several coastal cities to foreign investment.

## Growth and Stabilization

5. Reforms have helped stimulate rapid development of the whole economy. Real GDP growth averaged 5% p.a. between 1978 and 1981 and 10% p.a. between 1981 and 1984. During these six years, per capita incomes in real terms more than doubled in rural areas and increased by more than 50% in urban areas. Agriculture has continued its remarkably strong performance, with gross agricultural output value (excluding rural industry and commerce) rising at nearly 11% p.a. between 1981 and 1984 and grain output at 8% p.a. (reaching over 400 million tons in 1984). Cash crops and animal husbandry, stimulated by rising demand and attractive prices, have also grown rapidly. Gross industrial output value grew at over 10% p.a. over the same period, with heavy industry growing somewhat faster than light industry (12% p.a. vs. 9% p.a.). If rural industrial output is included, total industrial output value grew at close to 12% p.a. in real terms between 1981 and 1984. The energy constraint on industrial growth was eased by rising coal output (8% p.a. between 1981 and 1984), renewed increases in crude oil production (4% p.a. between 1981 and 1984) and improvements in the efficiency of energy utilization (primary commercial energy consumption grew only 60% as fast as GDP between 1981 and 1984). Manufactured exports growth at 8% p.a. between 1981 and 1984 was slower than during the 1978-81 period but it started from a much higher base and in the face of worsening world market conditions.

6. The Government continues to face difficulties in combining system reform and rapid overall growth with maintenance of economic stability. During 1979 and 1980, China experienced large budget and current account deficits combined with excessive investment and inflationary pressures. In response, a strict stabilization program was introduced in 1981 relying mainly on administrative controls on investment spending. The program slowed growth but also helped lower the budget deficit from about 5% of GDP in 1979 to less than 1% in 1981, reduce inflation to around 2% p.a., and change China's external position to one of current account surpluses averaging nearly \$4 billion during 1982-84. As a result, foreign debt and debt service ratios remained at low levels (\$6.4 billion and 5.5% respectively in 1983) and China's foreign currency reserves (excluding gold) rose to \$17 billion (over 7 months' imports) by mid-1984.

7. This comfortable balance of payments position, achieved at the cost of drastic reductions in investment spending and some recentralization of investment decisionmaking, disappeared rapidly during the course of 1984 and early 1985. Partly as a result of decentralization of decisionmaking and the lack of effective indirect levers, there was a rapid acceleration of investment and consumption during 1984 and the first half of 1985 causing the economy to overheat. Real GDP grew by 14% during 1984, while average wages in state-owned enterprises rose by 20% and domestic credit grew by 36%. The retail price index rose by only 3% in 1984, but preliminary figures show an inflation rate of 9% for 1985. Imports of capital goods increased from \$4 billion in 1983 to over \$7 billion in 1984, with most of the increase occurring in the second half of the year. There was also a rapid expansion in consumer goods imports. These trends continued during early 1985. As a result, foreign exchange reserves (excluding gold) had fallen to about \$10 billion by July 1985 (equivalent to 3.1 months of imports), and the

current account deficit for the year is likely to be in the range of \$10 billion. The Government has responded quickly by launching a strict stabilization program that includes further increases in interest rates as well as a series of administrative directives governing bank credit and project approval. As a result, aggregate credit and demand as well as new import orders have begun to slow, though total imports will continue to rise as past orders are filled.

### Recent Reforms

8. The Central Committee of the Chinese Communist Party issued a major document on "reform of the economic structure" in October 1984. Recent reform developments have been fully in accordance with the directions indicated in the October decision: (a) state enterprises should be made fully independent units which pursue profits and are responsible for losses; (b) the scope of mandatory planning should be reduced and replaced by indicative planning while the focus of planning should shift from annual to medium- and long-term guidance planning; (c) a more rational price system should be introduced by reducing the role of state-controlled prices and increasing the role of "floating" and free market prices; and (d) the tax system should be improved, finance and banking should be reformed and a larger role should be given to indirect macroeconomic regulation through instruments such as tax, credit and pricing policy.

9. Rural reforms have continued to progress more rapidly than reforms elsewhere in the economy. There has been a remarkable spread of nonagricultural activities like processing, transport, and commerce. "Specialized households" (which concentrate on cash crops, animal husbandry, or nonagricultural activities) and pooling of capital by small groups of households in various types of ventures are becoming increasingly common forms of economic organization in China's rural areas. Wholesale markets for some agricultural products have emerged. To encourage investment in land improvement and development, farming contracts between collective and peasant households for the use of land (which typically had been fixed for no more than 3-5 years) can now be extended to as long as 15-20 years. In early 1985, the system of agricultural procurement was changed. Previously the Government purchased quota output of grain and other crops at relatively low prices and stood ready to purchase all above-quota output at a higher price. Under the new system, procurement up to a certain amount (below former quota procurement) is based on contracts concluded voluntarily between peasants and procurement agencies. Prices for these purchases are based on the relatively high average price of past years. Output above the contracted amount must be sold by peasants directly on the free market, but the Government will intervene to purchase grain if the price falls to the original low quota procurement price. Thus a considerably larger portion of basic crop production will be produced for and traded on markets with flexible prices.

10. The momentum of urban reforms has revived, with significant progress on several fronts. In enterprise management, the focus has been on broadening and delineating the decisionmaking authority of urban enterprises. Profit retention now extends to virtually all state-owned industrial enterprises and to nonindustrial sectors like transport, commerce, construction, and other

services. Urban collectives and individual enterprises, as well as a variety of joint ventures between them and state enterprises, have grown rapidly (the number employed in urban individual enterprises rose from 150,000 in 1978 to 2.31 million in 1983).

11. In financial reforms, the most important new development has been the implementation of a profit tax system to replace profit remittances by state enterprises to the government budget. Though most enterprises have switched to this system, the benefits have been limited because of the application of a different effective tax rate for each enterprise, to offset the impact of distorted relative prices and other factors. Similar problems have resulted in the abandonment of an attempt to impose a fee or charge on the fixed capital provided to state enterprises by the Government, and they have hindered the shift from grant to loan financing of new fixed investment. Financial discipline at the enterprise level remains weak, in spite of efforts to strengthen accounting and auditing systems and more strictly enforce existing financial regulations.

12. Some progress has been made with price reform. The majority of agriculture commodity prices were decontrolled even before the recent change in pricing and procurement of grain. Prices of many minor consumer goods are also set by negotiations between producers and commercial units. "Floating prices" (up to 20% above or below official prices) are now allowed for many industrial producer goods (either for all output or for output above the mandatory plan target). Price adjustments for key energy products and raw materials (which in many cases are severely underpriced) and for subsidized basic consumer goods like grain and edible oil have proven more difficult to implement, hindered by the potential impact of price changes on urban living standards and on the finances of energy-using enterprises. Nevertheless, some price rises have occurred (e.g., for coal and petroleum), and moreover the share of free market transactions, at largely uncontrolled prices, has increased in recent years. Gradually over time, and only partly as a result of conscious policy, a two-tier system is emerging; a large but shrinking share of the total supply of most important goods is subject to mandatory plan allocation and administratively set prices, while at the margin a substantial and growing share is allocated by the market mechanism, largely at flexible prices. This pattern may permit China to "grow out of the plan" in a relatively smooth transition, though there are obvious threats to this strategy arising from the strong incentive for arbitrage between planned and unplanned realms.

13. The Government recognizes the need to develop new tools of fiscal and monetary macroeconomic management and has taken some steps to do so. The People's Bank of China was established as a separate central bank at the beginning of 1984, with its commercial banking functions taken on by the newly created Industrial and Commercial Bank of China. In 1985, new methods of credit planning and control were introduced and lower-level and specialized banks were given significant redeposit requirements. Interest rates (including deposit rates) were also raised in 1985, with some move toward unification of rates and development of a term structure resembling that in other countries. Technical transformation loans with a maturity less than one year and loans for working capital now carry the same 7.9% interest rate while

loans of longer maturity carry higher rates, up to 10.8% for 10-year loans. However, interest rates on budgetary capital construction loans (formerly grants) remain low and there are a variety of directed credit schemes. On the external side greater use is now being made of the exchange rate. The old internal settlement rate was abolished at the beginning of 1985 and between January and end-October 1985 the rate against the U.S. dollar declined by over 13%. Despite these changes progress in developing new indirect levers of control has been slow. Recent difficulties in securing macroeconomic balance highlight the need to strengthen institutions and macroeconomic management tools (including monetary, fiscal, and exchange rate instruments) for a decentralized and more market-oriented economy.

#### Long-Term Issues and Prospects

14. In March 1986 a national people's congress discussed a detailed proposal for a new Seventh Five Year Plan covering the period 1986-90. The proposal reaffirms a political commitment to economic reform and provides guidelines for future reform and development. One of the main objectives of the plan will be to create a favorable environment for reform which, in turn, will set the stage for future development. Target growth rates (7% p.a. for industry, 6% for agriculture, a little over 7% for GNP) are below rates of growth achieved with the Sixth Five Year Plan, investment is to be restrained in the next few years, and emphasis is to be placed upon quality rather than quantity of output. It is felt that slower growth will facilitate reform.

15. The plan proposal identifies three main areas of reform. First, enterprise management and incentives are to be improved by: giving enterprises greater autonomy in production, pricing, and employment decisions; lowering and equalizing taxes; increasing competition; increasing accountability for performance; and reforming personnel procedures. In addition, some small state enterprises will be turned over to collective or individual management through contract or lease. Second, the role of the market is to be extended and market networks strengthened. The scope of mandatory planning will be further reduced and markets for capital, technology, and labor will gradually be developed. Third, the emphasis of planning will shift from detailed administrative control to indirect macroeconomic control through economic policy. To this end a series of mutually reinforcing reforms in the planning, pricing, fiscal, banking, and labor and wage systems will be introduced during the plan period.

16. Implementation of the plan proposal will help foster an environment in which fundamental reforms can be gradually implemented in a coordinated way. But specific policy measures will take time to design and then to implement. Many of the reforms required will be difficult, particularly since reforms in different areas are closely interrelated, and thus appropriate sequencing and coordination are essential. For example, price reform in the absence of improvements in enterprise financial discipline will have limited benefits, yet the more profit-oriented behavior that would result from tighter financial discipline would exacerbate the adverse impact of distorted prices. Similarly, reform of the labor allocation system will be incomplete without eliminating many of the "social responsibilities" of enterprises (which now provide housing, medical care, and pensions for their workers and

in many cases education and jobs for workers' children) and replacing them with Government-supported social service programs. The plan proposal suggests moving in this direction by commercializing housing.

17. China's objective of quadrupling the gross output value of industry and agriculture between 1980 and 2000 (which means GDP growth of well over 6% p.a.) will require significant improvements in efficiency as well as continued high saving and investment rates. The plan proposal recognizes there must be major structural changes in the economy over the next two decades, including a reduction in the share of agriculture, a rise in the share of industry and services (which at present is unusually low), and substantial urbanization. There will also be a shift within agriculture, away from grain and basic crops and into cash crops and animal husbandry. The new plan will emphasize development of the service sector, mainly through removing restrictions on collective and individual activity. Urban development will focus on small- and medium-sized cities and towns while restrictions on growth of large urban areas will continue.

18. Certain physical/technical constraints will hinder the attempt to achieve China's targets for the year 2000 and its longer-term goal of catching up with developed countries. Despite rapid growth and substantial improvements in efficiency in recent years, agriculture may again become a constraint on overall growth, since land in China is severely limited. In energy, shortages of fuel (primarily coal) and electricity may continue to constrain growth in transport and commercial infrastructure. Without large new investments and improved efficiency, economic growth will lag. In mobilizing resources in all these areas, China could profitably make use of foreign borrowing. Finally, the rising share of the elderly in China's population (related to the slowdown in population growth) means that more resources will have to be devoted to maintaining their consumption levels, especially in the decades after 2000.

19. Poor motivation and inefficient utilization of labor in the state sector of the economy are major problems which can be solved only by coordinated reforms in labor allocation, the wage system, enterprise management, and social services, among other things. Reforms in the system of education and training to develop China's "human capital" potential also are crucial. Backward technology and inefficient use of existing technology must be addressed by a combination of reforms, appropriately directed investment, and transfer of advanced foreign technology. Irrational location of factories, suboptimal scale of many plants, and poor utilization of physical capital in general are related problems.

20. If reforms successfully transform the economic system, with a beneficial impact on growth and efficiency, a new set of issues will come to the fore, as the plan proposal recognizes. Management of a reformed economy with indirect fiscal, monetary, and other instruments is a major issue (see para. 13 above). In this context, maintaining an adequate saving rate (if the Government no longer accounts for the bulk of aggregate saving) and avoiding inflation (as well as deep cyclical downturns) will be major goals. Assuring an adequate minimum standard of living for the population and an appropriate level of social services will become a major challenge as enterprise and rural communal responsibilities in these areas are reduced. The problem of poor,

backward rural areas in various parts of the country will continue to require attention. Redistributing financial resources to these areas through the fiscal system, easing restrictions on migration out of the poorest areas, and lowering nonagricultural wages to make investment in them more attractive are some options for alleviating poverty.

21. In order to mobilize the external resources needed for rapid, sustained growth the plan proposal calls for export growth of 40-50% over the next five years, greater efforts to attract foreign investment, and increased commercial borrowing. If exports grow at 8% p.a. between 1984 and 1990 and imports grow at 9% p.a., China would have a relatively modest current account deficit of around \$4-5 billion p.a. during the remainder of this decade, equivalent to about 1% of GNP. This implies that the present debt service ratio would increase only moderately by 1990. If China's exports grow more slowly, imports will probably have to be cut back because a higher borrowing target, though feasible in terms of debt service indicators, would probably run into supply constraints as China would become one of the largest developing country borrowers. This highlights the need for continued export growth in order to meet other plan objectives and service greater commercial borrowing. The plan proposal recognizes that greater use of exchange rate and pricing policies will be needed to encourage export growth.

22. Even with continued good export performance, China will have substantial external capital requirements during the remainder of the decade. Under the trade growth assumptions outlined above (exports growing at 8% p.a. and imports at 9% p.a. during 1984-90), the current account deficit would be over \$5 billion in 1990 and the gross borrowing requirement would be about \$6.5 billion. If export growth fell to 6% p.a. during this period and imports continued to grow at 9% p.a., the current account deficit would reach \$14 billion by 1990. Although the plan proposal calls for increased borrowing at commercial rates, access to concessionary capital will play an important role in sustaining China's growth. China also has a claim to concessionary lending because it is still one of the poorer countries of the world. But China's access to concessionary capital for financing development and modernization is limited; apart from Bank Group funds, a significant amount of concessionary capital is likely to come only from Japan and a few other bilateral donors and will probably average no more than \$500-600 million p.a. during the rest of the 1980s.

## PART II - BANK GROUP OPERATIONS

23. To achieve the target growth rates envisioned in proposals for the Seventh Five-Year Plan, to increase efficiency and innovation, and to maintain equity in distribution, China will need continuing economic reforms. Large investment will be required and China will need to import more technology, increase trade and expand investment. In the next few years, therefore, the Bank can best assist China by increasing its access to foreign technology and practices and supporting the development and implementation of reforms that will help to increase the efficiency of resource use and reduce poverty.

24. To address China's objective of updating technology and improve efficiency, the Bank will play the role of intermediary. In transportation, energy, industry, agriculture and social sectors, the Bank will contribute to technology transfer by bringing the Bank's experience to bear on project design and implementation and by helping China to seek appropriate technical solutions through international competitive bidding, training, and foreign technical assistance.

25. Bank assistance will be closely linked with the Government's reform efforts. There are five major elements common to both rural and urban reforms in China that will be the focus of the Bank's involvement. First, institutional change, involving both the separation of economic and administrative functions and further decentralization of decisionmaking, will extend to every sector in which the Bank is involved. Second, financial sector reform, primarily development of financial institutions, has become a focus of Bank assistance. Third, improving planning and project analysis will be critical to reform in sectors such as agriculture and industry, where decisions are now being made by households and independent enterprises as well as in infrastructure where direct government involvement will be required. The Bank will therefore continue its emphasis on introducing appraisal methods and financial planning as well as analysis of intersectoral issues. Fourth, the Bank will be involved in the Government's major program of price reform and development of indirect levers such as control via money, credit and fiscal policies. And finally, the Bank will support reforms in health, education and other social services and measures, in particular, to address the problems of poor regions.

#### Economic and Sector Work

26. The Bank's economic and sector work aims at expanding the Bank's understanding of the structure of the Chinese economy and the direction of its movement and introducing to the Government new tools of economic management. This work lays a foundation for lending and for a dialogue with the Government on issues of reform and development. Past work has included two major economic reports, studies on sectoral investment analysis and planning, and collaborative research with Chinese institutions. The Bank has also organized seminars on macroeconomic and sector issues.

27. Over the next two years, the Bank will carry out a large program of sector work to follow up on issues identified in the most recent economic report and analyze policy options. In this program, the Bank will examine alternatives for developing the financial system, foreign trade and investment. It will also analyze issues of intersectoral investment coordination and development of resource-poor regions. One such study is already under way in Gansu province to improve the efficiency of development and reduce poverty. Research on urban development, transport planning and regional industrial development will also be undertaken, and regional industrial subsectors will be reviewed. Collaborative studies with Chinese research institutions will continue. An ongoing study of management and guidance of state enterprises will be followed by a study of collective enterprises, which are expected to become increasingly important industrial organizations in the reformed system.

## Lending Operations

28. Since China's change of representation in the Bank Group in May 1980, 37 projects involving lending of \$3,709.9 million to China have been approved. Of the projects, twelve have been in the agriculture sector, seven in energy, six in transport, four in industry, four in education, two in technical cooperation and one each in health and water supply. In FY85, IFC made its first investment in China of \$17.02 million in automobile manufacturing. Annex II contains a summary statement of these loans, credits and IFC investment as of March 31, 1986.

29. In addition to the already approved projects for second rural credit, third industrial credit, second technical cooperation credit, provincial universities, third railway, Tianjin port development, fresh water fisheries and the proposed project, we expect to present to the Board this year an additional power project and projects for petroleum and health. For FY87 and beyond, we expect the China lending program to continue to grow from current levels. Infrastructure projects in energy and transport will remain priorities. Technical renovation of enterprises, particularly in industry, will be given greater attention and support as will the regional approach to project development, now being used to assess the needs of Gansu province.

30. In the energy sector, future Bank lending will be aimed at improving efficiency of energy consumption and expanding energy production. For example, in the coal subsector, we will assist in upgrading the facilities and operations of existing mines and in transferring improved technology for mines under construction or in operation. In power, we will provide for technology transfer, staff training and institution building. Through a power tariff study, we will seek to introduce a tariff system based on marginal cost and to increase the awareness of the need for a nationwide power system development program. In the petroleum subsector, the rationale for Bank involvement will lie in the identification, packaging and transfer of specialized technologies as well as in the strengthening of investment and resource use planning and management capabilities.

31. Future transport projects will both upgrade technology and strengthen institutions. In roads, major changes in organization and financing will be required as a result of administrative decentralization and introduction of the production responsibility system in rural areas. In railways, we will focus on technologies to improve domestic production of railway equipment and materials in addition to our work on line construction and electrification. We also intend to broaden our involvement in ports to include coastal shipping and inland water transport. For all transport subsectors, we will support efforts to improve financial analysis and investment planning.

32. Agriculture lending will focus on developing institutions to provide services to individual farmers and to monitor and stimulate change in the pace and pattern of agricultural development. The shift from grant to loan finance and the increased autonomy of the rural banking system will be supported through rural credit projects. We will continue to assist with the training, research, extension, and other service activities of the ministries concerned with agriculture. In addition, we expect to finance programs for specialized

agricultural development such as livestock and fisheries, and for irrigation and area development.

33. Bank lending in industry, as in agriculture, will focus on strengthening of financial intermediaries which provide credit to state and collective enterprises. In addition, we expect that there will be large regional projects in fertilizer, cement and machine tools and other subsector projects concerned with upgrading technology and improving organization and management.

34. Bank lending in education will gradually be broadened beyond the present concentration on higher education. For example, we will finance vocational and technical education which is now being given great emphasis in China. In view of the Government's recent decision to universalize access to primary and lower secondary education, another major aim of education lending will be to assist with basic education, particularly in poor rural areas. In this context, support for teacher education will be given priority.

35. Project preparation in the urban sector is currently concentrated in Shanghai on efforts to improve services, especially in environmental upgrading and housing, and development of municipal institutions. Future lending is expected to include support for development of medium-size and small urban areas in specific provinces. In addition, we expect to continue lending for rural water supply. Bank lending in health will provide access to new medical technologies for more efficient health care in both the lingering problems of communicable disease, primarily in poor rural areas, and the emerging problems of chronic disease. This will involve further support for medical training and planning and management of service delivery systems. Projects will also support the reform of systems for supplying and financing health services.

36. Cofinancing with multilateral and bilateral agencies has been arranged for projects in coal, power, agriculture and rural water supply and will remain a feature of our assistance program. We will explore further options for cofinancing with export credit agencies. Commercial bank cofinancing and the use of B-loans also appear viable, particularly as China increases the overall volume of its foreign borrowing. In technical assistance, we will continue to incorporate into projects components for training, overseas study, and access to foreign expertise. In addition, we will be a cooperating agency for a second UNDP umbrella project in China. EDI activities remain an important element of the Bank's program and in coming years will provide an extensive program of policy seminars for senior Chinese officials, and economic and financial management courses and sector-specific training for officials from core and line agencies.

### Implementation

37. Project implementation is generally proceeding well. Most project agencies, as well as the Ministry of Finance (MOF) and the State Planning Commission (SPC), have established and staffed offices to handle Bank projects. Disbursement performance has also been satisfactory. Special accounts have been established for many of the approved projects and have helped to speed disbursements. In October 1985, the Bank opened a resident office in Beijing to support further expansion of the lending program,

accelerate project preparation, improve project implementation and further economic and sector work.

### PART III - THE ENERGY SECTOR AND THE POWER SUBSECTOR

#### Overview

38. China is the world's fourth largest producer and third largest consumer of commercial energy. Coal is by far the most important source of energy in China, accounting for some 70% of its commercial energy consumption. Oil production has increased rapidly over the last three decades to become an important source of both commercial energy and export earnings, representing about 18% and 20% of the respective totals. About 20% of oil production and 1% of coal production are currently exported. Natural gas (2%), hydroelectric power (5%) and limited quantities of shale oil and geothermal power make up the balance of commercial energy. Non-commercial energy resources supply energy equivalent to about 40% of commercial production.

39. China's achievement in developing its energy resources over the last three decades has been remarkable. The annual production of coal has increased from some 60 million tons in 1952 to 760 million tons in 1984. During the same period, annual oil production increased from 0.1 million tons to 114 million tons, and annual electricity generation increased from about 7.3 TWh to 377 TWh. However, the recent economic report on China <sup>1/</sup> has concluded that slow growth of energy supplies could constitute a constraint to the Government's efforts to quadruple the gross value of industrial and agricultural output (GVIAO) from 1986 to 2000. To ensure sufficient energy for economic development, China will need to increase coal production beyond current targets for the year 2000 and meet at least the official output targets set for all types of energy resources. Meeting these targets will require strengthening of planning and coordination among the diverse components of the energy sector and also the transportation sector. In addition, serious subsectoral constraints on technology, logistics, management and financing need to be removed.

40. In view of the complexity of the problems anticipated in the attempt to balance supply and demand, it is crucial for China to formulate and implement a comprehensive and coherent long-term strategy directed at both efficient energy development and utilization. The Government, in its Sixth Five-Year Plan (1981-85), accorded high priority to development of the energy and transport sectors and these objectives will be further emphasized in the Seventh Five-Year Plan (1986-90). The Bank has supported the Government's objectives and formulation of a coherent sectoral strategy through economic and sector work as well as lending operations.

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1/ "China: Long-Term Issues and Options," Report No. 5206-CHA, May 22, 1985.

### Resource Endowment

41. China is well endowed with primary energy. Coal and lignite reserves are concentrated largely in the north and northeast, which have about 70% of the total recoverable reserves (640 billion tons). Future plans call for increasing coal production significantly, but difficulty in transport (essentially a shortage of railroad capacity) appears to be a serious obstacle to achieving this objective. Biomass fuels are the second most important source of energy in China, accounting for an estimated 30% of final consumption. Recoverable reserves of oil onshore have been variously estimated between 6-15 billion tons, and estimates for offshore oil reserves range from 3-10 billion tons. Recoverable reserves of non-associated gas have so far been estimated at about 3 trillion cubic feet (TCF), about 90% of which are located in Sichuan province. In addition, recoverable reserves of associated gas are estimated at about 1.8 TCF. Unofficial estimates of oil shale in China place reserves at 400 billion tons. China's hydropower potential, among the largest in the world, is estimated at 1900 TWh p.a., of which 87 TWh p.a. have so far been developed. A major constraint has been that the bulk of the undeveloped potential is in four major basins in southwestern and northwestern China, where large-scale development would require transmission distances of 1,200-1,500 km to major industrial load centers. The known uranium reserves in China are sufficient to sustain 15,000 MW of nuclear power plant for 30 years. Although potential sources of geothermal energy are abundant in the mountainous southwestern part of the country, their role is likely to remain limited due to their distance from major load centers.

### Efficiency of Energy Use

42. China's consumption of energy per unit of GDP is well above that of any major developed or developing country. Several factors contribute to the high intensity and relative inefficiency of fuel use, which is particularly evident in the industrial sector: the structure of industrial production, the scale of industrial units, the raw materials used, the technology employed, and industrial organization and operating practices. In the late 1970s, it became evident that the high rate of energy consumption could not be sustained. The Government took administrative measures to reduce the rapid growth of energy consumption, including quotas, adoption of energy efficiency measures, retrofitting, marginal adjustments of industrial structure and the importation of energy efficient technology. These measures have had some success. Primary commercial energy consumption per unit of industrial and agricultural output has been dropping steadily since 1979.

43. As a result, there has been an impressive improvement in overall energy efficiency during the past five years. Energy consumption per unit of gross value of industrial and agricultural output (GVIAO) declined by 7% p.a. during 1979-81, and by 3% p.a. during 1982-83. Preliminary data indicate a further reduction of almost 7% in 1984. Technical and operational improvements are estimated to have accounted for about 40% of these energy savings. The other 60% came from a decline in the relative importance of heavy industry, the closure of some inefficient small-scale plants and other structural changes within industrial subsectors.

44. Although the recent administrative measures have been effective in promoting energy efficiency, the process of fine-tuning the current system to provide economic signals to consumers and incentives for further improvements in efficiency will become increasingly complex. There is thus a need initially to complement and gradually to replace the administrative controls with a more flexible allocation system that would provide greater autonomy to individual entities. The system would increasingly rely on an energy price structure that reflects the relative scarcity of each source of energy. This would influence consumption in the direction of the optimal least cost mix of energy sources required to meet future demand. Such reform of the allocation system would be a key component of a strategy to stimulate the adjustments in the structure of energy consumption which are necessary for balancing energy supply with demand in the long-term.

#### The Power Subsector

45. Power development in China has registered high rates of growth during the last three decades. Annual per capita generation of electricity has grown from 8 kWh in 1949 to 363 kWh in 1984. Of the total installed capacity of 79,920 MW in 1984, 32% was hydro and 68% was thermal. Power is distributed through 30 grids, of which 13 (representing over 80% of the total capacity) exceed 1,000 MW each. Energy sales in 1984 reached 319 TWh, having grown at an average 13.8% p.a. since 1949. Of these sales, 80% represented industrial consumption, 9% agricultural, 1% transportation and 10% residential and urban commercial usage. About 60% of the population has access to electricity.

#### The Market for Electricity

46. Electricity consumption increased at an average rate of 10.7% p.a. between 1965 and 1979, but this pace slowed during 1979-84 when it averaged only 6.4% p.a. The major reason for the lag has been the inability of the power subsector to fully meet demand, particularly in China's major industrial centers. The power shortage countrywide was estimated at about 40 TWh p.a., or more than 15% of industrial electricity requirements. The recent economic report on China estimates that by the year 2000 generation of 960-1,290 TWh (equivalent to 109,000-178,000 MW in additional generating capacity) would be needed to meet the requirements of China's national income growth targets.

47. The share of electricity in total energy consumption has historically been low compared with that of other countries. The principal features underlying this low share appear to be: (a) the relatively low level of electricity use in the residential and commercial sectors; and (b) the relative inefficiency of fuel consumption in the industrial sector which decreases the relative share of electricity in total industrial energy consumption. As a result of China's rapid development in recent years, the share of electricity in total energy consumption has been increasing despite serious supply constraints, rising from about 13% of final commercial energy use in 1970 to about 15% in 1975 and 18% in 1980. This share is expected to continue to grow, reaching 26-27% in year 2000 which is a level comparable to that currently prevailing in other major developing countries. The manufacturing sector is projected to continue to account for at least three-quarters of

final electricity consumption, although electricity use per unit of value added is likely to fall slightly. Electricity use in residential and commercial sectors is expected to grow at 11-13% p.a., reflecting a gradual improvement in living conditions and rapid growth of the service sector. Electricity use in transportation is also projected to grow, reflecting the increase in the share of electric locomotives in total railway haulage.

### Institutions

48. In the Government reorganization of 1982, the Ministry of Water Resources and Electric Power (MWREP) was designated to oversee electric power development and water resource management, including policymaking and system planning as well as the design, construction and operation of major power and water resource projects. Under MWREP, there are six regional power administrations which coordinate operations and load dispatching for the regional power grids and formulate long-term development plans for approval by MWREP and SPC. Below the regional administrations are 22 provincial and municipal power bureaus operating as parts of the regional grids, while eight other power bureaus still operate in isolation.

### Tariffs

49. Electricity tariffs have in general remained constant since 1953. Through minor regional adjustments over the years, they have become reasonably uniform all over the country except in the northeast where costs have been lower because electricity was supplied predominantly by hydro-power generation, even in the early years. The average revenue per unit has been increasing due to the growing share of consumption by light industries, commercial and residential users which pay higher rates. The national average was about 6.9 fen/kWh (US¢2.3/kWh) in 1984.

50. In the context of Chinese accounting practices, which in the past did not include in costs any return on capital (other than depreciation), this tariff yielded satisfactory financial performance for the power sector as a whole. However, this situation is changing because of recent changes in the Government's financial policies. Since 1982, capital investments in the power sector have been financed through domestic and foreign borrowing rather than through Government budgetary allocation as in the past. In addition, fuel costs have been rising and are expected to rise further, particularly with the ongoing increases in coal prices and the expected increases in rail tariffs (which will affect delivered coal costs). As a result of these changes in the costs of electricity, and in line with the Government's policy to reform its economic allocation system, the Government is considering a review of the electricity tariffs. To assist the Government with this review, a tariff study was included under the Beilungang thermal power project and is expected to be completed by end 1987.

### Manpower and Training

51. MWREP has about 2.5 million employees of whom about 51% are directly under the Ministry and about 49% are under the provincial administrations. Of the total, less than 30% have received formal education beyond junior second-

dary school level. In general, the quality of staff intake has been low; there is a severe shortage of trained manpower, particularly for administrative and technical positions.

52. In the late 1970s, MWREP initiated a long-term training program to upgrade the quality of its staff at all levels. Although MWREP has organized the program, much of the implementation has been carried out by the provincial power bureaus. The Ministry's immediate goal is to establish a comprehensive program that will systematically provide training to existing staff. MWREP is also strengthening its capacity for full-time training of potential employees through its Education Department which sponsors 4 universities, 39 technical colleges, television and correspondence universities as well as 27 secondary-level vocational schools. The total number of students enrolled in these institutions was 17,700 in 1984. About 15,300 graduates are assigned to MWREP annually - 7,000 at four-year college level and 8,300 at junior college level. These programs, supplemented by periodic in-service short courses for managerial and technical staff and on-the-job training for workers, are expected to gradually lead to improved productivity in the sector. The quality of staff will eventually improve, but the rate of change is still low. In support of these activities and the project entity's objectives for human resource development, the proposed project would include a training component.

### Planning

53. Power system planning at the regional and provincial levels is carried out by the regional electric power administrations and the provincial electric power bureaus. Overall planning is the responsibility of the Planning Department of MWREP which reviews the plans proposed by the regional administrations and provincial bureaus for the short-term (annual), medium-term (5-year) and long-term (10-15 year). For major hydro projects, the investigation, planning and design are carried out by the regional hydro-electric investigation and design institutes. For system expansion, transmission lines and substations above 110kV and major thermal projects, the studies, planning and design are carried out by the regional electric power design institutes. MWREP, like other line ministries, operates under the overall supervision of SPC and the State Economic Commission (SEC), in which are vested the ultimate authority for project approval, budget allocation, financing arrangements and supervision.

54. Under current plans, coal-based thermal power generation will continue to provide at least three quarters of total generation through the end of the century. There are important issues in this area concerning plant location and transmission network planning. For example, the locational decisions will have to carefully balance the advantages of plant location at the coal mine sites -- requiring long-distance transmission to major load centers -- versus development near load centers and port areas to which large quantities of coal would be transported by rail and/or water. Thus planning decisions have to take into account factors such as the regional distribution of coal resources, regional differences in coal development costs, relative costs of coal transportation and power transmission, environmental implications, and external conditions such as the availability of water for cooling purposes.

55. As the planning of China's power subsector development becomes increasingly complex, up-to-date system planning techniques will need to be adopted, particularly to evaluate the feasibility and optimal timing of large-scale projects with long lead times and to make decisions about the generating plant mix, power plant location, and grid architecture. To assist MWREP in acquiring these techniques, arrangements were made under the second power project (Loan No. 2493) for introducing least-cost investment programming techniques through the assistance of the International Atomic Energy Agency (IAEA). The Water Resources and Electric Power Economic Research Institute (WREPERI) in Beijing has assisted GEPP to formulate a least cost development program for the Guangxi power grid.

#### Technology Transfer

56. The transfer and development of modern technologies will be crucial if China is to increase energy production and efficiency sufficiently to achieve its broader economic goals. Technology transfer is especially important for thermal power plants, where increasing deployment of high-pressure, large-scale units and greater development of cogeneration could reduce net fuel consumption by some 20% by the year 2000, thus greatly alleviating pressures on coal supplies and transportation. The Government is already implementing this strategy through the gradual introduction of standardized 300 MW and 600 MW coal-fired units. The Bank is assisting the provision of the state-of-the-art technology in the construction and operation of 600 MW units under the third power project. Technology transfer needed for hydroelectric projects would include interpretation of geological data, judgement of foundation excavation, design for sophisticated structures and construction management. These are being provided under the proposed project.

#### Subsector Objectives and Policies

57. The basic objectives of the Government for the power subsector are to modernize, increase efficiency, and expand it at a rate sufficient to meet the requirements of industrial development. To achieve these objectives, the Government is pursuing the following policies:

- (a) a phased increase in the financial autonomy of enterprises;
- (b) gradual introduction of a more rational pricing system;
- (c) introduction of modern techniques in project design and system planning;
- (d) acceleration of hydro development;
- (e) development of mine-mouth, coal-fired thermal stations supplemented where necessary by stations located near port areas and load centers;
- (f) construction of extra high voltage transmission lines to transmit power from remote hydro sites and mine-mouth thermal stations and for interconnection between regions;

- (g) progressive replacement of medium- and low-pressure thermal units with larger size and higher pressure units to improve fuel efficiency, and the conversion of oil-fired units to coal-firing;
- (h) development of nuclear units in areas where other forms of energy are scarce; and
- (i) improvement of energy efficiency.

#### Subsector Issues

58. Shortage of Generating Capacity. In spite of considerable growth in generating capacity, supply has lagged behind demand and shortages are reported in the Northeast, North, South and East China grids. The power shortage countrywide was estimated at about 40 TWh in energy in 1984. Demand management has been carried out in these regions by staggering holidays, changing working hours, and load shedding during shortages according to agreed priorities.

59. Inadequate Transmission and Distribution Facilities. The development of transmission lines and substation facilities has lagged behind that of generation. No interconnection has yet been made between regions and there are about eight provincial grids still operating in isolation. MWREP has estimated that China has a shortage of about 10,000 km of transmission lines at voltages above 110 kV. Similar shortages exist in substation capacity. Lower voltage subtransmission and distribution facilities are currently being financed by the provincial governments or municipalities. The local authorities usually do not allocate sufficient funds for the improvement and extension of these facilities which results in high system losses and inefficient use of energy.

60. Financial Constraints have been a major factor in the shortage of generating capacity and the inadequacy of transmission and distribution facilities. In the past, limited budgetary allocations have caused considerable slow-down of power projects. Recently, the funding mechanism has undergone considerable revision which has given rise to the expectation that power bureaus can cover about 10% of their investment requirements through internal cash generation. In the future, tariff increases should lead to increases in the amount of resources available for investment in the subsector and in the levels of self-financing by the power bureaus themselves.

61. Technology Transfer and Training. Despite some progress, China's technology in thermal power plant design, least-cost investment programming, load dispatching and application of computers falls short of levels prevailing in developed countries. The age profile of the engineering staff is highly skewed; most are in their 50s and 60s. Only strenuous efforts to train young graduates now emerging from universities will narrow the gap. This may involve establishing specialized training institutes as well as providing on-the-job training within the country and training abroad at utility companies and other institutions. A greater understanding of the subsector's training requirement is necessary before an appropriate solution can be developed and

encouraged. The Bank plans to address this issue in the context of a subsector-oriented training program.

### Role of the Bank

62. The Bank's strategy for involvement in China's power subsector has been to use its lending operations to assist the Government in solving technical problems and rationalizing investment decisions. The Bank is implementing this strategy by introducing to China modern methods of system planning, project preparation, construction, operation and utility management.

63. The first power project (Lubuge hydroelectric, Loan No. 2382) will provide 600 MW of generating capacity and associated transmission system to the Yunnan power grid. The project successfully promoted cofinancing arrangements including export credits for the major electrical and mechanical equipment and bilateral grants for engineering services. It also introduced international competitive bidding for civil works and modern construction techniques for a rockfill dam, power tunnel and underground powerhouse, and enhanced the financial autonomy of the Yunnan Provincial Electric Power Bureau (YPEPB). The project included training for staff of the Kunming Hydroelectric Investigation and Design Institute (KHIDI), the Lubuge Project Construction Management Bureau (LPCMB) and YPEPB in the areas of design, construction management, quality control, accounting and cost control through consultants services. The project also included the upgrading and equipping of an electrical training school in Kunming.

64. The second power project (500 kV transmission line from Xuzhou to Shanghai, Loan No. 2493) will transmit a large block of power from a mine-mouth coal-fired thermal power station at Xuzhou (500 MW in operation and 4 units of 200 MW under construction) to the East China power grid. This project also successfully promoted cofinancing with a bilateral loan for the Yangtze river crossing works and provided for the transfer of the latest technology in 500 kV transmission line and substation design, construction, operation and maintenance to the East China Electric Power Design Institute (ECEPDI) and the Jiangsu Provincial Electric Power Bureau (JPEPB). A training component included the establishment of a training center and equipment for two other technical schools in Nanjing and Shanghai for the operation and maintenance of 500 kV transmission lines and substations.

65. Under the third power project (Beilungang thermal power) the Bank would finance a fully integrated state-of-the-art 600 MW coal-fired unit that will be used to set technical and economic performance standards for a series of same-size units to be installed in China and a 500 kV transmission system connected to the East China power grid. Cofinancing is being sought for the second unit. The project would also introduce the concept of a least-cost expansion plan as a basis for evaluating power projects, and is expected to contribute to the formulation of a more rational tariff through a tariff study. A program to meet the needs for project related training and long-term human resources development would also be included.

66. The proposed fourth power project is needed to help address the acute energy shortage in the Guangxi autonomous region and in Guangdong

province in South China. At present, the region's major source of energy, besides hydro, is coal which must be shipped from North China and is very costly. To relieve the energy shortage, the Government has already undertaken four projects to develop power from the Hongshui river and is also building a nuclear power plant near Guangzhou with assistance from the French and British governments. In spite of these efforts, there is urgent need for more systematic development of other power resources in the region.

#### PART IV - THE PROJECT

67. The project was identified in September 1984 and appraised in November 1985. Negotiations were held in Washington from April 17-18, 1986, with a delegation headed by Mr. Luo Qing, Deputy Director, External Finance Department, Ministry of Finance. A Staff Appraisal Report (No. 6050-CHA, dated May 5, 1986) is being distributed separately to the Executive Directors. A map (IBRD No. 19478) showing the project location is attached. Supplementary project data are provided in Annex III.

#### Project Objectives

68. The project is aimed at supporting economic growth in South China through the development of the Hongshui river basin. The project would be the Bank's first involvement in the power subsector in Guangxi. The Bank was invited to participate in this project, even though the preparatory civil works had been started, in the belief that the Bank could provide useful technical inputs in dam design and construction. The Government considers this assistance to be critical for upgrading the technical capabilities of the Guangxi Electric Power Bureau (GEPB). In fact, the contribution already made by the Special Board of Consultants (SBC) has demonstrated the usefulness of Bank involvement. Through the proposed project, the Bank would build a sound working relationship with GEPB and, later, with the South China Electric Power Administration (SCEPA), the primary institutions charged with developing power resources for the region. After assisting in the planning of power resource development for the region, the Bank might be asked to collaborate in financing future power projects (possibly including two large reservoir projects on the Hongshui river and a gas-fired thermal power project to be developed in conjunction with a natural gas development project in Guangdong province).

#### Project Description

69. The project would comprise:

- (a) construction of a 110 m high concrete gravity dam, a spillway, a powerhouse and a ship lift;
- (b) provision and installation of four generating units of 275 MW each;
- (c) construction of two single circuits of 500 kV transmission lines and three associated substations;

- (d) provision of about 160 man-months of consulting services for construction management; and
- (e) training for GEPB staff, and upgrading of GEPB training facilities and training for government officials in financial practices.

### Project Management and Implementation

70. The beneficiary of the proposed project would be GEPB, a state-owned enterprise under the direction of MWREP. GEPB is assigned responsibility by the Government for the execution within its jurisdiction of the government program for power generation, capital investment, power sales and tariffs, employment and payroll, materials consumption and tax and profit remittances to the State. A charter of GEPB acceptable to the Bank has been issued.

71. GEPB is headed by a director who is appointed by MWREP. Four deputy directors are responsible for: capital construction; production and power supply; planning, science and technology; and labor, wages and finance. Operations are carried out through a number of units engaged in power generation, construction, distribution, and maintenance. Each of these units is headed by a manager with line responsibility to the director of GEPB.

72. As of the end of 1984, GEPB's employees numbered about 32,037. Except for the core technical and managerial personnel who are assigned by the MWREP, virtually all of GEPB's employees are recruited locally. They are hired on a permanent basis with the exception of some contract labor for construction work. Of the total employed, only about 6.5% have received technical training equivalent to or above college level. The majority of the workers have less than nine years of formal education. Through its Education Division GEPB administers two technical schools for the training of skilled workers. An electrical institute for the training of technicians has been established and the first group of about 80 students began receiving instruction in autumn 1985. However, the training capacity is not adequate to meet the long-term need. The quality of teaching staff as well as training facilities and equipment need to be upgraded and modernized. A training component has therefore been included in the proposed project.

73. The feasibility study for the project was carried out by the Guangxi Investigation and Design Institute (GIDI). Engineering and detailed design of the project is being completed by GIDI. All preparatory works with the exception of concrete facilities have been completed. Excavation for the diversion channel and dam foundation has been started with good progress. Procurement of the first group of construction equipment is under way. GEPB would be responsible for the construction management and supervision of the project, including transmission lines and substations, and would contract all the works to domestic contractors through local competitive bidding. Construction supervision and management would be carried out by a construction unit under GEPB with the assistance of consulting engineers to be appointed by late 1986. The facilities when constructed would remain in the ownership of GEPB, who would have ultimate responsibility for their operation and maintenance.

74. The commissioning dates of the four generating units are scheduled for June 1992, March 1993, December 1993 and September 1994, respectively. The project completion date is December 31, 1994. The closing date of the Bank loan would be June 30, 1993 which would allow adequate time for payment of retention monies.

#### Technical Assistance and Training

75. Consulting services would be used to assist in construction management. The Bank has assisted the Government in seeking bilateral assistance for the above services. The Government of Norway has agreed in principle to provide for such services through a grant of about \$2.0 million.

76. A Special Board of Consultants (SBC) was established and conducted its first meeting in November 1985 to review the project feasibility, layout and design, to advise on any engineering problems which may arise during construction and to review the safety aspects of the dam. Assistance from the Government of Canada is being arranged for the financing of a Canadian member of SBC. Assurances have been obtained that GEPB would use independent engineering experts whose qualifications will be reviewed by the Bank, to undertake periodic inspection of the dam and associated works during construction and thereafter and make any necessary modifications.

77. Training will be carried out in three parts: (a) on-the-job training for GEPB staff on design and construction management; (b) training for long-term human resources development; and (c) training on financial management and planning and utility accounting practices. Parts (a) and (b) will be carried out by GEPB and part (c) will be carried out by MWREP. Part (a) will be provided through technical assistance by SBC and the Consulting Engineer during construction. Part (b) will comprise upgrading facilities, equipment and instructors' skills at three worker training schools. Part (c) will include study tours and training for MWREP and other related institutions. Assurances have been obtained that GEPB and MWREP will implement a training program acceptable to the Bank.

#### Cost Estimates

78. The cost estimates are based on end-1985 price levels. Physical contingencies include 5% for equipment, 15% for civil works, and 10% for transmission lines, substations and other local costs. Price escalations for both foreign and local costs are calculated on the basis of the projected international inflation rates of 7.0% for 1986-87, 7.5% for 1988, 7.7% for 1989, 7.6% for 1990 and 4.5% for 1991 and thereafter. The total financing required is \$1,033.1 million equivalent, including interest during construction. The project would be exempted from customs duties and taxes.

#### Financing Plan

79. The proposed Bank loan of \$52.0 million would meet about 6% of total project cost or about 28% of foreign exchange requirements. It would be used to cover the foreign costs of the following components:

- (a) construction equipment for civil works and plant installation;
- (b) instrumentation and control equipment;
- (c) computer hardware and software for utility management;
- (d) steel products (reinforcing and structural steel for civil works);
- (e) steel plate for penstocks and related fabrication equipment;
- (f) consulting services; and
- (g) training.

80. The foreign exchange requirement of \$185.0 million is expected to be met by the proposed Bank loan (\$52.0 million), a bilateral grant (about \$2.0 million equivalent) and local bank loans (\$131.0 million). The local cost (\$848.1 million equivalent) is also to be financed by local bank loans.

81. The proposed Bank loan would be made to China at the standard variable interest rate for a 20-year term including five years of grace. Assurances have been obtained that the Government would onlend the proceeds of the Bank loan to GEPB under a subsidiary loan agreement with a 20-year term, including five years of grace, at an interest rate of 8.5% p.a., and that GEPB would bear the commitment charges and foreign exchange risk (between the dollar and the Borrower's currency). A Project Agreement will be concluded between the Bank and GEPB. Execution of an acceptable subsidiary loan agreement between the Government and GEPB and approval of the Loan Agreement by the State Council would be conditions of loan effectiveness.

#### Procurement and Disbursement

82. Equipment and materials financed under the proposed Bank loan will be procured by international competitive bidding (ICB) in accordance with the Bank's Procurement Guidelines, except for those eligible for LIB or direct purchase as described below. In bid evaluation, qualifying domestic manufacturers would be eligible for a preference of 15% or the import duty, whichever is lower. Equipment estimated to cost less than \$150,000 per contract up to an aggregate amount of \$1.5 million could be procured through limited international bidding (LIB) on the basis of bids invited from at least three qualified suppliers eligible under the Guidelines. Spare parts and spare tires needed for the existing equipment costing less than \$100,000 per contract up to an aggregate amount of \$1.0 million could be procured through direct purchase. Civil works, which would not be financed under the Bank loan, would be procured through local competitive bidding (LCB).

83. Advanced contracting may be required for the procurement of some construction equipment, but no retroactive financing would be needed. Details of procurement of goods and services are shown in the table below:

PROCUREMENT ARRANGEMENTS  
(\$ million)

	Procurement method					Total cost
	ICB	LIB	LCB	Other/ <u>b</u>	N.A.	
Equipment and materials	66.3 (48.0)/ <u>a</u>	1.5 (1.5)	-	413.2 (1.0)	-	481.0 (50.5)
Engineering and consulting services	-	-	-	10.9 (0.5)	-	10.9 (0.5)
Training	-	-	-	3.6 (1.0)	-	3.6 (1.0)
Civil works, preparatory works, and resettlement	-	-	366.0	-	-	366.0
Supervision and administration	-	-	-	-	2.5	2.5
<u>Total</u>	<u>66.3</u> (48.0)	<u>1.5</u> (1.5)	<u>366.0</u>	<u>427.7</u> (2.5)	<u>2.5</u> -	<u>864.0</u> (52.0)

/a Figures in parentheses are the respective amounts financed by the proposed Bank loan.

/b "Other" includes direct purchase, procurement of equipment and materials within the country other than through LCB, plant and transmission line installation to be executed by local contractors, and consulting services and overseas training.

84. All bidding packages for goods financed by the Bank and estimated to cost over \$1.0 million equivalent would be subject to the Bank's prior review of procurement documents, which covers nearly all of the foreseen Bank-financed contracts.

85. The Bank loan would be disbursed against: (a) 100% of the foreign expenditures of directly imported equipment and materials; (b) 100% of local expenditures ex-factory of locally manufactured items; (c) 75% of the cost of other items procured locally; and (d) 100% of the cost of consulting services and overseas training. For expenditures relating to training and contracts for goods and services each valued less than \$200,000 equivalent, reimbursements would be made on the basis of statements of expenditures. Documentation supporting such expenditures need not be submitted to the Bank but should be retained in the GEPB project office in Nanning and made available for review by the Bank's supervision missions. To facilitate disbursement, a special account with an authorized allocation of \$3.0 million would be established in a bank on terms and conditions acceptable to the Bank. Applications for replenishments would be made quarterly or when the Special Account is drawn down by 50% of the initial deposit, whichever occurs first.

### Planning, Accounting and Audit

86. GEPB maintains its accounts on an accrual basis using a double entry system and follows accounting procedures established by MOF. GEPB's operating departments prepare accounting information monthly; the headquarters compiles consolidated accounts monthly, quarterly and annually. GEPB has an extensive accounting staff who are well trained in maintaining ledgers and compiling accounts. As the accounts are essentially used to document historical financial information, GEPB neither possesses nor has perceived a need for other financial analytical skills. As GEPB modernizes its financial management practices, it will need to learn to analyze financial and cost accounts for decisionmaking. The Bank has furnished a financial forecasting model to GEPB to enable it to study the impact of expansion plans and price variations on their future financial positions. Assurances have been obtained that, by December 31 of each year commencing December 31, 1986, GEPB will furnish to the Bank a financial plan containing forecast income statements, sources and uses of funds, and balance sheets for the next five-years. In addition, an understanding was reached that, at the Bank's request, GEPB will prepare and furnish financial projections for five years subsequent to the period of the agreed financial plans.

87. The Guangxi Audit Bureau (GAB) was established in December 1983. Under the proposed project, GEPB's annual accounts will be audited by GAB under the overall supervision of the State Audit Administration (SAA). This arrangement is satisfactory. Assurances have been obtained that GEPB will furnish annual financial statements, certified by an acceptable auditor, to the Bank within six months after the end of each financial year. The Government agreed that project accounts for the MWREP-implemented training would be similarly audited and provided to the Bank.

### Financial Position

88. During the five-year period from 1980 through 1984, GEPB's sales increased by about 37% while revenues increased by about 41%. The operating ratio, which has previously remained reasonably constant at about 52% increased to 62% in 1984. During the period, GEPB has realized an average rate of return of about 15% based on historically valued net fixed assets in operation. Debt service coverage ratio has remained satisfactory.

89. During the period 1985-1995, GEPB is projected to maintain a high growth rate. Energy sales are expected to increase by about 177% over 1984 levels, representing a compound annual growth rate of about 10%. Net fixed assets in operation are expected to increase at about 510% over current levels, representing a compound annual rate of about 18%. Yearly capital expenditure is expected to increase by about 154% over the 1984 level, representing a compound annual growth rate of about 9%. If GEPB is to maintain its financial viability in the face of this growth, it will need to increase its average tariff from the current level of 7.0 fen/kWh to 11.3 fen/kWh in 1995, an increase of about 59%. Assurances have been obtained that GEPB will take measures, including but not limited to increasing its tariffs, to ensure that operating revenues are sufficient to meet the aggregate of its total operating expenses and the amount by which its financial obligations exceed depreciation

and non-cash operating expenses. Thus GEPB's operating revenues will need to cover: (a) costs directly chargeable to operations, including provisions for depreciation and allocations to the maintenance of special funds; (b) interest chargeable to operations; (c) income tax; (d) debt payment in excess of the amount payable from the provisions for depreciation; (e) required allocations from net income to special funds for employee benefits; and (f) the portion of capitalized interest during construction required to be met from net income. Compliance with this agreement during the project period would imply that GEPB is realizing satisfactory levels of financial performance, including: (a) average rates of return of 9.7% on historically valued net fixed assets in operation; and (b) a self-financing ratio (defined as the sum of cash available for investment and adjustment tax as a percentage of average capital expenditure) averaging about 19% annually.

90. The Government's recent policy of using loans rather than grants to finance capital expenditure is expected to have a dramatic impact on GEPB during the projection period. From a capital structure which is virtually free of debt in 1984, GEPB is projected to move to a debt-equity ratio of about 75:25 in 1995. Debt service coverage is projected to drop from about 11 in 1984 to about 1.3 in 1995, virtually exhausting all acceptable safety margins built into operating revenues. Incurrence of debt at such a rate must be managed carefully. Assurances have been obtained that GEPB will incur additional debt only if a reasonable forecast of its revenues and expenditures indicate that internal cash generation would provide debt service coverage of at least 1.3.

#### Benefits and Risks

91. South China is one of the most important economic regions in China. A shortage of electricity has been one of the major constraints to economic development. The net loss of agricultural and industrial production is estimated at about Y 1 for every kWh of electricity not supplied.

92. In GEPB's service area, energy consumption has been growing at an average annual rate of about 18.7% from 1962 to 1984. Growth rates in peak demand and energy generation over the past 15 years (1970-84) have averaged 12.0% p.a. and 12.8% p.a., respectively. Of the 4,454 GWh total energy consumption, in 1984, 73% was consumed by industrial users, 12% by agricultural users, 1% by transportation, 10% by residential and commercial users and 4% by others. Based on a reasonable load projection, the peak demand and energy generation for GEPB would increase from 832 MW and 5,019 GWh in 1984 to 2,350 MW and 14,100 GWh in 1995, which represents average annual growth rates of 9.9% and 9.8%, respectively.

93. GEPB's optimized power development study (1985-1995) carried out by WREPERI using IAEA's computer program for system planning indicates that its generation program depends largely on the development of the Hongshui river. The proposed project with four units of 275 MW each to be commissioned between 1992 and 1994 forms part of the system's least cost expansion program. A study made by GEPB also demonstrates that the project is more economical than the alternative of a coal-fired thermal power plant at Laibin (3 x 300 MW) using coal from Shanxi for discount rates up to 13%.

94. The economic rate of return calculated on a program basis would be about 12%. Capital and operating costs were shadow-priced. Benefits were calculated using the projected tariffs up to 1993, adjusted to the end-1985 price level of about 7.25 fen/kWh. This estimate is very conservative as it did not take into consideration any surplus benefits.

95. SBC will advise on any technical problems which arise during construction and review the safety aspects of the dam. Separate consulting services will be used to assist in construction management. Construction risks are expected to be normal for a major hydroelectric project of this nature.

#### Environmental and Sociological Considerations

96. There are no mineral resources, archaeological sites or artifacts of significance in the reservoir area. No downstream degradation or serious sedimentation problems are expected to result from the project.

97. About 3,142 ha of farm land and 547 ha of forest land will be inundated and 40,000 people will have to be resettled due to the construction of the project. The Government has prepared a plan for resettlement which has been reviewed and found acceptable by the Bank. A Hongshui River Population Resettlement and Arrangement Office (HRPRAO) has been set up under the Guangxi regional government to be responsible for the unified development of reservoir regions and population resettlement. There are also population resettlement offices under each county government in the reservoir area. GEPB's resettlement program is based on the general principles that: (a) people will be resettled on higher land with residents of the same village resettled together; (b) each family will be entitled to maintain the same housing standard as before; (c) electricity, water supply and road access will be provided; (d) HRPRAO intends to maintain or improve the standard of living of those to be resettled; (e) HRPRAO intends to make the best use of the land as available in implementing the resettlement program; and (f) the planning and development of the reservoir area will employ to the extent possible local specialists from governmental agencies and universities for demonstration, extension and training for such specialized fields as agriculture, fisheries and forestry.

98. The total compensation and resettlement costs are estimated at Y 195 million to cover reconstruction of public facilities, compensation for land, housing, trees and some private facilities and for resettlement. It is planned that 64% of the villagers will be resettled for farming and diversified economic activities, 28.9% for forestry, 7.1% for local industries, 5.6% for animal husbandry, and 3.4% for fisheries. The resettlement plan has been reviewed independently by a Bank consultant. While considering the Chinese approach to resettlement satisfactory, he has a few comments, particularly on the needs of detailed planning and retraining with respect to occupational change. Assurances have been obtained that the Government will carry out or cause to be carried out a resettlement program satisfactory to the Bank. Also, assurances have been obtained that GEPB will carry out a program acceptable to the Bank to improve public health in the reservoir area.

PART V - RECOMMENDATION

99. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Bank and recommend that the Executive Directors approve the proposed loan.

A. W. Clausen  
President

May 6, 1986  
Washington, D.C.

CHINA, PEOPLE'S REP. OF - SOCIAL INDICATORS DATA SHEET					
	CHINA, PEOPLE'S REP. OF			REFERENCE GROUPS (WEIGHTED AVERAGES) /a	
	1960/b	1970/b	MOST RECENT ESTIMATE/b	LOW INCOME ASIA & PACIFIC	MIDDLE INCOME ASIA & PACIFIC
<b>AREA (THOUSAND SQ. KM)</b>					
TOTAL	9561.0	9561.0	9561.0	.	.
AGRICULTURAL	3257.6	3882.0	3865.9	.	.
<b>GDP PER CAPITA (US\$)</b>					
	..	..	300.0	278.3	1011.1
<b>ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF OIL EQUIVALENT)</b>					
	202.0	259.0	441.9	285.7	566.8
<b>POPULATION AND VITAL STATISTICS</b>					
POPULATION, MID-YEAR (THOUSANDS)	651000.0	815160.0	1019102.0	.	.
URBAN POPULATION (% OF TOTAL)	18.4 /c	..	21.0	22.3	35.9
<b>POPULATION PROJECTIONS</b>					
POPULATION IN YEAR 2000 (MILL.)			1242.3	.	.
STATIONARY POPULATION (MILL.)			1571.0	.	.
POPULATION MOMENTUM			1.6	.	.
<b>POPULATION DENSITY</b>					
PER SQ. KM.	68.1	85.3	106.2	173.8	386.9
PER SQ. KM. AGRI. LAND	199.8	210.0	260.8	353.3	1591.2
<b>POPULATION AGE STRUCTURE (%)</b>					
0-14 YRS	38.9	37.6	32.0	36.3	38.2
15-64 YRS	56.2	57.2	63.1	59.4	57.7
65 AND ABOVE	4.7	5.0	5.0	4.3	3.5
<b>POPULATION GROWTH RATE (%)</b>					
TOTAL	1.1	2.2	1.7	2.0	2.3
URBAN	..	..	..	4.1	4.1
<b>CRUDE BIRTH RATE (PER THOUS)</b>					
	39.2 /d	35.7	18.6	27.5	30.1
<b>CRUDE DEATH RATE (PER THOUS)</b>					
	23.5 /d	8.8	7.1	10.2	9.4
<b>GROSS REPRODUCTION RATE</b>					
	2.8 /d	2.3	1.0	1.7	1.9
<b>FAMILY PLANNING</b>					
ACCEPTORS, ANNUAL (THOUS)	..	..	..	.	.
USERS (% OF MARRIED WOMEN)	..	..	71.0	49.4	56.5
<b>FOOD AND NUTRITION</b>					
<b>INDEX OF FOOD PROD. PER CAPITA (1969-71=100)</b>					
	..	100.0	123.0	116.6	124.4
<b>PER CAPITA SUPPLY OF</b>					
<b>CALORIES (% OF REQUIREMENTS)</b>					
	94.6 /d	101.6	119.8	106.3	115.7
<b>PROTEINS (GRAMS PER DAY)</b>					
	53.0 /d	56.2	69.7	60.1	60.3
<b>OF WHICH ANIMAL AND PULSE</b>					
	12.5 /d	13.3	15.9	14.4	14.1
<b>CHILD (AGES 1-4) DEATH RATE</b>					
	13.5	8.5	2.0	7.3	7.2
<b>HEALTH</b>					
<b>LIFE EXPECT. AT BIRTH (YEARS)</b>					
	41.0 /e	60.9	67.1	60.5	60.6
<b>INFANT MORT. RATE (PER THOUS)</b>					
	165.0 /d	69.0	38.0	69.2	64.9
<b>ACCESS TO SAFE WATER (%POP)</b>					
TOTAL	..	..	50.0	64.2	46.0
URBAN	..	..	85.0	77.2	57.6
RURAL	..	..	40.0	34.6	37.1
<b>ACCESS TO EXCRETA DISPOSAL (% OF POPULATION)</b>					
TOTAL	..	..	..	7.8	50.1
URBAN	..	..	..	28.8	52.9
RURAL	..	..	..	5.5	44.7
<b>POPULATION PER PHYSICIAN</b>					
	7940.0 /f	3690.0 /f	1740.0 /f	3318.0	7751.7
<b>POP. PER NURSING PERSON</b>					
	3830.0	2760.0	1710.0	4690.7	2464.8
<b>POP. PER HOSPITAL BED</b>					
TOTAL	1040.0	760.0	440.0	1039.2	1112.1
URBAN	210.0	..	160.0	299.1	651.4
RURAL	10140.0	..	1020.0	6028.2	2596.9
<b>ADMISSIONS PER HOSPITAL BED</b>					
	..	..	..	52.3	41.1
<b>HOUSING</b>					
<b>AVERAGE SIZE OF HOUSEHOLD</b>					
TOTAL	..	..	5.1	..	..
URBAN	..	..	4.1	..	..
RURAL	..	..	5.4	..	..
<b>AVERAGE NO. OF PERSONS/ROOM</b>					
TOTAL	..	..	..	..	..
URBAN	..	..	..	..	..
RURAL	..	..	..	..	..
<b>PERCENTAGE OF DWELLINGS WITH ELECT.</b>					
TOTAL	..	..	..	..	..
URBAN	..	..	..	..	..
RURAL	..	..	..	..	..

CHINA, PEOPLE'S REP. OF - SOCIAL INDICATORS DATA SHEET

CHINA, PEOPLE'S REP. OF REFERENCE GROUPS (WEIGHTED AVERAGES) /a  
(MOST RECENT ESTIMATE) /b  
1960/b 1970/b MOST RECENT ESTIMATE /b LOW INCOME ASIA & PACIFIC MIDDLE INCOME ASIA & PACIFIC

	1960/b	1970/b	MOST RECENT ESTIMATE /b	LOW INCOME ASIA & PACIFIC	MIDDLE INCOME ASIA & PACIFIC
<b>EDUCATION</b>					
<b>ADJUSTED ENROLLMENT RATIOS</b>					
PRIMARY: TOTAL	109.0	110.0	110.0	92.6	100.7
MALE	..	..	123.0	105.3	104.4
FEMALE	..	..	97.0	79.3	97.2
SECONDARY: TOTAL	21.0	23.0	35.0	31.3	47.8
MALE	..	..	46.0	40.8	50.6
FEMALE	..	..	25.0	21.9	44.8
VOCATIONAL (% OF SECONDARY)	..	..	2.2	3.2	16.4
<b>PUPIL-TEACHER RATIO</b>					
PRIMARY	..	33.0	25.0	38.0	30.4
SECONDARY	..	22.0	16.0	17.4	22.2
<b>CONSUMPTION</b>					
PASSENGER CARS/THOUSAND POP	..	..	0.2 /h	0.9	10.1
RADIO RECEIVERS/THOUSAND POP	..	14.7	210.1	129.8	172.9
TV RECEIVERS/THOUSAND POP	..	0.6	35.3	19.8	58.5
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION	..	..	33.4	25.7	65.3
CINEMA ANNUAL ATTENDANCE/CAPITA	..	..	..	6.0	3.4
<b>LABOR FORCE</b>					
TOTAL LABOR FORCE (THOUS)	321646.0	380555.0	470692.0	..	..
FEMALE (PERCENT)	38.3	38.0	37.3	33.2	33.6
AGRICULTURE (PERCENT)	..	..	68.9	69.6	52.2
INDUSTRY (PERCENT)	..	..	18.7	15.8	17.9
<b>PARTICIPATION RATE (PERCENT)</b>					
TOTAL	46.8	45.0	46.1	41.9	38.9
MALE	35.9	34.5	35.4	33.6	30.8
FEMALE	37.0	35.0	35.1	29.1	26.8
<b>ECONOMIC DEPENDENCY RATIO</b>					
	0.9	1.0	0.8	1.0	1.1
<b>INCOME DISTRIBUTION</b>					
<b>PERCENT OF PRIVATE INCOME RECEIVED BY</b>					
HIGHEST 5% OF HOUSEHOLDS	..	..	12.5 /g	..	..
HIGHEST 20% OF HOUSEHOLDS	..	..	39.3 /g	..	48.0
LOWEST 20% OF HOUSEHOLDS	..	..	6.8 /g	..	6.4
LOWEST 40% OF HOUSEHOLDS	..	..	18.4 /g	..	15.5
<b>POVERTY TARGET GROUPS</b>					
<b>ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US\$ PER CAPITA)</b>					
URBAN	..	..	..	133.9	..
RURAL	..	..	..	111.6	151.9
<b>ESTIMATED RELATIVE POVERTY INCOME LEVEL (US\$ PER CAPITA)</b>					
URBAN	..	..	..	..	177.9
RURAL	..	..	..	61.7	164.7
<b>ESTIMATED POP. BELOW ABSOLUTE POVERTY INCOME LEVEL (%)</b>					
URBAN	..	..	..	43.8	23.5
RURAL	..	..	..	51.7	37.8

.. NOT AVAILABLE  
. NOT APPLICABLE

NOTES

- /a 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.
- /b Unless otherwise noted, "Data for 1960" refer to any year between 1959 and 1961; "Data for 1970" between 1969 and 1971; and data for "Most Recent Estimate" between 1981 and 1983.
- /c 1964; /d 1955-65 average; /e 1955-66 average; /f Senior doctor of western medicine; /g Distribution of people ranked by households per capita income, 1979 data; /h 1980.

## 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, 1960, 1970 and 1983 data.

**Agricultural**—Estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to lie fallow, 1960, 1970 and 1982 data.

**GNP PER CAPITA (US\$)**—GNP per capita estimates at current market prices, calculated by same conversion method as *World Bank Atlas* (1981-83 basis); 1983 data.

**ENERGY CONSUMPTION PER CAPITA**—Annual apparent consumption of commercial primary energy (coal and lignite, petroleum, natural gas and hydro-, nuclear and geothermal electricity) in kilograms of oil equivalent per capita, 1960, 1970, and 1982 data.

**POPULATION AND VITAL STATISTICS**

**Total Population, Mid-Year (thousands)**—As of July 1; 1960, 1970, and 1983 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 1983 data.

**Population Projections**

**Population in year 2000**—The projection of population for 2000, made for each economy separately. Starting with information on total population by age and sex, fertility rates, mortality rates, and international migration in the base year 1980, these parameters were projected at five-year intervals on the basis of generalized assumptions until the population became stationary.

**Stationary population**—Is one in which age- and sex-specific mortality rates have not changed over a long period, while age-specific fertility rates have simultaneously remained at replacement level (net reproduction rate = 1). In such a population, the birth rate is constant and equal to the death rate, the age structure is also constant, and the growth rate is zero. 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.

**Population Momentum**—Is the tendency for population growth to continue beyond the time that replacement-level fertility has been achieved; that is, even after the net reproduction rate has reached unity. The momentum of a population in the year  $t$  is measured as a ratio of the ultimate stationary population to the population in the year  $t$ , given the assumption that fertility remains at replacement level from year  $t$  onward, 1985 data.

**Population Density**

**Per sq.km.**—Mid-year population per square kilometer (100 hectares) of total area; 1960, 1970, and 1983 data.

**Per sq.km. agricultural land**—Computed as above for agricultural land only, 1960, 1970, and 1982 data.

**Population Age Structure (percent)**—Children (0-14 years), working age (15-64 years), and retired (65 years and over) as percentage of mid-year population; 1960, 1970, and 1983 data.

**Population Growth Rate (percent)—total**—Annual growth rates of total mid-year population for 1950-60, 1960-70, and 1970-83.

**Population Growth Rate (percent)—urban**—Annual growth rates of urban population for 1950-60, 1960-70, and 1970-83 data.

**Crude Birth Rate (per thousand)**—Number of live births in the year per thousand of mid-year population; 1960, 1970, and 1983 data.

**Crude Death Rate (per thousand)**—Number of deaths in the year per thousand of mid-year population; 1960, 1970, and 1983 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 1983.

**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)**—The percentage of married women of child-bearing age who are practicing or whose husbands are practicing any form of contraception. Women of child-bearing age are generally women aged 15-49, although for some countries contraceptive usage is measured for other age groups.

**FOOD AND NUTRITION**

**Index of Food Production Per Capita (1969-71 = 100)**—Index of per capita annual production of all food commodities. Production excludes animal feed and seed for agriculture. Food commodities include primary commodities (e.g. sugarcane instead of sugar) which are edible and contain nutrients (e.g. coffee and tea are excluded); they comprise cereals, root crops, pulses, oil seeds, vegetables, fruits, nuts, sugarcane and sugar beets, livestock, and livestock products. Aggregate production of each country is based on national average producer price weights; 1961-65, 1970, and 1982 data.

**Per Capita Supply of Calories (percent of requirements)**—Computed from calorie 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 for use in agriculture, 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, 1970 and 1982 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 UN/IDA 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 Supply, 1961, 1970 and 1982 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)**—Number of deaths of children aged 1-4 years per thousand children in the same age group in a given year. For most developing countries, data derived from life tables, 1960, 1970 and 1983 data.

**HEALTH**

**Life Expectancy at Birth (years)**—Number of years a newborn infant would live if prevailing patterns of mortality for all people

at the time of its birth were to stay the same throughout its life; 1960, 1970 and 1983 data.

**Infant Mortality Rate (per thousand)**—Number of infants who die before reaching one year of age per thousand live births in a given year; 1960, 1970 and 1983 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 Nursing 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 hospitals and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally custodial 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.

**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.

**Percentage of Dwellings with Electricity—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. While many countries consider primary school age to be 6-11 years, others do not. The differences in country practices in the ages and duration of school are reflected in the ratios given. For some countries with universal education, gross enrollment may exceed 100 percent since some pupils are below or above the country's standard primary-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.

## 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 un-licensed 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 1983 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 1983 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 working age population (those aged 15-64).

## INCOME DISTRIBUTION

**Percentage of Total Disposable Income (both in cash and kind)**—Accruing to percentile groups of households ranked by total household income.

## 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."

Population : 1,019 million (mid-1983)  
GNP per capita: \$300 (1983)

CHINA - ECONOMIC INDICATORS

Indicator	Amount - 1984 (million US\$ at current prices)/b	Annual growth rates (%)										
		Actual					Projected					
		1980	1981	1982	1983	1984/a	1985	1986	1987	1988	1989	1990
<b>NATIONAL ACCOUNTS /a</b>												
Gross domestic product	281,260	6.6	4.9	7.8	9.6	14.0	10.4	6.8	6.8	6.8	6.8	6.8
Agriculture	100,430	-1.7	6.4	11.2	9.0	13.9	6.0	4.9	4.9	4.9	4.9	4.9
Industry	125,010	12.3	2.3	7.3	11.4	16.6	14.0	7.7	7.7	7.7	7.7	7.7
Services	55,820	8.2	8.9	3.3	6.3	7.7	10.0	7.9	7.9	7.9	7.9	7.9
Consumption	198,190	9.1	5.2	5.9	9.0	12.5	12.5	8.9	7.4	7.4	7.4	7.1
Gross investment	83,100	1.3	-1.8	10.9	15.2	20.7	11.0	2.3	4.8	4.8	5.1	5.7
Exports of GNFS /a	26,720	17.8	16.7	0.6	9.5	13.0	3.0	8.9	8.8	8.8	8.8	8.8
Imports of GNFS /a	26,750	16.1	-6.7	-5.7	28.1	25.9	43.1	0.0	5.8	5.9	6.0	6.2
Gross national savings	85,870	-0.2	3.6	17.0	12.0	17.0	5.0	2.4	5.1	5.1	5.6	6.2
<b>PRICES</b>												
GDP deflator (1980 = 100)		100.0	101.8	101.7	102.9	107.6	113.1	118.7	124.7	131.0	137.5	144.4
Exchange rate (Yuan/US\$)		1.50	1.70	1.89	1.98	2.32	2.84	2.84	2.84	2.84	2.84	2.94
<b>Share of GDP at market prices (%)</b> (at current prices)												
		1960	1970	1975	1980	1983	1990					
Gross domestic product /a	100.0	100.0	100.0	100.0	100.0	100.0	100.0					
Agriculture	23.0	35.0	32.8	32.0	34.2	31.3	31.3					
Industry	48.0	41.0	45.8	48.0	47.9	49.9	49.9					
Services	29.0	24.0	21.4	20.0	17.9	18.8	18.8					
Consumption	62.4	70.8	69.1	71.3	66.7	69.3	69.3					
Gross investment	37.8	29.2	31.1	30.0	34.4	30.9	30.9					
Exports of GNFS	4.8	2.8	5.3	7.1	7.7	9.5	9.5					
Imports of GNFS	5.0	2.7	5.5	8.4	8.8	8.6	8.6					
Gross national savings	37.7	29.2	30.9	28.9	33.6	30.7	30.7					
<b>Average annual increase (%)</b> (at constant 1981 prices)												
		1960-70	1970-75	1975-80	1980-84	1984-89	1989-94					
Gross domestic product /a		6.1	5.2	6.6	9.0	7.3	6.6					
Agriculture		6.7	3.4	3.3	10.1	5.0	4.8					
Industry		7.8	7.5	9.9	9.4	8.6	7.4					
Services		3.4	4.5	5.4	6.6	8.2	7.5					
Consumption		6.1	4.7	6.4	8.1	5.4	6.8					
Gross investment		9.5	6.9	9.7	11.3	5.1	6.1					
Exports of GNFS		-1.5	10.8	5.7	12.3	9.0	7.7					
Imports of GNFS		1.2	13.9	13.0	12.2	8.4	7.4					
Gross national savings		9.1	6.7	7.2	14.0	4.8	6.2					
<b>As % of GDP</b>												
		1957	1970	1980	1983	1984						
<b>PUBLIC FINANCE</b>												
Current revenues		28.7	29.6	30.6	27.8	26.7						
Current expenditures		15.1	15.7	23.1	21.6	20.1						
Surplus (+) or deficit (-)		+13.6	+13.9	+7.5	+6.2	+6.6						
Capital expenditure		13.7	13.3	11.0	7.8	8.2						
Foreign financing		0.7	n.a.	0.5	0.2	0.3						
<b>OTHER INDICATORS</b>												
		1960-70	1970-75	1975-80	1980-84	1984-89	1989-94					
GNP growth rate (%)		6.1	5.1	6.4	9.2	7.2	6.4					
GNP per capita growth rate (%)		3.3	2.9	5.2	7.9	6.1	5.5					
Energy consumption growth rate (%)		-0.3	9.2	5.8	4.1	5.3	4.8					
ICOR		3.3	4.7	5.1	3.8	4.0	4.6					
Marginal savings rate		0.4	0.4	0.3	0.3	0.2	0.3					
Import elasticity		0.2	2.7	2.0	1.4	1.1	1.2					

/a Data for 1981 and 1982 are from different sources; data for 1982 exclude re-exports.

Population : 1,019 million (mid-1983)  
 GNP per capita: \$300 (1983)

CHINA - EXTERNAL TRADE

	Amount - 1984 (million US\$ at current prices)	Annual growth rates (%) (at constant prices)						
		Actual					Projected	
		1980	1981	1982	1983	1984	1985	1990
<b>EXTERNAL TRADE /a</b>								
Merchandise exports	25,020	14.8	17.3	5.5	10.1	10.4	2.8	8.7
Primary	11,410	1.5	-1.4	3.9	14.6	9.6	3.3	6.8
Manufactures	13,610	32.2	36.2	6.6	7.0	11.1	2.4	10.4
Merchandise imports	26,740	6.8	7.2	0.2	29.7	22.3	47.1	6.2
Food	2,330	9.1	68.3	42.9	-30.9	-24.9	14.4	7.1
Petroleum	130	52.6	-65.5	130.0	-43.5	30.8	0.0	35.5
Machinery and equipment	8,420	16.4	19.0	-41.7	34.7	82.3	58.2	5.1
Others	15,860	0.9	-13.5	7.1	71.7	16.8	19.9	6.3
<b>PRICES</b>								
Export price index (1980=100)		100.0	102.7	98.7	88.8	90.5	88.0	126.0
Import price index (1980=100)		100.0	104.5	89.2	76.7	78.4	77.3	112.0
Terms of trade index (1980=100)		100.0	98.3	110.7	115.8	115.4	113.8	112.5

	Composition of merchandise trade (%) (at current prices)				Average annual increase (%) (at constant prices)		
	1978	1981	1984	1990	1980-84	1984-89	1989-94
	<b>Exports</b>	100.0	100.0	100.0	100.0	10.8	7.9
Primary	53.4	46.6	45.6	42.1	6.7	6.4	6.1
Manufactures	46.6	53.4	54.4	57.9	15.2	9.4	8.2
<b>Imports</b>	100.0	100.0	100.0	100.0	14.9	8.5	7.5
Food	12.8	17.4	8.7	9.7	13.9	8.9	8.5
Petroleum	0.5	0.4	0.5	0.9	13.0	17.2	16.1
Machinery and equipment	18.9	29.2	31.5	33.3	23.6	12.0	6.8
Others	67.9	53.0	59.3	56.1	20.5	6.7	7.5

	Share of trade with industrial countries (%)			Share of trade with developing countries (%)			Share of trade with the USSR and Eastern Europe (%)		
	1977	1980	1983	1977	1980	1983	1977	1980	1983
	<b>DIRECTION OF TRADE</b>								
Exports	36.4	44.7	42.1	46.8	48.7	53.2	16.8	6.6	4.7
Imports	63.1	73.6	69.0	20.7	19.7	24.5	16.2	6.7	6.5

/a Based on customs statistics. Exports, f.o.b., imports, c.i.f.

Population : 1,019 million (mid-1983)  
GMP per capita: \$300 (1983)

**CHINA - BALANCE OF PAYMENTS, EXTERNAL CAPITAL AND DEBT**  
(Millions of US\$ at current prices)

Indicator	Actual							Projected	
	1978	1979	1980	1981	1982	1983	1984	1985	1990
<b>BALANCE OF PAYMENTS</b>									
Exports of goods and nonfactor services	10,370	14,983	20,324	24,423	23,637	23,186	26,716	26,840	58,590
Of which: Merchandise f.o.b. /a	9,607	13,658	18,492	22,027	21,125	20,707	23,905	23,900	52,130
Imports of goods and nonfactor services	11,668	17,759	24,058	23,446	18,900	20,711	26,748	38,290	63,180
Of which: Merchandise f.o.b. /a	10,745	16,212	22,049	21,047	16,876	18,717	23,890	35,150	56,950
Net factor income from abroad	-8	-77	-117	-200	452	1,253	1,620	1,140	-850
Net transfers	597	656	640	464	530	436	304	300	300
Current account balance	-709	-2,197	-3,211	1,241	5,719	4,164	1,892	-10,010	-5,140
Private direct investment (net)	-	-	57	265	430	636	1,100	1,650	1,950
Official grant aid (net)	-	-	21	156	-44	75	137	140	140
MLI loans (net)	549	3,815	1,069	310	301	-927	-145	0	4,450
Disbursements	549	3,895	1,670	1,659	2,481	1,600	718	950	6,390
Amortization	-	80	601	1,348	2,180	673	863	950	1,940
Other capital /b	-628	-1,021	2,455	-47	-115	-1,672	-2,889	2,330	-
Change in reserves (“-” indicating increase)	788	-597	-391	-1,925	-6,291	-4,130	-95	5,890	-1,400
International reserves	6,677	7,274	7,665	9,590	13,881	20,011	20,106	14,220	23,500
Of which: Gold /c	5,120	5,120	5,120	5,120	5,120	5,120	5,120	5,120	5,120
Reserves as months of imports	6.2	4.5	3.5	4.8	10.1	11.7	9.1	4.5	4.2
<b>EXTERNAL CAPITAL AND DEBT /d</b>									
Gross disbursement	..	..	..	..	..	..	..	..	..
Official grants	..	..	..	..	..	..	..	..	..
Concessional loans	..	..	..	..	..	..	..	..	..
DAC	..	..	..	..	..	..	..	..	..
IDA	..	..	..	..	..	..	..	..	..
Other	..	..	..	..	..	..	..	..	..
Nonconcessional loans	..	..	..	..	..	..	..	..	..
Official export credits	..	..	..	..	..	..	..	..	..
IBRD	..	..	..	..	..	..	..	..	..
Other multilateral	..	..	..	..	..	..	..	..	..
Private	..	..	..	..	..	..	..	..	..
External debt	..	..	..	..	..	..	..	..	..
Debt outstanding and disbursed	549	4,364	5,433	5,261	5,562	6,397	6,340	..	..
Official	..	..	..	..	..	..	..	..	..
Private	..	..	..	..	..	..	..	..	..
Undisbursed debt	..	..	..	..	..	..	..	..	..
Debt service	..	..	..	..	..	..	..	..	..
Total service payments	..	..	..	..	..	..	..	..	..
Interest	..	..	..	..	..	..	..	..	..
Payments as % of exports	0.4	2.7	6.3	9.0	11.4	4.9	5.0	..	..
Average interest rate of new loans (%)	-	-	-	-	-	-	-	-	-
Average maturity of new loans (years)	-	-	-	-	-	-	-	-	-

/a Data for 1978-81 are not comparable with those of 1982-85 because of a difference in their sources. The latter exclude re-exports.

/b Includes net use of IMF credit and net flow of short-term capital.

/c Valued at US\$402/troy ounce.

/d Excludes short-term loans (one year or less).

## STATUS OF BANK GROUP OPERATIONS IN THE PEOPLE'S REPUBLIC OF CHINA

A. STATEMENT OF BANK LOANS AND IDA CREDITS  
(as of March 31, 1986)

Loan or Credit Number	Year	Borrower	Purpose	US\$ million		
				Amount Bank	(less cancellations) IDA	Undisbursed/a
2021/1167	1981	People's Republic of China	University Development	100.0	100.0	10.5
1261	1982	People's Republic of China	North China Plain Agriculture	-	60.0	15.2
2207	1982	People's Republic of China	Three Ports	69.0	-	21.9
1297	1982	People's Republic of China	Agric. Education & Research	-	75.4	17.9
2226/1313	1982	People's Republic of China	Industrial Credit	40.6	30.0	26.5
2231	1983	People's Republic of China	Daqing Petroleum	162.4	-	67.8
2252	1983	People's Republic of China	Zhongyuan-Wenliu Petroleum	100.8	-	66.2
2261/1347	1983	People's Republic of China	Heilongjiang Land Reclamation	25.3	45.0	18.4
1411	1983	People's Republic of China	Polytechnic/TV University	-	85.0	45.1
1412	1983	People's Republic of China	Technical Cooperation	-	10.0	4.7
1417	1984	People's Republic of China	Rubber Development	-	100.0	54.8
2382	1984	People's Republic of China	Lubuge Hydroelectric	145.4	-	114.1
2394	1984	People's Republic of China	Railway	220.0	-	117.0
1462	1984	People's Republic of China	Rural Credit	-	50.0	33.1
1472	1984	People's Republic of China	Rural Health & Medical Educ.	-	85.0	55.0
2426	1984	People's Republic of China	Karamay Petroleum	99.5	-	77.7
2434/1491	1984	People's Republic of China	Second Industrial Credit	105.0	70.0	133.1
2444/1500	1984	People's Republic of China	Second Agricultural Education	45.3	23.5	35.7
1516	1984	People's Republic of China	Second Agricultural Research	-	25.0	15.4
1551	1985	People's Republic of China	Second University Development	-	145.0	159.7
2493	1985	People's Republic of China	Second Power	117.0	-	111.1
2501	1985	People's Republic of China	Changcun (Luan) Coal Mining	126.0	-	123.4
1557	1985	People's Republic of China	Seeds	-	40.0	43.0
1578	1985	People's Republic of China	Rural Water Supply	-	80.0	90.2
2539/1594	1985	People's Republic of China	Highway	42.6	30.0	65.8
2540	1985	People's Republic of China	Second Railway	235.0	-	235.0
2541	1985	People's Republic of China	Fertilizer Rehabilitation and Energy Saving	97.0	-	96.5
1605	1985	People's Republic of China	Forestry Development	-	47.3	49.3
2579/1606	1985	People's Republic of China	Pishihang-Qiaohu Area Development	17.0	75.0	98.5
2580	1985	People's Republic of China	Weiyuan Gas Field Technical Assistance	25.0	-	25.0
1642/b	1986	People's Republic of China	Second Rural Credit	-	90.0	90.0
2659/1663/b	1986	People's Republic of China	Third Industrial Credit	75.0	25.0	100.0
1664/b	1986	People's Republic of China	Second Technical Cooperation	-	20.0	20.0
1671/b	1986	People's Republic of China	Provincial Universities	-	120.0	120.0
<b>Total</b>				<b>1,847.9</b>	<b>1,431.2</b>	
<b>Total now held by Bank and IDA</b>				<b>1,847.9</b>	<b>1,431.2</b>	
<b>Total Undisbursed</b>				<b>1,337.8</b>	<b>1,019.8</b>	<b>2,357.6</b>

B. STATEMENT OF IFC INVESTMENTS  
(as of March 31, 1986)

Year	Obligor	Type of business	Amount in US\$ million		
			Loan	Equity	Total
198	Guangzhou and Peugeot Automobile Co.	Automobile	15.0	2.0	17.0
<b>Total Gross Commitments</b>			<b>15.0</b>	<b>2.0</b>	<b>17.0</b>
Less cancellations, terminations, repayment and sales			-	-	-
<b>Total Commitments now held by IFC</b>			<b>15.0</b>	<b>2.0</b>	<b>17.0</b>
<b>Total Undisbursed</b>			<b>15.0</b>	<b>2.0</b>	<b>17.0</b>

/a As credits are denominated in SDRs (since IDA Replenishment VI), undisbursed SDR credit balances are converted to dollars at the current exchange rate between the dollar and the SDR. In some cases, therefore, the undisbursed balance indicates a dollar amount greater than the original principal credit amount expressed in dollars.

/b Not yet effective.

Note: The status of the projects listed in Part A is described in a separate report on all Bank/IDA financial projects in execution, which is updated twice yearly and circulated to the Executive Directors on April 30 and October 31.

CHINA

YANTIAN HYDROELECTRIC PROJECT

Supplementary Project Data Sheet

Section I: Timetable of Key Events

- |  |                |
|--|----------------|
| (a) Time taken by the country to prepare project:  | 5 years        |
| (b) The project was prepared by:                   | GEPB and GIDI  |
| (c) Date of first presentation to the Bank:        | September 1984 |
| (d) Date of first mission to consider the project: | March 1985     |
| (e) Appraisal mission:                             | November 1985  |
| (f) Completion of negotiations:                    | April 1986     |
| (g) Planned loan effectiveness:                    | August 1986    |

Section II: Special Bank Implementation Actions

None.

Section III: Special Conditions

- (a) GEPB and the Government would implement a training program acceptable to the Bank (para. 77);
- (b) GEPB would furnish to the Bank annually a rolling financial plan containing forecast income statements, sources and uses of funds, and balance sheets for the next five years (para. 86);
- (c) GEPB would take measures, including increasing its tariffs, to ensure that operating revenues are sufficient to meet the aggregate of costs directly chargeable to operations, debt repayment, income tax, required allocations from net income to special funds for employee benefits, and capitalized interest during construction required to be met from net income (para. 89);
- (d) GEPB would incur additional debt only if a reasonable forecast of its revenues and expenditures indicates that internal cash generation would provide debt service coverage of at least 1.3 (para. 90);
- (e) The Government would carry out or cause to be carried out a resettlement program satisfactory to the Bank (para. 98); and
- (f) GEPB would carry out a program acceptable to the Bank to improve public health in the reservoir area (para. 98).



